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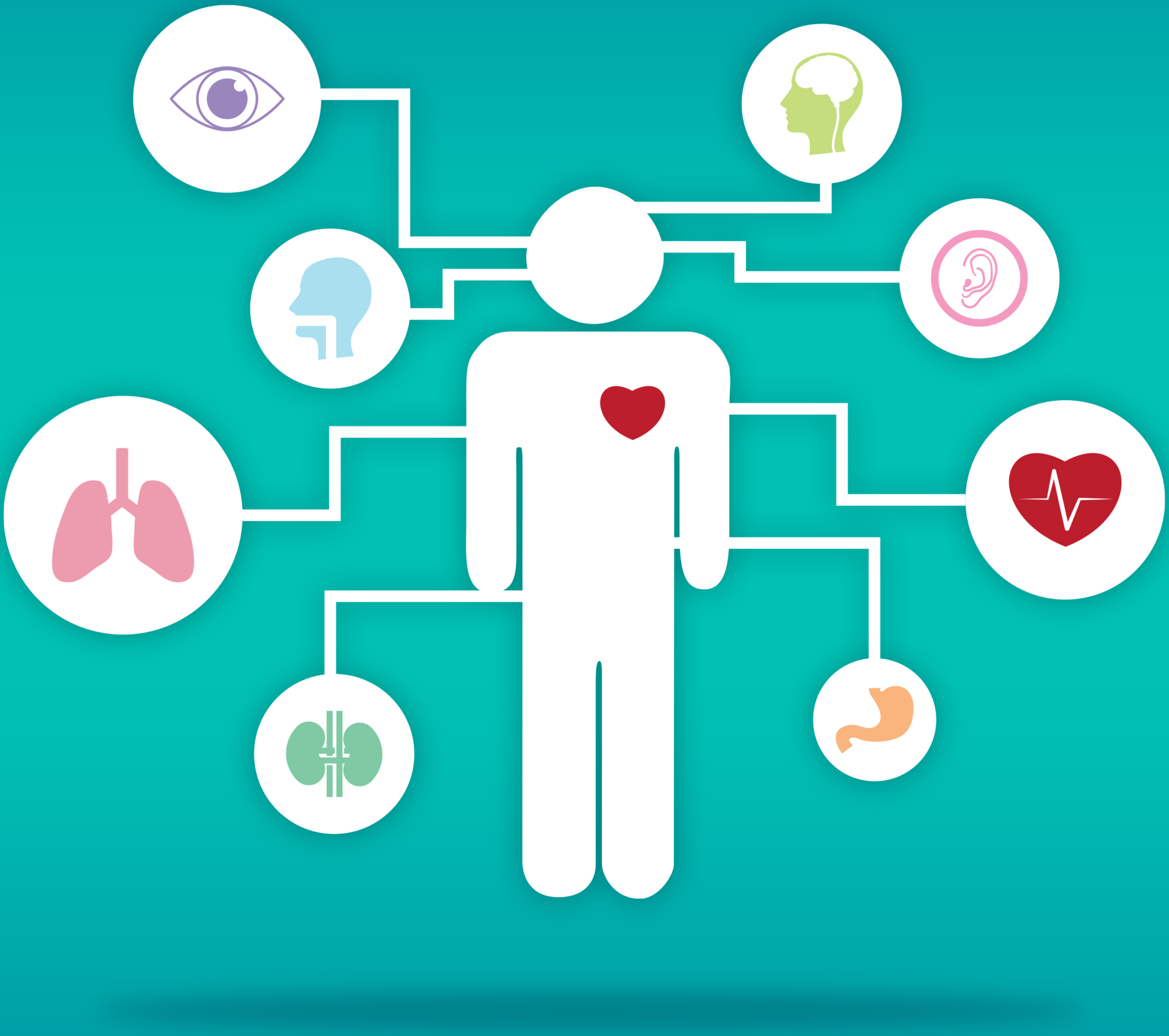

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COMMUNITY CASE STUDY Volume 11 — February 13, 2014

Implementing a Client Reminder Intervention for Colorectal Cancer Screening at a Health Insurance Worksite

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Suggested citation for this article: McFall AM, Ryan JE, Hager P. Implementing a Client Reminder Intervention for Colorectal Cancer Screening at a Health Insurance Worksite. Prev Chronic Dis 2014;11:130276. DOI: http://dx.doi.org/10.5888/pcd11.130276 .

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Abstract

Background
Among cancers that affect both men and women, colorectal cancer is one of the leading causes of cancer-related death in Michigan. The American Cancer Society estimates 4,730 new cases and 1,700 deaths due to colorectal cancer in Michigan for 2013. Screening can detect colorectal cancer earlier, when treatment is more successful.

Community Context
The Michigan Department of Community Health represents 1 of 25 states and 4 tribes to receive a multiyear grant from the Centers for Disease Control and Prevention (CDC) to increase colorectal cancer screening rates through population health interventions and clinical services for the underserved. Michigan's Colorectal Cancer Control Program is implemented in partnership with its Comprehensive Cancer Control Program, which supports the Michigan's cancer control coalition composed of 114 partner organizations.

Methods
This project had 2 primary objectives: 1) develop a collaborative partnership with 1 Michigan Cancer Consortium organization in which to pilot the intervention and 2) increase colorectal cancer screening rates by implementing a client reminder intervention and measuring the increase in screening rates.

Outcomes
A partnership was established with HealthPlus of Michigan. Of the 95 HealthPlus employees and spouses who received the intervention, 15 completed screening, accounting for a 16% increase in the screening rate. The project was considered successful because both of its objectives were achieved.

Interpretation
Translating evidence-based interventions into practice requires building a relationship with a partner organization, incorporating flexibility, and establishing a realistic timeline.

Background

Among cancers affecting both men and women, colorectal cancer (CRC) is one of the leading causes of Michigan cancer-related deaths. The American Cancer Society estimates 4,730 new CRC cases and 1,700 CRC deaths in Michigan for 2013. Screening can detect polyps that may become cancerous, so they can be removed. Screening also helps find CRC earlier, when treatment is more successful (1).

To improve health outcomes related to CRC, the Centers for Disease Control and Prevention (CDC) set a goal to increase screening rates to 80% by 2014 (2). The 2012 Behavioral Risk Factor Surveillance Survey estimated that only 69% of eligible Michiganders had an appropriate CRC screening (3). Appropriate screening is defined as a fecal occult blood test within the past year, a sigmoidoscopy within the past 5 years, or a colonoscopy within the past 10 years. As one of the CDC CRC grantees, Michigan is working to increase CRC screening rates by implementing evidence-based public health (EBPH) interventions to meet the national goal.

EBPH, which began to evolve less than 15 years ago, includes making decisions on the basis of available scientific evidence, data, and information systems and on program-planning frameworks; engaging the community in decision-making and sound evaluation; and disseminating what has been learned (4).

EBPH practice integrates science-based interventions with community preferences for improving the community's health. Before the acceptance of EBPH, many public health interventions were implemented on the basis of leadership preference, political or media pressures, anecdotal stories, or entrenched practices (5,6). Michigan has increasingly incorporated EBPH strategies and practices such as client reminder protocols into its programs and projects (7). Examples of other EPBH strategies incorporated into Michigan's CRC program are small media, provider assessment and feedback, and one-on-one education.

Client reminders are one EBPH intervention supported by the CDC's CRC Control Program logic model and by the *Guide to Community Preventive Services* (the *Community Guide*) (www.thecommunityguide.org) to increase CRC screening (8). For these reasons and because the community partners supported their use, client reminders were selected by the project coordinator as an intervention through the Research to Reality Project.

Community Context

Michigan is a unique state in that it consists of 2 separate peninsulas surrounded by the Great Lakes. Michigan is 1 of the nation's 10 largest states with more than 9.8 million residents. According to estimates, most Michigan residents are white (76%); the remaining population is African American (14%), Hispanic (5%), Asian (3%), Native American (1%), and unknown/other (1%) (9). A significant Arab American population resides in southeast Michigan (10).

In 2009, Michigan reported 4,802 new CRC cases, representing an age-adjusted rate of 42.9 per 100,000 people. The CRC incidence rate has been declining during the past 20 years; however, a difference remains in the incidence rate between whites and African Americans. When examined by race and sex, African American men have the highest incidence rate, followed by African American women and white men. The lowest incidence rate of CRC is in white women. Comparisons of Michigan CRC data with national composite CRC data from the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) program and with new CDC CRC data indicate that the Michigan CRC rate has been similar to national rates. Each year, approximately 1,800 Michigan men and women die from CRC. In 2010, CRC was responsible for 892 female deaths, a rate of 13.9 deaths per 100,000 women, and 899 men died from CRC, a rate of 18.6 deaths per 100,000 men. The Michigan CRC death rate decreased significantly over the past 20 years as incidence dropped (11).

The Michigan Department of Community Health represents 1 of 25 states and 4 tribes to receive a multiyear grant to increase CRC screening rates through population health interventions and clinical services for the underserved. Funds not directed to population health interventions are used to provide clinical services for low-income uninsured men and women aged 50 to 64 years for CRC screening and follow-up (2).

Michigan implements its CRC program in partnership with the CDC-funded Michigan Comprehensive Cancer Control Program (MCCCP) (12). The MCCCP helps support the state's cancer control coalition, the Michigan Cancer Consortium (MCC), a statewide organization consisting of 114 partner organizations. The coalition provides a forum for collaboration to reduce the burden of cancer among the citizens of Michigan by addressing cancer prevention and control priorities. In 2010, Michigan received further CDC funding under a new project titled Demonstrating the Capacity of Comprehensive Cancer Control Programs to Implement Policy and Environmental Cancer Control Interventions. This new funding resulted in the development of the MCC Challenge.

The MCC Challenge consists of partner organizations that agreed to assess their health care benefits and employee policies. These organizations have dedicated human resources staff committed to changing policies in their organization, including working with their benefit plan providers to create a healthier and more productive workforce through comprehensive worksite wellness strategies that include increasing cancer screening rates (13). Eight partner organizations participated during the first full year of MCC Challenge implementation in 2012; HealthPlus of Michigan (HP) was 1 of those organizations.

HP is a health and wellness organization that provides customized, nationally recognized health plans. HP manages health care coverage and wellness programs for members residing in Michigan, members of Michigan-based companies who live outside the state, and members of Medicare Advantage and Medicaid. HP formed in 1979 as a nonprofit organization and employs more than 400 employees in full-time or part-time positions in the 3 offices in Michigan. The National Committee for Quality Assurance (NCQA) ranked HealthPlus's commercial health maintenance organizations (HMOs) among the nation's top health plans for the past 7 years; its commercial, Medicaid, and Medicare HMO plans are accredited as "Excellent" by the NCQA (14).

The MCC Challenge and the participation of HP provided a unique opportunity for the project coordinator to use this project as the foundation of her involvement with the Research to Reality (R2R) Mentorship Program (https://researchtoreality.cancer.gov/mentorship). The mentorship program provided another level of partnership, an opportunity to gain guidance and perspective from a mentor, and technical assistance from the National Cancer Institute and in the implementation of an evidence-based intervention to address CRC screening. This project had 2 primary objectives: 1) develop a collaborative partnership with 1 MCC organization in which to pilot the intervention and 2) increase CRC screening rates by implementing a client reminder intervention and measuring the increase of screening rates. The purpose of this case study is to describe the progress toward these objectives.

Methods

To achieve the second objective, it was agreed through ongoing meetings and discussion that HP would use the client reminder system with a population of their choosing (eg, employees, providers, clients). The project coordinator decided to use a single evidenced-based strategy, rather than a combination of strategies shown to increase CRC screening, to simplify the assessment of effect on screening rates. Several project facilitation items were developed including an action plan, a timeline, protocols, and tracking tools. The protocols and tools consisted of the CRC Screening Guideline Protocol (Appendix A), CRC Client Reminder Implementation Protocol (Appendix B), and CRC Evaluation Tool (Appendix C).

The CRC Screening Guideline Protocol defines accepted screening protocols for CRC according to the US Preventive Services Task Force guidelines. Those screening protocols include high-sensitivity fecal occult blood test (FOBT or FIT), flexible sigmoidoscopy, or colonoscopy. People identified with current or past history of CRC or who have had a total colectomy were excluded. The CRC Client Reminder Implementation Protocol provided a timeline with assignments for activities. The CRC Evaluation Tool provided the preintervention and postintervention specifications, definitions, instructions for data analyses and Current Procedural Terminology (CPT) codes. When this project was in the development stage, an MCC partner had verbally committed to the project; however this partner was unable to participate once the project began. The 8 organizations participating in the MCC Challenge during the project timeline were invited to participate in this additional collaboration project on CRC reminders. HP was one organization that indicated interest, and a project description was developed. The project coordinator submitted an application to the Michigan Department of Community Health Institutional Review Board (IRB) for approval. The IRB deemed the project “not human subjects research” with the clarification that “as proposed, this quality improvement project does not involve research or the collection of identifiable information on human subjects.”

The project coordinator held an in-person meeting with HP where several sample client reminder cards were reviewed to determine which may best fit their needs. During discussion of the sample client reminder cards, HP indicated they could not use any of the cards since all mentioned a specific screening procedure, barium enema, that while, medically acceptable as a screening modality, was not acceptable for the insurance company to report for measures of the Healthcare Effectiveness Data and Information Set (HEDIS). HEDIS is a tool used by more than 90% of America’s health plans to measure performance on specific dimensions of care and service. The project CRC Screening Guideline Protocol (Appendix A) incorporated the 2012 HEDIS CRC screening measures, which were essentially the same as those provided in the US Preventive Services Task Force guidelines.

HP’s goal is to increase HEDIS screening rates. Since HP could not count the CRC screening modality, barium enema, for HEDIS, they could not use Michigan’s standard partner materials, which included this procedure. Further discussion determined that HP needed a customized reminder card. In concert with the partners, the Make It Your Own platform (http://miyo.gwb.wustl.edu/about.php) was selected to address this issue. Make it Your Own allows the user to create health information resources tailored to the populations they serve on the basis of tested health communication messages. The organization can modify the message to meet its unique needs. Users of Make It Your Own find culturally appropriate health materials directed at their target population without having to develop them. Using Make It Your Own, HP developed a client reminder postcard tailored to its organizational needs. Once the postcard content was developed, HP obtained the necessary approvals and printed the cards (Figure).

Just a quick reminder

It's time for your colorectal cancer screening.

If you're 50 or older, talk with your health care provider about the different colon cancer screening tests.

Check out the HealthPlus Web site at www.healthplus.org for more health information or call Customer Service at 1-800-332-9161.

HealthPlus Health Plans

The Plus makes all the difference.

Figure. Client reminder intervention for colorectal cancer screening at a health insurance worksite, Michigan Cancer Consortium and HealthPlus of Michigan, Michigan, United States, 2012. [A text description of this figure is also available.]

To identify the people who would receive a client reminder postcard, HP staff used CPT codes for CRC screening tests to systematically identify people who did not meet the 2012 HEDIS measures. People without a CPT code indicating an appropriate CRC screening test were identified to receive the intervention. In total, 95 HP employees, eligible spouses, or both were identified as not meeting the 2012 HEDIS measures, and all were sent a one-time client reminder postcard intervention. For Health Information Portability and Accountability Act purposes, HP addressed and mailed the client reminder cards. The MCCCP provided postage to HP for the mailing.

Outcome

Outcomes for both the partnership and intervention were reached. With regard to the partnership, time delays occurred when the initial partner withdrew and HP agreed to participate in this project. Despite the delays, HP identified value (improved employee health status) in the project and quickly generated a CPT code analysis of employee or eligible spouse CRC screening status. The project coordinator and HP staff developed a working relationship that resulted in project success, including effective problem resolution around an appropriate client reminder card, IRB approval at the Michigan Department of Community Health, and technical assistance from the Make It Your Own staff.

Of the 95 HP employees or eligible spouses sent client reminder cards, 4 (4%) completed screening in the first 3 months and an additional 11 (12%) completed screening after 6 months. The total number of people screened in the first 6 months after the intervention was 15. This number translated into a 16% increase in screening among the target population, which is comparable to a 9% to 20% increase in screening noted by the *Community Guide* with client reminders used for FOBT (15).

Interpretation

The project was approached with a well thought-out and tested protocol; however, translating evidence-based interventions into practice requires flexibility throughout the process. In this project, the need for flexibility was evident with regard to the timeline and the choice of client reminder cards. Benefits in the choice of collaboration partners were realized, and lessons were learned for replication of similar projects.

Establishing a realistic timeline is an important consideration when implementing an EBPH intervention. The timeline needs to allow for adjustments that may be required as the project unfolds. The project coordinator quickly learned that the timeline that was developed, and necessary to complete this project on the R2R schedule, was not realistic for most of the organizations that were approached. The project coordinator approached HP and they were able to collaborate on the project within the necessary time frame. HP and MCC had an existing relationship that was strengthened through their collaboration on this project and provided opportunities for future projects.

HP had other criteria that were not anticipated, especially regarding the choice of client reminder cards. Although several sample cards were offered, a new reminder card needed to be created to accommodate HP's specific screening options available for employees that would met HEDIS measures. Once the client reminder card was created, it then needed review internally at HP. Engaging with HP as an insurer added benefit and unique perspective to this project, offering a closed loop between insurer and employer that supported privacy issues. As an insurer, HP had an understanding of HEDIS and routinely uses HEDIS data. These observations support replication of this project by working directly with insurers for client reminders.

Comprehensive cancer control coalition partner relationships could offer a natural platform for replication of this project, whether the desired partner is an insurer or employer. The 68 state, tribal, and territory coalitions are encouraged to consider this EBPH project. Rationale for considering replication includes established relationships with coalition partners, composed of insurers and employers; relative ease considering process and tools used successfully in this project; and low cost, other than staff time. Primary project costs include organization staff time to generate computer reports run of CPT codes (preintervition and postintervention), development and printing of the client reminder cards, and postage to mail the cards.

Overall, the project protocol was validated but could be improved with a few minor changes. Suggested changes include approaching organizations that are members of a statewide cancer control coalition to capitalize on existing partnerships; a longer, more flexible timeline; and earlier submission to the IRB. With these adjustments, we believe similar projects could be conducted to increase CRC screening rates.

Acknowledgments

We acknowledge Megan Celedonia at the Washington State Department of Health for sharing tools and processes from a similar project funded by CDC that were foundational for the project described in this article. The project coordinator and lead author acknowledges the National Cancer Institute's R2R Pilot Mentorship Program for the opportunity to participate in the program. This case study was formed and executed due to participation in R2R. The R2R program staff provided invaluable feedback and guidance throughout the process. The project coordinator also acknowledges HP for its collaboration on the project described in this article. HP implemented the client reminder post cards and provided data necessary to the completion of this project. HP's partnership on this project was invaluable. This publication was supported by cooperative agreement no. 5U58DP002022 from CDC.

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Appendices

Appendix A. Colorectal Cancer Screening Guideline Protocol

Return

Regular screening, beginning at age 50, is the key to preventing colorectal cancer (16). The US Preventive Services Task Force (USPSTF) recommends screening for colorectal cancer using high-sensitivity fecal occult blood testing, sigmoidoscopy, or colonoscopy beginning at age 50 years and continuing until age 75 years (16).

People at higher risk of developing colorectal cancer should begin screening at a younger age and may need to be tested more frequently. The decision to be screened after age 75 should be made on an individual basis. If you are older than 75, ask your doctor if you should be screened. For more information, read the current colorectal cancer screening guidelines from the USPSTF.

Recommended screening tests and intervals are the following (17):

- High-sensitivity fecal occult blood test (FOBT or FIT), which checks for hidden blood in 3 consecutive stool samples, should be done every year.
- Flexible sigmoidoscopy, where physicians use a flexible, lighted tube (sigmoidoscope) to look at the interior walls of the rectum and part of the colon should be done every 5 years.
- Colonoscopy, where physicians use a flexible, lighted tube (colonoscope) to look at the interior walls of the rectum and the entire colon, should be done every 10 years. During this procedure, samples of tissue may be collected for closer examination or polyps may be removed. Colonoscopies can be used as screening tests or as follow-up diagnostic tools when the results of another screening test are positive. Colonoscopy also is used as a diagnostic test when a person has symptoms, and it can be used as a follow-up test when the results of another colorectal cancer screening test are unclear or abnormal.
- Exclusions, colorectal cancer and total colectomy.

Appendix B. Colorectal Cancer Client Reminder Implementation Protocol

Return

Activity No.	Activity	Timing
1	The partner agency will generate a list of eligible members by completing coding/data extraction following the criteria to identify eligible members. The criteria to identify eligible members are set forth in the definition of eligible member in the evaluation tool.	April–May 2012
2	With input from MDCH, partner agency will finalize the client intervention (postcard) reminders that will be sent to eligible members.	June 2012
3	MDCH will pay for printing and postage.	June 2012
4	The partner agency will address and mail client intervention to all previously identified eligible members.	June 2012
5	The partner agency will extract data for intervention measurement at baseline and for the same population at 3 and 6 months post intervention. Partner agency will pay for data analysis costs and send measurement results to MDCH. MDCH will share with partners.	October 2012–January 2013
6	The project coordinator will compare data from June (baseline data), October, and January to determine whether partnering agencies rates increased.	June 2012 October 2012 (3-month: July–September 2012) January 2013 (6-month: July–December 2012)

Appendix C. Colorectal Cancer Evaluation Tool

Return

Evaluation

Preintervention: How many eligible members were identified as not completing an eligible screening?

Postintervention: How many eligible members were identified as not completing an eligible screening?

1. At 3 months postintervention?
2. At 6 months postintervention?

Data analysis

Preintervention: Baseline data: the percentage and number of eligible members who have not had an eligible screening.

Postintervention:

- Intervention data: the percentage and number of eligible members that had an eligible screening after intervention.
- Baseline, 3-month, and 6-month HEDIS data will be compared to determine an increase in screening rates.

Definitions

Eligible members are partner agency employees who are aged 50 to 75 years, who have active individual or group medical coverage that is provided or administered by a health plan, and who have not had an eligible screening as defined below. An eligible member excludes individuals with a diagnosis of colorectal cancer or total colostomy within the past 10 years.

The following codes identify excluded individuals:

Description	CPT	HCPCS	ICD-9-CM Diagnosis	ICD-9-CM Procedure
Colorectal cancer	NA	G0213-G0215, G0231	153, 154.0, 154.1, 197.5, V10.05	NA
Total colostomy	44150-4415344155-4415844210-44212	NA	NA	45.8

Abbreviations: CPT, Current Procedural Terminology; HCPCS, Healthcare Common Procedure Coding System; ICD-9-CM, International Classification of Diseases, 9th Revision, Clinical Modification; NA, not applicable.

Eligible screening as described in the screening guideline protocol is one of the following as identified in the baseline data:

- Fecal occult blood test (FOBT). Regardless of FOBT type, guaiac (gFOBT) or immunochemical (iFOBT) assume that the required number of samples was returned.
- Flexible sigmoidoscopy within the last 5 years.
- Colonoscopy within the last 10 years.

A member/client/patient had an eligible screening if a submitted claim encounter contains any code in the table below:

Description	CPT	HCPCS	ICD-9-CM Diagnosis	ICD-9-CM Procedure	LOINC
FOBT (January 1, 2011–December 31, 2011)	82270, 82274	G0328, G0394	V76.51	NA	2335-8, 12503-9, 12404-7, 14563-1, 14564-9, 14565-6, 27396-1, 27401-9, 27925-7, 27926-5, 29771-3
Flexible Sigmoidoscopy (January 1, 2007–December 31, 2011)	45330-45335, 45337-45342, 45345	G0104	NA	45.24	NA
	44388-44394, 44397, 45355,	G0105, G0121	NA		NA

Description	CPT	HCPCS	ICD-9-CM Diagnosis	ICD-9-CM Procedure	LOINC
Colonoscopy(January1, 2002–December 31, 2011)	45378-45387, 45391, 45392			45.22, 45.23, 45.25, 45.42, 45.43	

Abbreviations: CPT, Current Procedural Terminology; HCPCS, Healthcare Common Procedure Coding System; ICD-9-CM, International Classification of Diseases, 9th Revision, Clinical Modification; LOINC, Logical Observation Identifiers Names and Codes; NA, not applicable.

For Questions About This Article Contact pcdeditor@cdc.gov
Page last reviewed: February 18, 2014
Page last updated: February 18, 2014
Content source: National Center for Chronic Disease Prevention and Health Promotion

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PREVENTING CHRONIC DISEASE
PUBLIC HEALTH RESEARCH, PRACTICE, AND POLICY

BRIEF Volume 11 — February 20, 2014

Building Cancer Control Capacity: a Mixed-Method Evaluation of the Research to Reality (R2R) Mentorship Program

Michael Sanchez, MPH, CHES; E. Peyton Purcell, MPH, CPH; Joan S. Michie, PhD; Sophia P. Tsakraklides, PhD; Madeline La Porta, MS; Cynthia Vinson, PhD, MPA

Suggested citation for this article: Sanchez M, Purcell EP, Michie JS, Tsakraklides SP, La Porta M, Vinson C. Building Cancer Control Capacity: a Mixed-Method Evaluation of the Research to Reality (R2R) Mentorship Program. Prev Chronic Dis 2014;11:130275. DOI: http://dx.doi.org/10.5888/pcd11.130275 .

