The “Red Apple” Healthy Food Environments in Hospitals Project:
A Qualitative Analysis of the Implementation Process

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ABSTRACT

DEBORAH NEFFA: The “Red Apple” Healthy Food Environments in Hospitals Project: A Qualitative Analysis of the Implementation Process
(Under the direction of Jane D. Brown)

Increases in adult obesity and employee health care costs have lead many health services organizations, but only some hospitals in the United States, to develop health promotion programs. In 2008, NC Prevention Partners disseminated a food environment project designed to improve nutrition in 129 North Carolina hospitals. By March 2011, 86 of the hospitals had reached full implementation (Red Apple status). Fifty-three managers and staff who implemented the project in nine Red Apple hospitals were interviewed about the implementation process. Grounded theory analysis of the interviews revealed that feedback and support from top-level hospital administrators, fellow project implementers, and NCPP were necessary for implementation success. The analysis also revealed that the project’s implementation and maintenance stages were influenced by informal direct and indirect feedback from target audiences, and that feedback helped implementers see the project as beneficial to employee health and to the hospital. Implications for future interventions are discussed.
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CHAPTER ONE: INTRODUCTION

Concerns about employee health in the workplace have increased as the number of overweight and disease-stricken adults in the United States continues to rise. As of 2009, approximately two-thirds of U.S. adults were overweight or obese, with these adults being at increased risk for developing chronic diseases and life-threatening health conditions such as Type II Diabetes and some types of cancers (Centers for Disease Control and Prevention, 2009; U.S. Department of Health and Human Services, 2001). Health care expenses linked to obesity have also been high, with reports finding that sedentary lifestyle and excess weight directly cost the United States more than $90 billion each year (Haines et al., 2003). With many of these expenses falling on the shoulders of employers, they have begun looking for ways to decrease employee health care costs. As a result, companies and organizations, including hospitals, have become interested in worksite wellness programs and policies that improve employee health (McDougall, 1999; Popkin, Kim, Rusev, Du, & Zizza, 2006).

Hospitals have increasingly adopted worksite wellness programs due to their escalating employee health care costs, and they have been commended for doing so due to their large population reach and potential to impact community health. In fact, in 1986 the Ottawa Charter for Health Promotion advocated for an increase in health promotion programs in hospitals around the world (World Health Organization, 1986). This cry for health came partly as a result of research showing that job-related pressures and demands in health services organizations such as hospitals can negatively affect employees’ eating habits and health, leading caregivers to
quickly become the ones in need of care (Borkowski, 2011; Geliebter, Gluck, Tanowitz, Aronoff, & Zammit, 2000; Niedhammer, Lert, & Marne, 1996; Schulte et al., 2004).

Since the Ottawa Charter, a number of health promotion programs and interventions have been introduced into hospitals, with nutrition-related programs showing special promise (Bly, Jones, & Richardson, 1986; Gibbs, Mulvaney, Henes, & Reed, 1985; Wilson, Holman, & Hammock, 1995). The worksite approach to reducing obesity is a step in the right direction since behavioral and environmental influences are prime targets for future prevention efforts (Gates, Brehm, Hutton, Singler, & Poppelman, 2006; U.S. DHHS, 2007). Most efforts to change hospital employee eating behaviors have been single-component or short-term attempts, however, with few programs focused on long-term changes in the food environment in hospitals.

Some managers of hospitals and worksites in general have developed comprehensive health promotion programs that yield long-term improvements in employee health. Known as an application of the “new public health,” these multi-component programs focus on supporting healthy behaviors in social and physical environments in which large, defined populations work and live (Riley, Taylor, & Elliott, 2001). Some comprehensive, ecological programs have been shown to positively affect eating behaviors of large segments of the population (Glanz & Mullis, 1988), and they have been touted as the best for employee health change. However, few worksites in the United States offer programs due to barriers in development, dissemination, and implementation (Linnan et al., 2008; Orlandi, 1986).

Worksite dietary change programs that use ecological approaches target locations such as the cafeteria and vending machines to make food-based and nutrition-promotion changes. They may also target the status quo of food production and sales to make it easier and more affordable for employees to choose healthy options. But these programs are not easy to put into place as
they demand managers’ time and interest for implementation, monetary resources to make the changes, and continued support and motivation from managers to keep the program in place.

To endure, comprehensive dietary change promotion programs rely on management commitment, supervisory support, and supportive organizational structures (Sorensen, Linnan, & Hunt, 2004). Thus, the role and competence of hospital staff responsible for carrying out the program is very important, particularly if the program is meant to survive (Endres, 1999; Huberman & Miles, 1984).

In hospital settings, the senior-level managers to front-line workers responsible for implementing innovations may not all share equal enthusiasm for the changes. Lower-level managers/staff, for instance, can be overall less motivated about and have more negative attitudes toward innovations than higher-level managers/staff (Borins, 2001; García-Goñi, Maroto, & Rubalcaba, 2007). Despite differences in their motivation, or in their beliefs and attitudes toward an innovation, all managers and staff can be valuable to the implementation process and to an innovations’ long-term sustainability.

As organizations throughout the nation struggle to implement worksite wellness programs, and with few courageous enough to try a comprehensive approach, a ray of hope is found in North Carolina. The non-profit organization NC Prevention Partners developed a three-step healthy food environment project that was disseminated and implemented in 129 hospitals in the state. As of March 2011, 86 of the hospitals, which comprise more than 92 percent of the workforce in NC hospitals, fully implemented the project and vowed to sustain the food environment changes. The remaining hospitals committed to at least one of the first two steps.

The Healthy Food Environments in Hospitals Project, launched in September 2008, is one of the first attempts in the United States to create nutrition-related, system-wide change to
improve employee health in all hospitals in a state. Given the difficulties of carrying out such an innovation, more should be learned about the implementation process within hospitals and what motivates managers and/or staff to sustain the project.

The purpose of this thesis is to better understand the factors and motivators the managers and employees responsible for implementing the project considered important. In addition, this thesis explores how implementers’ thoughts about the project’s implementation process and sustainability differ based on their managerial level (senior manager, middle manager, or cafeteria supervisor/staff member).

The subject for this thesis is important because as hospitals and other health care organizations develop an interest in adopting comprehensive worksite wellness programs, it will be necessary to provide managers with proper support and motivation to ensure full program implementation and sustainability. Also, several diffusion and organizational theorists have called for further research on the implementation process and sustainability of innovations in health services organizations (Greenhalgh, Robert, Bate, Macfarlane, & Kyriakidou, 2005; Oldenburg & Glanz, 2008).

**Background: The NCPP Healthy Food Environments in Hospitals Project**

NC Prevention Partners (NCPP)—a statewide non-profit organization that aims to reduce preventable illnesses caused by tobacco use, poor nutrition, and physical inactivity—worked with hospitals statewide to establish quit-tobacco systems and healthy food policies for employees, patients, and visitors. The Healthy North Carolina Hospitals Initiative began in 2006, when NCPP received a grant from The Duke Endowment, in partnership with the NC Hospital Association, to help hospitals statewide become tobacco-free. As of July 6, 2009, all acute care
hospitals in the state implemented a 100% tobacco-free campus wide policy, making North Carolina the first state in the nation to accomplish such a feat.

After experiencing such success with the tobacco-free policy initiative, NCPP sought to achieve similar outcomes with healthy foods in hospitals. More specifically, it aimed to improve employee and ultimately community health by changing hospitals’ eating environments (their cafeterias and vending machines, primarily), increasing accessibility and availability of healthy foods, and promoting healthy changes in employee eating habits through marketing efforts and health education. In September 2008 the Healthy North Carolina Hospitals Initiative launched its second project, Healthy Food Environments in Hospitals (HFEH).

HFEH\(^1\) aimed to increase the number of NC hospitals that met the standard (established by NCPP) for a healthy food environment and to develop essential and sustainable technical assistance tools. Hospitals received statewide recognition upon completing the program, and they were provided guidelines, tools, and individual support throughout the process to help ensure completion. Hospitals were not required to adopt the project and did not receive monetary rewards or financial support to help with implementation. Their efforts were, as one NC hospital manager described, “on our time, on our dime.”

To increase awareness of the project and to encourage hospitals to adopt the project, NCPP staff members set up networking events at hospitals that pioneered the program and mailed letters to key top leaders at hospitals. These senior executives and administrators were targeted and encouraged to attend the networking events or to start the process of becoming a Red Apple hospital.

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\(^1\) The HFEH project is a component of NCPP’s WorkHealthy America program, which assesses and improves a workplace’s wellness policies, benefits, and environments for tobacco, nutrition, and physical activity. All hospitals in the state have already committed to a tobacco-free environment, and the HFEH aimed to improve hospitals’ food environments.
When hospital leaders and managers made the decision to adopt and begin the implementation process, they typically put together a Red Apple team, comprised of managers and staff from various departments from within the hospital. They also named a project champion, typically the food and nutrition services director. Developing a Red Apple team and choosing a project champion were not NCPP requirements for implementation, though most hospitals did so.

To be considered an NCPP-approved healthy food environment hospital, and thus earn Red Apple status, a hospital had to reflect five core principles: (1) provide access to healthy foods; (2) use pricing structure to incentivize customers to purchase healthy items; (3) use marketing techniques to promote healthy foods; (4) use insurance benefits and wellness incentives to encourage behavior change; and (5) implement an education campaign to promote the healthy food environment with staff and visitors. As suggested by these principles, the project was comprehensive, with an ecological approach aimed at changing behavioral and environmental factors.

To reflect the five core principles, hospitals throughout the state did things such as: raise the prices of unhealthy foods and lower those of healthy items, display plates of the healthy versus unhealthy food item(s) for the day (along with their prices and calorie counts) by the cafeteria entrance, offer employees long-term monetary discounts for purchasing healthy items in the cafeteria, and offer employees and community members nutrition education and cooking classes.

Becoming a Red Apple hospital was a three-step process in which hospitals first earned Green Apple status, then Yellow Apple status, and finally Red Apple status. Achieving Green Apple status required a hospital to have implemented one to four (of the five) core principles and
have shown interest in fully implementing a healthy food environment. Achieving Yellow Apple status required a hospital to have implemented one to four core principles and have an action plan to fully implement a healthy food environment. Achieving Red Apple status, and thus a healthy food environment, required a hospital to have implemented all core principles and have an action plan for continuous improvement. As hospitals moved from one stage to the next, hospital staff members were encouraged to be in contact with NCPP’s Red Apple project leaders and receive feedback or have questions answered. These leaders were available to provide necessary guidance and/or tools throughout the multi-level implementation process to ensure successful implementation and sustainability of the HFEH project in all hospitals.

As of March 2011, 86 North Carolina hospitals have earned Red Apple status, 31 Yellow Apple status, and 14 Green Apple status (see Appendix A for the latest map of Red Apple hospitals in North Carolina; see Appendix B for a list of Red Apple hospitals and their rate of adoption, by year). Although 33 percent of the hospitals have not fully implement the project, the 86 Red Apple hospitals represent close to 92 percent of the workforce in NC hospitals because all the larger hospitals implemented the program. Project leaders indicated that smaller hospitals faced greater implementation challenges due to project costs and to the fact that they did not have cafeterias or a large food environment.²

To reduce challenges to implementation, NCPP offered four resources. First, hospitals were encouraged to interact with NC Centers of Excellence³—a group of leading hospitals spread throughout Central, Eastern, and Western North Carolina that have set a standard for the

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² I obtained this information through interviews with NCPP Red Apple project leaders in charge of the dissemination of the project.

³ As of March 2011, the Centers of Excellence included the Carolinas Medical Center, Wake Forest University Baptist Medical Center, Pitt Memorial Hospital, FirstHealth of the Carolinas, and Mission Hospitals.
HFEH project. These hospitals, among the first to earn Red Apple status, served as ambassadors of the project and were available for networking with other NC hospitals.

Second, hospitals were encouraged to attend the NCPP annual meeting, at which the non-profit convenes a group of state and national nutrition, obesity, and tobacco prevention experts (the Hospital Advisory Team) to provide expertise and assist in policy dissemination, development, and promotion. During this meeting, Red Apple hospitals were recognized for their accomplishments and non-Red Apple hospitals were advised to follow HFEH guidelines, which detailed the core set of principles hospitals must implement.

Third, hospital staff members who were interested in the project were encouraged to complete the WorkHealthy Assessment & Online Implementation Guide to obtain a step-by-step implementation guide. It included information on food nutrition criteria, staff training tips, wellness committee development, and other tools for implementation.

Last, hospitals were encouraged to work with the Healthy Food Team at NCPP to develop a detailed, tailored action plan to improve their healthy food environment in the short- and long-term. Since the HFEH project grant ended in December 2010, the Team is no longer available to provide personal assistance. Thus, to continue providing hospitals with help in a sustainable and affordable way, NCPP dedicated a section on its website to help hospital administrators who need guidance with the Red Apple project. Efforts were, and continue to be made to ensure full implementation and help with sustainability of the project.

According to the lead Red Apple project manager at NCPP, the process for developing the project (prior to its dissemination to all NC hospitals) involved extensive research and validation strategies to ensure the final model would be efficient and effective. Multiple conceptual models of the project were tested with the Centers of Excellence hospitals prior to
launching the final model in 2008. The HFEH project model is a system-wide approach and, as the Red Apple project manager stated in an informal interview, “a bigger model than anyone else is thinking about.”

Although hospitals previously have made attempts individually to offer similar food initiatives aimed at improving employees’ eating behaviors, the initiatives either failed to develop to a point of full implementation or they were nowhere nearly as comprehensive as the model supplied by NCPP. As the lead project manager explained: “Naturally, when people are working themselves to think about change, they think of what they can change. We heard about hospitals that do X, Y, and Z, but because we started in terms of a very big picture, as an outsider, not within one hospital, we got to think of a bigger picture of possibilities.”

Despite offering no financial support for a comprehensive project that required an environmental food culture transformation in hospitals, NCPP was successful in its efforts to get most hospitals in North Carolina on board with the HFEH project. In fact, the project has gained national attention from health agencies such as the Centers for Disease Control and Prevention, which has contacted NCPP with requests to disseminate the model on a national scale. The project has pioneered the development of comprehensive, system-wide, ecological approaches to healthy food programs in health services organizations in the United States.

**Literature review**

*Worksite wellness and health promotion in health services organizations*

The spread of worksite wellness programs in American businesses began in the 1970s as employee health and wellness emerged as topics of interest. The United States was experiencing a culture change as the concepts of fitness and wellness grew in popularity and as health promotion movements (e.g., the occupational safety and health movement, and the worksite
health promotion movement) exposed the costs of unhealthy employee behaviors (Reardon, 1998). Worksite wellness program interest and adoption were largely driven by employer desires to contain health care costs, especially costs related to obesity. Excess weight and sedentary lifestyles together cost the United States more than $90 billion each year (Haines et al., 2003). Concerns about health care costs were especially prevalent in the health care industry, as reports in the 1990s uncovered that the industry’s employee group health care costs were rising faster than that of groups in other industries, like manufacturing, and that this was partly due to increases in chronic illnesses (U.S. Department of Labor, 2007). This prompted hospitals and other public health institutions to adopt wellness programs.

Today, these programs are still recognized by employers as beneficial, and they are becoming increasingly appreciated by employees and community members, who view worksite wellness as an indication that employers prioritize health (Rees & Finch, 2004; Young, 2006). Efforts to make wellness programs at work a permanent concept have increased in the United States, with national documents such as Healthy People 2020* calling for an increase in the number of worksites that offer employee health promotion programs, as well as in the number of worksites that offer nutrition or weight management classes or counseling (U.S. DHHS, 2010). Health services organizations in particular have been targeted as a kind of employer that should promote worksite wellness, considering their overall and large emphasis on health and disease prevention. Internationally, efforts to establish such programs in hospitals have increased since the endorsement of the Ottawa Charter for Health Promotion, which advocated the creation of supportive health environments in health services organizations (WHO, 1986). As the World Health Organization argued in its Hospitals and Health for All report, the philosophy of primary

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*Healthy People 2020 is a federal statement of health objectives meant to identify significant preventable threats to health and to establish goals to reduce such threats in the United States. The statement was released by the U.S. Department of Health and Human Services in 2010.*
health care is just as relevant to what happens within hospitals as to what happens outside of them (WHO, 1987).

The health care industry, however, is not the easiest to persuade because traditionally it has been viewed as hesitant to adopt a number of innovations (Porter-O’Grady & Malloch, 2007). Part of the hesitation to adopt certain changes could be related to the complexity of the innovation. In worksite wellness, programs have ranged from single interventions (e.g., health screenings) to comprehensive programs that include multiple components, such as health education for employees, lifestyle change promotion, and provision of supportive social and physical environments for healthy behaviors (Reardon, 1998; Rees & Finch, 2004). The more comprehensive the program, the lower the likelihood of adoption, since more time and more financial and staff support are needed.

Despite its potential drawbacks, comprehensive community health programs that target both behavioral and environmental changes are an application of the new approach to public health. The new approach addresses individual and population needs, and it links classical topics of public health with adaptation in organizations (Tulchinsky & Varavikova, 2009).

Comprehensive community health programs aim to change behaviors of large, defined populations through environmental approaches. They aim to support healthy behaviors through social and physical environments that do not require individuals to self-select into the behavior (Glanz, Sorensen, & Farmer, 1996; Riley et al., 2001). Due to their supportive infrastructure and sociocultural environments, worksites such as hospitals are considered ideal places for obesity prevention-related programs (Ickes & Sharma, 2009).

Studies have consistently shown that ecological approaches to workplace health promotion, particularly programs aimed at dietary behavior change, are effective at achieving
positive health outcomes among employees (e.g., weight loss and lower blood pressure) (Anderson et al., 2009; Engbers, van Poppel, Chin A Paw, & van Mechelen, 2005; Linnan et al., 2001; Mhurchu, Aston, & Jebb, 2010; Sorensen, Emmons, Hunt, & Johnston, 1998; Stokols, Pelletier, & Fielding, 1996). Learning about such benefits has prompted health services organizations to adopt programs and to improve employee health. For instance, in 2001, a three-hospital system in Indiana with 10,000 employees developed and implemented the comprehensive worksite wellness program “Healthy Results for You.” The program focused on screenings, food, exercise, and stress, with special attention given to healthy food promotion and environment changes in the cafeterias (Hahn, Hollingsworth, & McKenzie, 2007).

In Canada, much has been done to promote system-wide programs targeted at improving lifestyle health behaviors in public health institutions, including hospitals. One of the most widely-researched examples is the Canadian Heart Health Initiative (CHHI), a multilevel strategy that links national, provincial, and local health departments through efforts to implement community-based heart health programs for the general public. The programs are present in all 10 provincial departments, especially in public health institutions that concentrate on achieving environmental changes supportive of heart-healthy habits and lifestyles (Canadian Heart Health Initiative, 2009).

Despite recent efforts to increase the number of health promotion programs in the United States, and globally, a recent worksite survey found that the percent of worksites that offer comprehensive wellness programs is still very low. The survey, which monitored the achievement of the Healthy People 2010 worksite-related goal,\(^5\) found that only seven percent of

\(^5\) This refers to the goal of having 75 percent of worksites in the United States offering a comprehensive worksite health promotion program by 2010.
responding worksites (n=1,553) offered them (Linnan et al., 2008). Of the seven percent, only 23 percent of those comprehensive programs included a nutrition component.

The authors found that worksites in the manufacturing, business, and health industries were more likely than others to offer comprehensive health promotion programs. They also found that larger worksites (with more than 750 employees) offered a greater number of programs, policies, and services than smaller worksites, which struggled with offering any health promotion services.

In sum, while it appears worksites, particularly health services organizations, are increasing their efforts to develop, adopt, and/or implement wellness programs, more programs are needed, especially comprehensive programs that include behavioral and environmental approaches and that include a nutrition/food component.

Implementation and sustainability of innovations in health services organizations

Health promotion programs have commonly been considered innovations in organizational settings, as they are ideas, practices, or objects perceived as new by those looking to adopt them (Rogers, 1995). In an extensive literature review of diffusions research in health services organizations, Greenhalgh and colleagues (2005) define innovations, specific to health services organizations, as:

A set of behaviors, routines, and ways of working, along with any associated administrative technologies and systems, which are: (1) perceived as new by a proportion of key stakeholders; (2) linked to the provision or support of health care; (3) discontinuous with previous practice; (4) directed at improving health outcomes, administrative efficiency, cost-effectiveness, or user experience; and (5) implemented by means of planned and coordinated actions by individuals, teams or organizations. (p. 28)

As applied to the health care industry, the term innovation has largely been used to represent novel methods, approaches, and technologies to improve daily operations and to support activities related to the well-being of patients (Länsisalmi, Kivimäki, Aalto, & Ruoranen,
Health promotion innovations that benefit employees in hospitals have not been studied much. Most of the literature about innovations in health services organizations has analyzed innovation development and adoption, and it suggests that adoption of innovations is not common since it requires cooperation from many managers and employees, and the decision to not adopt is not always rational (Fleuren, Wiefferink, & Paulussen, 2004; Greenhalgh et al., 2005).

In the 1990s, Damanpour conducted three meta-analyses to help determine what organizational properties (e.g., size and type) would explain the assimilation (adoption) of innovations. In his first meta-analysis, Damanpour (1991) looked for relationships between an organization’s properties and its “innovativeness” (likelihood to adopt). He found the following determinants as positively and significantly likely to increase innovativeness: administrative intensity (how much administrators push for innovation adoption); external communication (or degree of involvement and participation in extra-organizational professional activities); functional differentiation (extent to which the organization is divided into different units); internal communication; managerial attitude toward change; professionalism (members’ professional knowledge); slack resources (resources available beyond what is required to maintain operations); specialization (number of specialties in an organization); and technical knowledge resources (technical potential and resources).

In the same meta-analysis, Damanpour also found that type of organization (manufacturing or service, for-profit or non-for-profit) and scope of innovation (low versus high complexity) moderated innovativeness. For-profit organizations geared toward a large number of innovations are generally more successful innovators than others, despite innovation type or the stage of innovation process (Damanpour, 1991).
In his second meta-analysis, Damanpour (1992) explored the relationship between organizational size and innovation. His main findings suggest that: size is more positively related to innovation in manufacturing and for-profit organizations than in service and non-profit organizations; there is a stronger association between size and innovation when size is measured by turnover and profits than when it is measured by number of employees; there is no strong moderating effect on size and innovation when measured by type of innovation; and size is more strongly related to implementation than to the initiation of innovations in organizations. These findings show that larger organizations are overall better at hearing about, adopting, and implementing innovations, but that this relationship is stronger in commercial industries than in service organizations.

In his third meta-analysis, Damanpour (1996) explored the relationship between organizational complexity (size and structural complexity) and innovation. His overall findings suggest that structural complexity and organizational size are positively related to organizational rate of adoption. More specifically, complexity and size were positively and significantly related to innovativeness when the innovation was radical and a product, when the organization belonged to the manufacturing and/or service industries, and when environmental uncertainty was present (meaning, when the environment was complex and changing).

Damanpour’s meta-analyses show that organizational determinants such as size, industry type, and type of innovation can impact likelihood and/or rate of adoption—larger organizations in the for-profit and non-services sectors are more likely to adopt, and product innovations are more likely to be adopted. Also, larger organizations are more likely to implement innovations, with non-services organizations showing a stronger commitment.
Other studies, specific to health services organizations, used Damanpour’s findings to further explore the relationship between organizational determinants and innovativeness of various innovations. These 13 studies, analyzed and summarized by Greenhalgh et al. (2005), looked at health services organizations’ inner context, or determinants specific to the organization’s internal climate. The authors concluded that size, structural complexity, leadership/decision-making, and climate and receptive context (degree to which an organization is “ready” for change/to adopt an innovation) were significantly associated with innovativeness. “Effective implementation needs both a receptive climate and a good fit between the innovation and intended adopters’ needs and values” (Greenhalgh et al., 2005, p. 153).

Although much research has sought to define the relationship between organizational determinants and innovation adoption, few studies have analyzed the relationship between the implementation process and successful implementation, particularly in health services organizations. Of the studies that have looked at overall trends, the findings are not too optimistic. For instance, it has been found that making the shift from contemplating an innovation to successfully implementing it (engaging in the early usage activities that follow the adoption decision) and routinizing it (sustaining) generally is non-linear. Organizations have been found to move back and forth between initiation, development, and implementation, since they experience multiple setbacks and unanticipated events during the process (Van de Ven, Polley, Garud, & Venkataraman, 1999). It has also been suggested that complex innovations, such as comprehensive health promotion programs, are more likely to undergo intricate and multidirectional implementation processes, making implementation success and sustainability difficult. These findings indicate a challenge for complex comprehensive health and nutrition promotion programs.
In a large literature review and analysis, Greenhalgh and colleagues (2005) marshaled the sparse literature available on innovation implementation and sustainability in health services organizations. They found that the following nine elements have continually been linked to implementation/sustainability success through either strong or moderate direct or indirect evidence: (1) organizational structure—having an adaptive and flexible organizational structure; (2) leadership and management—having top management support, advocacy of the implementation process, and continued commitment to it; (3) system readiness—an organization’s readiness or willingness to assimilate an innovation; (4) human resource issues—having the motivation, capacity, and competence of individual implementers (those responsible for implementing the innovation); (5) funding—having dedicated and ongoing funding for implementation; (6) intra-organizational communication—having effective communication across departments within the organization; (7) extra-organizational networks, or change agents and organizations outside of the hospital—having an increased reliance on their support as the innovation increases in complexity; (8) feedback, or having accurate and timely information on the impact of implementation process; and (9) adaptation/reinvention—the degree to which the innovation is adapted to the local culture. The authors concluded that more research is needed to further separate elements related to the implementation process for different innovations in health services organizations.

One important recent development regarding innovations within organizations is the notion of sustainability, or what organizational theorists call routinization and institutionalization, and what the health promotion literature refers to as maintenance. Sustainability presupposes implementation and is defined as taking place when new ways of working and improved outcomes become the norm (NHS Modernization Agency, 2003). A large
challenge for innovations that are already fully implemented is providing incentives to those responsible for continuing program activities (e.g., middle and lower-level managers) and for providing the support (e.g., administrators) (Parcel, Perry, & Taylor, 1990).

Parcel et al. (1990) claim the types of incentives that can be used to provide short- or long-term motivation include feedback on performance, reinforcement through recognition, and establishment of a monitoring and feedback system. “Staff need to know if their efforts are leading to any measurable outcomes. This could include more immediate outcomes such as knowledge change or skill development by program participants as well as longer-range outcomes such as behavior change or risk factor reduction. Success at achieving program objectives helps to provide incentive for continuation of program activities” (Parcel et al., 1990, p. 243-244). Thus, achieving implementation is only the first part of the success—maintaining the innovation is equally important.

While research that analyzes the relationship between organizational determinants and rate of adoption provide a bird’s eye view of the innovation problem, research needs to hone in on elements that impact the implementation process and sustainability. Although Greenhalgh and colleagues (2005) provide a summary of determinants that help predict implementation and sustainability of innovations in health services organizations, the studies from which they draw their conclusions are few and complex. Thus, there is need for further research on the factors that either positively or negatively affect an innovation’s implementation process and the ways staff and managers can be motivated to maintain innovations in health services organizations.

*Innovations and differences in managers’ perceptions*

Management commitment can be a consequential factor for the survival of health promotion programs (Huberman & Miles, 1984). In fact, as the pace and complexity of
organizational change and innovations continue to increase, there is a growing demand for managers and leaders in all organizations and at every level to have change agent roles and skills (Caldwell, 2003). That is, managers are becoming increasingly involved in the process of change management in organizations, and they are adopting team approaches to implement and sustain innovations (Johnson & Paton, 2007). In services organizations, such as hospitals, the unit of adoption is a team, department, or organization in which various changes in structures or ways of working are required. Since implementation of a comprehensive nutrition program can be a complex task, the role and competence of hospital staff responsible for carrying out the program is very important (Endres, 1999).

Studies have shown that management involvement can positively impact worksite wellness programs’ adoption and implementation, and that their vocal support for the programs can increase employee participation in them (Crump, Earp, Kozma, & Hertz-Picciotto, 1996). Despite the necessary and critical importance of management support for innovations, research suggests that such support is not always consistent across management levels (García-Goñi et al., 2007; Linnan, Weiner, Graham, & Emmons, 2007; Orlandi, 1986). For instance, while higher-level managers (the “innovation entrepreneurs”) might have better knowledge of the benefits of the innovation and thus have more positive attitudes toward the changes, lower-level managers (e.g., front-line supervisors and staff) usually present more resistance to the changes, have more negative attitudes toward innovations, and have difficulty sustaining enthusiasm (Borins, 2001).

One study suggests that lower-level managers’ negative attitudes toward innovation implementation could be due to their perceived level of involvement with the implementation. García-Goñi et al. (2007) conducted a survey on front-line employees and managers in public health institutions across six European countries and found a relationship between professionals’
motivation and attitudes toward innovation and their involvement with the process and management of the innovation process. The authors concluded that higher-level managers in public health institutions are better motivated than front-line employees since they are more involved in the innovation process, and that the gap in motivation should be addressed since it could negatively affect rate of adoption of innovations.

Another recent study, by Linnan et al. (2007), explored differences in managers’ beliefs about worksite health promotion programs through a cross-sectional survey distributed among managers of 26 manufacturing worksites in New England. The authors found that management level (senior manager through front-line worker) was related to differences in beliefs about effective strategies, benefits, and barriers associated with worksite wellness programs. More specifically, senior managers were less likely than middle managers and line supervisors to believe factors such as space, cost, and production conflicts were barriers to offering the programs. The authors concluded that beliefs about and support for worksite wellness programs differ between management levels, and that these differences can impact the degree to which organizations adopt and implement programs that increase access to healthful foods.

Ensuring that a healthy food environment program is fully implemented and sustained in a hospital setting could depend on managerial motivation and commitment, especially since top management support, advocacy of the implementation process, and continued commitment to it have been shown to enhance success of implementation and routinization (Gustafson et al., 2003). Overall, however, the research on what motivates managers at all levels to fully implement and help sustain health promotion programs in health services organizations is scarce.
Theory

Diffusion of Innovations

The broader theoretical context for this study lies in Diffusion of Innovations theory (Rogers, 1995), which describes the process by which an innovation is communicated (diffused) among the members of a social system and by which alterations occur to the structure and function of a social system, creating social change. The theory has frequently been used to explore health promotion interventions and programs in organizations (Parcel et al., 1990).

Rogers (1995) defined diffusion as the process by which an innovation is communicated through certain channels over time among the members of a social system. Communication is considered a process in which those involved in the diffusion create and share information to reach a mutual understanding. The newness of ideas in the messages communicated is what makes diffusion unique, since newness implies some degree of uncertainty in adoption. Rogers also describes diffusion as a type of social change by which changes occur in the function and structure of a social system. Social change occurs when new ideas are invented and diffused, and they are adopted or rejected.

Diffusion of Innovations (DOI) theory is comprised of four main elements: the innovation, communication channels, time, and the social system. The first element, the *innovation*, is defined as an idea, practice, or object perceived as new by an individual or other unit of adoption, such as an organization. The “newness” of an innovation may be expressed in terms of knowledge, persuasion, or a decision to adopt. Since not all innovations are viewed the same by potential adopters, five characteristics help explain different rates of adoption: (1) relative advantage, or the degree to which an innovation is seen as better than the idea it replaces; (2) compatibility, or how consistent an innovation is with existing values, past experiences, and
needs of the potential adopters; (3) complexity, or how difficult an innovation is to understand and use; (4) trialability, or how much an innovation can be experimented with on a limited basis; and (5) observability, or the degree to which innovation results are visible to others. Innovations perceived as having greater relative advantage, compatibility, trialability, observability, and less complexity will be adopted more rapidly than other innovations. The concept of re-invention, defined as the degree to which an innovation is changed or modified by a user in the process of its adoption and implementation, is also important to an innovation as it allows flexibility for adopters to modify the innovation as they see fit (Rogers, 1995).

A communication channel is the means by which messages get from one individual to another. Mass media and interpersonal channels are the two main channels in DOI. Although mass media channels (e.g., radio and television) are known for reaching many individuals, interpersonal channels, which involve face-to-face exchanges between individuals, are more effective at persuading the adoption of a new idea, especially if the interpersonal channel links individuals who are near-peers. Individuals’ dependence on receiving innovation feedback from near-peers suggests that the heart of the diffusion process lies with potential adopters imitating or following their network partners who have already adopted. The greater the interaction between homophilous individuals—those who are alike in certain beliefs and attributes—the greater the effect of interpersonal communication on adoption decisions.

The amount of time involved in diffusion can be determined by the innovation-decision process, the innovativeness of an individual compared with others, and an innovation’s rate of adoption in a system. In the innovation-decision process, an individual or other decision-making unit passes from first gaining knowledge of an innovation to forming an attitude toward the innovation, to making a decision to adopt or reject, to implementing the new idea, and to
confirming the decision. The steps in the process usually occur in a time-ordered sequence of knowledge, persuasion, decision, implementation, and confirmation.

The innovativeness of an individual, or organization, typically refers to how early or late one is at adopting an innovation. Based on this, adopters fall into one of five categories: innovators, early adopters, early majority, late majority, and laggards.

The third component of time is rate of adoption, known as the relative speed with which an innovation is adopted by members of a social system. The rate of adoption is typically measured by length of time required for a certain percentage of members to adopt and is widely characterized as an s-shaped curve—only a few individuals adopt initially, many more adopt toward the middle, and fewer and fewer individuals refrain from adopting toward the end.

The last element in DOI is a social system, or a set of interrelated units engaged in joint problem solving to accomplish a common goal. Units may be individuals, informal groups, organizations, or subsystems. Diffusion is said to take place within a social system since its structure affects the innovation’s diffusion in several ways. For instance, system norms—established behavior patterns for the members of a social system—affect the rate of diffusion and sometimes can be barriers for change. Norms define a range of behaviors and serve as a guide or standard for those in a social system. Another example includes opinion leaders and change agents, individuals whose roles can impact likelihood of diffusion in the social system. Opinion leaders, known as the center of interpersonal communication networks, can influence members’ attitudes or overt behaviors informally and frequently. They earn and maintain their influence through showing technical competence, social accessibility, and conformity to the system’s norms. They are typically more exposed to all forms of external communication, are more cosmopolite, are more innovative, and have somewhat higher social status.
Change agents, also part of the social system, are individuals or other entities that influence innovation decisions in a direction they deem desirable. They typically seek for others to adopt innovations, although they may also slow diffusion and prevent the adoption of what they believe are undesirable innovations. Change agents use opinion leaders within social systems as the main ones responsible for diffusion campaigns.

A last component that affects the element of social systems is the type of innovation-decision, specifically whether it is made by individual members or by the entire social system. Optional innovation-decisions are adoption decisions made by an individual, independent of the decision of other members; collective innovation-decisions are adoption decisions made through a consensus among members of a system; and authority innovation-decisions are decisions made by only a few individuals in a system who possess power, status, or technical expertise. Authority decisions have been shown to yield the fastest rate of adoption of innovations.

Rogers’ DOI theory (1995) has commonly been used to examine adoption of innovations in organizational settings, including health care organizations. Because of DOI’s focus on the individual, however, most organizational research up to the 1970s applied the theory using models and methods developed for individuals. Researchers considered innovativeness an organizational “trait” instead of in relation to specific innovations, and they studied adoption by key individuals within organizations as opposed to a larger system of members (Greenhalgh et al., 2005). Thus, up to the mid-1970s, very little was known about the innovation process within organizations or about the complexity of the interaction between different structural factors (Damanpour, 1996).

The second, newer wave of organizational research analyzes the process of developing, adopting, and implementing innovations, and it recognizes that the characteristics of individuals
within an organization do not fully explain the innovative behavior of people in an organizational context, especially with health promotion (Basch, 1984). “Although organizational change results from individual’s decisions, these decisions are made in the context of the individual’s organizational role and are not determined by the same factors that influence individual decisions about personal health-related behavior” (Basch, 1984, p. 59).

Although diffusion research applied to health promotion has lagged behind behavior change research, it has recently grown in popularity and now covers a range of public health, health education, and healthy lifestyles initiatives, including exercise programs in worksites nationwide and anti-smoking programs in the community (Parcel et al., 1990). Research on health promotion programs as innovations in worksites remains limited, with most innovations research in health services organizations analyzing technology and information systems changes and changes to hospital protocol involving patient care (Greenhalgh et al., 2005).

Almost all studies that analyze innovations in health services organizations use DOI theory to address the development, adoption, and implementation process of the innovation (Greenhalgh et al., 2005). Studies that have used the theory, however, have involved single, short-term interventions applied in isolated settings (e.g., an intervention to increase physical activity among nurses or to decrease smoking among doctors). As innovations in hospitals increase in complexity, DOI may not be sufficient to explain factors that lead to the implementation and sustainability of comprehensive health promotion programs in hospitals.

As innovations comprise multiple components and/or require behavioral and environmental changes, an organization’s capacity (skills and resources) to implement an innovation must expand to include elements left out by DOI (Greenhalgh et al., 2005). Thus, diffusions researchers have pulled from health education, organizational, and ecological theories.
to better understand the determinants that affect the implementation process and sustainability of comprehensive health promotion programs in hospitals.

**Predisposition, Capacity, and Reinforcement in Program Implementation: A model**

One such approach, which uses elements from DOI and from health education literature, was presented by Parcel and colleagues (1990) in a predisposition, capacity, and reinforcement (PCR) model (see *Figure 1*). The model draws from DOI theory and Green’s (1980) predisposing, reinforcing, and enabling causes in educational diagnosis and evaluation (PRECEDE) model of health education. The PRECEDE model provides a framework for the process of systematic development and evaluation of health education programs, and it recognizes that health and health behaviors could be affected by multiple factors, including behavioral, environmental, and social change. The framework is comprehensive in nature, allowing for its application in a variety of settings (Green & Kreuter, 1991).

The model comprises three factors—predisposition, capacity, and reinforcement—which interact to affect program implementation and to increase program sustainability.

*Figure 1. Predisposition, Capacity, and Reinforcement in Program Implementation*

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*Greenhalgh et al. (2005). Diffusion of innovations in health services organizations. (Based on Green (1980) and Elliott, Taylor, Cameron, and Schabas (1998)).*
Predisposition refers to the factors that comprise the attitudes, beliefs, knowledge, perceptions, and values that motivate individuals and organizations to implement a particular innovation; capacity broadly refers to the skills and resources available to achieve certain changes; and reinforcement refers to feedback about the program’s impact on the target population (Green & Kreuter, 1991). According to these three components, the implementation of a comprehensive health promotion program in a hospital could be influenced by motivation of the implementers, by the sum of the resources (staffing, training, funding, and technical assistance) available for managing and delivering the implementation, and by the systematic collection and feedback of the program’s impact, providing a positive impact is present.

As it refers to DOI, the model includes many of the theory’s diffusion elements within its three factors. For instance, the attitudes, beliefs, knowledge, perceptions, and values that motivate organizations (predisposition) could refer to some of the five characteristics of innovation as perceived by potential adopters (compatibility, relative advantage, and complexity), and it refers to the social system’s concept of norms. Capacity, or the skills and resources available to achieve certain changes, refers to the support and help provided by opinion leaders and change agents (social systems), to trialability (or ability to experiment with an innovation), to interpersonal communication with homophilous near-peers, and to re-invention (ability to change or modify the innovation). Reinforcement, or feedback about the program’s impact, refers to observability (the degree to which an innovation’s results are visible to others) and to confirmation (when the adopter seeks reinforcement for an innovation decision that has already been made).

There appears to be substantial overlap between DOI theory and the PCR model. Of the three main components of the model, reinforcement has been the least-researched, with capacity
and predisposition having been analyzed by authors interested in gaining a better understanding of the components that increase implementation success. Capacity, in particular, has been widely researched and has been determined as critical to the implementation of any innovation. Capacity determinants found to positively and significantly affect an organization’s innovativeness include: (a) structural complexity, determined by number of departments/specialties; (b) organizational size; (c) leadership support and commitment; (d) support for knowledge manipulation activities; and (e) receptive context\(^6\) (Greenhalgh et al., 2005).

The PCR model is relatively new and has been used primarily by researchers interested in exploring factors related to the adoption and implementation of comprehensive health promotion programs in health services organizations. More specifically, a bulk of the research has focused on analyzing the Canadian Heart Health Initiative (CHHI), described earlier.

In a preliminary study that explored elements of organizational predisposition and capacity in the CHHI in Ontario, Taylor and colleagues (1998) conducted semi-structured interviews with 56 key informants and analyzed the survey responses of 262 staff from 42 organizations involved in the health promotion innovations. Staff perceived five major elements as facilitating implementation success (financial and material resources; staff experience, knowledge, and skills; defined staff roles for the project; availability of research evidence for the changes; and links to external agencies), and five major elements as impeding implementation success (inadequate financial resources; inadequate staff; no (or too few) staff roles dedicated to the project; lack of coordination; and lack of good research evidence for the change). The

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\(^6\) The eight components of receptive context (from Bate, Robert, and McLeod (2002), adapted from Pettigrew, Ferlie, and McKee (1992)) are: (1) the role of intense environmental pressure in triggering periods of radical change; (2) the availability of visionary key people in critical posts leading change; (3) good managerial and clinical relations; (4) a supportive organizational culture (closely related to components 1-3); (5) the quality and coherence of “policy” generated at a local level (and the “necessary” prerequisite of having data and being able to perform testing to substantiate a case); (6) the development and management of a cooperative interorganizational network; (7) simplicity and clarity of goals and priorities; and (8) the change agenda and its locale.
findings suggest that predisposition (motivation, readiness) is determined by external factors, such as links to other organizations and the local community, and from good research evidence (similar to confirmation), and that capacity is determined by internal factors, such as financial resources and staff experience, knowledge, and skills.

Subsequent research on the CHHI included a Survey of Capacities, Activities, and Needs (SCAN), which measures public health units’ organizational predisposition and capacity for implementing heart health promotion programs (Elliott, Taylor, Cameron, & Schabas, 1998). The authors found a strong relationship between predisposition and capacity (as assessed by respondents), with higher predisposition scores yielding higher capacity scores. They also found no significant relationship between predisposition and implementation, although there was a moderate to strong relationship between capacity and implementation. This study suggests that predisposition is a necessary but not sufficient condition for successful implementation. Thus, while motivation is a crucial prerequisite, implementation may not occur unless the necessary resources and skills are present.

Riley et al. (2001) later extended the organizational SCAN by including internal organizational factors and external system factors into the implementation (see *Figure 2*). These factors were developed from their 1998 research, detailed above. In their previous study, the authors identified four main factors as critical to implementation success: (1) innovation development—meeting the needs of both internal and external players; (2) the predisposition and capacity of user systems—ensuring the public health organizations have what they need to succeed (peer networks, funding incentives, training, and consultation support); (3) local implementation—ensuring that organizations feel ownership of the innovation; and (4)

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7 This includes strengthening capacity, giving priority to heart health, coordinating the programs, using resource centers, and participating in inter-organizational networks.
monitoring, evaluation, and research—achieving sustainability by having the commitment of key opinion leader(s), having external incentives, and seeing positive results from early outcome evaluations.

This 2001 study is unique in that it shows how internal and external system factors play into the implementation success of a system-wide health promotion program in public health organizations, and how the factors relate to an organization’s capacity and predisposition. Implementing and sustaining a complex health promotion program like the CHHI is a lengthy, staged process that requires support internally and externally (Riley et al., 2001).

**Figure 2.** Factors influencing public health agency implementation of heart health promotion activities

Riley et al. (2001). Determinants of implementing heart health promotion activities in Ontario public health units: A social ecological perspective.

A more recent CHHI study explored how implementers of a successful innovation built capacity despite having low levels of investment and having to compete for financial resources (Driedger et al., 2007). Through narrative analysis of key-informant interviews with project
implementers/stakeholders and analysis of major project-related documents and reports, the authors found that implementers overcame resistance to the project by building relationships, by making better use of existing structures and organization, and by developing new unions that prioritized prevention efforts. This study is of great relevance to the HFEH project as NC hospitals had no external financial assistance with the project yet successfully implemented it.

Although the above studies analyze the determinants of successful implementation, only one relevant study analyzed the sustainability factors of a whole-systems approach to health promotion. O’Loughlin et al. (1998) conducted a survey and interviews with key stakeholders of the Ontario Heart Health Promotion Project to get managers’ perceptions of what makes the project sustainable. The authors found that the programs perceived as most permanent used unpaid staff, were modified during implementation, were localized to fit the adopter, and had the presence of a program champion (someone in charge of and excited about the program).

The number of studies related to the implementation and sustainability of comprehensive health promotion programs in health services organizations continues to grow, but literature on the topic is still limited. Most of the research that looks at the implementation process (capacity and predisposition) of these programs in public health settings analyzes programs disseminated in Canada, and none of them address how short-term, informal feedback of the programs’ impact affected managers’ motivations to sustain the innovation.

**Research questions**

Following a similar approach to the CHHI in Canada, the HFEH project in North Carolina used a systems-wide approach to disseminate a comprehensive health promotion program in hospitals. It is important, however, not to assume that all health care organizations are similar and that implementation studies in one system will be transferable to the next. As
Greenhalgh et al. (2005) caution: “In reality, many of the determinants of implementation success (and of sustainability) are highly contextual and interact in a complex and often unpredictable way. The so-called ‘receptive context’ for successful implementation has no universal formula” (p. 197).

The HFEH project, currently offered only in North Carolina, is one of the largest, if not the largest systems-wide approach to a comprehensive dietary change promotion program in the United States. So far, it has been met with much success, as 67 percent of hospitals in the state fully implemented in a bit more than two years. Its implementation process and factors motivating its sustainability should be analyzed further, especially since implementation and sustainability of innovations in health services organizations are areas lacking research. Although capacity and predisposition are important elements, they are not easily measurable since they differ by innovation and organizational complexity (Greenhalgh et al., 2005). Reinforcement is measurable through both short- and long-term feedback of program impact, but no studies thus far have analyzed how feedback from comprehensive health promotion programs have helped managers remain motivated.

Similarly, limited research has focused on the effects of management level on the implementation process of health promotion programs. Studies consistently support the claim that managerial support and commitment are crucial to worksite innovation success. However, little is known of the factors managers at all levels perceive as important to implementation success or the types of short-term feedback that are helpful to keeping them motivated to sustain the project.

There is a growing need for research on the factors that influence the implementation process and the sustainability of comprehensive health promotion programs in health services
organizations, more specifically, what works and why. There is also a need for research on managers’ attitudes toward and beliefs about these programs, particularly as they pertain to the sustainability stage. For North Carolina hospitals that have successfully implemented NC Prevention Partners’ Healthy Food Environments in Hospitals Project and have earned Red Apple status:

RQ1: What factors do implementers (staff and managers at all levels who were responsible for the implementation of the project in the hospital) believe played a role in the success of the implementation?

RQ2: How does and what types of feedback affect implementers’ beliefs about the project’s impact on the hospital and on employees?

RQ3: How do implementers’ answers to RQ1 and RQ2 differ based on their managerial level in the hospital (senior manager, middle manager, and cafeteria supervisor and staff member)?
CHAPTER TWO: METHOD

This study uses in-depth interviews and field notes gathered as part of a larger project headed by NC Prevention Partners to obtain stories representative of the HFEH project impact on employee health. The project, *The Story of One*, was a collection of interviews both with employees whose health and wellness were positively impacted by the hospital’s new healthy food environment, and with managers and staff responsible for implementing the project at the hospital. Thus, all interviews were conducted at hospitals that had successfully implemented the project and had earned Red Apple status.

Employee, manager, and staff interviews were conducted at nine Red Apple hospitals of varying sizes throughout the state and were collected between July and November of 2010. One to two NCPP staff members and I were present at each hospital visit—a full day of interviews per hospital—and I conducted the interviews. I developed the interview guide questions and selected the hospitals that would be recruited to participate in consultation with NCPP staff.

Although I was hired as a part-time employee of NCPP for the duration of *The Story of One*, I had no affiliation with the non-profit organization prior to the project. In addition, I never met with or contacted any of the interviewees at any of the participating hospitals prior to the interviews. Although I have no formal background or expertise implementing nutrition or dietary change interventions or programs, I am a health communication graduate student interested in dietary behavior change marketing and persuasion, with a bias toward nutrition and food as tools of health promotion.
This study is based on in-depth interviews with 53 managers and staff at nine NC hospitals (see Appendix C for a complete table of the hospitals selected for participation). Data were collected through face-to-face, in-depth interviews with hospital managers and staff in charge of and/or involved with the implementation of the HFEH project at their hospital. From here on the interviewees will be referred to as implementers.

The number of implementers interviewed at each hospital ranged from three to eight, and they held a wide range of positions, including Chief Executive Officer, President, Food and Nutrition Services Director, Employee Wellness Coordinator, and Cook (see Appendix D for a table of implementers’ titles and the number of implementers interviewed at each hospital). The interviews ranged from 20 to 40 minutes in length.

I audio-recorded and transcribed all the interviews, which were guided by structured research questions broad enough to allow probing into new ideas. I gave all hospitals pseudonyms during transcription and referred to implementers by their titles. Immediately following the interview, I obtained oral consent from each implementer to use the audio-recording for this study. I obtained consent orally after the interviews since the UNC-CH Institutional Review Board suggested this timing would best prevent implementers from providing socially desirable answers (see Appendix G for the script for obtaining oral consent).

The recruitment process began when implementers primarily in charge of the HFEH project at each hospital (hereafter referred to as the main point of contact) were contacted and asked to participate in The Story of One. Once the main point of contact confirmed the hospital’s intention to participate, s/he was asked to recruit managers and staff in charge of implementing the HFEH project at the hospital. The main point of contact was also asked to help with
recruitment and to set up a day of interviews with all implementers since s/he was involved in the implementation and could recruit other implementers more efficiently. Also, s/he could provide easy access to administrators and staff at the hospital.

To ensure the main point of contact recruited implementers of varying job titles and managerial levels, s/he was given informal recruitment guidelines and was reminded later, via email. A total of 10 hospitals were recruited for participation, but the main point of contact at one Central North Carolina hospital did not respond, despite being emailed multiple times.

A purposeful criterion sampling method was used to gather information-rich interviews, and enough participants were recruited that saturation was achieved (Patton, 1990). The hospitals invited to participate in The Story of One were selected based on their HFEH project implementation status, their size, and their geographic location in the state. Since the purpose of this thesis is to gain a greater understanding of the implementation process by implementers in hospitals that have successfully implemented a healthy eating environment program, all hospitals invited to participate were Red Apple hospitals. That means all implementers interviewed belonged to hospitals that had fully implemented the HFEH project and had met NCPP’s criteria of successful implementation.

Since the literature on innovations in health services organizations suggests that size can impact innovation adoption and implementation (Damanpour, 1992), hospitals of various sizes were recruited. The hospitals were selected from a list recommended by NCPP staff as hospitals that would be likely to cooperate with recruitment and agree to participate. Size was measured both by number of licensed beds (ranging from 54 to 761 beds) and by number of hospital employees (ranging from 480 to 6,000 employees). Five of the hospitals had cafeterias that were
small or were self-operated. Last, to include a sample of hospitals representative of the population of North Carolina, I recruited hospitals spread out geographically throughout the state.

**Interview guide**

The interview guide (*Appendix E*) focused on perceptions of implementers as they relate to the success of the project’s implementation and their observations/beliefs about the project’s impact on the hospital. The guide included major questions and probes, and the interviews followed a conversational structure. The questions were meant to capture implementers’ beliefs and thoughts about the importance and role of internal and external resources and contexts to the implementation process. Implementers were asked about anticipated and experienced challenges and benefits of the HFEH project. In addition, the interview guide included questions meant to expose the type of informal feedback implementers have received or observed of the project’s impact on its intended target audiences (hospital community and employees).

Since the implementers were at the point of maintenance and no longer at the implementation stage for the project, they were first asked to talk about the importance of worksite wellness at their hospital. The question that asks about their roles or contributions to the Red Apple project helped to ensure that the implementers being interviewed were indeed involved in the implementation process and to obtain a better sense of the types of roles they played in the process. The interview guide questions were broad enough to allow for easy probing, and allowed other themes and topics to emerge during the interviews.

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8 Self-operated cafeterias are cafeterias that do not use a large food distributor such as Aramark and must purchase and prepare their own foods. This also means hospitals with self-op cafeterias do not have access to a food distributor’s nutrition database for the meals they prepare.
Data analysis

The grounded theory approach (Strauss & Corbin, 1998), an emergent, exploratory, and inductive method of data analysis was used. Grounded theory methods provide systematic procedures for shaping and handling rich qualitative data (Charmaz, 2001). The goal of grounded theory is to develop an explanatory theory of basic social processes, studied in the environments in which they take place (Glaser & Strauss, 1967). The method examines the “six Cs” of social processes—causes, contexts, contingencies, consequences, covariances, and conditions—to understand the patterns and relationships among these elements (Strauss & Corbin, 1998). Starting with individual cases, incidents, or experiences, one develops more abstract conceptual categories to synthesize, explain, and understand the data and identify patterned relationships in it. “You begin with an area to study. Then, you build your theoretical analysis on what you discover is relevant in the actual worlds that you study within this area” (Charmaz, 2001, p. 35).

Grounded theory relies on theoretical sampling, which involves recruiting participants with differing experiences of the phenomenon so as to explore multiple dimensions of the social processes being studied (Starks & Brown Trinidad, 2007). Individuals are added to the sample until theoretical saturation is reached. Although theoretical sampling includes a second round of participant recruitment from a new sample, time constraints and limited resources did not permit recruiting and interviewing a new set of participants for this study.

The number of interviews needed for a grounded theory study varies on the goals and purpose of the study, meaning there is no adequate number of participants that can or should be recruited. Typical grounded theory studies report sample sizes ranging from 10 to 60 people (Starks & Brown Trinidad, 2007). I interviewed 53 participants.
Distinguishing characteristics of grounded theory that were used in this analysis include: (1) creation of analytic codes and categories developed from the data, not from preconceived hypotheses; (2) development of middle-range theories to explain behavior and process; and (3) memo-writing, or writing analytic notes to explicate and fill out categories (Charmaz, 2001, p. 36).

Qualitative coding is the process of defining what the data are about and requires naming segments of data with a label that simultaneously categorizes, summarizes, and accounts for each piece of the data. Grounded theory coding consists of at least two phases: initial coding, or line-by-line coding (a process that fragments the data by words, lines, segments, and incidents), and focused coding, or axial coding (a process that selects the most useful initial codes and tests them against extensive data). If the emerging analysis calls for further coding, one may elaborate focused codes into theoretical codes, or selective codes. I used an elaborate coding process for all interviews in this study: line-by-line coding, focused coding, and theoretical coding.

The coding process was done using gerunds (e.g., “thinking of food” or “seeing improvements in personal health”). This process provides a strong sense of action and sequence, and it helps researchers detect processes and stick to the data (Glaser, 1978). Gerunds help researchers focus on participants’ actions and words, and they reduce the temptation to develop themes or categories that are not present in the data.

During each coding stage in grounded theory, the coder(s) should engage in the constant comparison method of coding and analyzing data (Charmaz, 2001). The constant comparison method “combines inductive category coding with simultaneous comparison of all social incidents observed” (Goetz & LeCompte, 1981, p. 58). Initial observations through field notes and memos can also be compared, and it is during the analysis of these observations that
relationships within the data start to emerge. The constant comparison process is refined throughout the analysis process and continuously feeds back into the process of category coding. As categories and observations are constantly compared, new relationships and categories may be discovered (Goetz & LeCompte, 1981).

Memo-writing is a crucial intermediate step between coding data and writing the first draft of the report since it allows the researcher to stop and analyze ideas about the codes and the data. Memos, which are informal analytic notes, are meant to “catch your thoughts, capture the comparisons and connections you make, and crystallize questions and directions for you to pursue. Through conversing with yourself while memo-writing, new ideas and insights arise during the act of writing” (Charmaz, 2001, p. 72).

The overall goal of grounded theory analysis is to produce theory by identifying patterns within and between categories. When the data are synthesized, a theory is built around a core category that explains the central phenomenon present in the data. The findings of a complete theory are typically presented in a diagram that shows how the core category relates to other dominant themes (Starks & Brown Trinidad, 2007). I began the data analysis process without a preconceived theory or theoretical model in mind. Thus, I engaged in coding and theory research simultaneously. I allowed the codes to develop and the themes to emerge from the data prior to finding a theory and model to fit the categories.

For this study, all interviews were analyzed and coded using the qualitative data analysis software Atlas.ti, and pencil and paper method. The software was used primarily for coding and organizing the codes and their quotes, and the pencil and paper method served to further analyze quotes from focused codes and to develop theoretical codes. The pencil and paper method
allowed me to more easily sort through the data and quotes, and to engage in constant comparison of themes and interviews.

The first wave of coding (line-by-line coding) yielded a total of 2,370 codes representing varying concepts and ideas. The number of line-by-line codes obtained per interview varied as interviews ranged in length, and few initial codes were the same. Having such a large number of initial codes is expected as this phase of coding is driven by speed and spontaneity, both of which are encouraged since “working quickly can spark thinking and spawn a fresh view of the data” (Charmaz, 2001, p. 48). These codes were output from Atlas.ti to a Microsoft Word document and further analyzed to uncover major themes for the second wave of coding, focused coding. I read the list of initial codes several times, and I wrote down major themes that emerged from the codes. These themes were fine-tuned and used as focused codes.

Seventeen focused codes (e.g., “making contributions,” “having a good team/teamwork,” and “overcoming challenges/concerns”) were developed and defined to avoid coding overlap. Eight interviews were randomly selected and coded as a trial to determine if modifications needed to be made to the list of focused codes. The trial revealed that the codes worked well and that two codes needed to be joined (“receiving positive feedback” and “receiving negative feedback”). “Receiving negative feedback” was used infrequently and was almost always used in the same context as “receiving positive feedback.” The list of focused codes and their definitions was revised (see Appendix H for the final list) and was used to code all interviews.

After all interviews were coded, the quotes for each focused code were categorized by managerial level using Atlas.ti, which output 130 pages of quotes. The major trends that emerged from implementers’ quotes were summarized in matrices, one matrix for each managerial level. Trends that suggested a link potentially due to hospital size were further explored.
Throughout the coding process, I continued memo writing and engaging in constant comparison of my memos and field notes. Analyzing the data from different angles allowed me to see the emergence of the theoretical codes, or the big picture: *internal and external system support* and *feedback* helped with the project’s implementation success and sustainability.
CHAPTER THREE: RESULTS

The grounded theory analysis revealed that feedback and support from players internal and external to the hospitals were important factors in the implementation of the Healthy Food Environments in Hospitals project. Implementers said that evidence of employee acceptance/adopter of project-related changes and support from hospital leaders, from other implementers (co-workers), and from NCPP motivated them to earn Red Apple status.  

The analysis also revealed that implementers used feedback to form beliefs about the project’s impact. Receiving direct feedback from customers about the project (e.g., emails and face-to-face comments), observing changes in customer eating habits and health behaviors, and noticing changes in cafeteria food sales trends affected implementer’s beliefs about the project’s impact on the hospital and on employees. Evidence of the project’s positive impacts convinced implementers that the hospital’s culture of wellness had improved and that employees had developed more positive attitudes toward health. Implementers at all managerial levels (senior managers, middle managers, and cafeteria supervisors/staff) shared similar beliefs about the project’s impact on the hospital and on employees, even though not all of them received the same type of feedback.

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9 As a reminder, all interviewees in this study belonged to hospitals that successfully implemented the HFEH project and earned Red Apple status since the aim of the study was to understand what worked and why.

10 “Customers” refers to employees and community members/visitors who eat in the cafeteria. These are the target audiences of the project.
Findings

The data show that feedback from customers and support from NC Prevention Partners, from senior administrators at the hospital, and from the implementation team were the main factors that resulted in a successful implementation. Both positive and negative feedback of the new food environment changes helped implementers gauge employee acceptance/adoption of the project and motivated them to complete the implementation. NCPP’s resources and tools (e.g., implementation guideline), and its staff’s assistance and encouragement increased implementers’ confidence and motivation to implement the project. Implementers saw NCPP as a reliable external resource they could turn to with questions and concerns. Senior administrators’ approval of, and financial commitment to the implementation increased middle manager and cafeteria supervisors’ confidence to make the necessary changes. Such approval convinced managers and supervisors that hospital leaders were dedicated to the project. Last, having a diverse (interdepartmental), committed team of implementers with designated roles made implementers feel that they shared the implementation burden with others and that they had physical and moral support. Some implementers, however, not always completed their assigned responsibilities.

Implementers formed their beliefs about the project’s impact through three main types of feedback: they observed changes in customers’ eating habits and adoption of project-related changes in the cafeteria, they received direct comments from customers, and they had access to information of changes in the cafeteria’s sales of healthy meals/foods. Feedback of the project’s success was a continuous motivator and helped implementers keep the project alive at their hospitals.
Factors that led to implementation success

Committing to becoming a Red Apple hospital was the first step and the easiest one for most implementers. Hospital administrators, managers, and staff then had to successfully implement the HFEH project. Four factors played key roles in the successful implementation of the project: feedback of customers’ adoption/acceptance of the project, support from an external partner organization, support from the hospital’s top leadership, and support from a diverse, committed team of implementers.

Feedback about customer adoption/acceptance of the project

Receiving feedback\textsuperscript{11} of customers’ adoption/acceptance of the food environment changes throughout the implementation process was important to achieving Red Apple status as it motivated implementers to proceed confidently through the project’s Apple phases. Although implementers initially received some negative feedback about certain changes in the cafeteria (e.g., price increases for the unhealthy meals), they used the feedback and tweaked elements of the project and to meet customers’ needs and demands. Once they noticed an increase in positive feedback and a decrease in negative feedback, they perceived the food environment changes were being accepted, and they grew more confident they were making the right changes.

The gradual decline of negative feedback was a relief to implementers since one of their main concerns about the project was dealing with customer dissatisfaction from the food environment changes. Implementers at all managerial levels said they were afraid of customer disapproval of the changes. Specifically, they feared negative reactions to the food pricing changes (decreasing the cost of healthy options and increasing the cost of unhealthy options) and

\footnote{Feedback from customers includes receiving direct and indirect comments regarding the new healthy food environment features in the hospital and noticing changes in customers’ use of, and/or attitudes toward the new food environment tools/products (e.g., the nutrition information signage and healthy meal combinations). Positive feedback includes seeing customers purchase healthy meals on a regular basis, hearing them talk about the menu changes in the cafeteria positively, and being thanked by employees for making healthier options available.}
to changes in availability of unhealthy meals (replacing some unhealthy foods with healthier ones). Since senior managers, middle managers, and cafeteria supervisors/staff all were concerned about keeping customer satisfaction and employee morale high, they used positive and negative feedback throughout the implementation as a guide to meet customers’ needs and wants.

During the first weeks of the project’s implementation, managers received both positive and negative feedback from customers who were either elated to have cheaper, healthier options or upset they could no longer purchase certain unhealthy meals. Although implementers received a good amount of positive feedback, they paid greater attention to customers’ negative comments to minimize disapproval and quiet unhappy customers, some who went as far as boycotting the cafeteria for a few weeks.

“Knowing my position, [employees] will walk right by me with the French fries and the hamburger and intentionally show me. They walk by and make sure I see that they’re still purchasing the unhealthy options. Then some of our maintenance guys walked out the first day. They just walked out. … It’s about choice. We have to be really careful with that. We can go overboard. It’s the passion.”

—Director of Wellness

As the quote by this middle manager shows, some unhealthy customers reacted strongly to the changes because they felt their choices were being taken away. Seeing employees take such actions made implementers afraid that customer dissatisfaction would drive business down and would force the project to halt. The director of wellness also explained that taking away unhealthy food options early in the implementation process was not a good decision. She is saying that some implementers let their “passion” for health and the HFEH project get in the way of customer demands and went overboard initially. Such passion made customers feel they had no choice but to eat the healthy options. The loud “resisters” scared managers into believing the

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12 The quotes in this thesis are presented verbatim.
project would not reach full implementation at the hospital, and this fear drove implementers’
decision to pay attention to negative feedback before appreciating customers’ positive feedback.

After receiving such negative feedback shortly after implementing some of the HFEH
project’s principles, this middle manager (as well as implementers at other hospitals) responded
to customers’ demands while meeting NCPP Red Apple guidelines. The director of wellness
sought to assuage complaints and dissatisfactions and modified the food environment changes.
For instance, she, and her hospital’s team of implementers, brought back certain unhealthy
options and toned down the promotion of healthy meals.

Implementers learned through trial and error how to satisfy customers with the new
changes. For instance, managers and supervisors at one hospital cooked only a few healthy
recipes each month and organized tastings to obtain employee feedback on the dishes. If the food
was not popular, implementers modified it to improve the taste (while staying within the
project’s nutrition guidelines), or they did not offer it again from fear of losing business. At other
hospitals, implementers occasionally distributed discount cards for the healthy meals to satisfy
customers who thought the prices for healthy items were still high. Even though implementers
feared that lowering the cost of healthy foods would lead to a loss of revenue, they continued
dropping prices to encourage employees to purchase the healthier foods and to keep them
coming back to the cafeteria.

Once implementers arrived at what appeared a happy medium between the food
environment changes and customers’ demands, they paid greater attention to positive feedback
and grew more hopeful that the project would thrive at the hospital. The positive feedback
included favorable comments about the availability and pricing of healthier meals, as well as
improvements in customers’ physical health and lifestyles. Seeing customers’ health improve as
a result of the food environment changes positively impacted implementers’ beliefs of the project’s potential and success, and it decreased the effects of the negative feedback.

“I knew we’d see some challenges there from some of those customers, and we did. But there were fewer and are far less now, and it gives us more satisfaction knowing those other customers who come in and are happy to see things, there are far more of those customers than the other types of customers. That’s a really good thing for us to focus on, those people who are happy, who really enjoy it, who are changing their lives, and give them more of it. And also try to pull those other ones on board. And it’s working, it’s taking time, but it’s working.” —Food & Nutrition Services Director

Thus, dissatisfied customers’ feedback was no longer as important or as significant as feedback from satisfied customers. Implementers were excited to see physical health and lifestyle changes in employees (and some community members) and consequently minimized the importance of negative feedback. In addition, implementers saw those who initially resisted the changes coming on board and those (healthy eaters) who never used to eat in the cafeteria start to purchase meals at the hospital nearly every day. As a cook in one hospital explained, the unhealthy eaters opened up to the healthier options and the healthy eaters started purchasing their salads in the cafeteria instead of bringing them from home.

Implementers at all managerial levels received negative and positive feedback about the food environment changes throughout the process, but middle managers and cafeteria supervisors/staff received more feedback than senior managers. Top administrators remained in the loop about the implementation’s progress, but they were not involved with the implementation to the extent the other implementers were. While senior managers served as oversight, middle managers and cafeteria supervisors/staff were the front-line soldiers and thus more sensitive to feedback about the project. They became more attached to their implementation efforts and were more strongly impacted by customers’ positive comments and health improvements. In a nutshell, feedback provided implementers with motivation to keep
going since it helped them see that the new healthy food environment could succeed at the hospital and that the changes were positively affecting people’s lives.

Support from an external partner organization

The implementation would not have been successful without resources and support from key internal and external system players, including hospital senior management, the hospital implementation team, and NC Prevention Partners.

Implementers considered support from NCPP essential. The organization provided tailored and flexible implementation guidelines, interpersonal guidance, online tools and resources, networking opportunities with other North Carolina hospitals, and supportive staff members who cheered implementers across the finish line. From the start, NCPP staff who headed the HFEH project were in touch with top leaders and managers at hospitals and encouraged them to contact NCPP with questions about the project or for help getting started with the implementation. NCPP staff were readily available and accessible to implementers, especially to managers who were the designated project champions at their hospitals.

These champions were nearly always the food and nutrition services directors and were appointed project leader by senior managers and administrators. Champions would be in constant communication with NCPP staff members and were in charge of the project’s successful implementation. Specifically, champions would call or email for advice or with questions that either they or other implementers had about the implementation guidelines or nutrition criteria.

Implementers’ perceptions of the role NCPP played in the implementation differed by managerial level. Middle managers were the most convinced that the implementation would not have been a success without guidance and encouragement from the partner organization. Senior managers and cafeteria supervisors/staff recognized the importance of NCPP’s role (primarily as
a change agent that introduced the idea of the project and provided helpful tools), but not all of them considered the organization essential to the implementation’s success.

The differences seemed due to implementers’ involvement with NCPP throughout the implementation. Middle managers and project champions—the designated liaisons between the organization and other implementers—were in constant communication with NCPP staff about the project and relied on the organization’s tools and interpersonal guidance during each phase of the innovation. Nutritionists in particular relied on NCPP for answers regarding nutrition labels and food analyses since they feared misrepresenting meals’ nutrition content or miscounting the number of healthy meals needed to meet the project’s healthy food environment requirements. These implementers received constant support from the organization and most commonly relied on its help to move through the Apple phases.

“I think if NCPP hadn’t been involved, we would not have been where we are right now. We wouldn’t have had the Red Apple if they wouldn’t have been involved. I don’t know what we would have been doing, honestly, I really don’t. We probably would have been nowhere. … The NCPP set the guidelines they said this is what you have to do. And we could’ve come up with guidelines that weren’t so strict and it wouldn’t have been such a great project.” —Clinical Nutritionist

NCPP was crucial for motivating implementers with helpful, flexible guidelines and with continuous support and reminders to implementers of their commitment to the project. As the clinical nutritionist explained, and as most middle managers felt, had the hospital’s managers created their own guidelines for a similar project, the project would not have been as elaborate and it would not have been completed as quickly. NCPP’s ready-to-go online tools, well-researched advice, and implementation timelines (created alongside implementers to meet their hospital’s needs) pushed the project’s implementation to take place. Also, NCPP staff’s presence and continual support/involvement made implementers feel a slight pressure to complete the project. Knowing that the project was part of a state-wide initiative and that NCPP staff would
visit the hospital periodically, implementers had strong intention and desire to complete the project:

“I feel like NCPP has given us a purpose. They’ve given us direction. They gave us kind of the guidelines of how to fulfill the Red Apple status, but they also gave us enough freedom to make it our own and to take ownership of it because we’re pretty creative people I think. So it was really nice to have some flexibility within those guidelines as to how we wanted to implement it. And it was more effective that way, I think, that at least we had that structure and they gave us the encouragement and the direction to get it done. They also, of course, held us accountable to finishing what we said we were going to do. That always helps.” —Health Promotion Manager

As this middle manager explained, NCPP’s involvement created a sense of direction since they introduced a project and guidelines that hospital managers and staff likely would not have created on their own. The organization also motivated the project’s completion by holding implementers accountable to finishing. NCPP staff did this by inquiring about the project’s progress periodically via email or telephone, and by traveling to the hospitals to visit implementers and at times to celebrate with them when they achieved Red Apple status. As one dietitian said: “When [NCPP staff] came to our Red Apple meeting, that made it feel serious. Like, ‘OK, we really gotta start doing something and finish this.’ Just because of their presence at the meeting.” NCPP staff’s input and mere presence also helped move the project along.

Although managers needed help understanding the implementation guidelines, they also wanted flexibility, to put their creativity to use, and “take ownership of it.” For instance, the guidelines recommended that the healthy meals be accompanied by nutrition information that allows customers to understand what they are consuming. To make the project unique to their hospitals, implementers developed signs and symbols unique to their hospital’s cafeteria and vending machines. Some implementers used stoplight colors as a health index (red as least healthy, yellow as somewhat healthy, and green as healthy). Others used cartoon bees (food labels with a bee image on them indicate the food is healthy and can be consumed frequently).
Giving implementers the chance to take ownership of the project and to get creative with it was another way NCPP showed its support and motivated implementers to complete the project.

Although cafeteria supervisors/staff and senior managers did not interact with NCPP staff as frequently as middle managers, they considered the organization a resource that provided unique networking opportunities. NCPP hosted networking events at hospitals that had already completed the HFEH project. These events helped implementers see the project’s potential and generated excitement about implementing similar changes. The networking events also helped implementers make contacts with other hospital administrators and managers they could call with project-related questions. These events influenced a few managers and administrators to jump on board the innovation’s adoption and become the next hospital to host such an event.

NCPP staff further motivated implementers to become a Red Apple hospital by making available the rate of adoption map of hospitals. This map, accessible via NCPP’s website, showed implementers which hospitals throughout the state were Red Apples and which were not.

**Figure 3. Healthy Food Environments in Hospitals NC Map**

This map illustrated all hospitals throughout North Carolina as apples and, depending on the hospital’s implementation phase, the apple was colored green, yellow, or red. Hospitals used the map to compare their progress to that of other hospitals.

*The map was last updated March 2011.*
Seeing the Healthy Food Environments in Hospitals NC Map impacted implementers since it showed them where on the project’s adoption curve their hospital was and how far ahead or behind they were in being a state health leader.

“Well, I didn’t participate directly with [NCP], but I think like the Red Apple project, it provided a resource. You begin to see what you’re doing and what you’re accomplishing, and comparing that to what others are doing. You begin to see that development across the state: Are we ahead of the curve? Behind the curve? Not involved? Not doing anything? It’s good to be ahead of the curve but at the same time, you have the opportunity to have a resource out there you can learn from, not only share your own successes but learn from other people and what works and what doesn’t work.” —Vice President, Finance

Typical of most senior managers, this vice president for finance did not interact much with NCP directly but was aware of its resources and tools, including the map. This senior manager is also commenting on the opportunity to “share your own successes but learn from other people” in the networking events. His hospital was one of the first to host a networking event, although he also said in the interview that he was influenced by events at other hospitals. Specifically, he came back from some events inspired to expand the HFEH project to the hospital’s external community and to develop more features to make the project even greater.

Middle managers also saw the networking events as a way to learn best practices for the project. They felt a pinch of competition by attending the events and by seeing which hospitals in the area had already achieved Red Apple status.

“Peer pressure matters, to be honest with you. There were other hospitals in North Carolina that had it. There was a program that we wanted to make sure we had it here, too. We jumped on the band wagon immediately.” —Food & Nutrition Services Director

The map acted as a friendly reminder that surrounding hospitals also were pushing to be the best in the county and one of the state’s top leaders in health. Implementers saw other hospitals’ ambitions as a threat. The goal of earning Red Apple status and of being a Red Apple hospital on the map kept implementers motivated and kept senior managers pushing for a
successful implementation. Even cafeteria supervisors were motivated by the concept of becoming a Red Apple hospital:

“[NCPP] gave us that extra push to do it a little faster, to get from that Green to Gold to Red because that was very important to our corporation, to become a healthier hospital. And as we went through the phases from the Green to the Gold to the Red there was a lot of excitement.”
—Retail Sales Supervisor

Implementers often rejoiced when they completed one of the project’s main phases and earned a new color. Such joy was noticeable particularly in the cafeteria environment, where the Red Apple awards and recognitions were hung and where most of the changes took place. Although cafeteria staff did not mention the HFEH map as something that kept them motivated, the change of Apple certificates in the cafeteria and the concept of graduating colors provided a similar visual effect.

For some senior managers, visuals of the NC map sparked the initial interest to adopt the innovation and later served as a reason to complete the implementation process. As one CEO mentioned, every time he saw that his hospital was not a Red Apple on the map, he would semi-interrogate his middle managers: “I would take the map, show [the food and nutrition services director] and ask, ‘So, when are we going to be a Red Apple?’” Even if only for the sake of being a Red Apple on the map, senior managers were influenced by this tool provided by NCPP.

Without a partner organization such as NCPP, the implementation process may have been more challenging and time-consuming. Although senior managers and cafeteria supervisors/staff were not as involved with NCPP during the implementation, middle managers relied heavily on the organization’s online tools, flexible guidelines, hospital networks, and encouragement to keep the implementation going and on the top of the hospital’s list of priorities.
Support from the hospital’s senior managers

While NCPP provided reliable external support, implementers considered top leaders at the hospital (i.e., senior managers) provided the internal system support they needed to put the project in place. Although senior managers were not very involved in the on-the-ground implementation process, they provided important moral and financial support for the project.

Middle managers and cafeteria supervisors and staff said the project would not have been implemented successfully without the support of the top leadership. As one middle manager said: “Without leadership support, you will have a much steeper hill to climb.” He explained that if senior managers’ project priorities for the hospital are not the same as those of implementers, implementers would not receive the financial or social support needed for the project. Senior managers’ support consisted mainly of allocating funds and giving implementers flexibility. The middle managers said such support signaled that top leaders would commit to the project and that they trusted middle managers’ skills and abilities.

“There is a cost associated with any change we do and there really were no limitations or demands. [Senior managers] knew we would be fiscally responsible and do everything within our power to make wise decisions, and not fiscally irresponsible decisions. Many other places would want to have a real tight radar on that and inhibit the ability to do anything. But our administration has completely supported the environment to allow us to do this.” —Food & Nutrition Services Director

This middle manager, the project champion for his hospital, was reassured by the belief that senior managers at his hospital were more trusting than senior managers at other hospitals.14 Perceptions that these top leaders were encouraging and trusting made a difference in how motivated and confident middle managers felt throughout the process, especially since middle managers had to budget the project using hospital funds and wanted to avoid being the cause for hospital financial losses.

14 It is unknown whether this assertion was founded on conversations with middle managers at other hospitals or on observations and personal interpretation.
Middle managers and cafeteria supervisors/staff also wanted senior managers’ support in maintaining the food environment changes in the hospital post-implementation:

“Once the CEO and CNO were on board with this program, we were able to really fully implement it. It’s critical to have support from the top if you want something to last long term. You can start your own program and be kind of a rogue and sometimes you can be successful but if the top management doesn’t support or understand what you’re doing, it may not last long term because they’ll see there are other priorities that come up.” —Marketing Director

Like several other middle managers, this marketing director acknowledged (and feared) the possibility that his implementation efforts and hard work could go to waste if senior managers abandoned or minimized their support for the project. Managers did not want to put a lot of effort into getting the Red Apple award if they could not maintain the changes. Thus, they were comforted when senior managers approved of and were excited about the project, and when they expressed interest in seeing the new food environment changes permanently replace elements of the current food environment.

Not all senior managers showed the same level of support for and enthusiasm toward the project. Some were distant and showed little interest in the changes, while others were passionate and fully involved. Those who were more involved provided verbal and face-to-face encouragement and worked closely with implementers as changes were made in the cafeteria.

To an extent, managers and supervisors followed if senior managers led, even if they did not always agree with the changes senior leaders wanted. In one hospital, for example, the vice president of wellness development pushed to permanently remove the fryers from the cafeteria. Many managers and cafeteria supervisors at the hospital saw this change as dramatic and were afraid customers would revolt.

“Taking out the fryers, that was a monster for us, but [the senior manager] was 100% into it. You can call her if you don’t understand why it was taken out. She would say, ‘Tell them to call me,

15 It is not clear from the interviews why some leaders were more involved than others. The data revealed no differences in leadership involvement in the implementation by hospital size or location (geographically) of the hospital.
or email me’ or something like that. Just having her backup and administration backup was really good. It was more relaxing for me. Just having administration there was key.” —Assistant Retail Manager

Like most of the implementers at this hospital, the assistant retail manager was afraid of dealing with employees’ negative reactions. But the vice president made the transition easier by taking the responsibility of dealing with dissatisfied customers. Having this type of support was “key” for middle managers and cafeteria supervisors/staff, and it motivated them to make the necessary changes for the project.

In addition to working side by side with implementers and calming their nerves, senior managers acted as cheerleaders and boosted implementers’ morale when the road got bumpy:

“Our vice president, she supported us the whole time. And at times when it got a little bit tough, she pushed us to keep going toward our goals. I know she talked about it at the executive team meetings so she was really proud of it. And when we’d get kind of down and out she would give us that extra push and really want us to achieve our goals. So it was important, she could have said, ‘Oh that’s fine, push it back again this year.’ But she wouldn’t let us do that. She wanted us to move forward.” —Clinical Nutrition Supervisor

This vice president did not offer direct help with the implementation, but her encouragement and positive attitude were enough to get this middle manager and other implementers back on track and excited about finishing the implementation.

Even though senior managers were overall not involved with the implementation process and changes, their approval and support for the project affected how comfortable and confident implementers felt. Middle managers and cafeteria supervisors/staff were more confident about moving forward if they knew their senior managers would allocate funds, trust their skills and expertise, and in some cases, provide encouragement and on-the-ground help. Implementers at all managerial levels agreed that middle managers and cafeteria supervisors and staff would have struggled to complete the implementation had they not perceived that top leaders were supportive of the project.
Support from a diverse, committed team of implementers

Respondents at all managerial levels agreed that the implementation would not have been possible without a diverse, committed team of implementers. Having a well-rounded team ensured that the project included input and expertise from all departments involved (e.g., food services, nutrition/dietetics, health education, and administration). Many implementers considered the team’s interdepartmental makeup a blessing since they felt other implementers would contribute knowledge and skills specific to their fields, and thus make the implementation process smoother. One middle manager explained:

“You can’t do it without food services, obviously, but you also need your marketing staff, you also need your leadership, you also need just any creative people that you have even if they’re not in food services. You need people that can bring energy to it, people that are passionate about it themselves, and you can’t do it by yourself. That’s the biggest thing is that you need the team behind you.” —Health Promotion Manager

The team for a successful implementation included a multitude of implementers who would contribute the necessary expertise to the project, including creativity. Another key ingredient was having managers and staff who were motivated and passionate to implement the project and who could work well with implementers from other departments. So it was important to have people who could both do the job and work with others.

Collaboration between middle managers from nutrition services and cafeteria supervisors and staff was critical to the implementation since the project’s main changes required consensus from members of both departments. For instance, the nutritionists and dietitians needed to work with the chefs and the cooks to develop healthy recipes and the nutrition analyses for the healthy meals. Implementers from both departments had to be energetic and passionate about the project to make the interdepartmental collaboration easier to handle.

Initially, cooperation was hard to achieve since the dietitians and nutritionists focused only on the nutrition component of the food changes and the cafeteria staff and supervisors
focused primarily on the taste. Over time, however, implementers saw the importance of collaboration and worked together to make foods nutritious and tasty. Cafeteria staff members were the hardest to train, and they did not respond positively at first. But they followed the rules once middle managers from the nutrition department increasingly involved them in the implementation.

For example, nutritionists engaged chefs and cooks in the recipe development process and prepared the new recipes in the kitchen with them, instead of simply telling them which ingredients to include and/or exclude. They worked diligently side by side, which made cafeteria staff feel their role and input in the project mattered. Over time, cafeteria supervisors/staff saw the implementation as their responsibility as well as something they wanted to help with.

“We made sure we were constantly reminding them of the basic principles we have to meet. We can’t get the Red Apple without meeting these principles, and after a while the cooks would say ‘Could we get a Red Apple for this recipe?’ ‘Can we get a Red Apple for that recipe?’ They knew we were working toward getting a Red Apple, and they were more in tune to sticking with it. They would see us out there making changes and seeing how we could modify the recipes. ‘How low could we go on the margarine or the oil and still meet the standards and make it taste good?’ … As long as they knew we were trying to shoot for that Apple they were really into wanting to help us come up with ideas how to spice it up to make it taste good.” —Clinical Nutrition Supervisor

As this middle manager explained, team commitment got the cooks excited and eager to participate. Persistence from managers in the nutrition and dietetics department(s) was helpful in getting food services staff motivated to implement the changes and follow the healthy food nutrition guidelines. Toward the beginning of the implementation, nutritionists and dieticians frequently caught chefs and line cooks knowingly breaking the project’s nutrition guidelines by pouring too much salt or oil into the healthy meals. Cooks said they initially broke the rules partly from apathy and partly from frustration toward the nutritionists—they did not appreciate being told how to cook or to change the way they cook.
“I’ve been here a good number of years, and sometimes it’s hard to get cooks to follow a recipe because they feel their creativity has been taken away. … And this is true in a lot of hospitals. You feel it’s the dietitians against the cooks. The cooks want to put certain seasoning in and we were trying to make it healthier. But we found out that didn’t happen once we educated them and took the time to explain to them that this is the reason.” —Registered Dietitian

Most dietitians and nutritionists, such as this one, experienced some form of resistance from cafeteria staff and cooks who felt threatened by requests to change the way they do their jobs. But the effective middle managers were patient and persisted with the demands, and over time the cafeteria staff jumped on board. As one cook explained, the persistence was effective:

“My managers still make sure that I work hard, and they help me and make sure I help the employees and the other cooks and make sure we got the ingredient control process together and have the right recipes. It was kind of hard but, they made sure to stick by me and make sure things were happening. We go in and create recipes and we send it to the nutritionists, who tell us what we have to take out since it has to be within the guidelines. As cooks, we’re like pinch this, pinch that, we don’t like measurements and most times cooks don’t measure. But now we measure everything.” —Cook

While some cooks were less resistant than others, middle managers and cafeteria supervisors who encouraged teamwork and involved cafeteria staff in the changes ultimately were successful. One health and wellness coordinator referred to the team effort as a “marriage” since implementers from the food services and nutrition departments needed each other to make the project a reality. Involving implementers, especially lower-level managers, from other departments in the implementation as much as possible increased the chances for success.

Some cooks, however, still resist the changes and do not follow the healthy recipes as they should despite continuous attempts by middle managers and cafeteria supervisors to get the cafeteria staff to cooperate with the project’s guidelines. At these hospitals, nutritionists and cafeteria supervisors maintain heavy oversight, which has made the process exhausting and at times frustrating.

Support and excitement from implementers across departments—including in health education, patient care, and even human resources—kept managers and staff motivated, even if
the implementers from those departments were not as heavily involved in the implementation. Implementers responsible for patient and employee health education, for instance, were asked to help develop effective ways to teach employees about healthful eating, and implementers in human resources were asked to help address employee complaints regarding the HFEH project. While their implementation responsibilities were fewer and easier than those of the nutritionists and food services staff, their creativity and excitement for the project was contagious and provided others with much-needed emotional support and motivation. Implementers’ positive attitudes toward the changes reminded others of the project’s ultimate goal and potential contributions to employee and community health. Motivation from implementers across departments kept some implementers on track to finish the project.

Having a supportive and motivated team was particularly important to implementers from smaller hospitals and from hospitals with self-operated and small cafeterias. These hospitals have fewer financial resources, more work to do (e.g., nutrition analysis), and fewer people to do the work. Implementers from these hospitals were busier in the kitchen than implementers at larger hospitals since they did not have access to large food databases and resources, provided by mass food distributors (e.g., Aramark). Such databases were useful because they provided healthy recipes and their nutrition information. Although NCPP provided online resources and tools to help implementers put together the nutrition analysis for healthy meals, the process was tedious and time-consuming.

Although the extra work was discouraging at times, managers and staff at smaller hospitals expressed overall enjoyment from the implementation process and claimed that having a smaller team was “advantageous.” One middle manager said: “Things have happened at a faster pace, probably, compared to a larger hospital. It has been all fun, really.” This manager felt
that having a smaller Red Apple team meant jumping through fewer hoops and having a quicker implementation. She, and several others at smaller hospitals, also referred to the process as “fun.” Apparently, implementers at smaller hospitals know each other more intimately than at larger hospitals, and they saw the implementation as an activity they did with friends for the common goal of keeping each other healthy. Having a personal connection to team members, or at least feeling close to them, made the process more bearable and enjoyable for managers and staff who otherwise may have felt too overwhelmed to finish the project.

Implementers at all managerial levels considered teamwork and the development of a supportive, committed team as essential to the project’s implementation. More specifically, they recognized the need to have enthusiastic, persistent, and interdepartmental team members who could help one another follow NCPP guidelines and make the process enjoyable and meaningful.

The effects of feedback on beliefs about the project’s impact

Feedback was an important factor in the implementation and maintenance of the project. Thus, it is important to understand the types of feedback implementers received and how such feedback affected their beliefs about the project’s impact on the hospital and on employees.16

Most of the feedback is based on informal evidence of cafeteria food sales data and on observations of changes in customers’ health habits. For middle managers and cafeteria supervisors and staff, feedback also included direct comments from customers who were disapproving or accepting of the changes.

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16 None of the hospitals had conducted formal or routine evaluations to measure the project’s impact(s) on employees and on the hospital (financially or socially). To date, none of the feedback about the impact of the project was obtained through a formal evaluation process.
Direct and indirect feedback

During the project’s implementation stage, middle managers and cafeteria supervisors/staff were the main faces behind the operation and were the ones employees and community members knew to contact. They were in charge of promoting the project, communicating with customers about the changes, and putting together events that celebrated the project’s progress. Their level of involvement with the implementation and their constant presence in the cafeteria made it easier to receive feedback from customers.

“Working on the front line in the cafeteria itself, I see it every day. It’s pretty obvious there are people looking for those items every day. … So you have those customers that it’s pretty obvious they are losing weight, they are coming in and looking for that salad every day or the healthy entrée or the vegetables or the healthier type sandwich. And those customers easily respond and there seem to be more and more of those customers doing those same type things. Also, I’m stopped in the hallway or in meeting rooms and just approached and offered the information from people, how much they appreciate the effort and things we put into posting all the nutrition information, and how much it has meant to them personally because they don’t have time to go anywhere else and they don’t want to buy or pack for lunch. A lot of people have just offered that information to us.” —Kitchen Supervisor

Implementers such as this kitchen supervisor noticed changes in the same customers over time and adoption of the changes by more customers. They also were, and still are, commonly approached by satisfied customers who go out of their way to say, “Thank you,” or who send emails with messages of appreciation. A few middle managers and cafeteria supervisors said they have received emails with requests for specific healthy meals customers thought were tasty. One clinical nutritionist shared: “Employees continue to send emails even when we’re not doing as many advertisements about the Red Apple project. They will email us out of the blue and say, ‘Hey, when are y’all going to have that grilled chicken with the strawberry-pineapple sauce? We really liked that, and it made me feel good to eat healthy.’” Receiving such emails made implementers feel good about their involvement with the project and convinced them that customers had adopted healthier eating habits and wanted a healthier food environment.
In addition to watching employees adopt healthier habits and to receiving comments and emails from satisfied customers, implementers also heard customers make positive comments to each other about the food environment changes. For instance, a clinical nutrition manager said she one time overheard employees discuss their new, healthier eating habits: “I heard a gentleman saying to a woman, ‘I don’t ever eat anything but green for lunch now. I just go with green while I’m at work.’ And right there, that’s a success. That’s one step in the right direction.” Overhearing such comments convinced implementers that employees had improved their eating habits thanks to the increased availability of healthier options and to other project-related changes in the hospital’s food environment.

Another middle manager had a similar experience. He overheard co-workers talk about changes in their selection of cafeteria foods after the nutrition information for food items was posted:

“I overheard a lady talking to one of her colleagues that she used to just go to the salad bar. She knew that was a healthy spot. But now that we rolled out the program she said it opened the whole cafeteria to her. She can go to the grill and make healthier choices at the grill, she can go to the deli and make healthier choices at the deli, she can go to the hot line and see what’s available there also. It has played a dramatic role for the employees and any time you change something you’re always wary about whether or not you’re making the right change. I wholeheartedly believe this was the right thing to do for the employees.” —Food & Nutrition Services Director

Here, the employee liked knowing about all the healthy options in the cafeteria, and the implementer liked knowing he helped make the changes possible. Hearing employees’ positive comments helped implementers believe customers would adopt the changes and would accept the healthier food environment as the norm.

Although not common, some implementers saw an increase in the number of community residents who purchased healthy meals in the cafeteria daily and, in one rare case, witnessed a community member lose more than 100 pounds as a result. Seeing this type of change in the community’s health and actions made some middle managers and cafeteria supervisors/staff...
think highly of the project’s impact. Furthermore, it got them thinking of ways to expand the project into the community in the future. Some managers mentioned wanting to partner with schools and businesses around the area and to spread food environment projects similar to the HFEH in those settings. Other managers mentioned wanting to invite community members to future food-related events at the hospital (e.g., cooking classes).

Although senior managers did not spend as much time in the cafeteria as middle managers and cafeteria supervisors/staff, they frequently visited the cafeteria for breakfast and/or lunch. Like other implementers, senior managers noticed the types of foods employees purchased, overheard employees’ conversations about the new food environment, and sensed employee enthusiasm about the changes.

“In addition to having access to the fresh foods, fresh vegetables, employees have become more excited about food and food choices. They are trying new things, new varieties of fruits and vegetables. And whole grains. I mean the excitement in our cafeteria around people trying and talking about quinoa, a whole grain they hadn’t tried before, making it available in a small tester size so people could try it out and then encouraging each other. So, just trying new things, just the excitement, the buzz. They want to participate.” —Chief Operating Officer

Employees’ excitement and “buzz” at the quinoa tasting convinced this top leader that employees had developed positive attitudes toward health and the new food environment. Seeing trends of an improved culture of wellness at the hospital was a joy to many implementers who often questioned, especially at the beginning of the implementation, whether North Carolina’s Southern culture and Southern culinary traditions were unbreakable barriers to getting employees and the community to accept the new food environment. Implementers at all managerial levels mentioned that changing the menu’s unhealthy Southern options to healthier meals was one of the project’s biggest challenges, and one of their greatest concerns.

“Our county is a classic Southern county. We have obesity issues. We do not eat healthy here. Fried foods, high sweets, soft drinks—all those sorts of things are a part of the lifestyle of this county. And to introduce something that is counter to that lifestyle and without looking like or
even wanting to force this on people, I think we’ve done a good job of convincing people this is the right way to live. That’s the biggest challenge.” —VP Marketing

“It’s a Southern community. There’s a heavy focus on fried foods and a lot of animal protein eaten here. I thought if people have eaten this way their whole lives, it’s hard to change personal behaviors. But I believe with proximity of good food, healthy food, vegetables, a more plant-based diet, and teaching employees about it, they’ve started consuming more so it’s a good thing.” —Acute Care Director

“When Red Apple started coming in comfort food was what it was all about. It was good old meatloaf. It was fried chicken. It was all about the foods that comfort you in the South. So the Red Apple forced a culture change, and a lot of people were afraid of it, but it has really been accepted now. The grilled chicken, the healthier meatloaf made with fresh vegetables and meats instead of just the breadcrumbs and the meat, as we all know meatloaf. The chicken is no longer fried. It is baked and they’re good. They’re very good.” —Retail Sales Supervisor

The HFEH project forced a culture change that many were afraid of since customers had been used to eating unhealthier Southern foods for years. Seeing customers accept and adopt the new food environment changes and hearing directly and indirectly from customers about how much they appreciated the changes convinced the implementers that the project was worthwhile and that it would have its intended impact on employees and on the hospital community at large.

Noticing changes in food sales trends

Implementers also noticed changes in the cafeteria’s food sales trends once the healthy items and meals were offered. Not all implementers mentioned seeing or having access to cafeteria food sales data, but almost all who mentioned the trends used them as proof that the project’s changes were successful.

Managers and staff who were aware of positive healthy food purchasing trends in their hospitals were excited to share the information and were convinced that the trends were indicative of the project’s success in changing employees’ eating habits. In one hospital, for instance, implementers were ecstatic to see consistently high sales numbers for healthy foods.
since they changed the cafeteria pricing structure. The unexpected, upward sales trend suggested that the new food environment would have a stable, positive impact on employees.

“I can say from our sales that people are really buying the healthier options we price that way. Our salad bar sales are just going sky high and they continue rising, which surprised me because I thought, at first, people will do this and the newness will wear off. And the same with sales of fried and grilled items. But with all the data we’ve collected, it has continued to trend the way we want them to trend—with more of the healthy items being purchased and fewer of the grilled and fried foods. It’s kind of interesting to me that it really has taken hold as a culture change. People are really trying to rein in their eating habits.” —Food & Nutrition Services Director

This quote is a good example of the reactions of most implementers who watched sales for healthy items increase and were “surprised” by the positive change. One of implementers’ greatest fears going into the HFEH project was whether customers would accept the changes. So seeing the sales of healthy foods rise and the sales of unhealthy foods decrease was a sign of success and of a worksite culture change. And the changes in food sales did not have to be large for the project to be considered effective. For some implementers, seeing changes in only a few food items was enough for them to feel confident that the project was headed in the right direction.

“The choices people are making are being reflected in the items and the quantity of items we sell. Obviously we have a pork sausage patty on our breakfast line and a turkey sausage patty, and the sales are climbing for the turkey sausage and probably either falling or staggered or stable on the pork sausage patty. So little things like that, little things where having some pricing incentives to be healthy or healthier items we sell. You see the numbers turn around so we have this particular item next to this healthier item and the sales numbers for the healthier items starts to climb and the unhealthy items start to fall a little bit. We are seeing more and more of that.” —Kitchen Supervisor

Cafeteria supervisors and staff were the implementers who most frequently mentioned changes in the sales of specific food items instead of overall trends. For instance, a cashier in one hospital said she observed an increase in purchases of yogurts and fresh fruit only, and a cook in another hospital said he saw an increase in the sales of grilled chicken and a decrease in sales of fried and grilled items.

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17 Changes in the pricing structure included reducing the prices of healthy foods and increasing the prices of unhealthy foods.
fried chicken. Such attention to specific items seems due to the fact that these implementers, who spend their days in the cafeteria, observe the purchases customers make every day and are responsible for cooking and/or re-stocking the food items. Perhaps their attention to the project’s success or impact(s) does not stretch much farther than the cafeteria.

Middle managers and senior managers, on the other hand, spoke of increases in healthy food purchases overall and did not mention specific items unless the sales change for the item was substantial. For example, one middle manager said that lowering the price for non-sugared beverages (e.g., diet sodas) in the cafeteria caused a substantial shift in the number of beverage sales—the ratio of sales prior to the implementation was two to one for sugared and non-sugared beverages, and months later was one to three.

Not all hospitals experienced positive sales trends, however. Implementers from one hospital saw sales decline since the project’s implementation, but they considered the dip a result of the county’s poor economy and not related to the HFEH project changes. Overall, implementers remained positive about the changes, even after receiving negative sales feedback.

Also, not all implementers were aware of sales data for healthy and unhealthy food purchases in their cafeterias but all showed great interest in learning the information. Those who did not have such information said they wanted to do an evaluation of the sales to “see whether [the project] is working” at the hospital. While observing and receiving direct feedback from customers was convincing, implementers still wanted sales data to see the project’s large-scale impact.

In sum, analyses showed that implementers received three main types of feedback about the project’s impact on the hospital and on employees: (1) observations of customer behavior changes and adoption/acceptance of the food environment changes, (2) direct comments from
customers who approved or disapproved of the changes, and (3) food sales trend data. Senior managers were likely to have observed customer behavior changes and to have known about cafeteria food sales data, but they typically did not receive many direct comments from customers. Middle managers and cafeteria supervisors/staff were likely to have received all three types of feedback.

The three types of feedback convinced implementers that the hospital had improved its culture of wellness and that employees had become healthier and developed more positive attitudes toward nutrition. Implementers at all managerial levels referred to the HFEH project as a worksite culture change and as a change in the right direction.

Unlike software innovations or single-component behavior change innovations, this comprehensive, environmental project affected employees’ lives and personal habits. The innovation was not limited to only improving people’s performance at work; it also improved employees’ lives outside the hospital by promoting a lifestyle change. Implementers were proud of their roles in the project and were encouraged to continue because of the positive effects they saw.

“I have met so many individuals in the hallway that have stopped me and told me what their weight loss was that week, what their goal is. It has impacted me by satisfaction with the Red Apple involvement. … I’m touching individuals throughout the community and employees. They stop me in the halls and say, ‘Thank you for what you’re doing and for bringing this to the cafeteria.’ That couldn’t say more. Just from the individuals from the community coming in and saying they lost weight by eating here. From board members who say they eat here three times per week and they see a reduction in their own weight and say how happy they are in their own face.’” —Kitchen Supervisor

Such reinforcement from customers helped implementers become aware of the project’s impact and motivated them to complete the implementation. Feedback of the project’s impact on the hospital and on employees was important to implementation and maintenance in several ways. In addition to encouraging implementers to earn the Red Apple award and help employees
and community members reach their health goals, feedback helped implementers see the new food environment changes as the ideal new culture of wellness at the hospital. Seeing this helped them maintain the food environment changes so far and encouraged them to think of other ways to expand the project both in the hospital and to the community. They remain optimistic despite fighting barriers such as a strong Southern culture and eating habits that have been ingrained in people since youth.
CHAPTER FOUR: DISCUSSION AND CONCLUSIONS

Interviews with hospital administrators and managers responsible for implementing NC Prevention Partners’ HFEH project revealed that its successful implementation was due to four main factors: support from senior managers at the hospital, support from other implementers, support from NCPP, and customer feedback.

Knowing senior managers considered the project a priority at the hospital and having their financial backing to make the changes possible made implementers feel the project would be easier to implement and their hard work would not go to waste. Breaking barriers between departments (i.e., nutrition and food services) and working as a team with other implementers made the implementation process less stressful and motivational for implementers. Also, receiving tailored guidelines, informational tools, networking opportunities, and encouragement from NCPP helped implementers see the process as easier than they initially anticipated and remain motivated to complete the implementation. Last, receiving direct and indirect, as well as positive and negative feedback of customers’ adoption/acceptance of the food environment changes gave implementers an idea of employee receptivity toward the project and thus whether it would be adopted as part of the hospital’s new culture of wellness.

The findings from this study also revealed that implementers became aware of the project’s effects on the target audiences through different types of feedback and that feedback affected their beliefs about the project’s impact on the hospital and on employees. Implementers observed changes in customers’ eating habits and food purchasing habits, received direct and indirect comments from customers who approved and disapproved of the project, and had access
to evidence of cafeteria food sales trends over time. Although some of the feedback about the project was negative, customers gradually adopted to the food environment changes. Seeing this transition increased implementers’ motivation to complete the project. Noticing customers become healthier, hearing that the changes improved customers’ lives, and seeing increases in cafeteria sales of healthy foods convinced implementers that the culture of wellness in the hospital had improved.

Implementers at all managerial levels agreed that all four factors were necessary for the successful implementation of the project. However, middle managers valued NCPP’s help the most since they built the strongest relationship with NCPP staff and they relied on the organization’s tools and guidance to ensure the project was implemented smoothly. Although all implementers considered NCPP an important resource, middle managers saw NCPP’s help as the “make it or break it” factor.

The middle managers and cafeteria supervisors/staff received more feedback about customers’ adoption/acceptance of the changes during implementation than the senior managers. Senior managers were exposed to and received both positive and negative feedback, but their lesser involvement with the implementation sheltered them from having to make the day-to-day adjustments the middle managers and cafeteria staff managed.

Senior managers also did not receive much direct feedback from customers (e.g., emails and face-to-face comments). Middle managers and cafeteria supervisors/staff received much more direct feedback since they were the primary ones responsible for actual implementation. Despite not being contacted directly by customers, senior managers had the same beliefs about the project’s impact on the hospital and on employees: the project birthed a better culture of wellness at the hospital.
Predisposition, Capacity, and Reinforcement Model

Concepts from the Predisposition, Capacity, and Reinforcement Model (see Figure 1, p. 26), which extracts elements from the Diffusion of Innovations theory, are clear in this study’s findings. In the PCR model (Green & Kreuter, 1991), *predisposition* refers to the attitudes, beliefs, knowledge, perceptions, and values that motivate individuals and organizations to implement a particular innovation, and *capacity* refers to the skills and resources available to achieve the changes. Both capacity and predisposition elements lead to project implementation. *Reinforcement* refers to feedback received about the project’s impact on the target audiences, and this feeds back into the implementation process in the model.

In this study, support from senior leadership fulfilled the roles of both capacity and predisposition elements of the PCR model. Since NCPP did not provide monetary assistance for the project’s implementation, senior leaders’ approval to use the hospitals’ financial resources was necessary to make the HFEH project changes. Also, leaders were organizational opinion leaders and their approval of the project influenced the attitudes and behaviors of middle managers and cafeteria supervisors/staff. Mid- and lower-level managers and staff developed more positive attitudes toward the project and felt motivated to implement it faster when they felt they had support from their senior managers.

Support from fellow implementers also can be placed under both the capacity and predisposition elements of the model. Implementers who helped with implementation tasks were considered human resources and expertise from certain implementers, such as the nutritionists, were seen as skills necessary for the implementation’s success. Although necessary manager and staff skills and resources were present at the hospitals in this study, the project would not have been implemented as quickly or easily without cooperation between the nutrition and food
services departments. Once implementers from both departments shared the common goal of achieving Red Apple status and took their implementation responsibilities seriously, attitudes toward and beliefs about the innovation improved and motivation to implement the innovation increased.

Throughout the process, hospital implementers worked closely with NCPP, their external organizational partner. Support from NCPP—specifically the tailored implementation guidelines, online support tools, and networking events at other hospitals—was related to the model’s capacity and predisposition elements. The guidelines and online worksheets and tools provided the resources necessary to achieve the changes. The networking events, which provided opportunities for interpersonal communication with near peers and observability of the innovation’s changes, did much to improve implementers’ attitudes, knowledge, and beliefs of the innovation.

Implementers also engaged in interpersonal consultations with NCPP staff—via email message exchanges, telephone conversations, and face-to-face interactions—and they received rewards and non-monetary incentives\(^\text{18}\) for the project’s implementation. NCPP staff provided some informal feedback on performance, but it was mostly positive encouragement when implementers reached a new Apple level in the implementation. Having direct access to their external partners when they needed help or guidance and having incentives to complete the innovation gave implementers capacity and predisposition to implement the project.

Feedback of customers’ adoption/acceptance of the project during the implementation process acted as a predisposition element from the PCR model. Feedback helped implementers see changes in the social characteristics of the hospital community and in the community’s health.

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\(^{18}\) The rewards and incentives included becoming a Green, Yellow, or Red Apple on the map, receiving a Red Apple award framed certificate, and being lauded for the achievement via monthly email newsletters sent to hospital managers and administrators throughout North Carolina.
priorities. For instance, employees’ willingness to replace their current Southern/unhealthy food habits with healthier ones positively influenced implementers’ thoughts and feelings about the project. Such changes in the community impacted the attitudes, beliefs, and values that motivated implementers to complete the implementation.

Feedback shaped implementers’ beliefs that the project would succeed at the hospital and that the project would be beneficial to and positive for employees and the hospital community at large. Feedback also shaped implementers’ belief that the project was in line with their hospital’s health and wellness values. Feedback gave implementers the confidence and reassurance necessary to proceed and the personal satisfaction of knowing their hard work was being recognized and accepted.

Overall, the HFEH project was perceived as a good innovation as it was in line with hospitals’ health care mission and would improve the health of employees, and potentially of the community. Implementers had positive attitudes, beliefs, and perceptions of the innovation, and they valued it. However, predisposition was not enough to motivate them to implement the project. Implementers sought reassurance from hospital senior managers and from NCPP staff that they would be guided and supported. They also wanted reassurance that they would have the necessary tools and resources to make the changes possible. Without elements of capacity, the implementation of the HFEH project might not have succeeded, even if motivation was high.

Project impact and reinforcement

While research on the implementation of innovations in organizations is growing, little research exists on the PCR model’s innovation impact and reinforcement elements. This study analyzed primarily managers’ perspective of the innovation’s impact and of the type of feedback (reinforcement) they received. On a smaller scale, the study analyzed how the feedback
managers received reinforced the implementation process and kept them motivated to continue with project maintenance.

In the PCR model, reinforcement refers to feedback about the program’s impact on the target populations. The model suggests that the HFEH project’s impact (positive or negative) on hospital employees and the hospital community at large produced some type of feedback, which affected the implementation process. This study analyzed the types of (informal) feedback implementers received and paid attention to during the implementation process. This study also found that feedback affected implementers’ beliefs about the healthy food environment project’s impact on the hospital and on employees.

Consistent with Green and Kreuter’s (1991) reinforcing factors, feedback on performance is particularly important for innovation sustainability. Beliefs about a project and its impact are important for encouraging motivation. Furthermore, as Parcel et al. (1990) state: “determining what incentives to use to encourage maintenance of a program is finding out what types of feedback and rewards will be valued by the staff and administrators” (p. 244). That is, to encourage implementers to keep an innovation active post-implementation, it is important to understand what feedback and rewards they value.

The analyses discussed here show that implementers look for and pay attention to changes in the target audience’s behaviors and attitudes. In this project, implementers paid attention to different kinds of feedback, including customers talking about the changes, and emails from satisfied and dissatisfied customers. The findings suggest that implementers will also look for and/or pay attention to information about financial trends related to the project’s goal(s). For this study, financial trends included increases in customer purchases of healthy foods/meals in the cafeteria and in the vending machines.
Such feedback, especially positive feedback, helped implementers remain motivated during the innovation’s implementation stage as it helped them see that the changes were being accepted and adopted by customers, and that people’s eating habits and attitudes toward health were improving. Implementers still use feedback of customers’ adoption of the project to remain motivated during the innovation’s maintenance stage. Although these hospitals have achieved Red Apple status, implementers must still work to keep the changes active. Implementers still talk about modifications they would like to make to the project to improve it and further its impact on the community outside of the hospital.

Implementers also noticed that the project positively affected their jobs and personal lives. Most of the implementers mentioned feeling some type of reward and/or satisfaction from their involvement with the project. They either experienced personal and/or job satisfaction from seeing customers adopt the food environment changes, or they developed healthier lifestyles themselves. The middle managers and cafeteria supervisors/staff in particular mentioned that the project helped them lose weight, lower their blood pressure and cholesterol numbers, and taught them the importance of nutrition and of being healthy. Such personal changes influenced their beliefs and attitudes toward the innovation since they better understood the project’s importance and potential impact. They were further motivated to implement and maintain the project.

The innovation’s implementation had an impact on the target populations, and the impact was recognized and sought after by implementers who looked for reassurance that the project was having its intended effects. Implementers noticed and paid attention to customer behavior change, direct and indirect customer feedback, and evidence of changes in financial trends in the cafeteria. The feedback acted as reinforcement that the implementation process was working and that the project should be maintained to maximize the target population’s health improvements.
Figure 4, below, is a modified PCR model that includes elements that should be added based on the findings from this study:

Figure 4. The Predisposition, Capacity, and Reinforcement Model applied to the HFEH Project

The modifications and additions to the model are primarily meant to show the importance of reinforcement’s role in motivating program implementation and program maintenance. The modifications are as follows: (1) the arrow between the predisposition and capacity elements now points two ways instead of one (originally from predisposition to capacity)—factors necessary for implementation success for health promotion programs have characteristics of both capacity and predisposition, and they affect each other; (2) an arrow now points from reinforcement directly to predisposition—feedback from the program’s impact, even if informal or short-term, strengthens attitudes, beliefs, and knowledge of the program and motivates
program implementation; and (3) a program maintenance box now follows reinforcement to show reinforcement’s role in ensuring project maintenance.

**Research contributions**

The bulk of diffusions research in health care settings has been conducted on heart health promotion programs in Canada (Driedger et al., 2007; O’Loughlin et al., 1998; Riley et al., 2001; Taylor et al., 1998). This study analyzes a healthy food promotion project in hospitals and may be the first of its kind in the United States. Also, while many studies on DOI in organizational settings have analyzed the factors that determine implementation, only a few have focused on reinforcement and have used an in-depth qualitative approach.

The findings from research question one in this study—the factors that determine successful implementation of the project—are similar to the findings from the Canadian CHHI studies, which analyzed the implementation of heart health promotion programs in health care settings. Specifically, this study confirms that successful implementation and sustainability rely on internal organizational and external system elements such as: leadership and management support; human and material resources; intra-organizational cooperation and skills; defined staff roles for the project, including the presence of a project champion; extra-organizational networks; availability of feedback; and adaptation/reinvention, or the feeling of ownership of an innovation (Driedger et al., 2007; Greenhalgh et al., 2005; Riley et al., 2001; Taylor et al., 1998).

This study also supports findings from other studies which claim that both capacity and predisposition elements are necessary for implementation success and that capacity might be the predominant element for determining the likelihood of implementation success.

One major factor that sets this study apart is that health care organizations from other studies (with the exception of Driedger et al., 2007) received some type of funding from external
organizations for the implementation of health promotion programs. Hospitals in North Carolina that participated in the HFEH project received no funding from NC Prevention Partners, or from any other external organization, yet they managed to successfully implement, and now maintain the innovation’s changes. The money to make the project possible came from hospitals’ own budget, meaning the importance of NCPP’s role as an external agency or network was not financial support. NCPP provided guidance, informational resources and tools, moral support, and an outsider’s perspective on the future of health care in hospitals. Hospitals’ successful implementation of the project, despite having no external monetary contributions or incentives, means the four factors that contributed to the project’s success should not be weighed lightly.

This study contributes new knowledge to the diffusions research in health services organizations by adding to what little is known about the role of positive feedback and about reinforcement throughout the implementation and post-implementation stages. Reinforcement in similar studies has primarily been referred to as feedback about a program’s impact after it has been implemented. Receiving feedback that the project was working was encouraging as it helped implementers maintain commitment to and positive attitudes toward the project.

This study also found that positive feedback, and even some negative feedback, was necessary for the project’s successful implementation. Implementers paid attention to and looked for reinforcement prior to the project’s completion. This feedback acted as a type of insurance that the project would have its intended impact once it was fully implemented and that implementers’ efforts would not be wasted on a project that would not be accepted at their hospital. Implementers continued to notice positive feedback during the project’s sustainability stage and did not pay much attention to negative feedback if positive reinforcement was strong.
No other studies have exposed in such detail the importance of informal and continuous reinforcement to the implementation and sustainability of health promotion programs in health services organizations. This might be due to the overall lack of research on the implementation and sustainability of innovations in health services organizations and/or to the assumption that feedback is received and matters mostly in the maintenance stage.

The managerial level/involvement findings from this study are both similar and different to findings from other studies. This study supports the claim that management involvement in a program can positively impact worksite wellness program adoption and implementation (Crump et al., 1996). The hospitals in this study had the involvement of managers at all levels and such involvement led to the successful adoption and implementation of the HFEH project.

This study also supports the finding that managers who were more involved in the innovation process were more motivated than those who were not as involved (García-Goñi et al., 2007). Middle managers and cafeteria supervisors, the ones primarily in charge of the project’s implementation, were the most involved and the most motivated. Even though cafeteria staff initially resisted the changes and remained uninvolved, they developed positive attitudes and were motivated to participate in the project once middle managers involved them more in the innovation process and management.

Unlike other research, this study did not find many differences in senior managers’ beliefs about effective strategies, benefits, and barriers associated with worksite health promotion programs (Linnan et al., 2007). Implementers at all managerial levels shared similar thoughts and fears about the innovation’s implementation (e.g., employee resistance and program cost), and they shared the overall same beliefs about factors that were necessary for the project’s successful implementation. This difference could be due to the fact that managers in this study
worked in a hospital setting, which has a strong emphasis on health, and those in Linnan et al.’s study worked in a manufacturing plant. Managers and staff who work in hospitals might have similar thoughts of the benefits and barriers associated with worksite health promotion programs since their values for health and wellness are likely already high. Also, this study analyzed interviews conducted with managers after the implementation was complete, not prior to a health promotion program’s adoption, as did Linnan et al.’s study.

The findings from this study also are unique because they can be used to better understand how managerial level can influence implementers’ roles in the implementation and the type of short-term feedback they receive and notice. Senior managers can play a great role in motivating middle managers during implementation, and middle managers can play a great role in getting cafeteria supervisors and staff (lower-level managers) involved and motivated. Middle managers and lower-level managers should work together during the implementation to increase chances of implementation and maintenance success, and senior managers should remain supportive throughout the process.

While senior managers did not receive much direct feedback from target audiences, such feedback is encouraging and helpful to middle managers and lower-level managers. If there is no formal evidence of employee/customer health improvement available, middle and lower-level managers look for and become positively influenced by customers’ comments regarding their adoption of the project. Thus, managerial level influences the type of feedback received and how likely managers are to seek out reinforcement during implementation and post-implementation.

**Limitations**

This study has a few limitations, most related to the process of conducting interviews. First, since the interviews were conducted after the implementation process of the HFEH project
had already passed (months and even years for some), the implementers were asked to think back to when the implementation was taking place. Implementers may not have been able to remember everything and they could have already forgotten some factors. To decrease the effects of this limitation, implementers were asked at the beginning of the interview to think about the hospital’s culture of wellness and to think about the changes in the food and eating environment at the hospital.

Second, getting participants to answer all questions as truthfully as possible was a limitation since they were being video recorded by NCPP and could have been affected by social desirability bias. They may have answered to make the hospital and the HFEH project sound better than they may have thought. To decrease the effects of potential bias, I reminded participants throughout the interview to be as honest as possible and to answer with information about their personal experiences.

A third limitation was the amount of time allotted for the interviews. Since the interviews were completed as part of a larger NCPP project (*The Story of One*), interviews were scheduled back to back and in 30-minute intervals, limiting the number of questions that could be asked.

Fourth, hospitals have had the project in a maintenance stage for varying time periods (some for months and some for years), and none have so far conducted a formal evaluation of the project’s impact. Time constraints did not allow for the creation or dissemination of a formal, routine evaluation, meaning more objective and formal evidence of the project’s impact was not obtained. Thus, this study relies on implementers’ perceptions and perhaps faulty memories.

Also, time constraints and lack of resources did not allow for theoretical sampling, even though the practice is recommended by grounded theorists. I could not conduct a second wave of interviews with a different set of implementers to ensure data saturation.
Last, the sample design of this study (success stories) meant that the implementers interviewed were only from hospitals that successfully implemented the HFEH project. The aim of this study is to understand what worked and why. Also, at the time *The Story of One* was being planned, in Spring 2010, hospitals were still in the process of implementing the HFEH project and there was no way of telling which Green or Yellow Apple hospitals would become Red Apple hospitals by December 2010, when funding for the project ceased. Thus, interviews were not conducted at Green or Yellow Apple hospitals, and this study could not address why some hospitals failed to implement or persist with project maintenance.

**Implications for future interventions**

The findings from this study help show the key elements necessary for a successful launch, implementation, and maintenance of a food environment intervention in hospitals and/or health care settings. This study also shows the PCR model is appropriate for and should be applied to the implementation and maintenance of health promotion programs in health services organizations. However, the model should be modified to include important feedback components to the implementation process.

For a healthy food environment innovation to be adopted successfully in a hospital setting, change agent(s), or individuals and entities that disseminate the innovation, should make sure senior managers and administrators support the innovation. Once top leaders provide their approval and are on board with the innovation, the adoption process takes place more quickly.

Change agents should also show implementers the fully-implemented innovation in a similar worksite setting, and they should promote some degree of friendly peer pressure from neighboring/competitor organizations. Showing implementers the innovation’s changes in a similar environment helps them see the benefits of the project and imagine the innovation in their
worksite. To an extent, seeing is believing for such multi-component innovations. Also, stimulating friendly peer pressure promotes a sense of urgency and a fear of staying behind, and this gets implementers on board with such innovations more quickly. For some implementers, peer pressure might be their top reason for adopting.

For the innovation to be implemented successfully in a hospital setting, the following key elements must be present: financial support, either from within the organization adopting or from an external organization; cooperation between implementers in the main departments involved (i.e., food services and nutrition); non-monetary tools and resources to guide the innovation; perceived support from hospital top leadership; and constant, or increasing positive feedback of the project’s success from those the project is meant to impact (target audience(s)).

The successful maintenance of a food environment intervention in a hospital setting requires continued commitment from implementers. Such commitment is achieved through continuous positive feedback from the innovation’s target audiences and thus informal proof that the innovation is having its desired impact.

To account for the importance of reinforcement, or feedback, to programs’ implementation and maintenance stages, the PCR model should link reinforcement to predisposition and reinforcement should precede a program maintenance element (Figure 4). Positive feedback of the innovation’s impact strengthens implementers’ attitudes, beliefs, and knowledge of the innovation, and in this study it motivated the successful implementation of the project. Positive feedback of the project’s impact also acts as reinforcement that strengthens implementers’ willingness to maintain the innovation and its changes.
In addition, the PCR model should show the interrelatedness between capacity and predisposition. These two elements are not mutually exclusive as they are both important and necessary for the implementation of a healthy food environment program in hospitals.

**Suggestions for future research**

This study was unable to analyze long-term feedback and other factors that determine successful sustainability of the HFEH project in NC hospitals. As McLeroy, Bibeau, Steckler, and Glanz (1988) state, “a current area of concern among health promotion practitioners and researchers is the extent to which health promotion programs located within host organizations survive over a long period of time in order to become firmly rooted in their host organizations” (p. 361). Future research should analyze the HFEH project’s long-term sustainability in NC hospitals and the factors that help determine why/how hospitals have been able or unable to maintain the project years after initial adoption. This could include the creation of a formal evaluation tool that hospitals could use on a routine basis as a way to measure feedback and the project’s impact(s) (e.g., changes in employee health and in the hospital’s health care costs).

Also, the findings from this study suggested that receiving feedback about the positive impacts of health promotion programs can be a rewarding experience for implementers, particularly when they see and receive feedback that the innovation’s changes are improving people’s health. Future research should analyze level of personal and/or job satisfaction received from implementing health promotion innovations (specifically ones in which implementers get to see changes to people’s health), and how that might compare to satisfaction received from other types of innovations in either organizational settings or in health services organizations.

Finally, analyses of the data suggested that implementers noticed positive changes in community members’ health and eating behaviors, in addition to changes in employee health.
Noticing changes in the community’s well-being further increased some implementers’ appreciation of the HFEH project and made them think about expanding the project to local businesses and schools, among other institutions. Future research should analyze how actual or perceived changes in community health affect implementers’ motivations to maintain the project and expand it to impact and/or reach community institutions external to the hospital system.

Conclusions

This study contributes to the scarce research on the implementation and maintenance of health promotion programs in health services organizations. Specifically, it shows the internal and external system factors that managers and staff responsible for implementing such programs in hospitals consider necessary to its successful implementation. The findings from this study also suggest that positive feedback of the project’s impact acts as reinforcement that the project is having its intended effects, and that such feedback is important to both the implementation and maintenance stages of health promotion programs. Feedback motivated implementers to successfully implement the program, and it motivated them to keep the program’s changes alive after implementation is complete.

Implementers from hospitals throughout North Carolina noticed and looked for feedback, specifically evidence of changes in employee’s eating habits and overall adoption of project-related changes, direct and indirect feedback from customers, and changes in food sales trends. Receiving such feedback affected implementers’ beliefs about the HFEH project’s impact on the hospital and on employees. It helped implementers notice a positive change in the hospital’s culture of wellness and in employees’ attitudes toward health. Such beliefs convinced managers and staff that the project worked and made implementers hopeful that long-term, formal feedback of the project’s impact will yield positive results.
With obesity rates and obesity-related illnesses continuing to escalate in the United States, the findings from this study can offer some guidance to large worksites that wish to implement similar healthy food environment projects for its employees and surrounding communities. Permanent environmental changes in the availability and accessibility of healthy foods can positively affect people’s eating habits and increase their awareness of nutrition and wellness. Such changes can have an impact on people’s overall health and such changes are possible with the support and encouragement of important internal and external organizational players.

One key ingredient to making the changes a reality is earning the motivation and willingness of implementers. With the proper attitude and support, these managers and staffers in health services organizations can make a colossal difference in the health and wellness of thousands around them. It is now up to us to motivate each other, as well as key players in large worksites like hospitals, to adopt programs such as NC Prevention Partners’ HFEH, to implement them, and to maintain them so we can maintain the country’s future bright and decrease the prevalence of preventable obesity-related deaths and illnesses.
APPENDICES

Appendix A:

Healthy Food Environments in Hospitals NC Map
# Appendix B:

Rate of Red Apple Award achievement (full project implementation)

<table>
<thead>
<tr>
<th>2008</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>*FirstHealth Moore Regional Hospital</td>
<td>Cape Fear Valley Medical Center</td>
</tr>
<tr>
<td>*Pitt County Memorial Hospital</td>
<td>Iredell Memorial Hospital</td>
</tr>
<tr>
<td>*Wake Forest Baptist University Medical Center</td>
<td>High Point Regional Health System</td>
</tr>
<tr>
<td>*Carolinas Medical Center Albemarle Health</td>
<td>Rowan Regional Medical Center</td>
</tr>
<tr>
<td>Caldwell Memorial Hospital</td>
<td>Presbyterian Hospital</td>
</tr>
<tr>
<td>Hugh Chatham Memorial Hospital</td>
<td>Presbyterian Hospital</td>
</tr>
<tr>
<td>Park Ridge Hospital</td>
<td>Presbyterian Hospital</td>
</tr>
<tr>
<td>UNC Hospitals</td>
<td>Presbyterian Orthopaedic Hospital</td>
</tr>
<tr>
<td>2009</td>
<td>2011</td>
</tr>
<tr>
<td>*Mission Hospitals</td>
<td>Randolph Hospital</td>
</tr>
<tr>
<td>Alamance Regional Medical Center</td>
<td>Highlands-Cashiers Hospital</td>
</tr>
<tr>
<td>Carolinas Medical Center-University</td>
<td>Frye Regional Medical Center</td>
</tr>
<tr>
<td>Margaret R. Pardee Hospital</td>
<td>Kings Mountain Hospital</td>
</tr>
<tr>
<td>The McDowell Hospital</td>
<td>Cleveland Regional Medical Center</td>
</tr>
<tr>
<td>Scotland Memorial Hospital</td>
<td>Morehead Memorial Hospital</td>
</tr>
<tr>
<td>Rex Healthcare</td>
<td>Wilkes Regional Medical Center</td>
</tr>
<tr>
<td>Gaston Memorial Hospital, Inc.</td>
<td>FirstHealth Montgomery Memorial Hospital</td>
</tr>
<tr>
<td>Nash Health Care Systems</td>
<td>Blue Ridge Regional Hospital</td>
</tr>
<tr>
<td>WakeMed</td>
<td>Carteret General Hospital</td>
</tr>
<tr>
<td>Angel Medical Center</td>
<td>Granville Health System</td>
</tr>
<tr>
<td>Carolinas Medical Center- Mercy</td>
<td>Halifax Regional Medical Center</td>
</tr>
<tr>
<td>Carolinas Medical Center-Pineville</td>
<td>Davie County Hospital</td>
</tr>
<tr>
<td>Duplin General Hospital</td>
<td>2011</td>
</tr>
</tbody>
</table>
Appendix C:

*The Story of One* hospitals by size and geographic location

<table>
<thead>
<tr>
<th>Hospital pseudonym</th>
<th>Size* (Licensed beds; No. of employees)</th>
<th>Geographic location</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>(761; 6,000)</td>
<td>East</td>
</tr>
<tr>
<td>B</td>
<td>(380; 5,000)</td>
<td>South Central</td>
</tr>
<tr>
<td>C</td>
<td>(435; 3,800)</td>
<td>Southwest</td>
</tr>
<tr>
<td>D</td>
<td>(384; 3,000)</td>
<td>North Central</td>
</tr>
<tr>
<td>E</td>
<td>(85; 1,600)</td>
<td>West</td>
</tr>
<tr>
<td>F</td>
<td>(317; 1,300)</td>
<td>East</td>
</tr>
<tr>
<td>G</td>
<td>(101; 700)</td>
<td>Central</td>
</tr>
<tr>
<td>H</td>
<td>(54; 600)</td>
<td>Southwest</td>
</tr>
<tr>
<td>I</td>
<td>(101; 480)</td>
<td>Southeast</td>
</tr>
</tbody>
</table>

*Hospitals are in descending order by size, determined by number of employees*
Appendix D:

*The Story of One* implementer interviews

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Senior managers</th>
<th>Middle managers</th>
<th>Cafeteria supervisors/staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>President</td>
<td>Senior Administrator Wellness</td>
<td>Director of Operations</td>
</tr>
<tr>
<td>B</td>
<td>CEO</td>
<td>Director FNS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Senior VP</td>
<td>Marketing/Comm. Employee</td>
<td>Assistant Director FNS</td>
</tr>
<tr>
<td></td>
<td>VP of Finance</td>
<td>Red Apple Administrator</td>
<td>Assistant VP HR</td>
</tr>
<tr>
<td></td>
<td>VP Research &amp; Wellness</td>
<td>Clinical Nutrition Supervisor</td>
<td>Employee Wellness Coordinator</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assistant VP HR</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Vice President</td>
<td>Health &amp; Wellness Coordinator</td>
<td>Food Service Manager</td>
</tr>
<tr>
<td>E</td>
<td>VP Marketing, Public Affairs</td>
<td>Director Wellness Service</td>
<td>Retail Sales Supervisor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Health Promotion Manager</td>
<td>Cafeteria Cashier</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manager FNS</td>
<td>Kitchen Cook</td>
</tr>
<tr>
<td>F</td>
<td>CEO</td>
<td>Director FNS</td>
<td>Café Court Supervisor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clinical Nutrition Supervisor</td>
<td>RD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RD</td>
<td>Wellness Coordinator</td>
</tr>
<tr>
<td>G</td>
<td>CEO</td>
<td>Manager FNS</td>
<td>Kitchen Supervisor</td>
</tr>
<tr>
<td></td>
<td>VP HR</td>
<td></td>
<td>RD</td>
</tr>
<tr>
<td>H</td>
<td>President/ CEO</td>
<td>Marketing Director</td>
<td></td>
</tr>
<tr>
<td></td>
<td>COO</td>
<td>Wellness Quality Director</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Director FNS</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acute Care Director</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>RD</td>
<td>Social Worker, Case Manager</td>
</tr>
<tr>
<td>I</td>
<td>President</td>
<td>Dietary Service Director</td>
<td>Kitchen Cook</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Employee Health, Wellness</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Human Resources Director</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Staff Education, Development</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clinical Support</td>
<td></td>
</tr>
</tbody>
</table>

CEO = Chief Executive Officer  
COO = Chief Operating Officer  
VP = Vice President  
FNS = Food & Nutrition Services  
RD = Registered Dietitian
Appendix E:

Interview guide for implementers

We would like to interview 5-7 individuals that were the most involved in implementing the Red Apple project. Individuals may include, but are not limited to: CEO, foodservice director, wellness coordinator, chef, dietitian, cafeteria line server, Marketing/PR, HR personnel, etc.

1) Could you briefly explain or talk about the importance of worksite wellness at NAME OF HOSPITAL?

2) How has the Red Apple healthy food project impacted or changed the hospital’s culture of wellness, more specifically among its employees?

3) What role did hospital leadership play in creating the new culture of wellness?

4) How has the Red Apple project, as you have been able to tell so far, impacted individual employees at the hospital?

5) When thinking of the success or the impact of the Red Apple project at NAME OF HOSPITAL, what examples stand out in your mind? (In other words, what strikes you as a good example of the project’s success at this hospital?).

6) As a team member or someone who was involved in the Red Apple project, what were your roles?

7) Prior to the implementation of the project, what had you anticipated to be some of the challenges of the project? Were you proven right or wrong?

8) What challenges or difficulties have you encountered implementing the project?

9) How has the project positively impacted your job at the hospital?

10) Could you briefly discuss the role you feel NCPP played in the implementation? (PROBE: What about the project convinced you to implement it? What drew you in?)

11) What advice would you give non-Red Apple hospitals about the implementation process?
Appendix F:

IRB approval letter

To: Deborah Neffa
Carolina Population Center
CB: 3365

From: Behavioral IRB

Authorized signature on behalf of IRB

Approval Date: 6/15/2010
Expiration Date of Approval: 6/14/2011

RE: Notice of IRB Approval by Expedited Review (under 45 CFR 46.110)
Submission Type: Initial
Expeditied Category: 7. Surveys/interviews/focus groups, 6. Voice/image research recordings
Study #: 10-1021

Study Title: The Red Apple Project: Perceived Benefits and Barriers of Implementing a Healthy Cafeteria Program within Hospitals in North Carolina.

This submission has been approved by the above IRB for the period indicated. It has been determined that the risk involved in this research is no more than minimal.

Study Description:

Purpose: To ascertain perceived benefits and barriers of the Red Apple project designed to transform NC hospital cafeterias into healthy cafeterias.

Participants: 20-40 employees at 10 North Carolina hospitals participating in the North Carolina Prevention Partners Healthy Food Environment initiative.

Procedures: audio-recorded face-to-face or telephone interviews (30-40 minutes).

Regulatory and other findings:

This research meets criteria for a waiver of written (signed) consent according to 45 CFR 46.117(c)(2).

Investigator’s Responsibilities:

Federal regulations require that all research be reviewed at least annually. It is the Principal Investigator’s responsibility to submit for renewal and obtain approval before the expiration date. You may not continue any research activity beyond the expiration date without IRB approval. Failure to receive approval for continuation before the expiration date will result in automatic
Appendix G:

Script to obtain oral consent from participant (after the interview)

“Thank you very much for conducting the interview and for helping NCPP with its new project. Before we leave, I would like to take few moments to tell you about my master’s thesis and ask if I could get your consent for using the interview materials from today for academic purposes.

I am a master’s student in the School of Journalism and Mass Communication at the University of North Carolina at Chapel Hill. I’m studying health communication, and I’m interested in using the interviews from NCPP project for my master’s thesis. My thesis will look at what hospital stakeholders and employees consider the benefits and barriers of the Red Apple project. You will not be identified by name in my thesis. Would you be interested in seeing a handout with more specific details about my thesis project?”

If yes, give handout to participant

If no, continue.

“Can I have your consent to use your interview for my master’s thesis?”

If yes: “Great. Thank you very much for your permission. Your interview will certainly help with my master’s project.”

If no/or only parts of the interview: “OK, I understand. Thank you very much for your time and for helping NCPP with its new project.
# Appendix H:

Focused codes and definitions

<table>
<thead>
<tr>
<th>Focused Code</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remembering anticipated challenges/concerns</td>
<td>This refers to the challenges and/or concerns implementers anticipated having/had prior to the HFEH project implementation. This includes worrying about the cost of the project, employees’ acceptability/adoptions of the project, and employees’ ability to change their eating behaviors.</td>
</tr>
<tr>
<td>Overcoming challenges/concerns</td>
<td>This refers to the challenges and/or concerns implementers have already overcome in the HFEH project. This code should be used when the implementer describe the process/steps s/he (or the team) went through to solve/overcome a challenge/problem related to HFEH.</td>
</tr>
<tr>
<td>Dealing with challenges/concerns</td>
<td>This refers to the challenges and/or concerns implementers are still/currently experiencing due to the HFEH project. These have not yet been overcome.</td>
</tr>
<tr>
<td>Making contributions</td>
<td>This code refers to implementers’ perceived roles (the responsibilities they described were theirs during the implementation process) and to contributions they felt they made throughout the project.</td>
</tr>
<tr>
<td>Recognizing other wellness programs/initiatives</td>
<td>Use this code when implementers talk about/mention other worksite wellness programs in the hospital that are not directly related to the HFEH project (e.g., physical activity programs). This includes other programs/initiatives that developed after the HFEH or that go in hand with the HFEH (that help create a comprehensive culture of wellness).</td>
</tr>
<tr>
<td>Feeling pride/satisfaction</td>
<td>This refers to implementers commenting on how proud they are or how satisfied they feel about the HFEH project or of their contributions to the hospital and employees because of the project.</td>
</tr>
<tr>
<td>Having good team/teamwork</td>
<td>Use this code when the implementer mentions having a good/diverse/comprehensive/committed HFEH team leading the project in the hospital or when s/he refers to/describes team work as necessary/important to the success of the HFEH implementation.</td>
</tr>
<tr>
<td>Noticing benefits to/positive changes in employees</td>
<td>Use this code when the implementer mentions noticing that the project had a positive impact on employees. This includes seeing employees develop healthier eating habits, seeing employees as more energetic and/or excited about the changes.</td>
</tr>
<tr>
<td>Noticing benefits to/positive changes to the hospital</td>
<td>Use this code when the implementer mentions noticing that the project had a positive impact on the hospital as an organization/system. This includes seeing policy and physical changes in the hospital because of the HFEH project and recognizing that the hospital has been improving at offering worksite wellness initiatives over the years.</td>
</tr>
<tr>
<td>Noticing benefits to/positive changes to the self</td>
<td>Use this code when the implementer mentions noticing that the project had a positive impact on him/her either on his/her job or his/her personal life. This includes developing healthier eating habits, losing weight, or feeling greater efficacy doing his/her job.</td>
</tr>
<tr>
<td><strong>Noticing community changes in health and wellness</strong></td>
<td>Use this code when the implementer mentions noticing that the project has a positive impact on the community/community members. This includes seeing/hearing about community members eating more frequently in the hospital cafeteria and/or losing weight because of the healthy cafeteria options. It also includes mentions of the project having a positive wellness impact on the community (e.g., make county residents healthier).</td>
</tr>
<tr>
<td><strong>Facilitating health for/meeting demands of employees and the community</strong></td>
<td>Use this code when the implementer describes his/her (or the HFEH team) attempt to improve the HFEH at the hospital for the convenience/satisfaction of employees and community members. This includes things such as making some healthy foods tastier after hearing complaints from cafeteria customers and making healthy foods more accessible/cheaper for customers.</td>
</tr>
<tr>
<td><strong>Receiving feedback</strong></td>
<td>Use this code when the implementer talks about receiving either positive or negative feedback (from employees, hospital administrators, and/or community members) about the HFEH project at the hospital. This includes hearing employees speak positively about the changes, seeing the number of healthy meals sold increase over time, and being told by employees/community members that the changes are great.</td>
</tr>
<tr>
<td><strong>Recognizing the role of hospital leadership</strong></td>
<td>This refers to instances where implementers mention/talk about senior management/top administrators/hospital leadership as playing a role in the implementation of the HFEH project at the hospital.</td>
</tr>
<tr>
<td><strong>Recognizing the role of NCPP</strong></td>
<td>This refers to instances where implementers mention/talk about NCPP (staff or the organization as a whole) as playing a role in the implementation of the HFEH project at the hospital.</td>
</tr>
<tr>
<td><strong>Seeing the hospital as competitive/a health leader</strong></td>
<td>Use this code when the implementer talks about the hospital as being competitive with other hospitals, as being a health leader in the community, and as being the prime example of health for the county/state. This code is primarily meant to capture implementers’ views of the hospital as influential in the community and among other hospitals.</td>
</tr>
</tbody>
</table>
BIBLIOGRAPHY


