

# Findings from the Community Health Intervention Program in South Carolina: Implications for Reducing Cancer-Related Health Disparities

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**Abstract** The South Carolina Cancer Prevention and Control Research Network (SC-CPCRn) implemented the Community Health Intervention Program (CHIP) mini-grants initiative to address cancer-related health disparities and reduce the cancer burden among high-risk populations across the state. The mini-grants project implemented evidence-based health interventions tailored to the specific needs of each community. This study aims to support the SC-CPCRn's goals of moving toward greater dissemination and implementation of evidence-based programs in the community to improve public health, prevent disease, and reduce the cancer burden. Three community-based organizations were awarded \$10,000 each to implement one of the National Cancer Institute's evidence-based interventions. Each group

had 12 months to complete their project. SC-CPCRn investigators and staff provided guidance, oversight, and technical assistance for each project. Grantees provided regular updates and reports to their SC-CPCRn liaisons to capture vital evaluation information. The intended CHIP mini-grant target population reach was projected to be up to 880 participants combined. Actual combined reach of the three projects reported upon completion totaled 1,072 individuals. The majority of CHIP participants were African-American females. Participants ranged in age from 19 to 81 years. Evaluation results showed an increase in physical activity, dietary improvements, and screening participation. The success of the initiative was the result of a strong community–university partnership built on trust. Active two-way

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communication and an honest open dialogue created an atmosphere for collaboration. Communities were highly motivated. All team members shared a common goal of reducing cancer-related health disparities and building greater public health capacity across the state.

**Keywords** Cancer disparities · Community–university partnership · Evidence based programs

## Introduction

The South Carolina Cancer Prevention and Control Research Network (SC-CPCRN) is one of ten Centers for Disease Control and Prevention and National Cancer Institute (NCI)-funded CPCRN spread across the USA. The CPCRN are charged with working to promote and increase the adoption of evidence-based public health interventions to address health disparities. Though there is a special focus on dissemination and implementation (D&I) research, the SC-CPCRN has developed infrastructure to support research that spans the research continuum from discovery to the dissemination and adoption of effective, evidence-based interventions, with an emphasis on translation. Active collaborative efforts with community partners have been instrumental to the success of these initiatives and projects. The SC-CPCRN continually seeks out opportunities to establish innovative partnerships to address cancer-related health disparities [1] to address the following aims:

1. Disseminate and implement efficacious public health interventions to address cancer-related health disparities in South Carolina.
2. Engage community partners and other stakeholders to increase the cancer prevention and control evidence base in South Carolina and share findings with communities and service providers that are working to eliminate health disparities and reduce the cancer burden on high-risk and disparate populations in the state.
3. Implement and evaluate interventions focused on increasing cancer screenings, physical activity, and access to and consumption of healthful foods among low-income and minority populations.

African Americans in South Carolina experience above-average cancer incidence [2–4] and especially high mortality rates [2, 5]. Social, cultural, geographic, environmental, and genetic factors likely contribute to the cancer-related health disparities and greater cancer burden experienced by the community. The implementation of effective programs designed to address the cancer burden through combinations of reducing incidence, downstaging disease at the time of diagnosis, increasing survival rates, and improving the overall quality of life in people living with cancer is greatly

needed. Engaging community partners and other stakeholders in the process of implementing evidence-based programs in a move to empower the community is crucial to the effort. While these initiatives are aimed at the proximal goal of promoting health and preventing disease, they also serve to build communities by developing local economies [6]. By its very nature, D&I research is well placed to encourage community development because such projects work best when placed in high-functioning community settings [7–9].

In 2011, the SC-CPCRN implemented the Community Health Intervention Program (CHIP) mini-grants initiative to address cancer-related health disparities among high-risk populations through the implementation of evidence-based interventions. The SC-CPCRN team viewed the CHIP initiative as a potentially effective strategy for moving toward increasing D&I of evidence-based programs in the community to improve public health. In addition, the initiative was seen as an important means of community building and improving community relations [10].

## Methods

Face-to-face and Web-based information-sharing sessions about the CHIP initiative were held in May 2011. Twelve community, not-for-profit, organizations from across South Carolina with an interest in cancer-related health disparities applied for CHIP mini-grants. Each applicant organization was instructed to select a single evidence-based, cancer prevention or control intervention as identified through the NCI Research-Tested Intervention Programs (<http://rtips.cancer.gov/rtips/index.do>) on which to focus its application. Applications were judged by a panel composed of SC-CPCRN faculty, staff, and community partners. The committee carefully reviewed each application using a comprehensive evaluation form developed collaboratively by the SC-CPCRN team. Selection was based on a detailed program plan, evaluation, and timeline that corresponded specifically to the original evidence-based program. The review committee considered applicants' interest and experience in improving health and cancer outcomes, support of organizational leaders and staff, and service to a population demonstrating need. Geographic diversity and diversity of applicant organizations were additional factors considered during the review process. In August 2011, three community-based organizations from diverse regions of the state were awarded \$10,000 each to implement one of the evidence-based interventions. The South Carolina-based community organizations selected were Jones Chapel Baptist Church in Orangeburg County, the Chester County Literacy Council in Chester County, and Refuge Community Outreach of Spartanburg County. The three evidence-based interventions implemented were *Development and Promotion of Walking Trails, Eat For Life*, and *The Witness Project* [11–15].

### Jones Chapel Baptist Church Walking Trail Program

Jones Chapel Baptist Church was awarded a CHIP mini-grant to implement the *Development and Promotion of Walking Trails*. The purpose was to provide a safe and inviting environment to encourage area residents to become more physically active. An internal health needs assessment conducted by Jones Chapel revealed that many members suffered from chronic health conditions. The walking trail and exercise program were seen by the community as an opportunity to reduce the risk of cancer, obesity, diabetes, and high blood pressure that affect so many African Americans [16–18]. The development and promotion of walking trails and exercise programs among rural African–American communities potentially offers an effective means to address significant health disparities [11, 12]. The walking trail for this built environment intervention was designed by the community and built on church grounds. The walking program, “Keep It Simple, Keep It Moving!” (KISKIM), officially kicked off in March 2012 after a groundbreaking event was held in February 2012. Personal communications (word of mouth, phone calls, letters of invitation, and text messaging), flyers, interest cards, newspaper coverage, and social networks were used to recruit individuals who expressed an interest in the program. Additionally, participants were recruited at the walking trail groundbreaking event (via completion of the Walker Interest Form) and the walking program kickoff event. Word-of-mouth and one-on-one conversations were reportedly the most effective recruitment methods.

New participants were continually recruited for KISKIM! through early June 2012. Eligible participants had to be (1)  $\geq 18$  years old, (2) free of serious, unstable illness that would make participating in a physical activity program difficult or risky, (3) willing to walk individually or as a member of a team on the newly constructed walking trail at Jones Chapel, (4) willing to complete pre- and post-assessment surveys (baseline and follow-up) as well as pre- and post-fitness measures (baseline and follow-up), and (5) willing to consent to participate.

### Chester County Literacy Council Eat for Life Program

The Chester County Literacy Council’s CHIP mini-grant was designed to extend its mission of supporting community education and literacy by promoting adult life skill enhancement and encouraging healthy lifestyle choices. The Chester County group was awarded CHIP funding to implement *Eat for Life*. Eat for Life is designed to promote healthy lifestyle changes by encouraging improvements in diet and physical activity. Modifying dietary intake within rural African–American communities, by encouraging greater consumption of fresh fruits and vegetables while simultaneously

decreasing the amount of fat, sodium, and cholesterol consumed, could contribute to better health and potentially improve health outcomes [13, 15, 19]. The intervention teaches dietary and cooking strategies that help reduce the chances of getting heart disease and certain types of cancer and prevent and control adult diabetes. Chester County Literacy Council partnered with churches, local libraries, the YMCA, and community centers. The program recruited and trained participants from several large African–American churches throughout the upstate region of South Carolina and neighboring North Carolina counties. Participants were recruited through the use of focus groups, advertisements, flyers, presentations, and church announcements. The educational components of the program were held at the area YMCA and a local church. Participants included valuable community partners, such as the Chester County School Board chairperson, the director of the local Employment Security Commission, school teachers, business managers, and ministers. The program included a pre- and post-survey of dietary knowledge, attitudes and practices, the distribution of a healthy cooking guide, cooking demonstrations, and educational sessions focused on maximizing available resources to enhance the nutritive value of daily meals.

### Refuge Community Outreach Witness Project

Refuge Community Outreach in upstate South Carolina implemented *The Witness Project* in Cherokee, Anderson, Greenville, and Spartanburg Counties. African Americans in these counties have higher cervical and breast cancer mortality rates than White women [20]. The culturally relevant, faith-based, community-oriented Witness Project has demonstrated effectiveness in promoting greater interest and participation in breast and cervical cancer screening opportunities among rural African–American women [14]. The program was promoted by word of mouth, cold calls, flyers, newspaper advertisements, and church bulletin announcements. The Refuge Program Coordinator along with Witness Project staff members held three 8 hour Witness Project trainings to train community volunteers to become Lay Health Advisors (LHAs) and Witness Role Models (WRMs). WRMs, breast or cervical cancer survivors, provided personal testimonies about their journey with breast or cervical cancer screening, diagnosis, treatment, and survivorship. The LHAs, lay persons, provided technical assistance, breast self-examination training, general facts about breast and cervical cancers with an emphasis on screening, and information on available community resources for screening. The LHAs and WRMs attended follow-up booster sessions before conducting community presentations. The Refuge Project Coordinator worked very closely with trained volunteers to schedule educational sessions in the community. The program coordinator was also responsible

for ensuring that program registrations from women requesting further assistance were given to the proper agencies to provide services. The Refuge Witness Project team partnered with the American Cancer Society, Best Chance Network (the State's breast and cervical cancer program), Innervision Medical Imaging, Upstate Carolina Medical, and Gibbs Cancer Center Mobile Mammography Unit to navigate women into screening. Innervision Medical Imaging donated breast cancer screenings (mammograms) to the program. The program highlighted the importance of early detection and sought to address the fears of many women in the community.

### **Liaising with the SC-CPCRN**

SC-CPCRN investigators served as liaisons for the CHIP mini-grant projects. Working closely with grantees, SC-CPCRN investigators and staff provided guidance, oversight, and technical assistance for each project. The three community groups implemented their specific evidence-based intervention according to the guidelines and recommendations of each intervention. Each group had 12 months to complete their project. Grantees provided regular updates and reports to their SC-CPCRN liaisons to evaluate progress. The strong university–community partnership was critical to the collaboration and the success of the project.

SC-CPCRN team members developed a CHIP mini-grant project report to capture pertinent quantitative and qualitative evaluation information. A project evaluation report was completed by each grantee and submitted for analysis. Each group also conducted their own internal evaluations via pre- and post-project surveys. In addition to the written project reports, each grantee presented their results and findings during CHIP mini-grant presentations in September 2012. Jones Chapel conducted their own internal evaluation via pre- and post-assessment surveys, walking logs, and pre- and post-program BMI measurements. The Chester County Literacy Council used pre- and post-surveys to evaluate the Eat for Life program. The Refuge Community Outreach Witness Project captured pre- and post-test knowledge data for training sessions and community presentations and collected program registration forms, attendance logs, and training session evaluations.

### **Results**

#### **Final Reports and Presentation Data**

The intended CHIP mini-grant target population reach was projected to be up to 880 participants combined. Actual combined reach of the three projects reported upon

completion totaled 1,072 individuals. The majority of CHIP participants were African–American females. Participants ranged in age from 19 to 81 years. Participants reported an increase in physical activity, dietary improvements, and screening participation. Table 1 shows common data collected across the three CHIP sites.

The Jones Chapel Walking Trail participants reported increasing their walking from 1–2 to 3–4 times/week for at least 30 min/day. Four participants reported using the trail 5–6 times/week. Sixty-five percent reported losing weight and 53 % reported an improvement in or a lowering of their body mass index at program completion.

Post-program results from the Chester County Literacy Council showed that 100 % of participants reported making healthier family recipes, reading food labels more carefully, reducing salt intake, increasing daily water intake, and reducing the amount of cholesterol in their diets. An improvement in the ability to make healthier choices was reported by 98 % of participants, 89 % reported increasing their fruit and vegetable consumption to 5 or more servings/day, and 84 % reported reducing the amount of fats, added sugars, salt, and cholesterol in their diet.

In the Refuge Community Outreach Witness Project, 30 women were trained as witnesses (WRMs and LHAs). A total of 924 women were reached through community presentations of the Witness Project, 114 women requested assistance, 82 women received navigation assistance for breast and/or cervical cancer screenings, and 68 women received breast and cervical cancer screening services.

### **Discussion and Application**

#### **Effectiveness**

Upon completion of the Jones Chapel Walking Trail, the proportion of individuals walking regularly for physical activity increased, indicating that implementation of the walking trail and walking program were effective. Jones Chapel successfully engaged 91 % of their intended reach of 100 participants. Additionally, 65 % of walking program participants lost weight, as determined by pre- and post-program data while 53 % lowered or improved their body mass index. Qualitative feedback from walking trail participants indicated participant satisfaction with delivery of the project. Examples: “Thanks for the newsletter. I’ve been exercising at 30 to 40 min a day” and “My daughter uses the trail daily; she walks in the morning and in the afternoon.” One participant e-mailed the project team while on vacation to report that she was keeping up with her walking routine while out of the area. Attrition was addressed by maintaining contact with individuals to offer support and encourage participation.

**Table 1** Comparison of common data elements across the three CHIP sites

	Jones Chapel Walking Trail	Chester County Literacy Council Eat for Life	Refuge Community Outreach Witness Project
Target population/reach			
Intended	100	30	750
Actual	91	57	924
Geographical location	Orangeburg County	Chester County	Cherokee, Anderson, Greenville, and Spartanburg Counties
Religious affiliation	Christian	Christian	Christian
Target behavior	Physical activity	Diet	Screening participation
Demographics	All African Americans	50 African American 7 Caucasian	28 African American 2 Caucasian (women trained)
Age	19–76 years	22–81 years	21–73
Sex	66 females and 25 males	52 F and 5 M	All females
Marital status	60 % married or member of a couple, 24 % single, 12 % separated or divorced, and 4 % widowed	Not collected	Not collected
Incentives	Pedometers, water bottles, walking logs, t-shirts, rally towels, certificates, exercise weights, jump ropes, fanny packs, elastic bands, radios, first-aid kits, and stress-relief balls	Eat for life cookbooks, \$100 to the person who lost the most weight, \$100 to the person who most promoted and supported the program, and \$250 to the church with the most participants	WRMs and LHAs <sup>a</sup> were given \$75 incentives for their participation (8 hour training and 3 community presentations)

See text for description of the three CHIP sites

<sup>a</sup> *WRMs* Witness Role Models, *LHAs* Lay Health Advisors

The Chester County Literacy Council Eat for Life program actual population reach was greater than the original intended reach (190 %). Eat for Life participants made significant dietary improvements (98 %) and experienced weight loss (26 %). All participants noted being enthusiastic about their improved knowledge of dietary standards and reported making nutritional improvements in daily food preparation. Additionally, all Eat for Life participants reported increased understanding of the relationship between healthy behaviors (e.g., proper nutrition, adequate physical activity, not smoking, and minimum alcohol consumption) and reducing the risk of developing heart disease, certain types of cancers, and adult diabetes. Lastly, Eat for Life participants reported an increase in the frequency of discussions with family members, friends, coworkers, memberships, and healthcare providers concerning the predisposing, enabling, and reinforcing factors that support health and wellness. Eat for Life participants demonstrated a desire to continue to promote nutrition and health messages.

Refuge's implementation of the Witness Project in the Upstate region of South Carolina proved to be successful in accomplishing the goals that were set forth. The number of persons to be trained in the project was reached. Additionally, the number of persons reached with the educational message in the target areas was exceeded. The Witness Project was

able to augment existing services by linking women that requested screening assistance with agencies providing screening services. The number of screenings provided also exceeded the goal of the project.

#### Efficiency

Jones Chapel adapted the walking trail to accommodate the needs and existing resources of the community. The approved budget was amended to meet the needs of the walking trail area. The project team recognized a need to add benches, trash cans, and trees to the walking trail to enhance its usefulness and appearance.

The efficiency of the Chester County Eat for Life program is being realized through short-term gains in the number of community champions, yielding an ever-expanding network of program representatives. Representatives from the original granting organizations made two visits to the community site. They were impressed by the ability of the Eat for Life program in creating both a large number of community partnerships and engaging key stakeholders who were seen as community leaders (e.g., school district representatives). As a testament to the breadth and depth of the partnerships, these champions continue to engage and inspire among social, civic, and church memberships and



are making lasting impacts, including word-of-mouth advertising, recruitment for the current instructional classes at the local YMCA, and the adoption of the initiative as the nutritional instruction component of the local free clinic. The efficiency of the program also is expressed in outreach to more than 5,000 individuals through a grant of only \$10,000.

The Witness Project was implemented in the Upstate of South Carolina in counties where there was a need for the project. In the target counties where the Witness Project was implemented, African–American women have higher age-adjusted breast cancer mortality rates than White women [20]. Historically, the church has been a pillar of the community and a place African Americans trust for not only their spiritual needs but also their social and family needs. The communities where the Witness Project was implemented were very receptive to the project.

### Barriers and Strategies to Overcome Challenges

Jones Chapel Walking Trail participants indicated that the environment was a major influence on their confidence to use the trail under certain conditions. Some reported that they felt “somewhat confident” walking when there was less daylight, and some noted that they “did not feel confident” walking when the weather was bad. Several days of severe thunderstorms eroded the top layer of the walking trail making walking safely on the trail questionable. A community member with experience maintaining highways and roads volunteered to maintain the trail to ensure participant safety and prevent injury. Getting walking trail participants to complete paperwork in a timely manner along with collecting paperwork also was challenging at times. This was resolved by constant follow-up via telephone, e-mail, home visits, and “stopping people in the street.”

The Chester County Literacy Council Eat for Life program was very popular in the upstate region of the state. Focus groups and speaking engagements at district church gatherings eliminated the barriers to recruitment and retention. The program also received requests to provide classes at other churches. However, due to a lack of funding for additional materials, travel expenses, and personnel, they were unable to accommodate these requests. Obtaining additional funding would have enabled the program to meet the need and provide the additional training.

A challenge to the implementation and evaluation process was the often competing needs of the community versus the research/evaluation process. As an example, several weeks after the community partner initiated the first Eat for Life class, some enthusiastic potential participants expressed great interest in the program. The community partner wanted to address the immediate perceived need and permit the potential participants to join in with the rest

of the group even though they had not attended several of the first classes of the curriculum. As would be expected of any community-based project, the team did not want to turn away enthusiastic and interested people who might possibly benefit from the program. From an evaluation and research perspective, however, there were threats to intervention fidelity and integrity of the evaluation should individuals be enrolled later in the curriculum. Fortunately, as is held in the tenets of community-based participatory research approaches, discussions between the program and community partner were respectful and thoughtful and set the forum for the exchange of research expertise and community knowledge to allow for successful resolution of this issue.

Witness Project challenges included the inability to completely ensure access to breast and cervical cancer screening services following participation in or exposure to the program. This is a national problem and one that is exacerbated in South Carolina by the lack of state funds needed to supplement federal breast and cervical cancer screening services. The limited availability of screening opportunities due to funding cuts and the lack of providers who track and navigate women through the screening process presented obstacles. These challenges were addressed by developing partnerships and collaborating with Innervision Medical Imaging, Gibbs Cancer Center, and the Joseph F. Sullivan Center. Keeping women actively engaged over time without the use of incentives presented another challenge. By establishing good rapport while motivating and encouraging woman over the course of the program, they were able to keep most participants actively involved and interested. One idea to keep all women engaged would be to offer a small incentive after participants complete the required community presentations.

### Community Building/Partnerships

Community support and involvement were the foundation for the success of each project. The community and university partnerships were instrumental to the success of the entire initiative. Already having a visible and active presence in the Orangeburg community, Jones Chapel was able to continue building on existing relationships while establishing new ones with the County Council, Sheriff’s Office, newspaper, churches, university, and businesses. There was representation and active involvement by these entities at various walking trail events, as well as support and collaboration. Such support made delivery of the walking intervention easier and desire to participate by project participants greater.

Conducting Chester County Eat for Life focus groups and site visits from university staff proved to be the nucleus and mainstay for the overwhelming community support and the foundation for involvement in the Eat for Life program.

Focus groups eliminated challenges and barriers while site visits from university staff added credibility to the initiative. Community partnerships, the participation of churches, and the involvement of civil servants and activists also solidified the foundation for the success of the Eat for Life program.

The Witness Project has been very successful in community building. Partnerships with community entities and screening agencies were facilitated via the project. The project has been able to partner with agencies that provide screening services to women that have demonstrated a need. The project has also partnered with various faith-based organizations and community groups to deliver the educational messages. Partnerships have been the key factor in the success of the Witness Project in these areas.

### Trust Building

The close-knit community–university partnership was built on a relationship of trust and the university honoring commitments and promises made to the communities. University team members demonstrated a sincere desire to understand the needs of each community and support community-driven projects. Additionally, the university demonstrated support by providing quality technical assistance and project guidance. The desire for active two-way communication and an honest open ongoing dialogue created an atmosphere for collaboration and ensured project success.

Because the Eat for Life program was developed in the “environment” of the Black church and each session was begun with a prayer, there was an atmosphere of trust and immediate uniting for a common goal of improved health. Trust and faith were the innate, automatic, and natural dynamic that formed the nucleus of the Eat for Life program.

Refuge Community Outreach is an organization that is trusted in the community and was able to implement the Witness Project because of their established community networks and relationships in the community. The organization is recognized for its mission of improving the overall well-being of families and individuals in the communities they serve. Refuge’s visibility in the lives of community members promotes trust and enabled the organization to build strong relationships and address community needs contributing significantly to the project’s successes.

### Conclusions

The SC-CPCRN is dedicated to disseminating and implementing interventions that have been shown to improve public health. The South Carolina Cancer Prevention and Control Program, in which SC-CPCRN is housed, is dedicated to the principles of community-based participatory research. The CHIP program was a very

efficient use of resources employed to conduct D&I projects in the context of strong community commitment and support. The community-driven initiative tailored health programs to the specific needs of each community effectively using community health educators to build public health capacity to reduce the cancer burden. While the focus of SC-CPCRN research is cancer related, the evidence-based interventions implemented promoted improvements in diet and physical activity potentially having a positive impact on obesity, diabetes, and other chronic conditions, in addition to cancer. The CHIP project also provided a means of community building and improving community relations. All team members shared a common goal of reducing cancer-related health disparities and building greater public health capacity in South Carolina.

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