PEER REVIEWED

Abstract

In 2011, the National Cancer Institute launched the Research to Reality (R2R) Pilot Mentorship Program to enhance mentees' core evidence-based public health (EBPH) competencies. In this article, we describe the program and its evaluation results and the program's ability to improve participants' EBPH competencies and appropriateness of program components. Program evaluation consisted of a pre/post program competency questionnaire and interviews with mentees, mentors, mentees' supervisors, and program staff. Mentees reported the same or higher rating in every competency at end of the program, with average increase of 0.6 points on a 4-point scale; the greatest improvements were seen in policy development/program planning. Mentorship programs are a promising strategy to develop EBPH competencies, provide guidance, and disseminate and adapt evidence-based interventions within real-world context.

Introduction

Significant advancements have been made in understanding, preventing, and treating cancer (1). However, evidence-based interventions (EBIs) are not fully integrated into routine practice (2). Common challenges include limited time to gather evidence, lack of skilled personnel, limited access to data, inadequate funding, and differing perspectives of what constitutes "evidence-based" (3,4).

Mentorship programs have been effective in disseminating EBIs in medicine (5,6) and have had some success in public health (7,8). In 2011, the National Cancer Institute (NCI) launched the Research to Reality (R2R) Pilot Mentorship Program (the Program) to enhance mentees' core evidence-based public health (EBPH) competencies (9,10) through 3 primary program components: 1) mentorship and mentee projects, 2) training and support, and 3) online community platform (Figure). A complete description of the Program is available elsewhere (10).

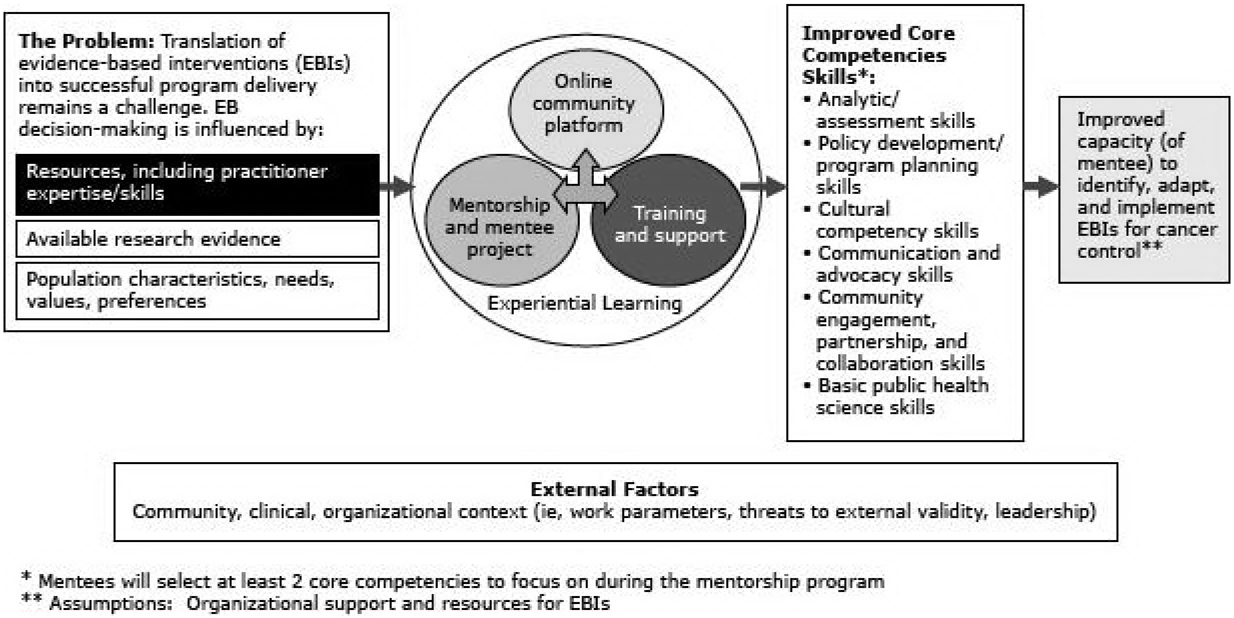

Figure. Research to Reality Pilot Mentorship Program logic model, National Cancer Institute, 2011. Source: Purcell et al (10). [A text description of this figure is also available.]

The purpose of this article is to 1) describe the Program and report evaluation results and 2) discuss the Program’s ability to improve participants’ EBPH competencies (9,11) and the appropriateness of program components.

Methods

In May 2011, NCI issued a call for mentee applications through the R2R website, listserv announcements, and relevant newsletters. Applicant eligibility included 1) full-time employment with an organization that addressed cancer control and prevention, 2) supervisor support to participate, 3) at least a master’s level public health training or 2 to 3 years equivalent training or experience, and 4) experience working with community organizations. Applicants were required to propose a project that was relevant to their current work and that addressed a comprehensive cancer control plan goal. NCI staff scored applications from 1 (noncompetitive) to 7 (excellent) on factors related to appropriateness of the applicant’s training, experience, and feasibility of project in the context of the Program. NCI interviewed the top 8 mentee candidates then selected and matched 6 mentees with mentors.

The evaluation included a preprogram and postprogram competency questionnaire, which assessed changes in EBPH competencies. Mentees rated their skills on a 4-point Likert scale (1 = no ability, 4 = expert) across 6 competency areas: 1) analytic/assessment; 2) policy development/program planning; 3) cultural competency; 4) basic public health science; 5) partnership, collaboration, and community engagement; and 6) advocacy and communication. Additionally, postprogram individual interviews were conducted with mentees, mentors, mentees’ supervisors, and Program staff.

Participation and satisfaction data for trainings, webinars, mentor–mentee activities, Web analytics, and mentees’ project deliverables were also reviewed. Because of the small number of participants, most data were qualitative. Mentees rated their preprogram and postprogram EBPH competency level, and changes in ratings were averaged across all mentees. Data for interviews and project deliverables were analyzed through content analysis; coding categories were directly derived from the text data. The codes of the 2 analysts were checked for reliability and consistency. The institutional review board at Westat conducted and approved the evaluation.

Results

Mentees entered the Program from different organizations, level of experience, topic interests, and competency development needs (Table 1). The EBPH competency areas selected most frequently by mentees were analytic/assessment; partnership, collaboration, and community engagement; and advocacy and communication skills, each of which was chosen by two-thirds of the mentees (Table 2).

For every skill assessed, mentees gave themselves the same or a higher rating at the end of the Program; the greatest change was seen in policy development/program planning (average 1.0 increase on a 4-point scale).

Analytic/assessment skills and partnership, collaboration, and community engagement showed average increases of 0.8 points (Table 2).

All Program components were implemented and well-received by participants. Interviews showed that strong administrative support helped participants maintain focus but also provided some flexibility regarding timelines and deliverables that helped with addressing challenges mentees encountered in planning and conducting their projects. Except for the website, the Program's main platform, all other Program components were valued by most of the participants. Although participants praised the website's functionality, they made limited use of it, with lack of time frequently mentioned as a primary cause for underuse. Components mentioned by 2 or more mentees were their mentee–mentor relationship, cohort relationship, trainings, and projects. Mentors valued most the interactions among participants, especially the mentee–mentor pairs, and communication and webinars. Several mentors also mentioned the site visit, project, and trainings. Additionally, all mentees considered the training webinars to be helpful and effective, and all mentees and mentors thought programmatic support was adequate.

Mentees reported improved skills and knowledge in project management, building partnerships, navigating politics, adapting EBIs and watching for fidelity, assessment and analytical skills, manuscript writing, and making presentations. All of these accomplishments occurred despite challenges, such as workplace and life changes and loss of project funding.

Discussion

To our knowledge, there are no published studies evaluating mentorship programs as a strategy to improve competencies needed to integrate EBIs into public health practice. This evaluation was intended to describe the Program's ability to improve participants' EBPH competencies and the appropriateness of Program components designed to build capacity of cancer control practitioners to navigate "real world" context.

Our evaluation resulted in 3 noteworthy findings. First, all Program components were implemented, and most were valued by participants, including the mentor–mentee relationship, training webinars, and site visit. Second, mentees were able to negotiate the "real world" context that affects the conduct of EBIs, including project management, building partnerships, navigating politics, and adapting EBIs despite multiple challenges encountered. However, this growth did not extend to mentees' organizations. Additional efforts to disseminate mentees' lessons learned in their organizations should be explored. Finally, mentees reported the same or a higher rating for every EBPH competency assessed at the end of the Program, with an average increase of 0.63 points on a 4-point scale.

Although our evaluation was limited in size, the diversity of participants and their related projects indicates that a mentorship program is a feasible strategy across multiple settings, trainings, and contexts. A strength of our pilot program was its ability to remotely integrate evidence-based resources, interactive Web tools and trainings, and mentorship to assist cancer control practitioners with adapting and implementing EBIs to local context. Another strength was the use of multiple data sources and triangulation, which strengthened the evaluation findings.

Our findings show that mentorship programs have great promise as an effective means to develop EBPH competencies for cancer control practitioners and provide guidance and technical assistance with adapting EBIs to "real world" local settings. Further research is warranted to replicate these results on a larger scale and in comparison with other strategies.

Acknowledgments

This project was funded in whole or in part with federal funds from the NCI, National Institutes of Health, under contract no. HHSN261200800001E. The content of this publication does not necessarily reflect the views or policies of the Department of Health and Human Services, nor does mention of trade names, commercial products, or organizations imply endorsement by the US government.

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Tables

Table 1. Research to Reality Pilot Mentorship Program, Mentee Applicant and Mentee Characteristics, National Cancer Institute, 2011

Return

Applicant Characteristic	All Applicants, No. (%) (n = 48)	Selected Mentees, No. (%) (n = 6)
Sex		
Female	42 (88)	5 (83)
Male	6 (13)	1 (17)
Highest degree		
Less than Bachelor's	1 (2)	—
Bachelor degree	6 (13)	2 (33)
Masters (non–public health)	13 (27)	2 (33)
Masters (public health)	23 (48)	2 (33)
PhD or MD	5 (10)	—
Cancer Control Coalition experience		
Yes, currently	28 (58)	6 (100)
Yes, in the past	3 (6)	—
No, never	17 (35)	—
Organization type[a]		

Applicant Characteristic	**All Applicants, No. (%) (n = 48)**	**Selected Mentees, No. (%) (n = 6)**
Academic	9 (19)	2 (33)
Cancer center	11 (23)	1 (17)
Clinical center	10 (21)	1 (17)
Government	6 (13)	2 (33)
State	4 (8)	2 (33)
Local (county/tribal)	2 (4)	
Other	12 (25)	—
Portion of job that includes planning and/or implementing cancer control programs		
All (>95%)	21 (44)	4 (67)
Most (65%–95%)	14 (29)	1 (17)
About half (35%–64%)	6 (13)	1 (17)
Some (<35%)	5 (10)	—
Don't know/Prefer not to answer	2 (4)	—
Prioritized competencies[a]		
Advocacy and communication skills	22 (46)	4 (67)
Assessment/analytic skills	22 (46)	4 (67)
Basic public health science skills	12 (25)	—
Cultural competency skills	14 (29)	1 (17)
Partnership, collaboration, and engagement skills	28 (58)	3 (50)
Policy development/program planning skills	36 (75)	4 (67)
Project primary cancer topic		
Breast cancer	5 (10)	—
Cancer health disparities	4 (8)	—
Cervical cancer	2 (4)	1 (17)
Clinical trials accrual	2 (4)	—
Colorectal cancer	7 (15)	2 (33)
Obesity, diet/nutrition, physical activity	4 (8)	1 (17)
Patient navigation	3 (6)	—
Sun safety/skin cancer	1 (2)	1 (17)
Survivorship	9 (19)	—
Tobacco control	4 (8)	1 (17)
Other	7 (15)	—

Abbreviation: —, no responses.

[a] Total may exceed 100% because applicants could give more than 1 response.

Table 2. Priority Competency Areas Selected by Mentees, Average Ratings on a 4-Point Scale of all Mentees at Program Completion, and Average Increase in Ratings From Program Initiation to Completion: Research to Reality Pilot Mentorship Program, National Cancer Institute, 2011

Return

Competency	No. of Mentees Selecting This Area	Average Rating at Program Completion[a]	Average Increase in Ratings
1. Analytic/assessment	4	3.0	0.8
2. Policy development/program planning	3	3.1	1.0
3. Cultural competency	1	3.1	0.2
4. Public health science	0	3.2	0.6
5. Partnership, collaboration, and community engagement	4	3.3	0.8
6. Advocacy and communication	4	2.7	0.4

[a] Each competency was rated by participants on a 4-point scale (1 = no ability, 4 = expert).

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COMMUNITY CASE STUDY Volume 11 — March 13, 2014

Engaging the Community to Improve Nutrition and Physical Activity Among Houses of Worship

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Suggested citation for this article: Evans KR, Hudson SV. Engaging the Community to Improve Nutrition and Physical Activity Among Houses of Worship. Prev Chronic Dis 2014;11:130270. DOI: http://dx.doi.org/10.5888/pcd11.130270 .

PEER REVIEWED

Abstract

Background
Obesity, physical inactivity, and poor nutrition have been linked to many chronic diseases. Research indicates that interventions in community-based settings such as houses of worship can build on attendees' trust to address health issues and help them make behavioral changes.

Community Context
New Brunswick, New Jersey, has low rates of physical activity and a high prevalence of obesity. An adapted community-based intervention was implemented there to improve nutrition and physical activity among people who attend houses of worship and expand and enhance the network of partners working with Rutgers Cancer Institute of New Jersey.

Methods
An adapted version of Body & Soul: A Celebration of Healthy Living and Eating was created using a 3-phase model to 1) educate lay members on nutrition and physical activity, 2) provide sustainable change through the development of physical activity programming, and 3) increase access to local produce through collaborations with community partners.

Outcome
Nineteen houses of worship were selected for participation in this program. Houses of worship provided a questionnaire to a convenience sample of its congregation to assess congregants' physical activity levels and produce consumption behaviors at baseline using questions from the Health Information National Trends Survey instrument. This information was also used to inform future program activities.

Interpretation
Community-based health education can be a promising approach when appropriate partnerships are identified, funding is adequate, ongoing information is extracted to inform future action, and there is an expectation from all parties of long-term engagement and capacity building.

Background

Obesity, lack of physical activity, and poor nutrition have been linked to chronic diseases such as heart disease, stroke, diabetes, and some cancers (1). An estimated 18.4% of adolescents and 35.7% of adults in the United States are obese (2). The World Cancer Research Fund estimates that 25% to 30% of all cancers in the United States can be attributed to conditions related to diet and physical inactivity, including overweight and obesity (3). Recognizing the effect that obesity and lack of physical activity has on chronic diseases and their prevalence and outcomes, government and private organizations have developed individual- and community-level recommendations to reduce rates of morbidity and mortality (1,4). Community-level guidelines support public–private partnerships that increase access to healthy foods and provide "safe, enjoyable, and accessible environments" to increase physical activity in community settings

(4). Research indicates that interventions in community-based settings such as houses of worship can build on attendees' trust to address health issues and help them make behavioral changes (5).

Community Context

New Brunswick is a diverse community centrally located in Middlesex County, New Jersey. Nicknamed "The Healthcare City," New Brunswick is home to 2 academic institutions, 2 hospitals, a transit hub, and various pharmaceutical companies.

Data from the 2011 Behavioral Risk Factor Surveillance System indicated that 61.5% of New Jersey residents were overweight, 26.4% participated in no leisure-time physical activity, 31.9% ate 2 or more servings of fruit daily, and only 13.9% consumed 3 or more servings of vegetables per day (6). Cities such as New Brunswick are not immune to the national obesity epidemic, and in some cases, the data for this area indicate worse outcomes. According to 2012 data from County Health Rankings, 27% of Middlesex County residents aged 20 or older reported no leisure time physical activity, higher than the 25% New Jersey benchmark and the 21% national benchmark. With regard to obesity, 24% of county residents reported a body mass index of 30 kg/m^2 or higher, slightly less than the New Jersey and US benchmarks of 25% (7).

The purpose of our program was 1) to establish a comprehensive program to improve nutrition and physical activity among people who attend houses of worship and 2) enhance the network of partners working with Rutgers Cancer Institute of New Jersey to provide community education. This case study highlights the successes and challenges through the development and recruitment periods of our program.

Methods

Body & Soul: A Celebration of Healthy Living and Eating (B&S) is an evidence-based program developed by the National Cancer Institute in collaboration with the American Cancer Society, the University of North Carolina, and the University of Michigan (8–11). The goal of B&S is to improve the health of congregation members in African American churches by increasing their fruit and vegetable consumption. B&S comprises 4 "pillars" that, when engaged by a church, have been shown to improve fruit and vegetable consumption: 1) a pastor who is committed and involved, 2) church activities that promote healthful eating, 3) a church environment that promotes healthful eating, and 4) peer counseling that motivates church members to eat a healthful diet (8). Research has documented the efficacy of B&S as a dietary intervention to increase fruit and vegetable consumption (5,10,12). The Office of Community Outreach (OCO) at Rutgers Cancer Institute of New Jersey has worked with the B&S program since 2006, providing grant funds, technical assistance, or both to various churches throughout New Jersey, New York, Pennsylvania, and Delaware. On the basis of OCO's experiences with the original B&S program, we adapted the original to meet the demographics and diversity of the greater New Brunswick community.

The original B&S program was adapted for implementation in our diverse community in a few ways. The original B&S Program was designed for implementation in African American churches. Houses of worship in the New Brunswick area reflect the diversity of the neighborhoods in which they are located. Our goal was to create community change by implementing a program that would affect a broader community and not restrict implementation to African American churches. In addition, the original program had a strong focus on fruit and vegetable consumption. Although program staff and advisors agreed that this component should remain a focus of the program, they also felt it was important to include education on broader nutrition topics and general healthful living strategies of interest to participants. Therefore, we added education on other nutrition topics such as sodium, fat, calcium, sugar-sweetened beverages, and whole grains. We also included a stronger focus on physical activity. Experience with B&S and other research suggests that ongoing technical assistance and training would help engage lay members of the houses of worship (ambassadors) and continue their participation (5,13,14). Our adapted B&S program was designed to ensure that ambassadors would have continued interaction with consistent program staff. This program consisted of a multiphase process (phase I: monthly educational sessions; phase II: physical activity program development; and phase III: increasing access to local fruit and vegetables) where participants received hands-on education and technical assistance to deliver the program to members of their congregation and encourage them to make changes (Figure).

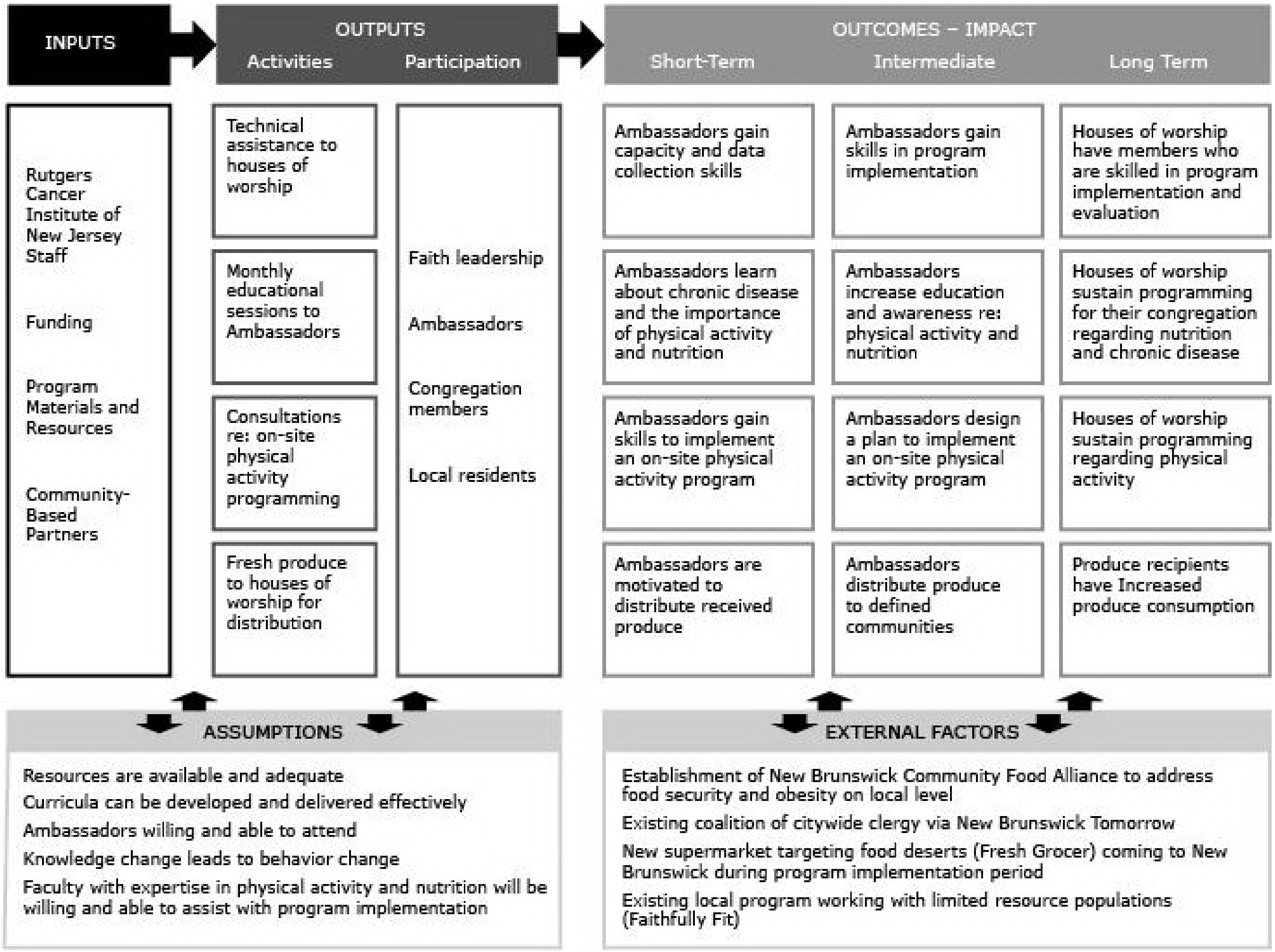

Figure. Body & Soul: A Celebration of Healthy Living and Eating logic model, New Brunswick, New Jersey, 2012. [A text description of this figure is also available.]

Our adapted program used a “train the trainer” model in which consultants with expertise in nutrition and physical activity content areas provided education to ambassadors, who were then charged with delivering health messages to their congregation using the strategies that they felt would be successful in their respective groups. Before the full launch in 2012, elements from phases I and II were piloted using 2 houses of worship that agreed to serve as a prelaunch pilot. Feedback from this pilot was used to design reporting forms, adjust the program schedule, and frame strategies for the nutrition and physical activity consultant to consider during site visits. Conversations with community partners and key informants with expertise in the content areas were used to enhance session offerings and program support in an effort to increase the likelihood of continued participation among houses of worship after the program was formally launched.

A program staff member was selected to participate in the National Cancer Institute’s Research to Reality Mentorship Program (R2R). R2R is “an online community of practice that links cancer control practitioners and researchers and provides opportunities for discussion, learning, and enhanced collaboration on moving research into practice” (15). Through monthly blog posts and cyber seminars, program staff from Rutgers Cancer Institute of New Jersey learned about national initiatives such as the B&S Community of Practice. Staff were also invited to Fox Chase Cancer Center in Philadelphia to view its implementation of B&S in Pennsylvania. Program staff were able to use this site visit to identify best practices and obtain ideas to incorporate into our adapted program.

Because this project was conducted in the context of a community philanthropic project where 1) data were collected for program evaluation purposes, not to evaluate individual outcomes, and 2) the goal was not to produce generalizable results, the project was determined not to require approval by the Rutgers University Institutional Review Board. No identifiers (ie, personal or institutional) are used in the reporting of the results of this program evaluation.

Community engagement

Community engagement is an important piece of any community-based initiative. A committed effort was made to engage and develop relationships with local community partners, both public and private, at the onset of the program. Potential community partners were identified by using existing relationships, and an emphasis was made to connect to those who had expertise in nutrition or physical activity or who were working with houses of worship. Existing relationships were also used to establish relationships with new partners. For example, we were connected to Faithfully Fit (www.njsnap-ed.org/fit), the faith-based arm of our state's Supplemental Nutrition Assistance Program (SNAP) educational unit, because of our strong relationship with New Brunswick Tomorrow (www.nbtomorrow.org), a citywide nonprofit that works to bring like-minded partners together to address community issues. Faithfully Fit provides education on these topics in limited-resource communities, and it had varied pretested materials available for our use at low or no cost. New Brunswick is in its catchment area, and we were able to combine our efforts with Faithfully Fit's efforts to reach shared goals. In addition, B&S staff joined networks such as Shaping NJ (www.shapingnj.gov; a statewide public-private partnership established in the New Jersey Department of Health's Office of Nutrition and Fitness) to learn about new organizations (national, regional, and local) that could be tapped for support and guidance, as well as best practices that could be incorporated into program planning.

House of worship engagement

In the summer of 2011, an introductory letter was mailed to more than 200 houses of worship in the local area using a mailing list provided by an internal department at Rutgers Cancer Institute of New Jersey. Additional contacts were obtained using traditional outreach methods such as word of mouth and personal visits to houses of worship in the catchment area (5). In addition, program staff made contact with the mayor's office to introduce the program, build awareness and support, and identify other local partners that needed to be engaged. The Office of Communications at Rutgers Cancer Institute of New Jersey developed a press release, which was shared via mail, e-mail, our institutional website, and our institutional Facebook page. Two open houses were held in December 2011 at Rutgers University to introduce the program, answer questions, meet program staff and potential applicants, and distribute the program application (Appendix A). Dates and times were staggered by time of day and day of week, to be convenient to interested participants, who included members of ministries (eg, women's, health, youth), faith leadership, and other interested congregants).

A comprehensive application was designed to assess the capacity of houses of worship, using language and components from the original B&S program pillars. The application also allowed us to capture descriptive information (eg, institutional demographics, prior programming activities) at baseline. In addition, it provided an opportunity to introduce ambassadors to data collection activities they would be participating in throughout the program. Through this process, we were able to reflect on their previous activities and organizational climate regarding physical activity and nutrition at baseline. In addition, more than 1 congregant was invited to serve as an ambassador to increase the ability for the house of worship to remain engaged throughout the program; this strategy has been suggested in other research (14). To submit an application, a signature from a member of the house of worship's leadership team was required so that support and awareness of the program would be built among the leadership team.

Applications were received through January 2012 and reviewed for completeness; applicants were contacted when necessary to obtain additional information. Follow-up phone calls and e-mails were sent to any house of worship that previously expressed an interest but did not submit an application. Additional outreach and phone calls from 2 community partners (Faithfully Fit and New Brunswick Tomorrow) were provided to houses of worship in the catchment area to confirm our credibility and encourage participation in the program.

Outcome

Nineteen houses of worship in the Central New Jersey area submitted applications, and all were selected to participate in our adapted program. This number represents approximately 10% of those invited who participated. There is great racial and ethnic diversity among these houses of worship, reflecting members of African American, Hispanic/Latino, white, East Asian, South Asian, African, Middle Eastern, and Afro-Caribbean communities, and representing various faiths and denominations. Many identified multiple races and ethnicities in their congregations. Questions were included on the application to identify a house of worship's current activities related to physical activity and nutrition. Results indicated that many had conducted health-related activities before application, including health ministries (50%), soup kitchens (17%), food pantries (50%), physical activity programs (61%), and food policies (22%). We used this information to help us develop program activities for the following phases.

Congregation assessment

Ambassadors were provided with surveys to assess their congregation's physical activity level and fruit and vegetable consumption before the start of the program. Questions related to physical activity behaviors and fruit and vegetable consumption were extracted from the Health Information National Trends Survey, a nationally representative biennial survey developed by the National Cancer Institute and designed to learn how Americans find, use, and understand health information (16). Questions asked about physical activity participation, intensity, and frequency; fruit and vegetable consumption (quantity); and demographic information. A mandatory orientation was held before the program start to bring ambassadors together and explain program expectations. At that time, ambassadors were trained in how to engage their congregation to obtain respondents for the survey. Questions were printed on durable cardstock to ease completion in “on the go” environments (eg, before, during, or after worship service; at weekly events or social activities), and individually numbered to permit analysis by site. Ambassadors were given inexpensive pens to provide to respondents as giveaways in exchange for their participation. Program staff also provided onsite technical assistance to ambassadors on request in their respective houses of worship.

Ambassadors used convenience sampling methods to obtain assessments from any member of their congregation. Congregation members used worship services and other events (eg, health fairs, meal programs, Bible study, affinity groups) to obtain completed instruments. The final response rate was 97%; houses of worship submitted most of their assessment cards by April 2012. Data were analyzed by using SPSS version 19.0 (IBM Corporation, Armonk, New York). Each house of worship received a data report (Appendix B), which was used to provide a snapshot of the house of worship’s climate at baseline and to assist ambassadors in the identification of areas of focus during program implementation.

Interpretation

Recent research has highlighted various community and institutional factors that can determine the success or failure of program implementation (17,18). Providing a well-funded initiative allowed program staff to build long-term relationships. Through funding, 1 staff member was involved with all aspects of the program, including recruitment, implementation, and evaluation through all 3 phases. Consistent staff (from the period of funding receipt through the recruitment and congregation assessment periods) allowed relationships to evolve and deepen, as program staff learned the nuances of the various houses of worship, and ambassadors had a clearly identified, accessible staff member to reach if needed.

The use of informal open houses and a formal orientation session allowed program staff to reach lay members in person and explain the components of the program and how it complements the existing mission(s) of their faith-based organizations. Elements of program phases were designed to help build ambassadors’ skills and their self-efficacy toward the design of activities that would be successful and well received by their congregations. In-depth training of ambassadors throughout program delivery was helpful to build their data collection and reporting skills, as well as to help them understand why providing data is so important. Ambassadors were given skills and tools through monthly training sessions and individualized technical assistance, but the program was purposely designed not to be prescriptive. This design allowed ambassadors to use their creativity and take ownership of the activities they were conducting within their houses of worship.

This project underscored the importance of community engagement and partnership from the onset, which has been identified as a factor to successful program implementation (17). These factors were instrumental in building relationships with community partners at onset of the program and allowed us to identify and fast track our network building with like-minded partners.

Similar to the experience of other health education programs delivered in community settings, a limitation of our program was the inability to reach as many houses of worship as we wanted. Even with a large mailing, informal open houses, and follow-up contacts from trusted community partners, we attracted a less-than-ideal sample of houses of worship to apply for participation in the program. We learned through our recruitment process that some houses of worship were experiencing various issues, such as dwindling memberships or worship service attendance, reduced revenue, growing urgent needs from their congregations (eg, social programs, financial hardships), and changes in or absence of leadership during the recruitment or promotion period. In some cases, our introductory letters may have been misplaced or discarded. Some of these issues have been highlighted as barriers in other implementation research, and we recognize that participating in our program may not have been a priority for houses of worship with larger institutional concerns (13).

Through implementing this program, we learned lessons and would make some changes if it were to be replicated. This program was implemented with only 1 full-time staff member, supported by a host of community partners and volunteers. Additional staff would have allowed more in-person visits to houses of worship during the recruitment phase. Research has shown that such visits may increase program interest among clergy leadership, because people often prefer face-to-face interaction, especially when encountering organizations with which they are not familiar. Although we were fortunate to have a consistent staff member, additional staff may have increased our reach and thus increased the number of houses of worship who applied for participation (5).

In future implementation, we would provide incentives to both the houses of worship and ambassadors for their commitment. Research suggests that financial incentives can be helpful in providing additional support and keeping organizations engaged (13,19,20). Our adapted program was designed to provide a financial incentive to a house of worship for successful completion of each phase, but this incentive may not be enough to interest some ambassadors in providing their time for participation. Providing support at the individual and institutional levels may help houses of worship consider applying for participation in the program.

Despite these limitations, our results contribute to the body of knowledge regarding the use of faith-based organizations to provide health education. This case study highlights the successes and challenges of recruiting volunteer lay members for program implementation and helps identify elements that should be incorporated to maximize participant recruitment in future programming.

Acknowledgments

The authors thank the National Cancer Institute's R2R Mentorship Program and Evelyn Gonzalez (Fox Chase Cancer Center) for the opportunity to develop and disseminate research-based practice. B&S+ was supported with the commitment of Johnson & Johnson through a grant from Rutgers Cancer Institute of New Jersey at Rutgers University Foundation. This research was also partially supported through grants from Rutgers Cancer Institute of New Jersey and the National Cancer Institute (nos. P30 CA072720, K01 CA131500).

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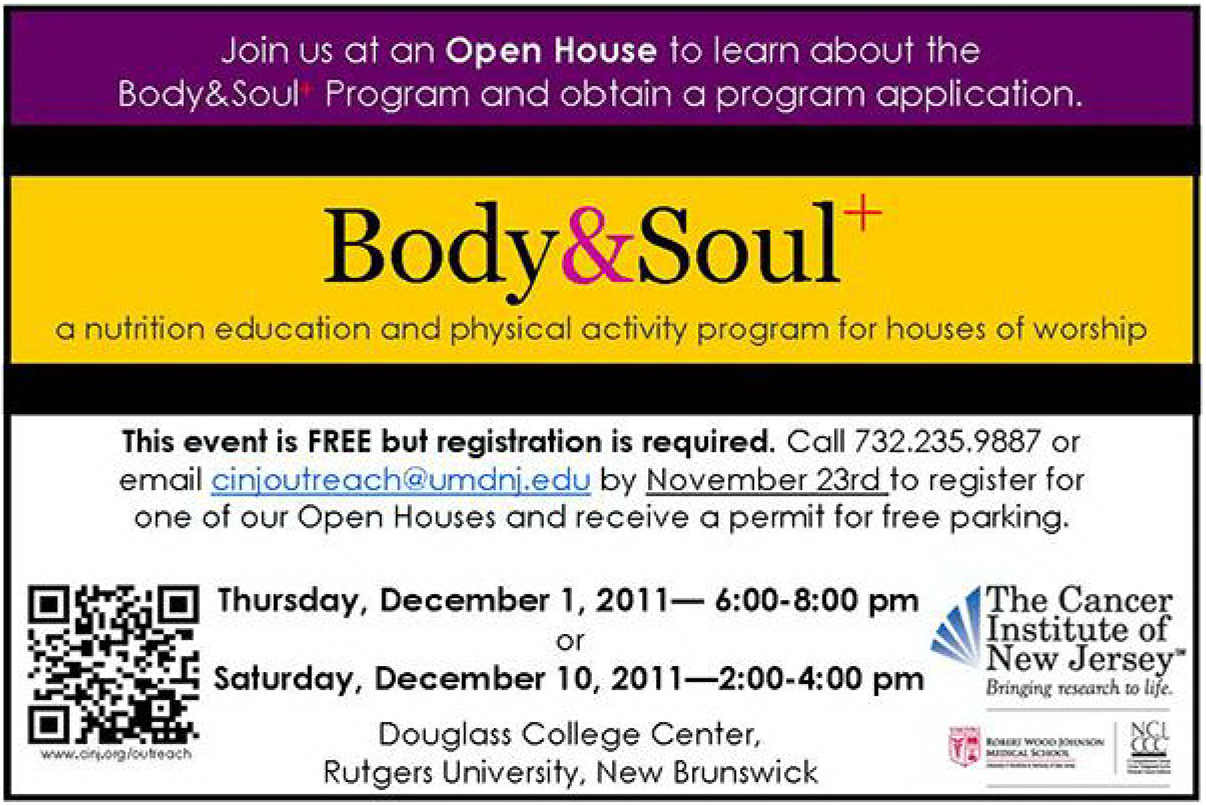
Appendices

Appendix A. Body and Soul Open House Promotional Card

Return



Join us at an **Open House** to learn about the Body&Soul+ Program and obtain a program application.

Body&Soul+

a nutrition education and physical activity program for houses of worship

This event is FREE but registration is required. Call 732.235.9887 or email cinjoutreach@umdnj.edu by November 23rd to register for one of our Open Houses and receive a permit for free parking.

Thursday, December 1, 2011— 6:00-8:00 pm

or

Saturday, December 10, 2011—2:00-4:00 pm

Douglass College Center,
Rutgers University, New Brunswick

www.cinj.org/outreach

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NCI CCC

This is a sample of a promotional card for two Body and Soul-plus events held in December 2011 by Rutgers Cancer Institute of New Jersey (formerly known as The Cancer Institute of New Jersey). [A text description of this card is also available.]

Appendix B. Body and Soul Sample Congregation Assessment Report

Return

This report is available for download in Microsoft Word format [DOC – 2.10 Mb]

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Page last reviewed: March 13, 2014
Page last updated: March 13, 2014
Content source: National Center for Chronic Disease Prevention and Health Promotion

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PREVENTING CHRONIC DISEASE
PUBLIC HEALTH RESEARCH, PRACTICE, AND POLICY

COMMUNITY CASE STUDY Volume 11 — April 03, 2014

Using Client Reminders to Increase Colorectal Cancer Screening in Montana, 2012

Lisa Troyer, BA; Laura L. Williamson, MPH; Leah Merchant, BA; Eugene J. Lengerich, VMD, MS

Suggested citation for this article: Troyer L, Williamson LL, Merchant L, Lengerich EJ. Using Client Reminders to Increase Colorectal Cancer Screening in Montana, 2012. Prev Chronic Dis 2014;11:130274. DOI: http://dx.doi.org/10.5888/pcd11.130274 .

PEER REVIEWED

Abstract

Background
Colorectal cancer (CRC) is the third leading cause of cancer death for men and women in the United States. CRC screening can save lives by detecting precancerous polyps that are then removed or by detecting cancer early when treatment is most effective.

Community Context
CRC screening participation in Montana is low. To increase screening participation among Montanans with health insurance, the Montana Cancer Control Programs (MCCP) partnered with a small association health organization (AHO). This partnership implemented a postcard campaign to increase CRC screening participation among the AHO's enrollees.

Methods
Postcards were sent to 1,011 people insured through the AHO; 504 people were mailed 1 postcard and 507 people were mailed 2 postcards. Evaluation of the campaign assessed recall of the campaign among people who received 1 postcard versus people who received 2 postcards.

Outcome
Women were 60% more likely to recall receiving the postcards than were men. People who received 2 postcards were 2.3 times as likely to recall receiving them as were people who received 1 postcard.

Interpretation
The MCCP considers this collaborative project with an AHO a promising approach to implementing evidence-based colorectal cancer screening interventions. The MCCP plans to partner with additional AHOs in Montana to evaluate CRC screening participation among their enrollees.

Background

Colorectal cancer (CRC) is the third leading cause of cancer death among men and women in the United States (1). Screening for CRC can save lives by detecting precancerous polyps so that they can be removed before developing into cancer or by detecting cancer early when treatment is the most effective. The US Preventive Services Task Force (Task Force) recommends screening for CRC via fecal occult blood testing, sigmoidoscopy, or colonoscopy for average risk adults starting at age 50 years and continuing until age 75 years (2). The Centers for Disease Control and Prevention (CDC) estimates that if everyone in the United States 50 years or older had appropriate screening tests, approximately 60% of CRC deaths could be prevented (3). Current CRC screening rates in the United States are low; in 2010, only 65% of US adults aged 50 to 75 years reported having appropriate CRC screening (4). However, in 2010, only 61% of Montanans with health care coverage reported being up-to-date with CRC screening (5). The *Healthy People 2020* goal is to have 70.5% of adults up-to-date on CRC screening based on the most recent guidelines (6).

To address the low rate of CRC screening in the United States, the Task Force reviewed the literature and found strong evidence to recommend the use of small media, such as postcards and other mailers, to increase use of the fecal occult blood test (FOBT) for CRC screening (7). However, the Task Force found insufficient evidence to determine the effectiveness of a postcard campaign to increase CRC screening by flexible sigmoidoscopy, colonoscopy, or double contrast barium enema because no studies evaluating these screening procedures were found (7).

Community Context

Historically, CRC screening participation has been low in Montana. In 2006, Montana's Behavioral Risk Factor Surveillance System survey (BRFSS) found that only 53% of adults aged 50 years or older reported ever having had a colonoscopy or sigmoidoscopy (5). Because adults in a rural state like Montana may have unique barriers to CRC screening, such as long travel distances or cost that would limit access to health care, the Montana Cancer Control Programs (MCCP) sought to identify potential barriers to CRC screening for Montana residents. According to state-added questions in the 2007 Montana BRFSS, the leading reasons for not being screened were respondents' beliefs that it was not necessary, no health care provider recommended the procedure, or the cost was high (8). Distance to a facility was not identified as a barrier. The MCCP performed a Colonoscopy Screening Capacity Survey in 2008 to estimate the maximum annual screening colonoscopy capacity of communities with colonoscopy facilities. This survey found that Montana had the capacity to meet increased demand for colonoscopy screening and that it would be feasible to implement population-based interventions to increase screening colonoscopy (9). In 2009, the MCCP received funding from the CDC Colorectal Cancer Control Program to provide direct CRC screening services to low-income men and women and to implement population-based approaches to increase CRC screenings in Montana. This shift from individual one-on-one screening recommendations to a systems-based approach was intended to increase CRC screenings.

Still, in 2010, only 61% of Montanans aged 50 years or older with health care coverage reported being up-to-date with CRC screening (7). Consequently, the MCCP sought to increase CRC screening among Montanans with health insurance through a systems-based approach.

To increase CRC screening among insured Montanans, the MCCP approached the major insurance carriers in Montana to maximize reach throughout the state. The MCCP made multiple unsuccessful attempts to meet with decision makers in the large insurance companies in Montana to collaborate and gain approval for an outreach campaign and to collect claims data. Consequently, the MCCP pursued organizations that were either self-insured or had a large group insurance benefit plan.

MCCP first approached insurance organizations before CRC screening was covered as a preventive benefit on insurance plans through the Affordable Care Act (ACA). Because the ACA required that recommended cancer screenings, including CRC screening, be covered as a preventive benefit in all US health insurance plans, the MCCP adjusted its strategy. One insurance carrier provided insurance benefits to Medicare beneficiaries and was willing to partner with MCCP to promote CRC screenings to increase their Healthcare Effectiveness Data and Information Set (HEDIS) rates. After using a postcard campaign with Medicare recipients, the MCCP began pursuing small association health organizations (AHOs) that were either insured with the larger insurance companies in Montana or self-insured to conduct outreach on the benefits of preventive cancer screenings, including colorectal, breast, and cervical cancer screenings. For the purpose of this article, an example of an AHO is the Montana Association of Counties Health Care Trust, a health care self-insured pool. These types of AHOs were receptive to partnership activities. In establishing this partnership, the MCCP offered to pay the costs of this outreach campaign, including postage and printing costs.

In 2011, the MCCP began working with an AHO that insures approximately 1,800 county government workers throughout Montana; approximately 1,000 of those workers are aged 50 through 75 years. Current employees and spouses were covered. Insured employees older than 65 are secondary payers to Medicare.

The objectives of this project were to 1) partner with an AHO to increase CRC screening participation among its enrollees and 2) assess the effectiveness of a small-media campaign to increase CRC screening among adults with health care coverage in Montana. The intended outcomes for the MCCP were 1) to develop an ongoing relationship with an AHO to implement evidence-based, statewide cancer screening interventions, 2) assess if recall of small-media campaigns increases with the receipt of 2 pieces of small media, and 3) increase the AHO members' use of CRC insurance benefits.

Methods

In accordance with the Task Force's guidelines, the MCCP implemented a small-media campaign to increase use of the CRC screening benefits available through the AHO's insurance benefit plan. The campaign consisted of mailing postcards and placing 2 articles in AHO newsletters on cancer incidence and cancers that are detectable through screening.

Through the National Cancer Institute's Research to Reality Mentorship Program between MCCP employee and mentee Lisa Troyer, BA, and mentor Eugene Lengerich, VMD, MS, short- and long-term evaluation indicators were developed for working with insurance organizations. As a result of this mentorship, the MCCP implemented a new intervention consisting of postcards and surveys to determine whether AHO members recalled receiving the postcards and if they took action after receiving one. The action of getting a CRC screening would then be reflected in insurance claims data. Evaluation of this small media assessed whether recipients recalled receiving a postcard from the MCCP and AHO about getting screened for CRC.

The AHO identified all enrollees aged 50 to 75 years (n = 1,011) and randomly assigned them to 1 of 2 groups according to county of residence. Group A included people from counties beginning with the letters A through G, and Group B included people from counties beginning with the letters H through Z. Group A comprised 14 counties, representing 51 towns and 504 enrollees. Group B comprised 23 counties, representing 68 towns and 507 enrollees. The AHO wanted all enrollees to receive a minimum of 1 postcard for CRC education. Group A was mailed 1 postcard in September 2012; Group B was mailed a first postcard in September 2012 and a second postcard 3 weeks later in October 2012. The postcards that both intervention groups received were identical. However, Group B's second postcard had a different image and message (Figures 1 and 2).

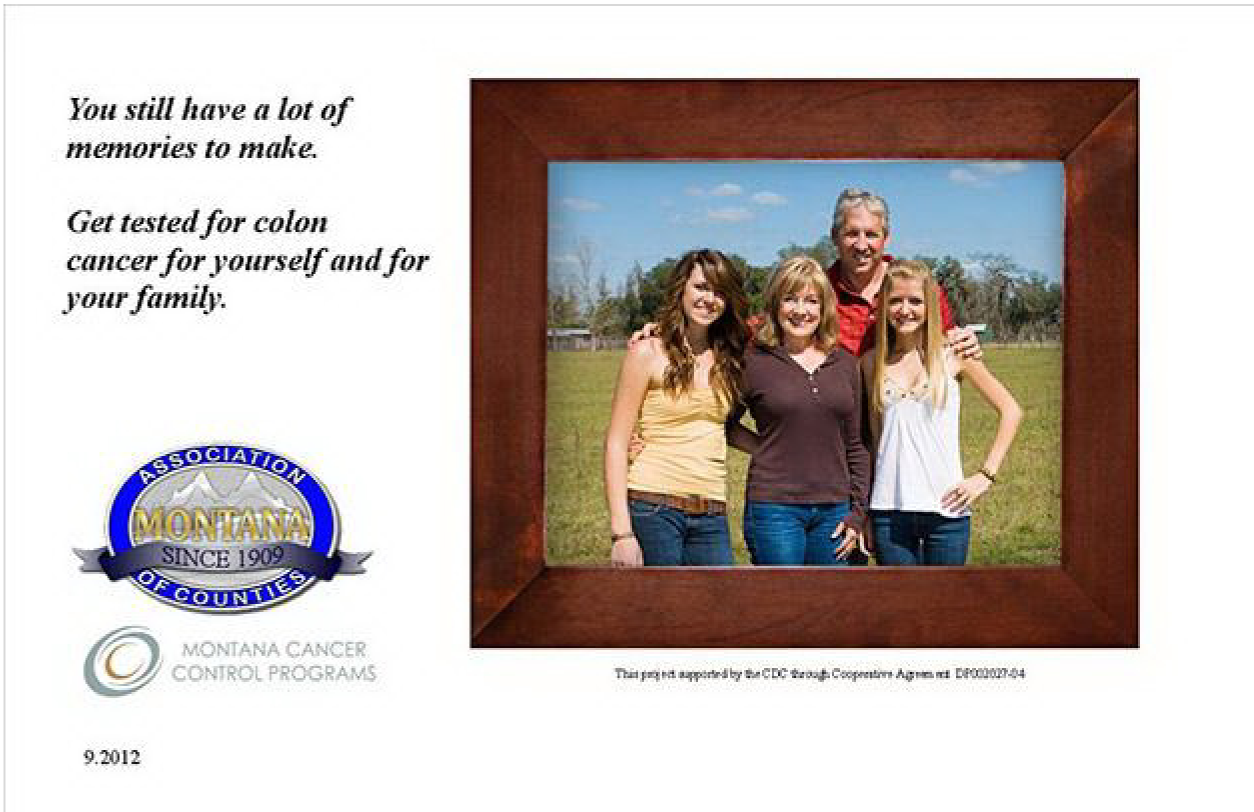

Figure 1. Image of first postcard mailed to intervention groups A and B in September 2012, Montana. [A text description of this figure is also available.]

Figure 2. Image of second postcard mailed only to intervention group B in October 2012, Montana. [A text description of this figure is also available.]

The MCCP used Make It Your Own (MIYO) for the development of the message that was introduced to the AHO. MIYO was created in 2008 by the Health Communication Research Laboratory at Washington University in St. Louis. MIYO is a Web-based system that gives community partners the tools to create customized, culturally appropriate, health-related materials targeted to their audience with audience-tested images and messages (www.MIYOworks.org).

The MCCP provided multiple postcard examples to the AHO, and the AHO chose the image and message. A major criterion for the organization was an image that resonated with the demographics of their insured population, predominantly white families living in rural Montana communities. The back side of both postcards listed insurance coverage information pertaining to the health benefits plan, stating the preventive cancer screening benefits covered and listing the colorectal cancer screening tests covered.

Evaluation of this small-media campaign assessed if recipients recalled receiving a postcard from the MCCP and the AHO about getting screened for CRC. A brief 6-question survey was mailed to all recipients 2 weeks after the first postcard was mailed (Group A) and 2 weeks after the second postcard was mailed (Group B). Survey response rates were 46.6% for Group A (234 responses to 504 mailed surveys) and 42.2% for Group B (214 responses to 507 mailed surveys). To assess recall of the small-media campaign, survey respondents were asked, "In the past 3 months, did you receive a postcard in the mail from [name of AHO] and the Montana Department of Public Health and Human Services about getting screened for colorectal cancer?" Respondents also reported demographic information including sex, age group, type of health insurance, and history of CRC screening. The χ^2 test was used to detect response differences between the 2 intervention groups in univariate analysis. Unadjusted and adjusted odds ratios were calculated by using logistic regression to examine the likelihood that survey respondents would recall or would not recall receiving the reminder postcards, by sex, age group (50–64 years versus 65–75 years), type of health insurance, history of CRC screening, and intervention group. Only those covariates that were statistically significant in the univariate analysis were included in the multivariate logistic regression model. Twelve respondents reported that they were older than age 75; these respondents were excluded from the analysis. Survey data were analyzed by using SAS v 9.3 (SAS Corp, Cary, North Carolina).

Outcome

As a result of the relationship built through the small-media campaign, the AHO sought additional information on cancer screenings from MCCP to include in AHO's member newsletter and has been in discussions with MCCP about increasing outreach efforts with additional education for their membership. The AHO stated anecdotally that members reported that polyps were found as a result of getting screened.

Survey respondents in the 2 intervention groups were statistically the same ($P > .05$) with respect to sex and age group (Table 1). More survey respondents in Group B reported having health insurance coverage through their employer than did respondents in Group A (Table 1). Most respondents were female, aged 50 to 64 years, and insured through their employer (Table 1).

Univariate analysis showed that recall of the small-media campaign was significantly greater among women than men (58.4% compared with 47.3%, respectively; $P = .05$) and greater among Group B respondents (64.3%), who received 2 postcards, than Group A respondents, who received 1 postcard (43.4%) ($P < .001$, Table 2). After adjusting for sex, survey respondents who received 2 postcards (Group B) were 2.3 times as likely to recall having received a postcard than were survey respondents who received 1 postcard (Group A) (Table 2).

Interpretation

The MCCP considers this collaborative project with an AHO a promising approach to implementing evidence-based colorectal cancer screening interventions. Additionally, there are numerous AHOs and self-insured groups in Montana for future partnerships and outreach on CRC screenings.

Although working with AHOs reached a smaller population than could have been reached by working directly with the larger insurance carriers, the individual relationships the MCCP has built with AHOs has been beneficial. The MCCP had the opportunity to tailor messages and use multiple interventions involving use of small media such as postcards with numerous AHOs, which has allowed the program to reach almost 100,000 Montanans, approximately 10% of Montana's population, with CRC screening messages.

The MCCP attributes its success in developing a positive relationship with this particular AHO to several factors. The MCCP paid the cost for developing and mailing the postcards, which reduced a cost barrier for the AHO. The cost of printing and postage that MCCP paid totaled less than $3,000. Additionally in Montana, state government agencies, most major insurance carriers, and many AHOs are in the same city, so meeting face-to-face was easy. Face-to-face meetings are particularly important for developing relationships with partners during the initial development phase of this project. The creation of a positive relationship with this AHO also opened doors to other organizations, a common method for business relationships in Montana where word-of-mouth and personal relationships can be productive. Lastly, the MCCP found that the position of the person approached within an organization was important. A quality improvement staff person could easily talk about their HEDIS data and screening improvement methods, whereas a communications staff person was more interested in the wording of the message to members and less interested in the data.

The MCCP will collect insurance claims data over the next year from this AHO to determine whether the long-term goal of increasing CRC screenings in this insured population was achieved. To evaluate member use of CRC screening benefits, the AHO requested claims data from the organization's insurance carrier on behalf of the MCCP for CRC screenings. However, seeing a trend in CRC screening by using these data will take several years. Additionally, it may be difficult to attribute any trend in use of health benefits to the MCCP postcard campaign without measuring additional short-term and intermediate indicators.

Evaluation of this small-media campaign demonstrated that recall increased with a 2-postcard approach compared with 1 postcard, and the MCCP plans to use a similar postcard campaign with additional small AHOs to remind enrollees about CRC screening. The MCCP will also use these evaluation results to approach again the large insurance carriers in Montana to encourage partnership opportunities and increase CRC screening participation among Montanans with health insurance.

Acknowledgments

The authors thank the staff at the Montana Association of Counties Health Care Trust for their assistance with and enthusiasm for this project. Special thanks to the National Cancer Institute's Research to Reality Program for its technical assistance, staff support, and training. This project was supported through cooperative agreement DP002027-04 with the Centers for Disease Control and Prevention, Division of Cancer Prevention and Control. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention.

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Tables

Table 1. Survey Respondents' Demographics by Intervention Group, Campaign to Increase Colorectal Cancer Screening, Montana, 2012

Return

Respondent Characteristics	**Total % (n)**	**Group A[a], % (n)**	**Group B[a], % (n)**	***P* Value**
Total	100.0 (435)	100.0 (228)	100.0 (207)	NA
Female	56.3 (245)	53.5 (122)	59.4 (123)	.43
Age group, y				
50–64	87.8 (382)	86.8 (198)	88.9 (184)	.51
65–75	12.2 (53)	13.2 (30)	11.1 (23)	
Health insurance				
Employer	69.7 (303)	66.2 (151)	73.4 (152)	.05
Spouse or partner	19.8 (86)	21.5 (49)	17.9 (37)	
Other (eg, Medicare, VA)	9.9(43)	12.3 (28)	7.3 (15)	
Don't know	0.7 (3)	0.0 (0)	1.5 (3)	
Ever screened for colorectal cancer				
Yes	70.3 (306)	70.6 (161)	70.1 (145)	.90

Respondent Characteristics	Total % (n)	Group A[a], % (n)	Group B[a], % (n)	*P* Value
No	29.7 (129)	29.4 (67)	30.0 (62)	

Abbreviation: NA, not applicable; VA, Veterans Affairs.

[a] Group A and Group B received the same postcard reminding them about colorectal cancer screening. Group B received a second reminder postcard 3 weeks later.

Table 2. Recall of Receiving Postcard Reminders about Colorectal Cancer Screening Among Enrollees of an Associated Health Organization, by Demographic Characteristics and Intervention Group, Montana, 2012

Respondent Characteristics	Recalled Receiving Postcard, % (n)	*P* Value[a]	Unadjusted Odds Ratio (95% CI)	Adjusted Odds Ratio[b] (95% CI)
Total	53.3 (232)	NA	NA	NA
Sex				
Male	47.3 (86)	.05	1.0	NA
Female	58.4 (143)		1.6 (1.1–2.3)	NA
Age group, y				
50–64	53.1 (203)	.83	1.0	1.0
65–75	54.7 (29)		1.1 (0.6–1.9)	1.2 (0.6–2.1)
Health insurance				
Employer	55.1 (167)	.20	1.1 (0.7–1.5)	1.0 (0.7–1.5)
Spouse or Partner	52.3 (45)		1.1 (0.6–2.3)	1.0 (0.5–2.1)
Other (eg, Medicare or VA)	46.5 (20)		1.0	1.0
Don’t know	0.0 (0)		1.2 (0.4–3.5)	1.0 (0.4–3.1)
Ever screened for colorectal cancer				
Yes	54.6 (167)	.42	1.2 (0.8–1.8)	1.2 (0.8–1.8)
No	50.4 (65)		1.0	1.0
Intervention group				
Group A: 1 postcard[c]	43.4 (99)	.001	1.0	1.0
Group B: 2 postcard[c]	64.3 (133)		2.3 (1.6–3.4)	2.3 (1.5–3.3)

Abbreviation: CI, confidence interval; VA, Veterans Affairs; NA, not applicable.

[a] *P* values calculated by χ^2 test.

[b] Odds ratios adjusted for sex.

[c] Group A and Group B received the same postcard reminding them about colorectal cancer screening. Group B received a second reminder postcard 3 weeks later.

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PUBLIC HEALTH RESEARCH, PRACTICE, AND POLICY

COMMUNITY CASE STUDY Volume 11 — April 24, 2014

Adaptation of a Cervical Cancer Education Program for African Americans in the Faith-Based Community, Atlanta, Georgia, 2012

Venice Haynes, MSPH; Cam Escoffery, PhD, MPH, CHES; Corinthia Wilkerson; Rashida Bell; Lisa Flowers, MD

Suggested citation for this article: Haynes V, Escoffery C, Wilkerson C, Bell R, Flowers L. Adaptation of a Cervical Cancer Education Program for African Americans in the Faith-Based Community, Atlanta, Georgia, 2012. Prev Chronic Dis 2014;11:130271. DOI: http://dx.doi.org/10.5888/pcd11.130271.

PEER REVIEWED

Abstract

Background
From 1999 through 2009, African American women in the United States had the second highest incidence rates of cervical cancer and were more likely to die from cervical cancer than women of other races. *Con Amor Aprendemos* (CAA) is an intervention created to educate the Latino community to reduce their risk for cervical cancer and diseases related to human papilloma virus (HPV). CAA was adapted to With Love We Learn (WLWL) to prevent cervical cancer and HPV in African American communities.

Community Context
Health ministries of 2 churches in the Atlanta area partnered with the Spirit Foundation Inc to adapt CAA to WLWL by tailoring the curriculum to the African American faith-based community.

Methods
The National Cancer Institute's Research to Reality (R2R) mentorship program pair collaborated with program staff on an adaptation summary form, a tool to document and assist with adapting the program curriculum with fidelity. Trainers, faith leaders, and participants adapted the program in 4 phases: 1) review of the CAA curriculum, 2) a focus group discussion to determine changes for the WLWL curriculum, 3) train-the-trainer sessions on program delivery, and 4) a pilot intervention and follow-up focus group to evaluate the new curriculum.

Outcomes
The CAA/WLWL curriculum was adapted and piloted in a faith-based setting. Adaptations to the CAA program included pictures, games, statistics on cervical cancer, dialogues, and delivery of curriculum.

Interpretation
Community engagement in the adaptation of WLWL through various methods was critical to tailoring an evidence-based program to a new population and setting.

Background

An estimated 12,340 cases of invasive cervical cancer are expected to be diagnosed and 4,030 deaths from cervical cancer are expected for 2013 (1). Cervical cancer is the second most common cancer among women worldwide, and minorities experience disparities in cervical cancer incidence and mortality rates. From 1999 through 2009, African American women in the United States had the second highest incidence rates of cervical cancer, yet they were more likely to die from cervical cancer than women of other races (2).

Many intervention strategies have been studied to increase cervical cancer screening. *The Guide to Community Preventive Services* recommends client reminders, small media (eg, printed materials), one-on-one education, provider assessment and feedback, and provider reminders as strategies to increase cervical cancer screening (3). However, only 3 of 8 evidence-based interventions (EBIs) that focused on African American women were found on the National Cancer Institute's Research-Tested Intervention Programs website (4). Therefore, because of limitations in evidence-based options, community organizations may adapt EBIs for a new community or audience. Adaptation is defined as the degree to which an EBI is changed or modified during adoption and implementation to suit the needs of the setting or to improve the fit to local conditions (5). Several models exist that provide considerations and processes for program adaptation and implementation (6–8). In making program adaptations, it is important to address cultural mismatches and follow processes to ensure program changes fit the local populations or conditions (9).

In response to the high prevalence of cervical cancer and human papilloma virus (HPV) among Latino women, the Spirit Foundation Inc, in partnership with the American Cancer Society, South Atlantic Division, created the *Con Amor Aprendemos* (CAA) program for Latino couples to increase knowledge about risk and behaviors leading to cervical cancer and HPV-related diseases. This 7-week intervention is implemented by trained *promotoras*, or community health workers, in faith-based and community organizations. Sessions last an average of 2 hours, and each session follows a specified curriculum covering topics on anatomy, sexually transmitted infections (STIs), cervical cancer and HPV, dialogues, role playing, presentation of skits to community or church members, and education about the HPV vaccine. An extensive 2-day train-the-trainer course is a vital component of the CAA program to train a team of community members in health ministries on how to deliver the curriculum to the faith-based community. Couples are targeted to participate in the program in efforts to reduce the anxiety of the male–female partner dialogue regarding HPV and risks associated with contracting cervical cancer. The program uses innovative tools, such as a "ring of knowledge" — where program participants collect small notecards with information throughout the course of the program — games to build awareness about STIs, anatomy labeling, and a "parking lot" for participants to ask personal questions anonymously.

CAA has been implemented in Latino communities in Georgia, Nicaragua, El Salvador, and Bolivia. This intervention has been piloted in El Salvador with preliminary results demonstrating increased knowledge about HPV and Cervical Cancer (10). This article documents the process of adapting CAA for the African American community and highlights the data collection methods, adaptation of program information, and the roles of health ministry leaders to make suggestions about program modifications for a new population. The adapted program is called *With Love We Learn* (WLWL).

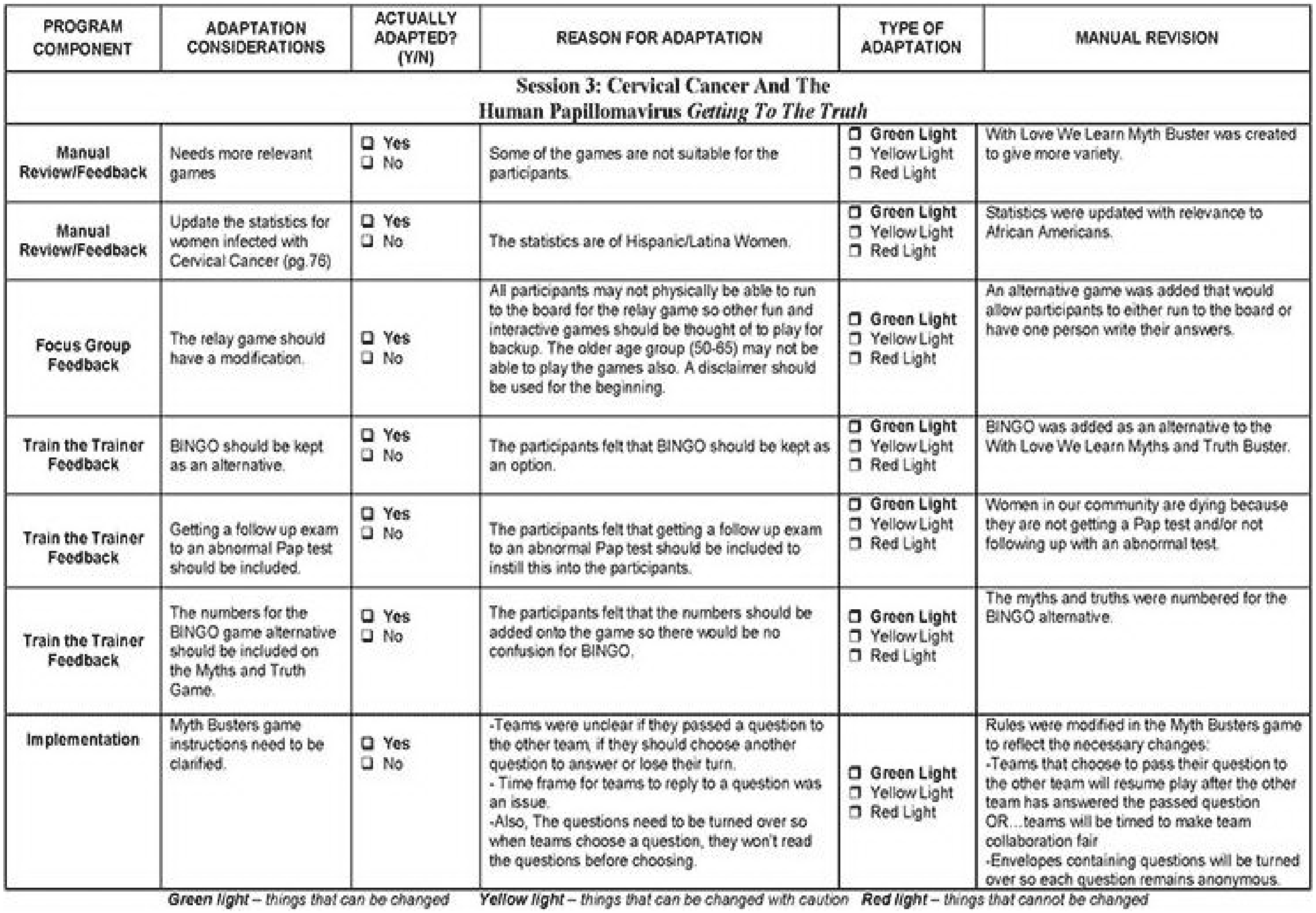
Community Context

After successful implementation in multiple Latino communities, the Spirit Foundation Inc. considered it essential to replicate the program in the African American community in light of the high incidence of cervical cancer among African American women. Without appropriate education reinforcing the importance of screening and follow-up, the rates of cervical cancer will continue to rise among African American women. As it was in the Latino community, a faith-based setting was chosen for adaptation of CAA in the African American community because of the strong historical ties the African American community has with the church. Faith-based organizations have become one of the most common vehicles for the dissemination of prevention efforts and addressing health concerns for that population (11,12).

In October 2011, the Spirit Foundation partnered with 2 churches in the metro Atlanta area that would adopt WLWL in their health ministries. These churches have predominantly African American populations with congregations of 4,000 members or more (Table 1). Health ministry leaders from these churches were invited to participate in the community assessment and adaptation discussions.

Methods

In 2011, the National Cancer Institute piloted the Research to Reality (R2R) mentorship program as a capacity-building initiative for public health practitioners to gain hands-on experience in evidence-based programs and decision-making practices. Mentees were paired with seasoned cancer control practitioners and worked on a year-long cancer control and prevention project to learn and apply new skills in evidence-based public health practices. The project for the Georgia R2R pair focused on the adaptation of CAA to WLWL. Orientation meetings were held with program developers and staff members to learn the details of the program, and worked for several months to gather information that would inform the key phases at which data would be gathered in the adaptation process. The adaptation summary form was the primary tool used among project staff to document the changes at each phase (Figure 1). The program was adapted in 4 phases: 1) review of the CAA curriculum, 2) a focus group discussion to determine changes for the WLWL curriculum, 3) train-the-trainer sessions on program delivery, and 4) a pilot intervention and follow-up focus group to evaluate the new curriculum.



PROGRAM COMPONENT	ADAPTATION CONSIDERATIONS	ACTUALLY ADAPTED? (Y/N)	REASON FOR ADAPTATION	TYPE OF ADAPTATION	MANUAL REVISION
Session 3: Cervical Cancer And The Human Papillomavirus *Getting To The Truth*					
Manual Review/Feedback	Needs more relevant games	☐ Yes ☐ No	Some of the games are not suitable for the participants.	☐ Green Light ☐ Yellow Light ☐ Red Light	With Love We Learn Myth Buster was created to give more variety.
Manual Review/Feedback	Update the statistics for women infected with Cervical Cancer (pg.76)	☐ Yes ☐ No	The statistics are of Hispanic/Latina Women.	☐ Green Light ☐ Yellow Light ☐ Red Light	Statistics were updated with relevance to African Americans.
Focus Group Feedback	The relay game should have a modification.	☐ Yes ☐ No	All participants may not physically be able to run to the board for the relay game so other fun and interactive games should be thought of to play for backup. The older age group (50-65) may not be able to play the games also. A disclaimer should be used for the beginning.	☐ Green Light ☐ Yellow Light ☐ Red Light	An alternative game was added that would allow participants to either run to the board or have one person write their answers.
Train the Trainer Feedback	BINGO should be kept as an alternative.	☐ Yes ☐ No	The participants felt that BINGO should be kept as an option.	☐ Green Light ☐ Yellow Light ☐ Red Light	BINGO was added as an alternative to the With Love We Learn Myths and Truth Buster.
Train the Trainer Feedback	Getting a follow up exam to an abnormal Pap test should be included.	☐ Yes ☐ No	The participants felt that getting a follow up exam to an abnormal Pap test should be included to instill this into the participants.	☐ Green Light ☐ Yellow Light ☐ Red Light	Women in our community are dying because they are not getting a Pap test and/or not following up with an abnormal test.
Train the Trainer Feedback	The numbers for the BINGO game alternative should be included on the Myths and Truth Game.	☐ Yes ☐ No	The participants felt that the numbers should be added onto the game so there would be no confusion for BINGO.	☐ Green Light ☐ Yellow Light ☐ Red Light	The myths and truths were numbered for the BINGO alternative.
Implementation	Myth Busters game instructions need to be clarified.	☐ Yes ☐ No	-Teams were unclear if they passed a question to the other team, if they should choose another question to answer or lose their turn. - Time frame for teams to reply to a question was an issue. -Also, The questions need to be turned over so when teams choose a question, they won't read the questions before choosing.	☐ Green Light ☐ Yellow Light ☐ Red Light	Rules were modified in the Myth Busters game to reflect the necessary changes: -Teams that choose to pass their question to the other team will resume play after the other team has answered the passed question OR…teams will be timed to make team collaboration fair -Envelopes containing questions will be turned over so each question remains anonymous.

***Green light** – things that can be changed* ***Yellow light** – things that can be changed with caution* ***Red light** – things that cannot be changed*

Figure 1. Example of Summary Form Used During Adaptation of *Con Amor Aprendemos* to With Love We Learn Programs to Educate Communities About Cervical Cancer and HPV-Related Diseases, Atlanta, Georgia, 2012. [A text description of this figure is also available.]

Six health ministry leaders from the 2 partner churches reviewed the CAA program manual for general understanding of the overall curriculum. Reviews were conducted over a 2-week period, and leaders were provided with a deadline by the program developers to provide their initial feedback. Detailed notes were written throughout the manual on specific areas suggested for revision for the African American audience.

Following the manual review, 6 health ministry leaders met at one of the partner churches for a 2-hour focus group. During the focus group, leaders and program developers discussed the detailed components of the curriculum and explained how each session was to be conducted. Participants talked through the notes written throughout the manual on sections that needed revisions. A group of stakeholders from academia, government, and community collaborated on developing the focus group guide to gather detailed information about key changes to the curriculum. There were specific inquiries were made about changes to the core content and pedagogical and implementation components (13). The guide had 4 major sections that addressed the overall program and delivery, program incentives, program materials, and technical assistance in delivering the program (Appendix A). The focus group discussion was audio taped and transcribed verbatim. NVivo 10 software (QSR International, Burlington, Massachusetts) was used for data storage, retrieval, and analysis. A content analysis was performed to identify the range of responses and major themes related to revisions to the WLWL manual (14) (Table 2). A summary of the manual changes by session was also recorded on the adaptation summary form (Figure 1.)

After incorporation of the recommended changes, the WLWL manual was revised and a 2-day training workshop was conducted to train the 6 health ministry leaders on the revised curriculum. The objective of the train-the-trainer program for CAA/WLWL is to establish community educators who are motivated to address the community with accurate knowledge of HPV and cervical cancer. The training sessions were conducted on location to provide a familiar environment for the trainers. Refresher sessions were provided closer to program implementation to ensure that trainers remained comfortable teaching information accurately and did not deviate from the set topics of the curriculum.

The first pilot of WLWL in the churches began in May 2013 with 15 (13 female and 2 male) participants. Participants were recruited through church announcements, fliers, and word of mouth from the health ministry leaders. Not all of the participants were couples, however all 15 participants completed the adapted program in June 2013. On completion, participants and trainers were invited to participate in a focus group discussion to gather their feedback. Participants were asked their opinions about the marketing of the program to their congregation, their comfort level with questionnaires that asked about sensitive and personal information, receptivity to the session topics and components, and their recommendations for recruiting participants in future programs. Data gathered from the pilot group of WLWL participants served as the final data collection point to include on the adaptation summary form for the last manual revisions.

The overall program curriculum and the focus group guide was submitted under the Emory University Social and Behavioral Institutional Review Board and received exemption from full review. Trainers were compensated for their time for the manual review, focus group discussion, and train-the-trainer session. and participants in the pilot program were compensated for their feedback during the focus group. The R2R mentorship pair, program developers, and WLWL project staff followed adaptation guidance from the literature (15) to summarize all of the suggestions provided for tailoring, ensuring that the recommended changes did not affect the fidelity to the original core elements or required elements of the program (16).

Outcomes

Overall, the program was well received by church leaders, trainers, and participants of the pilot intervention. Each phase of the adaptation process included valuable recommendations for the WLWL curriculum (Figure 2). Suggestions for content tailoring included changes to the cover, games related to session topics, pictures to reflect African Americans, and more effective dialogue to deliver the content of the sessions to an African American population. The modification of relevant health statistics addressing screening rates and cervical cancer mortality for African American women was also critical to effectively communicate risk data to participants. Other modifications included recommendations for stratifying the program by age groups to promote easier conversations with peers closer in age. The frequency of the sessions was condensed to twice a week for 3 weeks to retain members' participation throughout the program (Table 3). Core elements of the program, including the session topics and the use of games, pictures, posters, and dialogues for learning the material, were not changed. Although these materials were welcomed and reported to be helpful in learning, suggestions were given to make them relevant to both younger and older African American audiences in the community. The program developer, a gynecologist, and other program staff reviewed the comments and modified the pilot WLWL curriculum.

Figure 2. Changes to *Con Amor Aprendemos* for the Cover of With Love We Learn Manual, Atlanta, Georgia, 2012. [A text description of this figure is also available.]

Interpretation

Program adaptation is an important process in the translation of evidence-based programs into practice. A systematic process for adaptation is necessary to learn what potential changes can be made to a program to ensure its suitability for another population and also balance fidelity to the original program. Community engagement is equally important for this adaptation process to garner insights from key constituents and understand contextual issues in matching interventions to particular communities. Castro and colleagues summarize key processes in program adaptation including assessing your audience, selecting an evidence-based approach, preparing for adaptation with focus groups or topical expert review, adapting the program, testing adaptation materials, and refining adaptation (15,17). We followed the guidance for adaptation preparation with multiple data collection methods to learn about the target audience (needs assessment) and assist in making decisions on what program components to change or refine.

One of the most important considerations for adapting community programs is to understand both the intervention and the components required for program fidelity to remain uncompromised. Additionally, it is equally important to take the time to foster the right partnerships with faith-based institutions and involve the right stakeholders' perspectives to ensure the programs' success. Substantial organization and investment of time are needed to collect data at multiple points. Working closely with the program developers and staff on organizing the data collection throughout the adaptation phases was extremely helpful in keeping the project on track and without losing the fidelity of the original program. Having a resource like the adaptation summary form referenced throughout this case study, is highly recommended to keep records of the changes in a multiphase process.

The data collection and subsequent adaptation of the CAA program involved a variety of stakeholders from program developers to key members of the faith-based organizations to identify areas of original program mismatches (eg, race, community context) to the African American population. The multiple types of data collection generated many recommendations for program changes to increase the fit of the cervical cancer prevention program to African American church members. Many of our program changes fit into the area of context modification (eg, setting, population) and content modification (eg, tailoring, substituting elements) found in a recent review of adaptation of evidence-based interventions (18).

We involved the program developers in this adaptation process in order to speak to the dynamics of the program, the role of the faith-based organization that would be implementing it, and to make informed decisions on what to change in the program. This strategy has been suggested as a way to ensure that the modifications are justifiable and that changes to the content, duration, or delivery style of the program will not diminish the program's effectiveness (19,20). Linking program developers to community organizations that are adopting evidence-based programs can increase translations of EBIs in that developers can address issues related to program implementation and adaptation (21). Decisions were made by the developers to change certain CAA content and implementation recommendations if they were not deemed to be "red light" adaptations (eg, theory change, dose, elimination of core elements) that would potentially jeopardize program fidelity (13).

Dissemination of evidence-based practices is increasing in the community. Many community organizations are attempting to adapt packaged programs for their own populations and settings. This project has illustrated a method for sequential data collection to inform the adaptation process. Future research should further explore how community-based participatory processes with key community members and organizations can inform program adaptations of evidence-based interventions and testing of adapted programs in communities for effectiveness.

Acknowledgments

This project was funded in part by Centers for Disease Control and Prevention (grant no. 5U58DP000984), Morehouse School of Medicine Prevention Research Center Cancer Unit, the Emory Cancer Prevention and Control Research Network in the Emory Prevention Research Centers Program (no. U48DP001909), and the Spirit Foundation Inc, Lithonia, Georgia. We also thank Olga Lucia Jimenez with the South Atlantic Division of the American Cancer Society, Winifred Thompson with Emory University Rollins School of Public Health, and the health ministry trainers of the partner churches.

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Tables

Table 1. Profile of Churches Participating in Adaptation of *Con Amor Aprendemos* to With Love We Learn, Atlanta, Georgia, 2012

Return

Characteristic	**Church 1: Baptist**	**Church 2: Nondenominational**
Primary race/ethnicity	African American	Predominantly African American
Location/neighborhood	Decatur, Georgia	Decatur, Georgia
Size of congregation	4,000+	7,000+
Health ministry present?	Yes	Yes
Participants in train-the-trainer workshop	4	2

Table 2. Focus Group Comments from Trainers Related to Adapting *Con Amor Aprendemos* to With Love We Learn, Atlanta, Georgia, 2012

Return

Topic	**Trainer Comment**
Overall Program and Delivery	
Age categories appropriate	". . . you may want 3. My guess, and I just suggest 21 to 29, 3o to 44, 45 to 60 or 45 and above."
	"I would probably do it like he did, like you have the younger adults 21 to 29, then say your middle-aged group from 30 to 44, then maybe 45 to 65, and I think the groups will have more in common that way."
Who should participate	". . . many of the people could use this most may not actually be in couples situations."
	"I think there is a distinction. One is not more valid than the other. But if this is specifically to enrich the understanding and interaction between couples then the way the information is versed and presented has to reflect that and show the ways that it strengthens what's going on with a couple as it pertains to the information that you're giving versus just it being sex education."
Program incentives	
Motivation for keeping couples in the program	"I mean for the couples they always want a weekend getaway or something."
Materials/intervention	
Thoughts about games in the manual	"I really like the idea of having the games."
	"I was going to say have an alternative game for that same time in the class, so based on your class, especially if it's the younger group who typically are a little — can't sit as long or don't have the tolerance to actually wait for somebody to get Bingo. You might get a game that's a little faster moving or if you have a class and you know that your class is like that. You have an option to Bingo. Maybe you can choose based on kind of your class."
Session 2 (Pictures associated with STIs and HPV)	"That's too bold"; "That's reality"; "Yeah, leave it."
Session 5 (Act It Out)	"Yeah, dialoging and doing the props and the — I think — we like to do miming and — so I think acting it out — most people like to participate in being somebody they aren't."
Session 6 (community presentations)	"I think that goes into the campaign, the drama presentation, the skits, the video — everything that we kind of laid out in terms of having the Pastors to get on board and involve the leadership. Pretty much those things, they go into that. Those are the best ways." "I think we really got to push out the fun aspects. This is going to be a fun environment. You're not coming here to sit here and be like bored to death. It's fun." Abbreviations: STIs, sexually transmitted infections; HPV, human papilloma virus.

Table 3. Examples of Changes From *Con Amor Aprendemos* to With Love We Learn, Atlanta, Georgia, 2012

Return

Manual Component	***Con Amor Aprendemos***	**Comment/Reason for Adaptation**	***With Love We Learn***
Pictures	See the first picture in Figure 2	The photos of an African American couple relate to the African American community more than the Hispanic/Latino couple.	See the second picture in Figure 2
Sessions	7 Sessions – 1 session/week	The participants would be taking time out of their busy schedules; be mindful of the session days and lengths.	6 sessions — 2 sessions/week for 3 weeks
Titles of health leaders	*Promotoras*	The English translation is more suitable for the African American community.	Health educators
Games	Games (Bingo) to learn about STI's in the Hispanic community	The younger crowd would like a more fun and interactive game.	With Love We Learn "Myth Buster" was created to give more variety.
Statistics	Statistics for cervical cancer among Latina women	Update the statistics for women infected with cervical cancer.	Statistics were updated with relevant data on cervical cancer for African American women.
Dialogues/role playing	Settings for dialogues should be culturally relevant (ie, salon restaurant)	The settings for the dialogues need to be more relevant to the African American community.	Some of the scripts for the dialogues were edited to make them more relevant to the African American community.
Dialogues/role playing	Conversation and role playing between Hispanic males	Many black men do not like to talk, so it will be important to create leading questions instead of open-ended questions to stimulate conversation and sharing.	The language in the dialogues (particularly the one between the two men) was edited in a way that would make them feel more comfortable discussing the topic.

Appendix A. Focus Group Guide Questions for With Love We Learn Trainers, by Topic, Atlanta, Georgia, 2012

Return

Topic	**Questions**
Program and delivery	1. Generally couples of different ages are combined together when this program is given to the community. However we have divided the couples based on 2 defined age groups. The 2 age groups are 21-29 and 30-65. Are these categories appropriate to allow for open conversation? 2. In addition, we have defined the program population to be individuals who are married, engaged, or in long-term relationships. What is your opinion about who should participate in the program? 3. Thinking about your members, how would they feel about a program to promote women's health and getting a pap test? 4. How will your members react to a program which addresses sensitive issues such as: a. male and female anatomy b. sexually transmitted infections c. monogamy d. condoms e. different forms of sexual activities f. vaccines 5. What are your thoughts about using the church to deliver health messages or materials? 6. Would you change anything related to the delivery of the program? If so, what would you change? 7. What issues and challenges do you foresee in churches delivering health interventions such as this one?

Topic	Questions
	8. Do you have any advice about delivering a health program in a church setting? If yes, please tell us more.
Incentives	1. What would motivate your members and couples to participate in this program? 2. What strategies or incentives would you recommend to recruit them into the program? What about for keeping them in the program?
Materials/curriculum	1. What changes would you make to the materials such as information or pictures that would make the program work for your members? 2. What are your thoughts about the games in the manual? What are your suggestions for games to be used to reinforce the information in the sessions? a. Anatomy game b. STI game c. Bingo: Truth and myth 3. Are the symbols used in the manual understandable? 4. Are the educational tools and resources easy to use (STI chart and media material)? a. Chart b. Female anatomy coloring sheets c. Rings of knowledge d. Parking Lot e. Concentration game f. Dialogues 5. Do you think the pre- and posttests are clear and understandable for the population in your church? 6. Sessions 1 through 6: were the materials understandable and clear?
Technical assistance	1. We will have training on how to deliver the intervention. What other things could help the faith-based leaders with conducting the program? 2. If booster sessions or follow-up training are needed, what is the best way to offer these trainings?

Abbreviation: STI, sexually transmitted infection.

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ORIGINAL RESEARCH Volume 11 — April 24, 2014

Using Concept Mapping to Develop a Conceptual Framework for Creating Virtual Communities of Practice to Translate Cancer Research into Practice

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Suggested citation for this article: Vinson CA. Using Concept Mapping to Develop a Conceptual Framework for Creating Virtual Communities of Practice to Translate Cancer Research into Practice. Prev Chronic Dis 2014;11:.130280. DOI: http://dx.doi.org/10.5888/pcd11.130280 .

PEER REVIEWED

Abstract

Introduction
Translating government-funded cancer research into clinical practice can be accomplished via virtual communities of practice that include key players in the process: researchers, health care practitioners, and intermediaries. This study, conducted from November 2012 through January 2013, examined issues that key stakeholders believed should be addressed to create and sustain government-sponsored virtual communities of practice to integrate cancer control research, practice, and policy and demonstrates how concept mapping can be used to present relevant issues.

Methods
Key stakeholders brainstormed statements describing what is needed to create and sustain virtual communities of practice for moving cancer control research into practice. Participants rated them on importance and feasibility, selected most relevant statements, and sorted them into clusters. I used concept mapping to examine the issues identified and multidimensional scaling analyses to create a 2-dimensional conceptual map of the statement clusters.

Results
Participants selected 70 statements and sorted them into 9 major clusters related to creating and sustaining virtual communities of practice: 1) standardization of best practices, 2) external validity, 3) funding and resources, 4) social learning and collaboration, 5) cooperation, 6) partnerships, 7) inclusiveness, 8) social determinants and cultural competency, and 9) preparing the environment. Researchers, health care practitioners, and intermediaries were in relative agreement regarding issues of importance for creating these communities.

Conclusion
Virtual communities of practice can be created to address the needs of researchers, health care practitioners, and intermediaries by using input from these key stakeholders. Increasing linkages between these subgroups can improve the translation of research into practice. Similarities and differences between groups can provide valuable information to assist the government in developing virtual communities of practice.

Introduction

Communities of practice exist within and across organizations and in our personal and professional lives. They are made up of people who share a common concern, passion, or interest in a topic and choose to actively engage with others to share information and learn from each other. Research on communities of practice has proliferated over the past decade; however, there is limited information on how to create and sustain government-sponsored virtual (Web-based) communities (1–3). Although communities of practice can be launched online, building an online community does not guarantee that people will actively engage in it (4). The objective of this study was to use concept mapping to create a conceptual framework to identify the needs of potential community members and how they would use a federally sponsored virtual community to move cancer research into practice. I solicited input from a target audience of researchers, health care practitioners, and intermediaries (those active in advocacy, philanthropy, funding, federal government, local government, and state government) to understand how to create federally sponsored virtual communities of practice.

Although the goal for all health research, including cancer control, is to improve health outcomes, the percentage of health research findings that are actually put into practice remains small, and transferring research into practice is a lengthy process (5,6). In 2001, the Institute of Medicine highlighted the importance of improving the dissemination of research findings and their implementation in clinical practice. The report, *Crossing the Quality Chasm*, recommends developing new infrastructures to facilitate the translation of research into practice (7). Communities of practice can play a role in enhancing these infrastructures; however, virtual communities of practice are new to the federal government. The National Cancer Institute (NCI) launched Research to Reality in 2011 as one of the first virtual communities of practice at NCI. Evaluations of virtual communities, such as NCI's evaluation of Research to Reality, are being conducted, but there is limited research on what is necessary to create and sustain federally sponsored virtual communities of practice and how to disseminate and implement these communities. Because the federal government is in the early stages of developing virtual communities, input is needed on what will contribute to their success.

Methods

I used concept mapping, an integrated mixed-methods approach, to examine the issues key stakeholders believed need to be addressed to create and sustain government-sponsored virtual communities of practice to integrate cancer control research, practice, and policy. Concept mapping is a sequential, mixed-methods planning and evaluation approach that integrates qualitative processes (ie, brainstorming, categorizing ideas, and rating ideas) with multivariate statistical analyses (ie, creating a similarity matrix, multidimensional scaling, and hierarchical cluster analysis) to create visual representations of data (8,9). The research approach used an on-line concept mapping exercise that was conducted in 3 phases. The first phase was the qualitative phase and consists of an online brainstorming project. The second phase was the quantitative phase during which key stakeholders are asked to sort and rate the statements generated in the first phase of the project. The final phase involved having representatives from a subset of the original participant group help interpret the results of the project.

I chose concept mapping for this research because it allows for broad input from a variety of stakeholders across the United States, which is important because the anticipated participants in the community are located throughout the country. In addition, because the focus of the research was on "virtual" communities, it was necessary to conduct research with stakeholders in a virtual environment, that is, via Web-based interaction.

The first phase of the study was brainstorming. From November 21, 2012, through December 2, 2012, members of the Cancer Control P.L.A.N.E.T. (Plan, Link, Act, Network with Evidence-based Tools) website listserv (N = 1,500) were invited to brainstorm ideas on a dedicated website. This listserv was selected because it included a broad range of researchers, practitioners, and intermediaries from across the country. The goal of the brainstorming was to have a mix of researchers, practitioners, and intermediaries come up with from 100 to 250 statements with each statement setting forth an idea that could facilitate transfer of research into practice. Participants were asked to contribute a statement formed by completing the following focus prompt: "*One issue that should be addressed in order to create successful government-sponsored virtual communities of practice designed to move cancer control research into practice is . . ..*" I was unable to determine the number of participants in the brainstorming phase because responses to the focus prompt are anonymous, no log-in is required to participate, and participants could enter multiple responses. During this first phase 193 original statements were generated.

At the conclusion of phase 1, following brainstorming, a small advisory group of experts from NCI who work on virtual communities of practice met to review the brainstormed statements and determine their responsiveness to the focus prompt. During a facilitated discussion in which we used key word groupings for the statements, the group merged similar statements and eliminated statements that were not directly related to the original focus prompt. They reduced the original 193 statements to 70 statements, which were then used for the second phase of the research project. Other concept-mapping projects have used this synthesis-and-reduction process to generate a final statement set that is manageable for sorting and rating (10,11).

The second phase of the study required both sorting the statements into conceptual groups, or clusters, and rating statements on importance and feasibility. The average number of participants involved in sorting and rating statements for Web-based concept-mapping ranges from 28 to 113 (12). Sorting involved the most time and had the lowest participation rate. The original research plan called for sending e-mail invitations in early December 2012 to 50 researchers, practitioners, and intermediaries and asking them to both sort the statements into categories on the basis of their perceived meanings or themes and to rate statements on importance and feasibility on a scale of 1 to 5 (1 = least important or feasible, 2 = somewhat important or feasible, 3 = moderately important or feasible, 4 = important or feasible, and 5 = most important or feasible). Once the initial sorting was complete, e-mail requests were then going to be sent to the Cancer Control P.L.A.N.E.T. listserv asking members to participate in rating statements only. However, the initial response to the sorting and rating request to the 50 researchers, practitioners, and intermediaries was low. To ensure adequate representation and participation, e-mail invitations were sent to the Cancer Control P.L.A.N.E.T. listserv members asking them to participate in both sorting and rating statements for the project. Participants were asked to identify the type of organization they represented: research (academic research or teaching), practice (community-based education, hospital or clinic, managed-care, private group practice, or worksite) or intermediary (advocacy, philanthropy, funding, federal government research or service, local government, or state government). Participants were also asked to identify their level of expertise in working with online communities of practice on the basis of their own perceptions as “no experience,” “some experience,” “average experience,” and “more experience than most.” Table 1 provides a breakdown of participation rates by sorting, rating importance, and rating feasibility. Table 2 describes organizational background of participants and their experience with online communities. Participation rates were equal to or higher than average participation rates reported by Rosas and Kane in 2012 who reported an average completion rate for Web-based sorting of 52.4% and an average completion rate for first Web-based rating of 68.7% (12).

I used Concept Systems GlobalMAX software (Concept Systems Inc, Ithaca, New York) to conduct the analyses. The software uses multidimensional scaling and hierarchical cluster analysis to interpret sorting and rating data and create maps and graphs (9,13). Several different cluster maps were generated, ranging from a 6-cluster solution to a 13-cluster solution. For the final phase of the project, I shared the statements for the different cluster maps during an interpretation meeting with members of the Federal Virtual Communities of Practice workgroup. This workgroup included the leaders of the Public Health Connect community of the Centers for Disease Control and Prevention, the National Cancer Institute’s (NCI’s) Director of the Office of Partnerships and Disseminations Initiatives, managers of NCI’s Research to Reality community, and a community manager for the US Department of Education. After sharing the different cluster map solutions with the workgroup members, I used their input to select a cluster map that was the best fit for depicting the respondent data. I also analyzed the clustered statements from the 3 groups (researchers, practitioners, and intermediaries) by creating pattern-match diagrams. The pattern match describes the average importance ratings for each cluster by each group relative to other clusters. Clusters rated higher in relative importance are located at the top of the scale. However, placement at the bottom of the scale does not mean a cluster is not important to a group; it means the cluster is less important relative to other clusters. The results are best interpreted as qualitative data from 3 focus groups rather than viewed as survey data from individual participants.

In cluster mapping, the position of the individual clusters in relationship to each other is significant as is the placement within the cluster of the number for each statement included in each cluster. TheAppendix lists the statements assigned to each cluster and the number associated with the individual statement on the map.

Multidimensional scaling translated the sorting from all participants in the project and placed each concept as a separate point on a 2-dimensional map (Figure 1). The location of each statement matters. Statements that are located closer to each other are more likely to have been sorted together by participants (for example, statement 35 is more likely to have been sorted together with statement 62 in the external validity cluster than with statement 68 in the partnership cluster). A concept map has no X or Y axis. However, the statement location remains fixed in relation to all other statements. Hierarchical cluster analysis shows options for drawing boundaries around statements to create clusters.

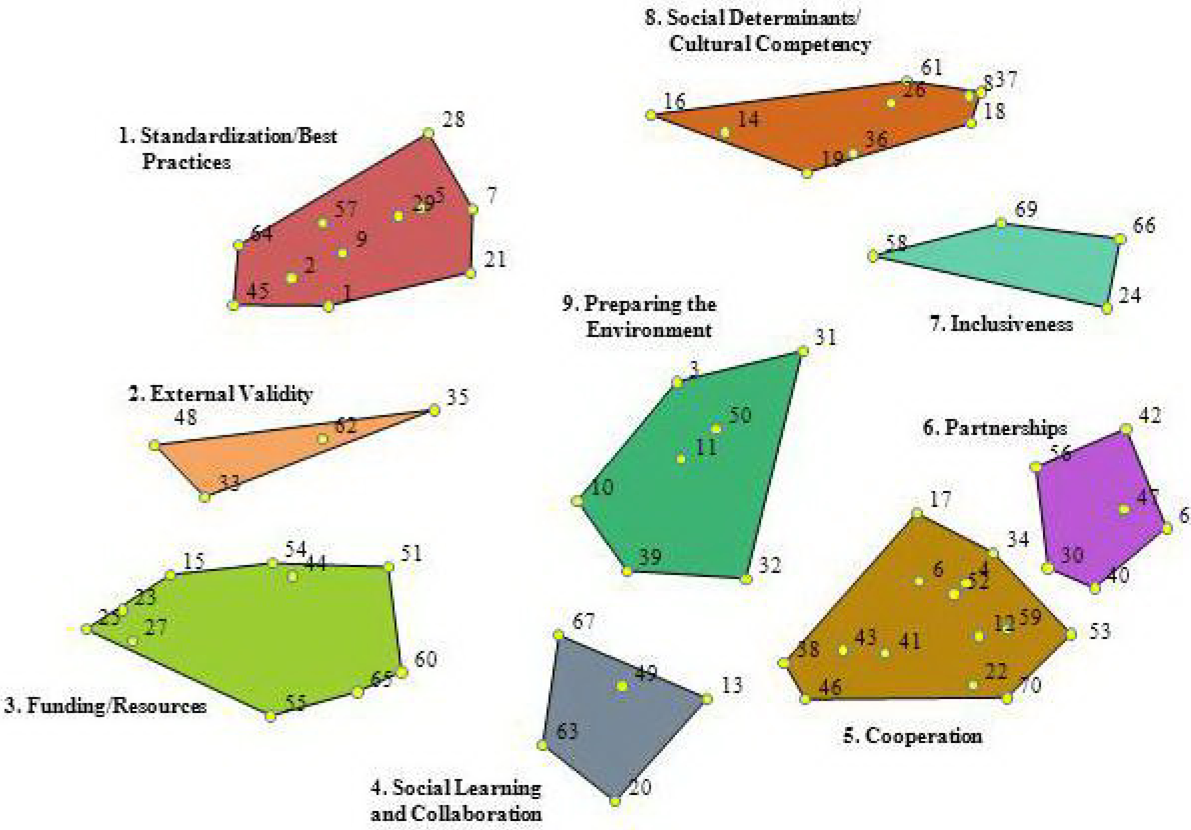

Figure 1. Point cluster map depicting a conceptual framework for creating federally sponsored virtual communities of practices for moving cancer control research into practice. Each number within a cluster indicates a specific statement or issue and how it was sorted in phase 2 of the study (see Appendix for the list of statements associated with each cluster). The position of a statement number within the cluster is significant: it depicts that statement's relationship to other statements in the figure. [A text description of this figure is also available.]

In analyzing the results of this study, it is important to address the issue of internal validity. Internal validity is primarily concerned with the ability to draw conclusions about cause and effect of a treatment or intervention. Since this research was not looking at a cause-and-effect relationship, a different focus on internal validity is necessary. For concept mapping projects, internal representational validity looks at the degree of fit of the final concept map to how individuals originally organized and rated statements (13). Internal representational validity was measured by calculating the stress index. According to Kruskal and Wish, the lower the stress value, the better the fit of the multidimensional scaling (MDS), and they recommend a stress value of 0.10 or lower as the standard for MDS (9). However, Kane and Trochim found that for concept mapping projects, this measure is too low and that the average stress value should be 0.285 with a standard deviation of 0.04 (13). The final stress statistic for this study is 0.28.

Results

Members of the Federal Virtual Communities of Practice workgroup reviewed the different cluster maps. They agreed that individual statements grouped in the 9-cluster map created the best conceptual framework for this study (Figure 1). The complete statement list with corresponding numbers is in the Appendix.

1. Standardization and best practices. Statements in this cluster focus on developing guidelines and standards for dissemination and implementation of research results and the need for agreed-upon terms and methods for dissemination and implementation. Specific statements speak to the need for developing measures that will support dissemination and implementation as well the ability to compare data across systems (eg, states, hospitals).

2. External validity. Statements in cluster 2 focus on issues related to translation or transferability. This cluster acts as the bridge between the standardization and best practices cluster and the funding and resources cluster and focuses on the need for real-world experience that can be used to justify the use of a research-tested program in clinical practice. Whereas the standardization and best practices cluster speaks about guidelines for dissemination and implementation and the funding and resources cluster focuses on tools and resources for dissemination and implementation, the external validity cluster asks for case studies.

3. Funding and resources. Statements in this cluster focus on grant funding mechanisms and creation of resources to support the translation of research into practice. An overall theme of the statements in cluster 3 is creating funding mechanisms that allow for community involvement as well as involvement of multidisciplinary teams. A secondary theme is the need to create or organize tools, education materials, and other resources designed to assist with the translation of research into practice.

4. Social learning and collaboration. Cluster 4 is located in the middle at the bottom of the figure. It is bordered by cluster 3, funding and resources; cluster 5, cooperation; and cluster 9, preparing the environment. The positioning of these 3 clusters illustrates the relationships among research, practice, and collaboration. The theme for this cluster is providing space and opportunities to permit shared learning. For shared learning to occur, participants in the community of practice must have the ability and desire to collaborate. Furthermore, participants need to be able to share information about their work and need their organizations' support to allow this sharing to happen in a virtual setting. This cluster speaks not only to the need for sharing among public health practitioners, but also to the need for government and other funding officials to participate in the virtual communities. Trust is an overarching issue when considering willingness to share and collaborate.

5. Cooperation. The cooperation cluster is on the lower right side of the figure, the side diagonally opposite the standardization and best practices cluster. The cooperation cluster focuses on engaging broad and diverse expertise and organizations in government-sponsored virtual communities of practice. Some statements in cluster 5 seem directly related to the social learning and collaboration cluster (eg, "participant willingness to share work in progress"). However, the majority of statements in this cluster focus on having broad representation for addressing the issues of translating cancer control research into practice.

6. Partnerships. The partnership cluster is on the right side of the figure above the cooperation cluster and is closely related to that cluster. Some of the proposed cluster labels were the same for both clusters. This cluster is differentiated from the cooperation cluster by focusing on inclusion of partners at the beginning of research and the beginning of the creation of the virtual community of practice. Several statements specify the types of participants that should be included such as health care providers, office managers, community organizations, health departments, federally qualified health centers, survivors, and family members. Statements in this cluster have a very different focus than the standardization and best practices cluster on the opposite side of the map.

7. Inclusiveness. The inclusiveness cluster falls between the social determinants and partnerships clusters because its focus is on making sure a variety of populations, including patients, tribal nations, and health care practices, are represented in the communities.

8. Social determinants and cultural competency. This cluster is located at the top of the map between the standardization and best practices and inclusiveness clusters. The social determinants and cultural competency cluster addresses the need to include a focus in the virtual community on issues related to health disparities, social determinants of health, and cultural competency, specifically, how these issues affect an person's lifetime risk of cancer and also how research is translated into practice in disparate populations.

9. Preparing the environment. This cluster is located in the center of the map, indicating by its position that its statements can be related to all the surrounding clusters. Statements in this cluster focus on preparation for moving research into practice.

The results from the concept mapping study provide insight into similarities and differences among researchers, practitioners, and intermediaries. Sixty participants completed the sorting and all the ratings, but only 50 answered questions concerning their organizational backgrounds (Table 2). The concept maps generated for the 50 people who responded to the organizational background question showed that researchers, practitioners, and intermediaries were in relative agreement regarding issues of importance in creating a virtual community of practice designed to move cancer control research into clinical practice (Figure 2). On the basis of the pattern match, the 3 groups (researchers, practitioners, and intermediaries) had a correlation regarding the relative importance of creating communities ranging from $r = 0.43$ to $r = 0.83$. Participants also helped to organize issues that the federal government should address to develop effective and sustainable virtual communities of practice. However, actively engaging each group may require focusing on different priority areas.

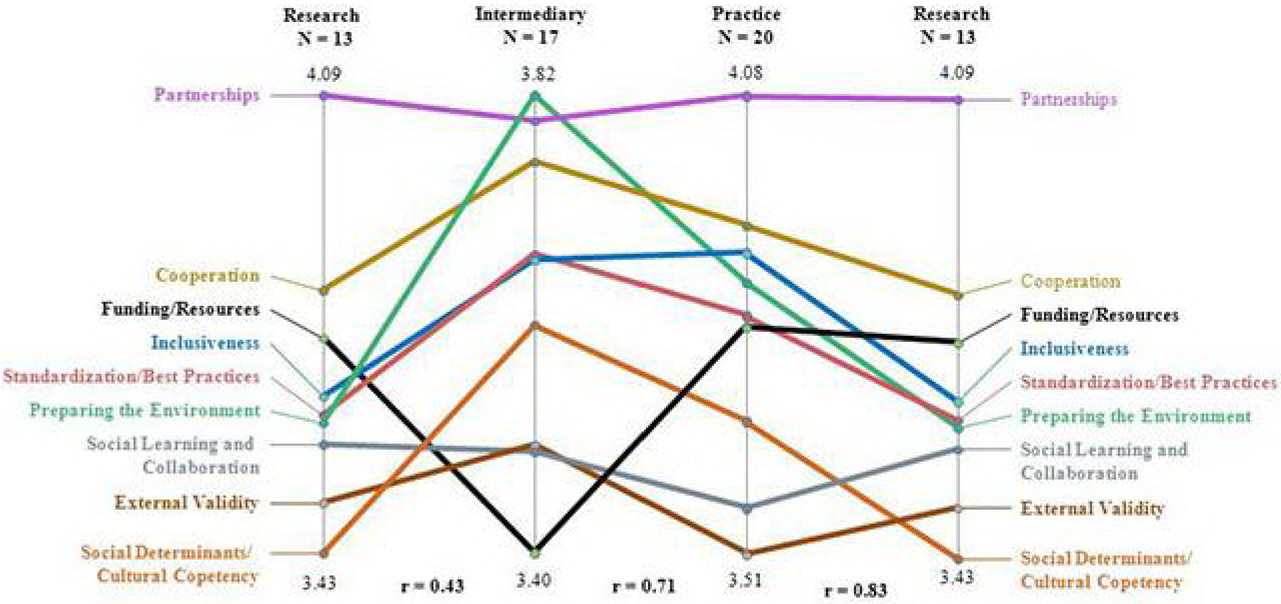

Figure 2. Pattern match of areas of importance for creating government-sponsored virtual communities of practice, by group. [Atext description of this figure is also available.]

The ratings from the pattern match provide insight into how researchers, practitioners, and intermediaries view these issues, which can be helpful when trying to engage these groups to participate and contribute to the virtual communities. Similarities and differences exist among the 3 groups (researchers, practitioners, and intermediaries) around the importance of creating virtual communities of practice designed to move cancer control research into practice. There is a strong correlation between how intermediaries and practitioners (r = 0.71) and how practitioners and researchers (r = 0.83) rated importance of statements included in clusters. This indicates that the 3 groups are in general agreement about what issues need to be addressed during the creation of the virtual community. Researchers and practitioners rated partnership and cooperation as the most important issues that need to be addressed when creating virtual communities of practice. However, intermediaries rated preparing the environment as the most important issue that should be addressed, followed by partnerships. Researchers and practitioners rated issues related to funding and resources similarly toward the middle on importance while intermediaries rated funding and resources as the lowest in importance. Issues related to social determinants and cultural competency were the least important for researchers, and issues related to external validity were the least important for practitioners.

Discussion

Researchers derive the greatest benefit from the types of partnerships that occur in a virtual community of practice. The ability to partner and learn from other researchers and having the opportunity to develop partnerships with health care practitioners and intermediaries may be key to engaging researchers in a virtual community. Health care practitioners are more likely to be engaged if the virtual community is patient- or client-centered. They will also be more involved if guidelines and resources for translating research into practice are available in an easy-to-use format at little or no cost. Because intermediaries are the people who link researchers and practitioners, promoting the virtual communities as a mechanism for collaboration and partnership may increase intermediaries' participation.

Trust is a recurring theme throughout the literature on virtual communities of practice and is reflected in my concept mapping study. The literature shows that for individuals to engage actively in a community they must develop trust with other members of the community (14–16). Trust is implied in statements within the cooperation, partnerships, inclusiveness, and social learning and collaboration clusters. People will not share information about their work if they do not trust that members of the community will respect their work. In a virtual community of practice, developing trust may be a challenge because there is limited or no face-to-face interaction. This study did not address specific methods for increasing trust or how that trust could be measured. Exploring issues of trust in a federally sponsored virtual community of practice is a potential area for future research.

The findings from this concept-mapping study not only provide guidance for federally sponsored virtual communities of practice focused on translating cancer control research into practice. Many of the recommendations are relevant for other federal agencies that may be considering to the development such communities on other topics. Other government and nongovernment agencies that are involved in developing virtual communities of practice to translate science into practice can benefit from understanding the different perspectives of researchers, practitioners, and intermediaries when developing strategies to engage these key groups.

Acknowledgments

Research described in this study was conducted as part of a dissertation at George Washington University, Trachtenberg School of Public Policy and Administration. No funding was received for this study.

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Tables

Table 1. Participation Rates by Participant Activity, Concept Mapping of Virtual Communities of Practice to Translate Cancer Research into Practice, 2012–2013

Return

Participant Activity	No. of Participants Started	No. of Participants Completed	Percentage Participants Completed
Sorting	78	39	50
Importance rating	66	57	86.4
Feasibility rating	52	43	65.2

Table 2. Background and Experience of Participants Completing All Sorting and Rating (N = 60), Concept Mapping of Virtual Communities of Practice to Translate Cancer Research into Practice, 2012–2013

Return

Organizational Background	N (%)
Research	13 (22)
Practice	20 (33)
Intermediary	17 (28)
Did not respond	10 (17)
Experience working with virtual communities of practice	
No experience	6 (10)
Some experience	25 (42)
Average experience	13 (22)
More experience than most	6 (10)
Did not respond	10 (17)

Appendix. Using Concept Mapping to Develop a Conceptual Framework for Creating Virtual Communities of Practice to Translate Cancer Research into Practice: Statements for Each Cluster

Return

This file is available for download as a Microsoft Word document [DOC – 84 KB].

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COMMUNITY CASE STUDY Volume 11 — May 08, 2014

Adapting and Implementing an Evidence-Based Sun-Safety Education Program in Rural Idaho, 2012

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Suggested citation for this article: Cariou C, Gonzales M, Krebill H. Adapting and Implementing an Evidence-Based Sun-Safety Education Program in Rural Idaho, 2012. Prev Chronic Dis 2014;11:130268. DOI: http://dx.doi.org/10.5888/pcd11.130268 .

PEER REVIEWED

Abstract

Background
Melanoma incidence and mortality rates in Idaho are higher than national averages. The importance of increased awareness of skin cancer has been cited by state and local organizations. St. Luke's Mountain States Tumor Institute (MSTI) prioritized educational outreach efforts to focus on the implementation of a skin cancer prevention program in rural Idaho.

Community Context
As a community cancer center, MSTI expanded cancer education services to include dedicated support to rural communities. Through this expansion, an MSTI educator sought to partner with a community organization to provide sun-safety education. MSTI selected, adapted, and implemented an evidence-based program, Pool Cool.

Methods
The education program was implemented in 5 phases. In Phase I, we identified and recruited a community partner; in Phase 2, after thorough research, we selected a program, Pool Cool; in Phase 3, we planned the details of the program, including identification of desired short- and long-term outcomes and adaptation of existing program materials; in Phase 4, we implemented the program in summer 2012; in Phase 5, we assessed program sustainability and expansion.

Outcome
MSTI developed a sustainable partnership with Payette Municipal Pool, and in summer 2012, we implemented Pool Cool. Sun-safety education was provided to more than 700 young people aged 2 to 17 years, and educational signage and sunscreen benefitted hundreds of additional pool patrons.

Interpretation
Community cancer centers are increasingly being asked to assess community needs and implement evidence-based prevention and screening programs. Clinical staff may become facilitators of evidence-based public health programs. Challenges of implementing evidence-based programs in the context of a community cancer centers are staffing, leveraging of resources, and ongoing training and support.

Background

Melanoma incidence and mortality rates in Idaho are higher than national rates; thus, skin cancer prevention education has been cited as both a regional and local priority (1). This priority is relevant because knowledge of opportunities to prevent skin cancer is at a low level in this region (2). Certain demographic characteristics, such as education level, appear to predict a person's uncertainty about cancer prevention activities better than other sociodemographic characteristics (3). The Comprehensive Cancer Alliance for Idaho has prioritized the reduction of sunburns among adults and the reduction of exposure to ultraviolet light among young people (4).

Community outreach and engagement to implement evidence-based programs has been studied in the context of academic and community partnerships (5–7). Increasingly, community clinical health care organizations, including cancer centers, are emphasizing community outreach in the absence of support from academic–community partnerships. The Commission on Cancer of the American College of Surgeons accreditation requirements for 2012 include the following provision: “at least 1 cancer prevention program that is targeted to meet the needs of the community and should be designed to reduce the incidence of a specific cancer type. The prevention program is consistent with evidence-based national guidelines for cancer prevention” (8).

St. Luke’s Mountain States Tumor Institute (MSTI), a 2010–2012 participant in the National Cancer Institute’s Community Cancer Centers Program (NCCCP), determined through a review of the literature that the best approach to skin cancer control was to implement an evidence-based intervention focusing on prevention in an outdoor-based recreational setting (9) and that a community partnership was needed to achieve local support for the program.

Community Context

St. Luke’s Health System is the only nonprofit health system in Idaho. It is an active member of the communities it serves, with local physicians and boards who further the organization’s mission “to improve the health of people in our region.” MSTI is southern Idaho’s largest provider of cancer services and is nationally recognized by the American Society of Clinical Oncology as a leader in cancer research. Providing advanced care to thousands of patients (3,200 new patients in 2013) at 5 locations across the region, spanning western to south central Idaho, MSTI is also Idaho’s only cancer treatment center for children.

As part of NCCCP, MSTI expanded efforts to achieve the goals of reducing disparities in cancer health care and serving a greater number of medically underserved patients across the full cancer care continuum (5). In 2011, MSTI expanded an existing community cancer education program, consisting of 1 educator in an urban area, to include 2 additional educators and resources and support for the rural communities of southwestern and south central Idaho. On the basis of data on cancer incidence and prevalence, MSTI identified several cancers as focus areas for community outreach: skin, breast, cervical, and colon cancers (1,4). Sun safety and skin cancer education were prioritized because melanoma incidence and mortality rates in Idaho are higher than national rates (1,10). From 2006 through 2010, the incidence of melanoma was 23.1 per 100,000 in Idaho and 19.0 per 100,000 in the United States; in 2009, the annual mortality rate for melanoma was 3.2 per 100,000 in Idaho and 2.7 per 100,000 in the United States (1). Healthy People 2020 set an objective of no more than 2.4 melanoma deaths per 100,000 (10).

The rural community of Payette, Idaho, was selected as the implementation site for a sun-safety educational program because of its community demographics, potential risk factors, and lack of availability of cancer prevention education programs. Payette County, Idaho, is in southwestern Idaho and borders Oregon; it has a population of approximately 22,639; 80.5% are non-Hispanic white, 27.3% are younger than 18 years, and agriculture is a primary form of employment (11). The percentage of adults with a high school education is 83.2%; the state percentage is 88.5% (11). The city sits near the junction of 4 rivers that allow for a variety of outdoor activity.

The Payette Municipal Pool is a hub of activity for the community. It provides recreational opportunities and a convenient location for residents to learn aquatic safety. The facility has a full-sized indoor and outdoor pool, which provides a venue for exercise classes, adult lap swim, regular open swim times, and swim lessons. During the summer, swim lesson enrollment reaches up to 800 young people. Pool users come from both the city of Payette and the surrounding communities.

Availability of cancer prevention programs in Payette is limited. The schools provide education aligned with the curriculum of the Idaho State Department of Education Content Standards for Health: Sun Safety (Box) (12), but other prevention programs that support school efforts are not widely available to the community. There are no local news media in the Payette area. All news media are based in the state capital of Boise; it provides broad messages to the population as a whole and is not tailored to the rural population of Payette.

MSTI sought to provide focused sun-safety education to young people aged 2 to 17 years in partnership with a community organization. The implementation of an evidence-based sun-safety program in partnership with the Payette Municipal Pool accomplished the goals of providing a sun-safety program through a sustainable community partnership.The objective of this case study is to describe the process taken by MSTI to engage and partner with a community organization to implement an evidence-based sun-safety program.

Box. Evaluation of Strengths and Limitations (13) of the Idaho State Department of Education Content Standards for Health: Sun Safety

Strengths:

- Help all students learn more by demanding higher student proficiency and providing effective methods to help students achieve high standards.

Methods

- Provide parents, schools, and communities with an unprecedented opportunity to debate and reach agreement.
- Reinforce the best teaching and educational practices already found in classrooms and make them the norm.
- Help the public and local and state educators evaluate which programs work best.

Limitations:

- Vague and unclear standards.
- Careless implementation of standards, and assessment may have negative consequences for students.
- Impose content specifications without taking into account the different needs, opportunities to learn, and skills that may be appropriate for specific districts or regions.

Phase 1: Identification and recruitment of a community partner (February 2012)

In 2011, after historically serving only central Idaho urban communities, MSTI expanded an existing community cancer education program to include the rural communities of southwestern and south central Idaho. Before the sun-safety program was selected, potential community partners were identified on the basis of various factors, including population served by the organization, resources available for participation in a mutual educational effort, interest in collaborating on a sun-safety program, and potential for sustainable participation for the organization and MSTI. The MSTI cancer educator applied the principles of community engagement during the identification and selection process (14). These principles, which lead to the formation of a sustainable partnership and program, include developing a purpose and goal for the program, becoming knowledgeable about the community, initiating formal and informal relationships with community leaders, allowing the community to determine the most appropriate intervention for the program location, and building on community assets and strengths (14).

Potential partners were identified by using an asset-mapping strategy. Several organizations were especially attractive as partners because they served young people or engaged young people in outdoor activities. We approached several organizations, including athletic and faith-based organizations, to assess interest in a partnership. The Payette Municipal Pool was identified as the key community partner for southwest Idaho. We selected this organization because of the interest of pool leadership in providing sun-safety education to pool patrons. The Payette Municipal Pool had not only supportive leadership but also a history of providing sun-safety educational inservices to pool staff, in partnership with local dermatologists, and a willingness to collaborate with MSTI and support educational programs through staff time.

Phase 2: Program selection (March 2012)

The *Guide to Community Preventive Services* highlights the benefits of sun-safety education for adults in recreational settings but identifies inconsistent outcomes for behavior interventions targeted to children (15). We used this information to select a sustainable, evidence-based program from the Research-Tested Intervention Programs database, a National Cancer Institute catalog of evidence-based health intervention programs for cancer prevention and control (16). After multiple sun-safety intervention programs were initially identified, Pool Cool was selected as the best fit because 1) it was evidence-based; 2) the resources and time commitment required to implement the program matched the abilities of MSTI and the Payette Municipal Pool; 3) it was judged to be feasible, sustainable, and potentially expandable.

The geographical service area of the MSTI community cancer education program ranges over 300 miles across southwestern Idaho and into eastern Oregon. Pool Cool was not only sustainable because of its train-the-trainer model program but it could also be implemented concurrently at multiple pool settings across the MSTI service area.

First implemented in 1999 at pools in Hawaii and Massachusetts, the Pool Cool program is a multicomponent sun-safety education program designed for use at swimming pools (17). Its main objective is to increase sun-protection awareness, motivation, and practices among children aged 5 to10 years who take swim lessons and among parents of the children, pool staff, and other pool users. Initial efficacy trials noted a significantly greater decrease (compared with a control group) in the mean number of sunburns reported by pool staff at facilities who participated in the Pool Cool program (17).

The Pool Cool program teaches children about the risks of overexposure to the sun and encourages them to develop healthy habits for a lifetime. Lessons are taught in conjunction with regular swim lessons, with the Pool Cool curriculum combining education, interactive activities at the pool, and pool-wide environmental changes. The main components are the following:

- A lifeguard/aquatics instructor training module.
- A Leader’s and Decision Maker’s Guidebook for pool staff.

- An 8-lesson curriculum on sun safety presented by aquatics instructors.
- Interactive activities on sun protection conducted for children aged 5 to10 and their parents. Includes demonstrations, games, and puzzles to supplement and support the lessons.
- Provision of shaded areas, signage, and sunscreen dispensers at the pool.
- Promotion of sun-safe environments.

The *Guide to Community Preventive Services* also recommends sun-safety education for recreation staff and access to sunscreen (15).

Phase 3: Program planning and adaptation (April–June 2012)

The MSTI cancer educator began development of an implementation plan. Initial steps included assessment of resources and activities necessary to implement the program and identification of expected program outputs. Short- and long-term outcomes were also identified in a logic model (Table 1).

Although Pool Cool is an existing research-tested program and provides the resources necessary to implement the program, including a Leader's and Decision Maker's Guidebook, we needed to adapt the educational and training materials to ensure the program would be feasible for the community partner (Table 2). The guidebook includes information for staff education, sun-safety lesson plans for young people, and other resources. We made the following adaptations to the program:

- We incorporated organizational branding into the guidebook and revised it to better reflect the activities and lessons that were within the scope of feasibility.
- We eliminated some of the optional poolside activities described by the guidebook and retained the few that were feasible based on available pool resources.
- We adapted print materials and educational signage by revising text and images to increase the number of educational action items and images from the local pool. Signage was reviewed by the community partner; to assess community response before implementation, we asked community members and pool staff to provide feedback on materials.

Additional adaptation included the development of a pool staff training program. MSTI is a regional oncology treatment facility, and its community cancer educators are content experts in cancer prevention and early detection opportunities. As the facilitator of the pool staff training program, the MSTI cancer educator responsible for Pool Cool implementation was a resource for not only the initial train-the-trainer session but also the duration of the Pool Cool program. Staff training for the Pool Cool program included an overview of skin cancer in Idaho, behaviors that increase and decrease cancer risk, and a review of the Pool Cool program and sun-safety lessons. Additional time was provided for pool staff to practice lessons and gain confidence in their ability to teach them. Pool staff completed retrospective posttest training evaluations to assess the benefit of the information provided.

Phase 4: Program implementation (June–August 2012)

Pool Cool implementation occurred in conjunction with the opening of the outdoor areas of the Payette Municipal Pool in summer 2012. Educational signage and sunscreen dispensers were provided by MSTI, and an initial training session for 13 pool staff members took place in June 2012. An additional training session was provided midway through the summer to orient new staff to the Pool Cool program. Pool Cool lessons were provided to children and adolescents aged 2 through 17 years enrolled in swim lessons from June through August 2012.

Phase 5: Program sustainability and expansion (August 2012 and ongoing)

MSTI made a long-term commitment to Payette Municipal Pool to provide sun-safety education to young people. Although no formal contract was signed, both MSTI and Payette Municipal Pool are fully invested in sustaining the current role of Pool Cool in swim lessons for young people. MSTI has defined skin cancer prevention as a focused effort for community cancer education as part of NCCCP participation. MSTI intends to expand the Pool Cool program to additional facilities throughout its service area.

With dedicated resources to providing community cancer prevention education, MSTI was able to provide the educational signage, sunscreen dispensers, sunscreen refills, and program incentives to pool staff and swim lesson participants. Additional resources, including staff time for training, sun-safety lessons, and installation of signage and sunscreen dispensers were provided by the Payette Municipal Pool.

Outcome

The primary objectives of this program were to adapt and implement a sustainable sun-safety education program for young people in a rural community and create a sustainable partnership with a community organization. Through the implementation of Pool Cool at the Payette Municipal Pool, all objectives were met. The partnership between MSTI and the Payette Municipal Pool will be a template for future partnerships for community cancer education initiatives in southwestern Idaho.

During summer 2012, the Pool Cool program served more than 700 young people aged 2 to 17 years enrolled in swim lessons at the Payette Municipal Pool. In addition, hundreds of others benefited from the availability of sunscreen and educational signage at multiple locations throughout the facility. Ultimately, the greatest success was the partnership formed between MSTI and the Payette Municipal Pool. A sustainable partnership was demonstrated through ongoing staff training, commitment to support future programs in MSTI activity planning, and proposed expansion to sites in additional rural communities. Not only was this sustainable partnership formed but MSTI also successfully adapted and implemented its first evidence-based cancer control education program in a community setting.

Interpretation

The literature has multiple examples of community-engagement activities and evidence-based programs implemented through partnerships between academic institutions and community organizations (5–7,18,19). These relationships are often developed in the context of funded research. To enhance the dissemination of research-tested interventions community organizations organizations are needed to support evidence-based cancer control (20).

Community cancer centers are ideal organizations to support cancer prevention efforts. They are required to provide at least 1 cancer prevention program to maintain accreditation or become accredited by the Commission on Cancer of the American College of Surgeons. Community cancer centers are located throughout the United States in both urban and rural settings, treating 85% of those who have a cancer diagnosis (16). The primary barrier to their efforts in cancer prevention may be staffing. MSTI received National Cancer Institute funding for its community outreach staff. In addition, levels of awareness and use of evidence-based public health may be low among some outreach staff (5,7,19). By leveraging of resources and using the principles of community engagement, community cancer centers can implement evidence-based cancer prevention programs. As noted in *Principles of Community Engagement*, “partnering with the community is necessary to create change and improve health” (14).

Throughout the implementation of Pool Cool, MSTI followed the principles of community engagement (14) and created a sustainable partnership and program. MSTI has demonstrated that by engaging the community, an evidence-based cancer control program can be implemented with limited resources. MSTI will expand the Pool Cool program throughout the region and continue to use the principles of community engagement. The challenge remains in identifying systematic, ongoing support and training to community cancer centers to support their efforts in implementing evidence-based programs with community partners.

Acknowledgments

We acknowledge the Payette Municipal Pool for their partnership and ongoing support for the Pool Cool program. Implementation of this program occurred as part of author participation in the National Cancer Institute’s Research to Reality Mentorship program. We also acknowledge the Research to Reality program staff as well as the other participating mentor–mentee pairs. During program implementation, Ms Cariou was a rural community cancer education coordinator with MSTI. This project was funded in whole or in part with federal funds from the National Cancer Institute, National Institutes of Health, under contract no. HHSN261200800001E. The content of this article does not necessarily reflect the views or policies of the US Department of Health and Human Services, nor does mention of trade names, commercial products, or organizations imply endorsement by the US Government.

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Tables

Table 1. Logic Model for Implementation of Pool Cool Program in Rural Idaho, 2012

Resources	**Activities**	**Outputs**	**Short- and Long-Term Outcomes**	**Impact**
To accomplish our set of activities we will need the following	**To address our problem or asset we will accomplish the following activities**	**We expect that once accomplished these activities will produce the following evidence or service delivery**	**We expect that if accomplished these activities will lead to the following changes in 1 to 3 years and 4 to 6 years**	**We expect that if accomplished these activities will lead to the following changes in 7 to 10 years**
• Program coordinator. • Pool director support. • Pool staff (eg, lifeguards, swim instructors). • Adaptation of Pool Cool program to meet the needs and branding of MSTI and Payette Municipal Pool. • Supplies to facilitate education intervention: leader and decision maker guidebook, laminated lesson cards. • Supplies to promote sun-safe behaviors and environment: 3 sunscreen dispensers, sunscreen refills, signage in changing rooms and on fencing. • Incentives to staff and students for participating in Pool Cool program.	• Obtain support of pool director on any materials to be posted in pool areas (eg, signage, sunscreen dispensers). • Conduct training with pool staff; provide detailed overview of Pool Cool lesson plans and supported activities. • Install signage and sunscreen dispensers on pool deck and in changing rooms.	• Pool environment (signage, availability of sunscreen) will promote a sun-safe environment. • Pool staff educated on sun-safe behaviors. • Young people enrolled in swim lessons to be educated on sun-safe behaviors (4 Pool Cool rules).	• Young people enrolled in swim lessons will know the 4 Pool Cool rules: 1) Protect your skin — use sunscreen. 2) Cover up — after swimming cover your shoulders with a shirt and your legs with long shorts. 3) Protect your face and eyes — wear shades and a hat. 4) Seek shade, limit your time in the sun between 10 am and 4 pm. • Pool users/staff will have increased awareness of sun-safe behaviors (from pool education and signage). • Increased use of sunscreen during outdoor pool usage (from pool education, signage, and sunscreen availability).	• Increased use of sunscreen in community (measured by BRFSS data). • Decreased number of sunburns in community (measured by BRFSS data).

Resources	Activities	Outputs	Short- and Long-Term Outcomes	Impact
To accomplish our set of activities we will need the following	**To address our problem or asset we will accomplish the following activities**	**We expect that once accomplished these activities will produce the following evidence or service delivery**	**We expect that if accomplished these activities will lead to the following changes in 1 to 3 years and 4 to 6 years**	**We expect that if accomplished these activities will lead to the following changes in 7 to 10 years**

Abbreviations: MSTI, Mountain States Tumor Institute; BRFSS, Behavioral Risk Factor Surveillance System.

Table 2. Pool Cool Program Adaptation, Rural Idaho, 2012

Return

Program Component	Action	Program Adjustments
Leader's guide	Adapted	Included MSTI logo and contact information, removed references to activities no longer included in program, provided reference materials, combined Leader's and Decision Maker's Guidebook.
Lifeguard- and instructor-led lessons	Adapted	Content maintained, added MSTI branding.
Sun safety signs and sunscreen tips poster	Adapted, new material created	New educational signage created. Existing verbiage used, images of local pool participants included, MSTI branding and final product reviewed by community partner.
5 Original poolside activities	Maintained, removed, or adapted	Weather Watch: the ultraviolet index — maintained.
		Sun Jeopardy — maintained.
		Blue and Purple People — removed because it required additional resources, supplies (eg, colored sunscreens), and time.
		The Emperor's Clothes — removed because it required additional resources, supplies (eg, assorted clothing items to demonstrate appropriate sun protection), and time.
		Solartech sun exposure card and ultraviolet warning patch/wristband — adapted to provided Pool Cool participants with only an ultraviolet-sensitive card to demonstrate strength of ultraviolet rays.
Background and reference materials	Adapted	Removed content and added additional brochures and reference materials: St. Luke's What you need to know NOW — Skin Cancer Prevention; American Cancer Society — Sun Basics; American Cancer Society — A Parent's Guide to Skin Protection.
Sun-safe environment	Maintained	Shaded areas were already in place at the pool; sunscreen dispensers were added.
Staff training module	Developed	Training materials were created with a focus on skin cancer in Idaho, protective factors and risk factors for skin cancer, Pool Cool program overview, and daily sun-safety lessons. Training allowed for time to practice sun safety lessons.

Abbreviation: MSTI, Mountain States Tumor Institute.

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Page last reviewed: May 08, 2014
Page last updated: May 08, 2014
Content source: National Center for Chronic Disease Prevention and Health Promotion

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PUBLIC HEALTH RESEARCH, PRACTICE, AND POLICY

SPECIAL TOPIC

Volume 11 — May 08, 2014

Research to Reality: Moving Evidence Into Practice Through an Online Community of Practice

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Suggested citation for this article: Farrell MM, La Porta M, Gallagher A, Vinson C, Bernal SB. Research to Reality: Moving Evidence Into Practice Through an Online Community of Practice. Prev Chronic Dis 2014;11:130272. DOI: http://dx.doi.org/10.5888/pcd11.130272 .

PEER REVIEWED

Abstract

How can a community of practice help further the practical application of cancer control research? In 2011, the National Cancer Institute (NCI) launched an online community of practice, Research to Reality (R2R). R2R aims to infuse evidence-based strategies into communities by engaging researchers and practitioners in a joint approach to research dissemination. To measure community growth and engagement, NCI measures data across 3 program domains: content, interaction, and activity. NCI uses Web analytics, usability testing, and content analyses to manage and evaluate R2R. As of December 2013, R2R had more than 1,700 registered members. More than 500 researchers and practitioners register for the monthly cyber-seminars, and 40% return each month. R2R hosts more than 15,500 page views and 5,000 site visits in an average month. This article describes the process of convening this online community and quantifies our experiences to date.

Introduction

Dissemination, the targeted distribution of information and intervention materials to a specific public health or clinical practice audience, is a critical aspect of cancer control practice. Dissemination strategies for evidence-based interventions aim to spread knowledge and interventions on a wide scale in or across geographic locations, practice settings, or social or other networks of end users such as patients and health care providers (1). Traditional dissemination strategies (ie, publishing in peer-reviewed journals; presenting at professional conferences; and academic detailing, a form of professional outreach) are essential but not sufficient to inform cancer control practice. Translating research into everyday practice is a critical problem in both clinical and public health arenas, and the goal of implementing scientific evidence into practice remains unmet (2–5).

In general, researchers in academia are responsible for developing and conducting research studies that generate evidence, and clinicians and practitioners are responsible for adapting evidence into everyday practice (6). Therefore, building authentic partnerships between researchers and practitioners is central to successful translation efforts (7,8). Strong community partnerships provide access to populations and engender the trust necessary to implement evidence-based interventions. However, the practical application of research remains challenging for both researchers and practitioners. Community engagement has been largely successful in bridging the gap between researchers and community practitioners (9,10). A forum is needed to allow both to engage in an ongoing dialogue about their mutual goal of improving lives by putting research into practice in the field.

Bridging the Gap Between Researchers and Community Practitioners

To further the practical application of evidence-based cancer control practice, the National Cancer Institute (NCI) created the Cancer Information Service (CIS) Partnership Program in 1993. The regionally based national program formed academic and community partnerships with more than 900 organizations and coalitions. By working directly with researchers and practitioners, the CIS Partnership Program built partners' capacity to identify evidence-based interventions, adapt them to their communities, and disseminate programs that addressed cancer health disparities (11). Central to this work was providing partners with technical assistance and training on the use of evidence-based planning tools such as NCI's Cancer Control P.L.A.N.E.T. (Plan, Link, Act, Network with Evidence-based Tools; http://ccplanet.cancer.gov), a Web portal that provides cancer control practitioners a process for accessing data, partners, programs, and resources to assist in planning evidence-based programs (12).

When the program ended in January 2010, NCI looked for other ways to support research dissemination activities and collaborations established through the CIS Partnership Program. The national network of regionally based CIS staff perceived great benefit in their ability to engage not only with NCI, but also with one another to share experiences, tools, and resources. In this way, the CIS evolved from a network into an informal community of practice, which exemplifies social learning theory in that it uses engagement as the fundamental process to share knowledge (13). Communities of practice are groups of people who share a concern, set of problems, or passion about a topic and who deepen their knowledge and expertise in this area by interacting on an ongoing basis.

While rapidly growing social media use by NCI and other government agencies created an ideal opportunity to create a Web-based dissemination program, the emergence of topic-based online communities of practice showed increasing promise (14). Such an approach would continue the work of the CIS Partnership Program in building community capacity and translating evidence-based cancer control research into practice. It would also provide an opportunity for researchers and practitioners to regularly engage with one another.

In 2009, Cancer Control P.L.A.N.E.T. was enhanced and revised. NCI queried CIS partners and researchers to test the idea of creating an online community of practice to address challenges of research dissemination and implementation. CIS partners and researchers whose work was included in P.L.A.N.E.T.'s Research-Tested Intervention Programs (RTIPs) repository were asked what the term *community of practice* meant to them. Respondents suggested enhancing Cancer Control P.L.A.N.E.T. to include interactive features such as an online forum or a discussion board, a knowledge repository to store conversations, mentorship opportunities, researcher interactions, online training, and user-generated content. Details about the survey and results are reported elsewhere (15).

In 2010, these factors converged, and the result was a concept to develop Research to Reality (R2R) (https://researchtoreality.cancer.gov) as an online community of practice, bringing researchers and practitioners together for the purpose of building capacity through a peer-to-peer learning or apprenticeship model, such as those described in the community of practice literature (16).

Conceptual Framework for Research to Reality

At its inception, R2R sought to integrate these 3 concepts: the success of the CIS Partnership Program model in engaging cancer control researchers and practitioners, community of practice theory, and the increasing use of social media in all areas of the government and private sectors. In creating the conceptual framework for the R2R community of practice (Figure 1), NCI drew heavily from Wenger's Participatory Framework Model (13), adapting it to reflect the successful aspects of the CIS Partnership Program and to address the previously identified gap between cancer control science and practice. To this end, NCI focused its work on developing the R2R Web platform around 3 community dimensions: content, interaction, and activity.

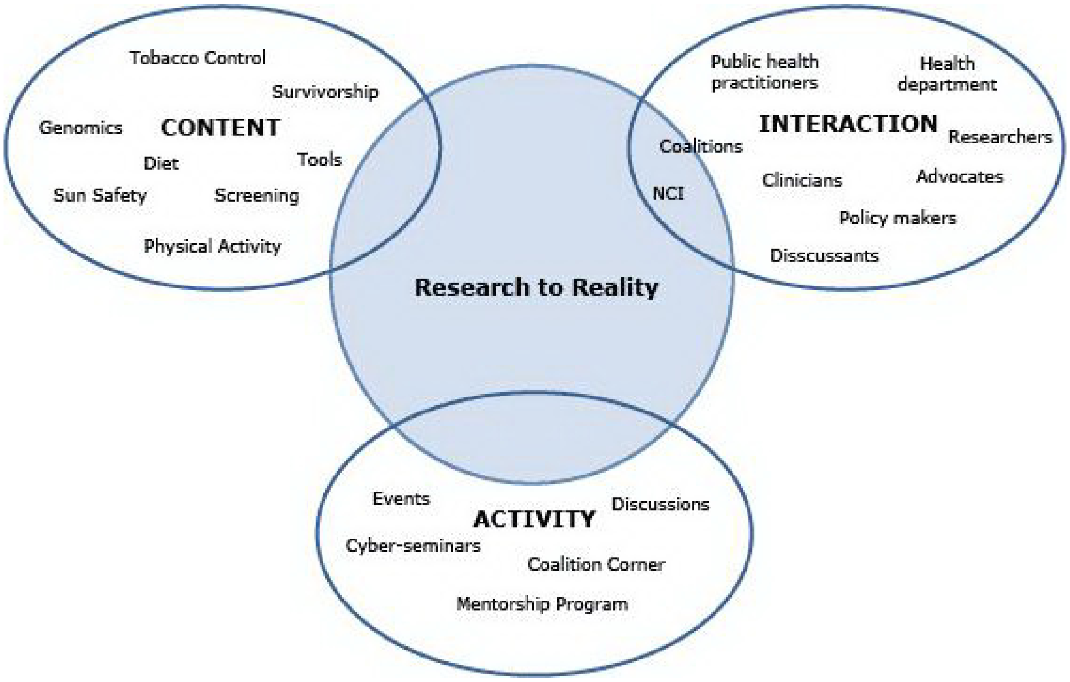

Figure 1. Visualizing a virtual community of practice to move cancer control research into practice, Research to Reality, National Cancer Institute, 2011. [A text description of this figure is also available.]

From its outset, R2R sought to: 1) create an online community of practice for cancer control practitioners and researchers, 2) engage cancer control practitioners and researchers with all levels of experience in an ongoing dialogue around moving research into practice (interaction), and 3) build capacity and help foster collaborations in the cancer control field by highlighting successful evidence-based interventions and programs (content) and offering dynamic communication, learning, and mentorship opportunities (activity).

To begin convening researchers and practitioners while the platform was built and to begin developing a sense of community identity and purpose, NCI launched a series of monthly cyber-seminars. These Web-based presentations were unique in their approach; they focused on translating research to practice, fostering engagement and dialogue by pairing researchers with practitioners. The cyber-seminars provided a forum to discuss successes and challenges around implementing evidence-based cancer control programs, set the tone for R2R dialogue, and established the community's purpose. The first R2R cyber-seminar was conducted in January 2010 with more than 1,100 registrants and 700 participants. Since the first webinar through December 2013, nearly 20,000 people have registered for the yearly, 10-month cyber-seminar schedule. On average, R2R sees 675 registrants and 260 participants each month. These monthly cyber-seminars continue and are an essential aspect of the community's work to provide content, interaction, and an opportunity for capacity building.

Developing an Online Community of Practice in the Federal Space: Building Research to Reality

NCI held a series of requirements-gathering sessions, which helped identify a Drupal-based (https://drupal.org/) platform that possessed the functionality and features necessary to implement the R2R model. This cost-effective platform could be implemented quickly and allows for iterative design and development through its large developer network and add-on modules.

The decision to establish a federal government–sponsored community of practice created unique programmatic considerations. Meeting federal accessibility, privacy, and security requirements posed significant challenges. Creating a community identity and building trust through the sharing of personally identifiable information (name, organization, research interests, and photos) among registered members was viewed as critical to the success of R2R but raised bureaucratic scrutiny. User testing indicated that these compromises were offset by the perceived benefit of and the opportunity to highlight their work on an NCI site.

In February 2011, NCI launched the website with initial features that included discussions, webinars, featured partners, and events. Exploration of additional content, activity, and interaction strategies continued as R2R evolved. One such expansion was the R2R Mentorship Program. This pilot program was designed to build the capacity of cancer control practitioners to effectively navigate the complex, "real world" context (eg, inadequate resources, political barriers, organizational constraints) in which evidence-based decision making occurs. Through the website, R2R community members followed 6 mentor-mentee pairs through monthly storyboards that highlighted their progress as they implemented evidence-based programs in their communities (17). Community members asked questions of the mentors and mentees and in several cases added their own encouragement and reflections. The first set of mentee-mentor pairings has concluded, and a collection of articles of their work are in press with *Preventing Chronic Disease*.

NCI actively seeks "strategic content providers" to foster collaborations and enhance interactions between and among researchers and practitioners. The addition of a recurring Coalition Corner discussion in 2012 furthered NCI's collaboration with the Comprehensive Cancer Control National Partnership (18). Coalition Corner provides cancer control coalitions in the states, tribal nations, and territories a virtual space for asking questions, discussing achievements, and sharing challenges. R2R has featured 34 contributors, spawning discussions on the platform and requests from R2R members for related cyber-seminars to further explore the issues.

Similarly, R2R established a "virtual cross-walk" with P.L.A.N.E.T.'s RTIPs repository. As a new program is added to the repository, the lead researcher engages community members in a discussion about adapting the intervention for their own communities. In collaboration with the NCI's Implementation Science team, R2R provides an online discussion platform and archive for the monthly Advanced Topics in Implementation Science webinar series. This series convenes scores of implementation scientists monthly to share perspectives on current topics and their work.

Evaluating Research to Reality

The ongoing, systematic evaluation of R2R has been essential for its content management and community development. Although R2R is a Web-based platform, measuring and tracking Web analytics alone would not capture the growth, development, or vitality of the community of practice. As such, NCI adapted the Macuarium Set of Community Practice Measurements (19) and collects data to measure each of the community of practice dimensions.

In 2013, the R2R website had 80,000 page views with an average monthly page view of 3,200. The home page and the cyber-seminars make up the most visited sections of the site, followed by discussions and the featured partners pages. Registration and membership data are also tracked monthly, and these numbers have grown steadily. During 2012–2013, approximately 1,750 new users joined R2R. The 41 cyber-seminar sessions held through June 2013 attracted more than 32,000 registrants and nearly 11,000 participants. These data demonstrate that the R2R cyber-seminar series fills a need for members of our target audience and suggests that they are not getting this content from other sources.

A mixed-method content analysis using qualitative research analysis software (http://www.dedoose.com/) was used to evaluate the level of engagement with R2R discussions and the types of content or cues that prompted R2R members to post and interact with one another. Findings showed that the most commonly posted community generated cancer-issue posts were around communication and program implementation and dissemination. R2R members were more likely to respond to posts when a colleague was asking for help or advice (Figure 2), consistent with the literature on community engagement (21). The NCI uses a "Contact Us" feature and regular member surveys to collect user feedback. Data derived from these sources are indicators of community engagement and are used for continued quality improvement.

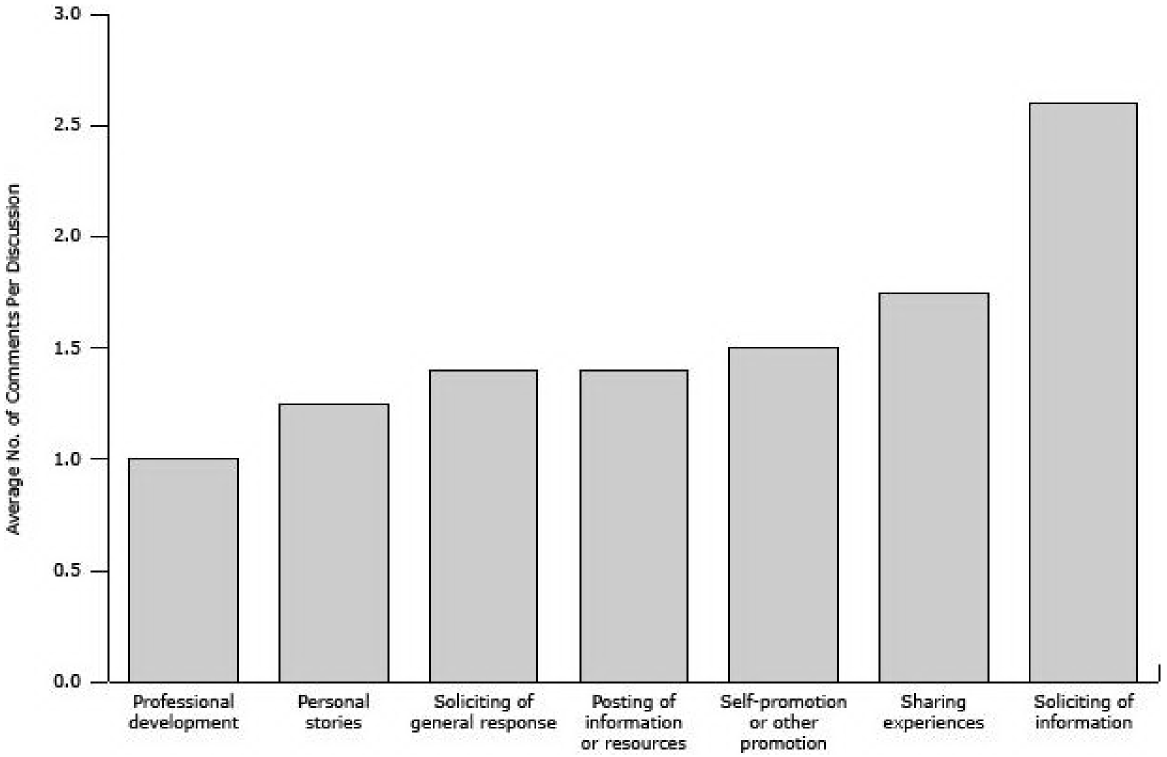

Figure 2. Average comments generated in response to different discussion types, Research to Reality, National Cancer Institute, 2013. Data source: Researchtoreality.cancer.gov (20). [A tabular version of this figure is also available.]

As the community has grown, determined on the basis of these indicators, so has the level of engagement on the site. Program data demonstrate a 62% increase in community-generated discussions between 2011 and 2013. The number of community-initiated discussions, however, does not yet meet NCI's program expectations. Through programmatic efforts and further community development, the goal is to have R2R community members generate closer to half of the content on the site.

Discussion

Communities of practice, particularly in the virtual space, are increasingly being used by government agencies to share knowledge, tackle problems, and interact with partners, grantees, and the public across geographic locations. NCI developed R2R with specific goals in mind: to engage practitioners and researchers in an ongoing dialogue, to build capacity for evidence-based program planning, and to foster collaborations that address the problem of dissemination and implementation. NCI imagined that a virtual community of practice could facilitate the authentic engagement of researchers and practitioners necessary to move evidence-based programs into action.

R2R has been successful in many ways. The community has attracted a robust membership from many disciplines. Practitioners and researchers regularly join monthly cyber-seminars and are eager to showcase their work in that forum. Anecdotal stories and discussions posted on R2R demonstrate its potential to attract the right members and conduct capacity-building activities despite a dwindling financial climate.

Engagement, however, is what distinguishes a community of practice from a static website. Although NCI has successfully generated discussions on cyber-seminars, fewer discussions originate unsolicited online. Few published benchmarks identify measures of success for virtual communities of practice. Further evaluation is needed to better understand how to leverage the current site traffic to drive community engagement. R2R is a promising strategy to address a longstanding problem and is well-positioned to advance understanding of the potential roles of virtual communities of practice for improving cancer control practice.

Acknowledgments

The authors thank Rachael Strecher, now of the Aspen Institute, and Candace Deaton Maynard and Tessa Sapaula Henson of the National Cancer Institute for their assistance in data collection and presentation. This research received no specific grant from any funding agency in the public, commercial, or nonprofit sectors.

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Page last reviewed: May 08, 2014
Page last updated: May 08, 2014
Content source: National Center for Chronic Disease Prevention and Health Promotion

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PREVENTING CHRONIC DISEASE
PUBLIC HEALTH RESEARCH, PRACTICE, AND POLICY

ESSAY

Volume 11 — May 29, 2014

Practice–Research Partnerships and Mentoring to Foster Evidence-Based Decision Making

Ross C. Brownson, PhD

Suggested citation for this article: Brownson RC. Practice–Research Partnerships and Mentoring to Foster Evidence-Based Decision Making. Prev Chronic Dis 2014;11:140144. DOI: http://dx.doi.org/10.5888/pcd11.140144 .

> The uncreative mind can spot wrong answers. It takes a creative mind to spot wrong questions.
>
> — Anthony Jay, British writer and journalist

When practitioners take an evidence-based approach to chronic disease prevention, they undertake several important processes (1): 1) making decisions based on the best available scientific and rigorous program evaluation evidence; 2) applying program planning and quality improvement frameworks; 3) engaging the community and stakeholders in assessment and decision making; 4) adapting evidence-based interventions for specific populations or settings; and 5) conducting sound evaluation. By using an evidence-based approach, activities in public health practice are explicitly linked with the underlying scientific evidence that demonstrates the causes of chronic diseases, epidemiologic patterns of chronic diseases and risk factors, intervention effectiveness, and external validity.

The National Cancer Institute's Research to Reality (R2R) Mentorship Program has a set of competencies that are closely aligned with this concept of evidence-based public health (EBPH) (2). In keeping with R2R program objectives, the articles in this special collection of *Preventing Chronic Disease* provide some of the best examples to date showing how practice–academic partnerships can produce new scientific information that is timely and relevant for practitioners as they seek to take a more evidence-based approach to chronic disease prevention. This collection builds on recent work from Jacobs and colleagues (3), who presented tools for EBPH practice, and Kaplan and colleagues (4), who showed how these tools can be applied in a state public health agency. An underlying premise for EBPH is that many workers in public health lack formal training in public health sciences (eg, epidemiology, behavioral sciences), making it crucial for individuals and agencies to make a sustained commitment to lifelong learning, a concept exemplified in the principles articulated by R2R.

The systematic approach taken toward mentoring in the R2R program is highly innovative. Its premise is that, for any new field to prosper, both human and intellectual capital must be developed to generate new knowledge and narrow the research-to-practice gap. The R2R program, which has been designed to create a virtual community of practice, fosters a collaborative learning environment that supports many of the goals in the National Cancer Institute's Strategic Plan (5) and produces science that is relevant for cancer control and for the broad field of public health. The literature on mentoring in the health sciences forms the basis for evidence-informed mentoring (Table). Although the R2R program has not addressed in detail all 8 domains described in the Table, it has successfully addressed many of them, as illustrated in the article by Sanchez and colleagues (6).

The fruits of practice–academic mentoring and collaboration are shown in this set of articles. Several pieces build on Purcell et al (2) to illustrate the reach and effectiveness of R2R program elements. Others describe macro-level processes that are likely to improve chronic disease prevention (eg, greater use of practice-based evidence, better value from and approaches to effective partnerships). Multiple articles describe specific intervention approaches (eg, adapting interventions, testing effectiveness) designed to address specific diseases or risk factors (eg, colorectal cancer screening, physical inactivity). Building on the themes in these articles, this essay describes several current and future priority issues.

The Value of and Need for More Practice-Based Evidence

Too often, the evidence available for public health practice is generated and applied through separate, nonoverlapping processes. Researchers, often relying on well-funded and professionally staffed grants, are responsible for generating evidence for effective interventions. This intervention evidence (the "push") is then handed off to practitioners and policy makers who are charged with implementing a program or policy (the "pull"). As noted by Green, if we are seeking to foster evidence-based practice, we need more practice-based evidence (7) (ie, evidence developed in real world settings via partnerships between practitioners and researchers).

This type of practice-based research is more likely to take into account the important concept of context — the difficult-to-measure characteristics of the agency; the community; and the sociocultural, political, or economic surroundings in which an intervention is to be implemented, adapted, or evaluated (1). Contextual factors have an effect on external validity (ie, the degree to which findings from a study or set of studies can be generalizable to and relevant for populations, settings, and time periods other than those in which the original studies were conducted) (8). Practice-based research satisfies one or more of the following principles: 1) use of participatory research approaches to engage stakeholders in identifying study topics; 2) evaluation of ongoing program and policies (sometimes called natural experiments); 3) placement of greater emphasis on external validity; 4) use of new networks for conducting research (eg, practice-based research networks); and 5) use of systems science methods to understand the complexity and context underlying public health issues. The articles in this issue clearly illustrate the value of practice-based research.

The Need to Pay Greater Attention to Adaptation and Implementation of Evidence-Based Public Health

A core issue facing dissemination and implementation research involves the concept of how adapting an intervention influences effectiveness. Although the evidence base on effective chronic disease interventions has grown enormously in the past few decades, knowledge about how to adapt, implement, and evaluate interventions is lacking for many settings and populations. A key challenge when adapting an intervention is the tension between fidelity (keeping the key ingredients of an intervention that made it successful) and adaptation (the ability to fit the community or setting of interest). Adapting interventions from one setting to another requires considerations regarding the extent to which the determinants of the issue are comparable (which determines whether the intervention focus is or is not appropriate) and how contextual differences (eg, political environment, health care systems) may affect the intervention. Lee and colleagues developed a useful approach for planned adaptation that includes 4 steps: 1) examining the evidence-based theory of change, 2) identifying population differences, 3) adapting the program content, and 4) adapting evaluation strategies (9).

The Role of Engagement and Partnerships

Participatory research methods have the potential to address chronic diseases by involving community members and stakeholders in the decision-making processes, thus enhancing the relevance and overall quality of research. Within community and public health settings, participatory research builds trust, respect, capacity, empowerment, accountability, and sustainability (10), all of which are critical to improving the intervention's chances for success. This process has tremendous potential for testing the effectiveness of interventions and for disseminating EBPH. As illustrated in the articles in this collection, community engagement and participation can play roles across a wide spectrum, ranging from engaging consumers, patients, or practitioners as advisors, to hiring research staff from communities of focus, to full participation from community members in all research activities. In taking these steps, researchers will better recognize the practical application of their scientific findings. The most effective strategies to bridge the gap between research and practice are likely to have at their heart effective partnerships between academicians, practitioners, and policy makers.

The Need to Understand How to Design for Dissemination

Effective dissemination and implementation of evidence-based interventions is a formidable challenge. In part, this is due to differing priorities. For researchers, the priority is often on discovery (not application) of new knowledge; whereas for practitioners and policy makers, the priority is often on practical ways of applying these discoveries in their settings. Research on how to disseminate evidence-based interventions has now taught us several important lessons: 1) multicomponent, active strategies are often the most effective; 2) leadership matters but is not sufficient; 3) provider behavior is difficult to change and (when changed) is even harder to sustain; and 4) systems are complex and change is recursive. Yet most of these lessons have been learned from studies with early adopters in high-resource settings. We have yet to learn the lessons of how to change public health in more challenging settings. Several articles in this collection take on that challenge.

Future Research

These articles lead to areas where additional research is warranted, for example —

- How to emphasize building strategic partnerships early in the research process.
- New and more rapid methods for determining when a new program or policy is ready for adoption in a nonresearch setting (eg, exploratory evaluation).
- Ways of ensuring that an intervention is developed in ways that match well with adopters' needs, assets, and time frames.

Many of these challenges need particular attention in settings with high health-related disparities where system and resource constraints are great and where delivery systems are underdeveloped.

Public health history teaches us that a long latency period often exists between the scientific understanding of a viable disease control method and its widespread application on a population basis. By expanding the evidence base for public health and applying the evidence already in hand, we can shorten the latency period and begin to fully achieve the promise of prevention. In the current era of level or shrinking public health budgets, it is more important than ever to increase the effectiveness and efficiency of public health services by applying the principles of EBPH.

Acknowledgments

This article is a product of a Prevention Research Center and was supported by Cooperative Agreement no. U48/DP001903 from the Centers for Disease Control and Prevention. The author is grateful for the assistance of Beth Baker, Matt Kreuter, and Byron Yount.

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Table

Table. Domains, Definitions, and Examples of Evidence-Informed Mentoring for Practice-Based Research in Public Health

Return

Domain	Definition	Examples
Skill-building	Providing direct tutelage to help mentees attain competence in specific areas deemed essential to success in research	• Writing for publication • Conducting experiential learning • Building practice partnerships in agencies addressing chronic disease disparities
Sharing resources and infrastructure	Making available any resources that will enhance the mentee's productivity	• Making data available for analysis • Providing support for grant proposal preparation • Building and participating in communities of practice
Performance feedback	Critically and routinely evaluating mentee's performance and progress toward goals	• Identifying strengths and weaknesses • Posing challenging questions • Providing recommendations for improvement
Providing opportunity	Creating or sharing opportunities to develop professional skills and generate scholarly dissemination products	• Including mentees in developing and reviewing scholarly products • Identifying and sharing learning opportunities such as seminars and workshops
Career planning	Helping identify a desired career path and developing a strategic plan to get there	• Facilitating the mentee's identification and refinement of career goals • Planning a program of research or practice
Professional networking	Helping mentees make connections with other individuals and organizations in the field	• Creating opportunities to interact with established scholars and practitioners • Facilitating mentee interaction with other mentees
Professional socialization	Helping mentees understand the field and professional norms and roles within it	• Sharing knowledge of the field and professional norms • Preparing mentee for new professional experiences such as interviews or grant reviews

Domain	Definition	Examples
Providing emotional support	Understanding and helping mentees cope with stressors and setbacks both related and unrelated to their career or program of study	• Listening to mentee’s concerns • Providing encouragement and support • Facilitating problem-solving

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Page last reviewed: May 29, 2014
Page last updated: May 29, 2014
Content source: National Center for Chronic Disease Prevention and Health Promotion

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PREVENTING CHRONIC DISEASE
PUBLIC HEALTH RESEARCH, PRACTICE, AND POLICY

CME ACTIVITY

Volume 11 — May 29, 2014

Partnering with Health Care Systems to Assess Tobacco Treatment Practices and Beliefs Among Clinicians: Evaluating the Process

Michael D. Celestin Jr, MA; Alton Hart Jr, MD, MPH; Sarah Moody-Thomas, PhD

Suggested citation for this article: Celestin MD Jr, Hart A Jr, Moody-Thomas S. Partnering with Health Care Systems to Assess Tobacco Treatment Practices and Beliefs Among Clinicians: Evaluating the Process. Prev Chronic Dis 2014;11:130277. DOI: http://dx.doi.org/10.5888/pcd11.130277 .

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Release date: May 29, 2014; Expiration date: May 29, 2015

Learning Objectives

Upon completion of this activity, participants will be able to:

- Distinguish sociodemographic variables associated with higher rates of smoking
- Analyze physicians’ performance in the clinical management of smoking
- Evaluate a survey program of physicians and nurses regarding the clinical management of smoking

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Disclosure: Teresa L. Ramsey has disclosed no relevant financial relationships.

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PEER REVIEWED

Listen to a podcast interview with this article's lead author Michael D. Celestin, Jr.

Abstract

Background
Tobacco is a major cause of preventable illness and death. However, clinician use of an evidence-based guideline for treatment of tobacco use is low. This case study describes the process for conducting a pre-intervention assessment of clinician practices and beliefs regarding treatment of tobacco use.

Community Context
Louisiana State University Health System, one of the largest safety-net public hospital systems in the United States, consists of 10 facilities in population centers across the state of Louisiana. The system serves a large proportion of the state's underinsured and uninsured, low-income, and racial/ethnic minority populations, groups that have high rates of tobacco use.

Methods
Activities included 1) partnering with hospital administrators to generate support for conducting a clinician assessment, 2) identifying and adapting a survey tool to assess clinicians' practices and beliefs regarding treatment of tobacco use, 3) developing a survey protocol and obtaining approval from the institutional review board, and 4) administering the survey electronically, using the hospital's e-mail system.

Outcome
Existing partnerships and system resources aided survey administration. Use of the hospital's internal e-mail system and distribution of an online survey were effective means to engage clinicians. Following notification, 43.6% of 4,508 clinicians opened their e-mail containing the invitation letter with a Web link to the survey; of these, 83.1% (1,634) completed the survey.

Interpretation
Partnering with stakeholders and using existing resources within the health care system are essential to successful implementation of a system-wide survey of clinician practices and beliefs regarding treatment of tobacco use.

Background

Tobacco use is the foremost cause of preventable illness and death in the United States (1). Smoking causes coronary heart disease and lung cancer and is associated with many other deleterious health effects (2). Although prevalence of tobacco use in the United States has modestly decreased during the past 7 years, prevalence in Louisiana (22%) has not changed (3,4). Louisiana residents with no insurance (34%), low income (32%), and less than a high school education (36%), and who are men (25%) are more likely to report tobacco use (4) and to receive health care through public and safety-net health systems. These facts highlight the need for greater use of evidence-based interventions and strategies for addressing tobacco use in disparate populations.

More must be done to reach and surpass *Healthy People 2020* targets for reducing tobacco use. This can be accomplished through increased tobacco screening and cessation counseling in health care settings (5). Recommended by the US Public Health Service Clinical Practice Guideline for Treating Tobacco Use and Dependence (Guideline), clinician intervention increases the chances of smokers' quitting (6). The Guideline recommends that clinicians screen for tobacco use, document status, and provide brief treatment using a 5 A's clinical protocol. The 5 A's are 1) Asking patients about tobacco use, 2) Advising users to quit, 3) Assessing their willingness to quit, 4) Assisting with their quit attempt, and 5) Arranging for follow-up contact.

Surveys are commonly used to monitor, inform, and evaluate adherence to the clinical practice guideline among clinicians (7). Consistent and effective use of the 5 A's protocol is low. Clinicians report frequent asking and advising but less frequent assessing, assisting, or arranging (8–12). This case study describes the process for conducting a pre-intervention survey of practices and beliefs regarding treatment of tobacco use among clinicians in Louisiana's public hospital system.

Community Context

In 2001, Louisiana's state legislature addressed the state's high smoking prevalence (25%) by increasing the excise tax on cigarette sales from 24 cents to 36 cents per pack, ranking Louisiana 49th among the states (13). A dedicated portion (2 cents of the 12-cent increase) of the revenue went toward establishing tobacco control programming for the state, including cessation services for patients in the public hospital system (14). The 10-facility safety-net system, which provides care for residents who are most medically vulnerable, is managed by the Louisiana State University (LSU) Health System. In 2011, the LSU Health System recorded more than 66,000 in-patient admissions and 2.1 million outpatient visits (15). The LSU Health System has 2 distinct institutions operating separate hospitals: the Health Care Services Division (HCSD), which operates 7 hospitals in the southern part of the state; and the LSU Health Sciences Center Shreveport, which operates 3 hospitals in the northern part of the state.

Because of differences in the type of system technology used by each operating institution, the study was conducted only in HCSD hospitals. Of all primary care outpatients in the HCSD system, 65% were women, 53% were African American, 42% were uninsured, and on average, patients were 42 years old, and 29% were current smokers (Y Yi, PhD, written communication, July 2013). The HCSD system also serves as the largest health care training program for physicians, nurses, and allied health students in the state (15).

In 2002, the HCSD, in partnership with the LSU Health Science Center School of Public Health, established the Tobacco Control Initiative (TCI), which used a comprehensive, theory-driven, structured approach to integrate Guideline recommendations. Strategies addressed tobacco use treatment at the system, clinic, and patient levels (16). To monitor and improve provider adherence to Guideline recommendations, the TCI conducts patient surveys to assess their tobacco use, quit attempts, and perceptions of provider treatment (17), and electronic health record (EHR) queries to examine clinician practice patterns. The Table reports the frequencies of 5 A's performance from a patient survey and EHR query from January through March 2010. However, the TCI had not conducted a system-wide survey of clinicians engaged in treatment of tobacco use to assess their reported adherence to the 5 A's protocol or to identify belief factors that promote or hinder provision of this evidence-based intervention.

In 2011, the TCI applied for and was awarded a National Cancer Institute (NCI) Research to Reality (R2R) Mentorship Program mentee position. The R2R mentorship program pairs experienced public health professionals (mentors) with mid-level cancer prevention and control managers (mentees) to build mentees' capacity to effectively navigate the complexities in which evidence-based intervention occurs. With the mentor's expertise, and training from the NCI, the TCI mentee planned a year-long cancer prevention and control project relevant to the TCI program to enhance and apply the mentee's skills and knowledge of evidence-based public health (18). The objectives of the R2R project were to 1) conduct a pre-intervention assessment of tobacco treatment practices and beliefs among clinicians in the HCSD and 2) engage HCSD clinicians to obtain their perspectives on adherence to the Guideline by using an electronic survey.

Methods

Partnering with the health care community. To administer the survey, the TCI leadership identified key partners in the HCSD system based on pre-existing relationships. Partners included the HCSD chief medical officer (CMO) and director of staff development (DoSD). Partners were recruited during HCSD meetings and via e-mail. The TCI sought assistance from the partners at the beginning of study development for approval to conduct the survey, for endorsement by the CMO of correspondence regarding the survey, and for identification by the DoSD of an electronic method to administer the survey. Additionally, the mentorship pair met individually with the CMO during a planned site visit to understand first-hand the organization and context in which the study would be conducted.

Identifying and adapting an evidence-based clinician survey. Literature searches were conducted by the mentorship pair to identify existing instruments used to measure clinician practices and beliefs regarding adherence to the Guideline. Authors of published surveys were contacted for permission to use their instruments. Once received, to ensure all questions were relevant and appropriate, the instruments were reviewed for possible adaptation. Changes to the survey were made to reflect the setting (hospital vs clinic) and available cessation resources. The selected questionnaire consisted of 5 sections: 1) practice characteristics, 2) adherence to Guideline recommendations, 3) knowledge, attitudes, and beliefs regarding treatment of tobacco use, 4) current and former tobacco use, and 5) demographic information. Questions regarding clinician 5 A's practices included the following: "In your hospital/clinic, do you personally ever ask patients if they smoke/use spit or smokeless tobacco?"(responses recorded as yes or no); "How often do you do the following in your hospital/clinic: Advise smokers to stop smoking?; Ask smokers if they are interested in quitting?; Encourage smokers who want to quit to set a quit-date?; Discuss medication options such as nicotine replacement, Chantix (Varenicline) or Zyban (Bupropion SR)?; Refer to the Tobacco Control Initiative (TCI) for treatment?; and Re-evaluate tobacco use at each visit?"(responses were recorded as never, rarely, sometimes, often, or always).

Developing the survey protocol. Surveys were scheduled for an 8-week period of administration, beginning in February 2012. The protocol included 1) e-mailing a survey notification letter in week 1 to introduce the upcoming survey, 2) e-mailing an invitation letter in week 2, and 3) e-mailing reminder letters at weeks 3, 5, and 7 to complete the survey. The TCI leadership and mentee drafted correspondence letters regarding the survey for distribution by the CMO. The letters were approved and the project was endorsed by the CMO. A consent form was developed to inform participants of all aspects of the study. Surveys were anonymous and optional, and incentives were not provided to encourage participation. Clinicians could participate in the survey at any time using computers at work or at home. Although no steps were taken to prevent individuals from responding more than once, survey collector settings were set to 1) allow multiple responses per computer as recommended for kiosks or computer laboratories where multiple providers would potentially complete the survey in the hospital, and 2) allow responses to be edited so that respondents could go back to previous pages in the survey and update existing responses until the survey was finished or until they had exited the survey. After the survey was finished, or once respondents exited the survey, respondents were not able to re-enter the survey. On survey completion, respondents were redirected to the HCSD TCI homepage.

We did not save Internet Protocol (IP) addresses in the survey results to ensure anonymity. This study was approved by the LSU Health Sciences Center Institutional Review Board.

Administering the clinician survey. The TCI and the DoSD worked together to identify a survey delivery method and sampling frame. The team chose the HCSD's Web-based In-service Learning Management Application (WILMA). WILMA is a provider e-learning management system used to train and track mandatory provider education activities. WILMA was identified as a medium for electronic administration of the survey because 1) WILMA contains a built-in e-mail notification system widely used by each HCSD facility for announcements and lessons assigned to clinicians, 2) clinicians are responsible for checking WILMA on a weekly basis for new information, 3) WILMA allows 1 person to send information out to all clinicians via e-mail and develop statistical reports, and 4) it provides the capability to host a Survey Monkey link. Survey Monkey, an Internet-based tool for conducting Web-based surveys using multiple question formats, offered a cost-effective, self-service surveying solution with built-in privacy and security features. Fifty-two survey items were entered into the Survey Monkey Web interface. The TCI tested the format and configuration of the survey on the Survey Monkey website. All clinicians were sent an invitation and reminder letters via WILMA, which included an embedded link to the survey. Thus, the sampling frame included physicians (primary care, emergency department, and subspecialties) and nurses (nurse practitioners, registered nurses, and licensed practical nurses) with an LSU e-mail address.

Outcome

Partnering with the hospital system was successful, although the proposed timeline for project completion was not achieved. Identifying and adapting an existing survey, completing and obtaining approval of the institutional review board application, and accommodating facility transitions into partnerships with private health care delivery systems delayed the start of the survey.

Health care community partnerships. By partnering with the health care community, the TCI was able to obtain endorsement for the project, access and engage clinicians, and help the system to identify an innovative and efficient use of an existing resource (WILMA).

Survey identification and adaptation. Identifying a suitable survey was more time-consuming than expected. Beginning in December 2011, several attempts were made via telephone and e-mail to obtain the text of the first identified survey. However, correspondence with the author during the course of 7 weeks did not result in receipt of the instrument. Conversely, the second identified survey was obtained after 1 request.

Protocol for survey distribution. System-wide layoffs by the HCSD in February 2012 presented another unanticipated delay. Although terminated employees were not present physically, they were not officially removed from the HCSD Department of Human Resources' (HR) employee management system (which populates WILMA). Beginning survey administration before HR could reconcile its management system would result in issuing a greater number of surveys than the number of clinicians employed, thereby skewing the data. The DoSD suggested that the survey not begin until the hospital's e-mail system was recalibrated in April 2012. Because of these delays, the survey was not distributed until May 2012. Figure 1 compares the anticipated and actual timeline of events. Additionally, the original protocol included e-mailing a survey notification letter, invitation letter, and 3 reminder letters. Because of complaints received from physicians at 1 facility, the third reminder letter was not e-mailed at the request of the CMO.

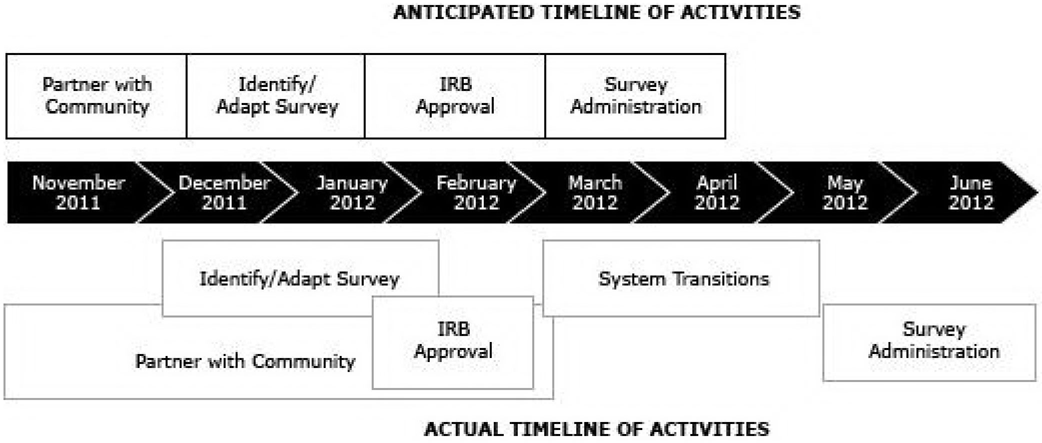

Figure 1. Anticipated and actual timeline of activities. Abbreviation: IRB, institutional review board. [A text description of this figure is also available.]

Responses to survey administration. The sample population consisted of 2,519 physicians (including primary care and general practice physicians, obstetricians, gynecologists, emergency medicine physicians, and other specialty physicians) and 1,989 nurses (including registered nurses, licensed practical nurses, and nurse practitioners) in the HCSD system. Among all respondents, 75% were women, 72% were white, ages ranged from 22 to 64 (22–44 [48%] and 45–64 [48%]), and 10% reported current smoking.

Overall survey response is summarized in Figure 2. Of the 2,519 physicians sent an e-mail containing the invitation letter to participate in the study, 610 (24.2%) opened the e-mail, and 576 (94.4%) opened the letter and clicked the Web link to complete the survey. Of the 1,989 nurses who were sent an e-mail containing the invitation letter, 1,356 (68.2%) opened the e-mail, and 1,058 (78%) opened the letter and clicked the Web link to complete the survey. Using the cooperation rate calculation (7) defined by the American Association of Public Opinion Research (the number of completed surveys [1,634] divided by a denominator that excludes all cases unable to be contacted [1,966]), the response rate was 83.1%. Using the AAPOR's more conservative calculation (the number of completed surveys [1,634] divided by the total number fielded [4,508]), the response rate was 36.2%.

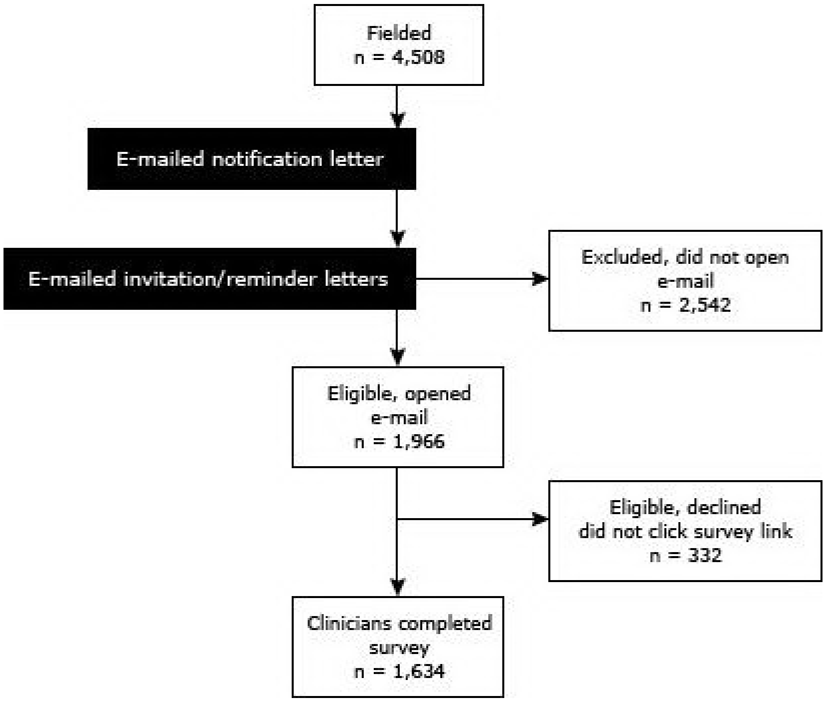

Figure 2. Flow diagram of survey response. [A text description of this figure is also available.]

Figure 3 shows the weekly number of responses among physicians and nurses. For this study, we did not conduct follow-up contact to convert initial nonrespondents into respondents because of the anonymous administration of the survey. We did not save IP addresses or collect identifiable contact information in the survey, as required by the institutional review board. Therefore, we could not follow-up with nonresponders.

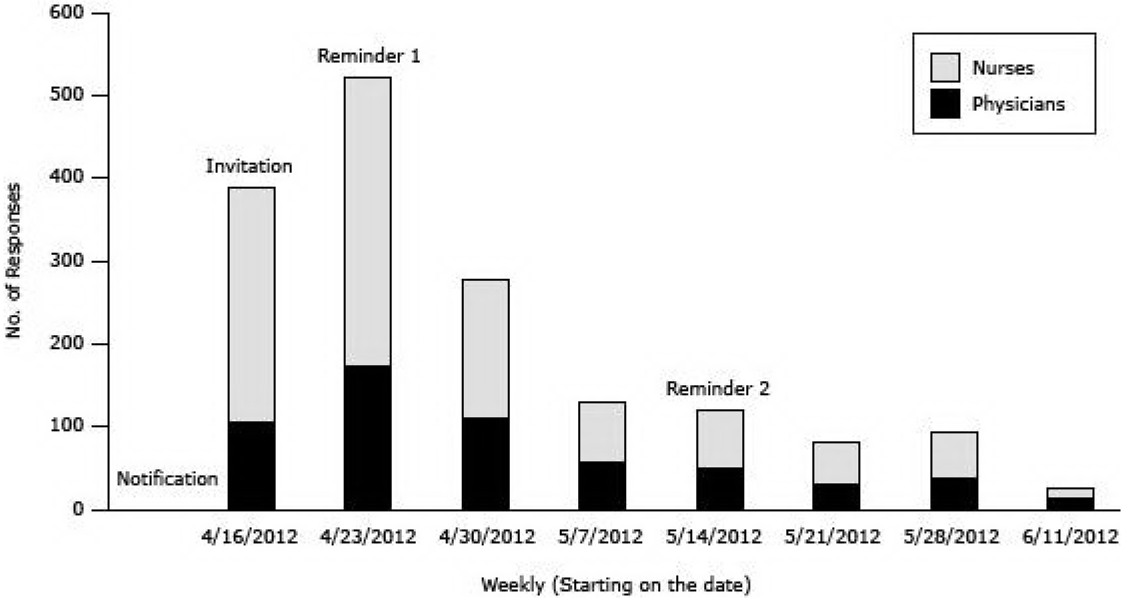

Figure 3. Weekly survey responses among physicians and nurses. [A text description and tabular version of this figure are also available.]

Interpretation

To effectively engage and support the HCSD community of clinicians in the treatment of tobacco use, it was necessary to conduct an assessment of clinicians (19). