Community Partnerships, Food Pantries, and an Evidence-Based Intervention to Increase Mammography Among Rural Women

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ABSTRACT: Context: Multiple national agencies and organizations recommend that women age 40 years and older have an annual screening mammogram. Women who are poor, less educated, lack a usual source of care, and reside in rural Appalachia are less likely to have had a recent mammogram. Purpose: To increase use of mammography among a rural Appalachian population. Methods: Formed in 1992, the Indiana County Cancer Coalition (ICCC) serves the cancer control needs of medically underserved families in Indiana County, Pennsylvania, through collaborative partnerships. During 2005, the ICCC adapted and implemented the American Cancer Society’s Tell a Friend® program in a network of 18 local food pantries of the Indiana County Community Action Program. Findings: Of 302 age-eligible women, 158 (52.4%) were in need of scheduling a mammogram. Of the 158 women, 138 (87.3%) received a mammogram as a result of the adapted Tell A Friend® program. Three (2.2%) women were diagnosed with breast cancer and received treatment. The number of breast cancer screenings provided to underserved Indiana County residents increased by 46 (28.2%) during 2005. Conclusions: Implementation of this evidence-based intervention in a network of local food pantries successfully provided mammography to rural women and demonstrated potential impact from a community cancer coalition in Appalachia. The initiative worked closely with local partners who are affiliated with a national infrastructure, thereby suggesting potential future dissemination.

Despite its benefit, screening mammography is not utilized equally by all women. Women who are older, of a minority race or ethnicity, less educated, uninsured, without a usual source of health care, and without a physician recommendation are less likely to receive screening mammography.

Living in a rural, low-income, or low-education area has also been identified as a risk for not having a recent mammogram. Hall et al. (2002) reported that the prevalence of recent mammography among women in

The authors gratefully acknowledge the members of the Indiana County Cancer Coalition, the American Cancer Society, the Indiana County Community Action Program, and community volunteers who participated in the development, implementation, and evaluation of this initiative. In addition, the authors acknowledge Adagio Health, Herbert L. Hanna Center for Oncology Care at the Indiana Regional Medical Center, the Northern Appalachia Cancer Network, the Penn State Cooperative Extension Service, Indiana County, the HealthyWoman Program of the Pennsylvania Department of Health, and the Pittsburgh Affiliate of Komen for the Cure. This project was partially supported by 1U01 CA86096 and 1U01 CA114622 from the National Cancer Institute.

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The US Preventive Services Task Force (USPSTF) and the American Cancer Society (ACS) recommend that women age 40 years and older have an annual mammogram. The health benefits of an annual mammogram include a reduction in the risk of dying from breast cancer and a greater range of options to treat breast cancer, including less aggressive therapies.
Appalachia, which is largely rural, is lower than among other women in the United States. Breast cancer has more often been diagnosed at a late stage in rural Appalachia than elsewhere in the United States; the rate of late-stage diagnosis has been found to be associated with an absence of screening.

To overcome disparities in the community-based utilization of cancer screening procedures, the Task Force on Community Preventive Services (the Task Force), as well as the Centers for Disease Control and Prevention (CDC), the National Cancer Institute (NCI), and the ACS, support the use of interventions that are evidence based. Evidence-based interventions are based upon data and theory and have been shown to be effective through rigorous evaluation.

Evidence-based interventions to increase breast cancer screening include 1-on-1 education, the use of client reminders (with incentives) and small media, and the reduction of structural barriers.

In a meta-analysis of manuscripts published between 1984 and 1997, Legler et al found that the approaches to promote mammography among diverse populations that were multilevel had the greatest impact; access-enhancing and individual-directed strategies increased mammography utilization 26.9% (95% confidence interval, 9.9%-43.9%). Using data from a systematic review, Rimer et al also recommended multilevel approaches to increase cancer screening.

Recently, Glasgow et al offered 6 recommendations to increase the dissemination of effective cancer screening interventions. In particular, they recommended an increase in demand from consumers and clinicians for evidence-based interventions in cancer screening. The current manuscript describes the implementation and impact of a community-based effort to utilize a multilevel, evidence-based intervention to increase breast cancer screening in a rural underserved area.

**Methods**

Indiana County, the site of the current investigation, is a predominantly rural Appalachian county in southwestern Pennsylvania. In 2000, 96.9% of the 89,605 residents of Indiana County were Caucasian; 62.1% were rural. Compared to the US population, Indiana County residents had less formal education (24.4% vs 17.0%, respectively, of those at least 25 years of age had a bachelor’s degree) and were poorer (12.4% vs 17.3%, respectively, had an annual income below the federal poverty level). Approximately, 12% of Indiana County residents did not have health insurance. From 2001 to 2003, 46 Indiana County women died of breast cancer and 66 of the 193 (34%) incident cases of female breast cancer in Indiana County were diagnosed at an advanced stage (stage III [regional] and IV [distant]).

The Indiana County Cancer Coalition (ICCC) was formed in January 1992 to develop partnerships between local agencies and organizations to address the cancer control needs of medically underserved families in Indiana County. In conjunction with its partner agencies and organizations, the ICCC has provided community outreach and education, seeking to increase awareness of and remove financial and transportation barriers to breast cancer screening. In 2004, the ICCC, as a member of the Appalachia Cancer Network, was awarded the Outstanding Community Service Award from the Center to Reduce Cancer Health Disparities, National Cancer Institute, for their successful cancer education, outreach, and screening programs. The current mission statement of the ICCC is “Partners fighting cancer in Indiana County.”

ICCC partner agencies and organizations include the Indiana Regional Medical Center (IRMC), the ACS, the Cooperative Extension Service (CES), the Northern Appalachia Cancer Network (NACN), and the Family Health Council (FHC), currently known as Adagio Health. The IRMC, which is home to the Herbert L. Hanna Center for Oncology Care, is the only general acute care hospital in Indiana County. The IRMC brings expertise in clinical cancer care to the ICCC. The ACS provides access to an extensive network of community volunteers and to cancer control materials. The CES is a well-developed network of community education specialists in rural communities. The Northern Appalachia Cancer Network, a regional member of the Appalachia Community Cancer Network, provides training and technical assistance on the development of community partnerships and the adaptation of evidence-based interventions. Finally, the FHC is a nonprofit health organization that for 35 years has served women and their families in western Pennsylvania through a network of over 60 medical offices. FHC was the contract service provider for the HealthyWoman Program, the National Breast and Cervical Cancer Early Detection Program (NBCCEDP) in Pennsylvania. The NBCCEDP provides breast and cervical cancer screening services for women who have no insurance coverage for cancer screening and little discretionary income.

For this intervention, ICCC developed a new partnership with the Indiana County Community Action Program (ICCAP), which provided low-cost foods to low-income Indiana County residents through a network of 18 food pantries. ICCCAP is supported by the US Department of Agriculture and staffed by employees and volunteers. ICCCAP provided ongoing
services to approximately 1,500 residents of Indiana County, 60% of whom were at least 40 years of age.

The ICCC sought to adapt an evidence-based intervention that was culturally appropriate for the low-income rural women of Indiana County, required few new resources, and could be completed with volunteer staffing. The Tell a Friend program of the ACS has been evaluated and was determined to meet these criteria. Tell A Friend relied upon 1-on-1 contact (also known as peer counseling) by volunteers to encourage friends and family to get a regular mammogram. Tell A Friend also used small media, reminders, and incentives to elicit behavior change. Each of these strategies was recommended by the Task Force; together, they were access-enhancing and individual-directed.

The intervention occurred from February to June 2005. In February, the ICCC approved the concept and began the process of adapting the intervention. In March, the ICCC approached the ICCCAP with the concept. After approval by ICCCAP, ICCCAP volunteers or health care providers in each of the 18 pantries were recruited and trained by the ACS staff. Food pantry staff also attended the orientation training to better facilitate screening recruitment. Also during March, breast cancer posters were displayed in each of the food pantries and the ICCCAP volunteers stuffed promotional flyers into the food bags of 1,500 patrons of the food pantries. The posters and flyers included information on breast cancer, the effectiveness of mammography, and notice that there would be an opportunity to enroll in a program for no-cost screening mammograms at the food pantry the following month.

In April, an ICCCAP volunteer at each pantry directed all entering female patrons to a screening recruitment Table staffed by an ICCC representative or a volunteer health care provider. Female patrons were interviewed to determine age eligibility, history of breast cancer screening and future appointments planned for breast cancer screening. Women at least 40 years of age who had not had a mammogram within the past year or did not have one scheduled for the future were considered in need of scheduling a screening mammogram. Additional data, including contact, demographic, health insurance, and primary care provider information, were collected from women who were in need of scheduling a screening mammogram. Small incentives, a pink ribbon pocket tissue pack and an ICCC nail file, were given to all interviewed female pantry patrons. Women were advised of a future phone call to schedule the screening mammogram appointment. The IRMC subsequently telephoned women with health insurance that covered a screening mammogram to schedule the mammogram. The FHC phoned women with limited or no insurance coverage to determine eligibility for free or low-cost screening programs. Age-appropriate women below the income restriction of the HealthyWoman Program were enrolled in the program and their mammogram was scheduled with IRMC. Women who did not qualify for the HealthyWoman funding but were still in need of financial assistance for services received a voucher funded by the Pittsburgh affiliate of Komen for the Cure for a free mammogram. To help reduce missed appointments, providers placed reminder phone calls to each woman prior to her scheduled appointment.

During May and June, a media campaign was conducted to increase community awareness of the risk from breast cancer, the benefits of early detection of breast cancer, and the no-cost services of the HealthyWoman Program. Funding for the campaign was provided by a grant from The WalMart Foundation to the ACS, with matching funds from the FHC. The primary target audience for the campaign was women 35-54 years of age; the secondary audience was women 55-64 years of age. The campaign consisted of 58 airings of 2 different 60-second spots. The spots ran on a local radio station between 6 a.m. and 7 p.m., with 6 spots per day (the 2 versions of the spots rotated throughout the day), 3 days per week for 4 weeks.

Outcomes of the intervention included the reach of the program, the number of mammograms provided to food-pantry patrons, and the number of cancers detected. Methods for data collection were adapted from the Tell a Friend tracking and caller comment forms. The initiative, as a component of the Appalachia Community Cancer Network, was reviewed and approved by the Institutional Review Board of Milton S. Hershey Medical Center of The Pennsylvania State University.

### Results

Of the 379 women initially queried, 302 were at least 40 years of age (a mean of 17 age-eligible women per pantry [range 4-35]). Seventy women (23.1%) were

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40-49 years of age and 232 (76.9%) were at least 50 years of age. Of the 302 age-eligible women, 158 (52.3%) needed to schedule a mammogram; 127 (42.1%) had not had a mammogram within the past year and 31 (10.3%) had a mammogram within the past year but did not have a subsequent mammogram scheduled. Of the 158 women in need of scheduling a mammogram, 137 (86.7%) had health insurance while the other 21 (13.3%) did not have health insurance.

Of the 158 in need of scheduling a mammogram, 138 (87.3%) received a mammogram through the intervention (a mean of 8 women per pantry [range 3-16]). For 13 women (9.5%), this mammogram was their first. The FHC provided the mammogram to 13 of the 138 women.

Of the 138 women screened with mammography, 3 (2.2%) women were diagnosed with breast cancer. One woman's cancer was diagnosed at stage I (local), while the cancer of the other 2 women was diagnosed at stage II (regional). All 3 women received treatment. All were covered by insurance, including Medicare and Medicaid.

The number of no-cost breast cancer screenings provided to residents of Indiana County increased by 46 (28.2%), from 117 in 2004 to 163 in 2005. Of these 46, 34 (73.9%) were screened in the HealthyWoman Program while the other 12 (26.1%) were screened through the mammogram voucher program of the Pittsburgh affiliate of Komen for the Cure.

**Discussion**

The implementation of this evidence-based intervention was a success at several levels. At the individual level, 3 women were diagnosed with breast cancer at a local or regional stage. Thirteen women received their first-ever mammogram and 138 women received a needed mammogram. At the community level, the use of no-cost breast cancer screening increased by 28% during the year of this intervention. Also, the intervention demonstrated that a local cancer coalition composed of multiple organizations and agencies can partner to make progress toward a shared goal—to improve the quality of life of low-income residents of a rural community.20,23 Finally, at the professional cancer control level, the effort adapted Tell A Friend®, an evidence-based intervention to reach eligible women less likely to take advantage of early detection.

Implementation of evidence-based interventions is a relatively new approach to community-based cancer prevention and control. At its core, implementation requires that the health professional or community coalition rely substantially upon the previous demonstration of an intervention’s impact. This reliance is not without risks because important methods and data necessary to comprehensively evaluate the full impact of an intervention may be unavailable.

While this intervention occurred at a local level, many of the involved partners were affiliated with an agency or organization that was national in scope; consequently, the experience of this local effort may be helpful at a national level. National partners included the American Cancer Society and its nationally trademarked and recognized Tell A Friend® program, the National Cancer Institute (local partner: NACN), and the Centers for Disease Control and Prevention (local partner: HealthyWoman Program and FHC). Of particular note, the intervention involved the Indiana County CES and the food bank system, both of which are affiliated with the US Department of Agriculture. Therefore, this experience may provide useful information for a relatively new partnership between the USDA, the CDC, and the NCI to provide breast and cervical cancer outreach and education to high-risk, rural communities.24

At least 3 advantages were observed within the intervention. First, it was evidence based, thereby having substantial research experience to support its methods and effectiveness. Second, the multiple-contact method appears to have successfully recruited food pantry patrons. The Tell A Friend® tracking forms and clinical records facilitated monitoring of outcomes. Finally, 1-on-1 contact (peer counseling and education) with the food pantry patrons was cited by coalition members and food pantry volunteers as one of the most rewarding aspects of the initiative.

There were also challenges. Relying heavily on volunteer time, the intervention was both labor- and time-intensive for a community cancer coalition. The intervention took approximately 360 hours, 180 hours each from members and health care professionals. The direct cost of the intervention was approximately $5,500, not including costs such as travel that were donated by volunteers or reimbursed by partnership agencies and organizations. While they would consider repeating this intervention in the future, the ICCC partners are currently engaged in other community-based cancer control interventions. IRMC has initiated several new community services, including a new nurse practitioner, breast health navigator, and mobile mammography unit, which may further reduce barriers to breast cancer screening for low-income, rural women in Indiana County. In addition, the ICCC was unable to contact all female food pantry system patrons because of irregular attendance when ICCC members or ICCAP volunteers were not present. Follow-up with patrons was difficult.
because phone service in the homes was not always available. In addition, women may have provided inaccurate information on their previous mammograms.

Despite these challenges, the experience of implementing an evidence-based intervention by community partnerships in food pantries of Indiana County, Pennsylvania, yielded important results for community-based breast cancer screening in rural areas.

References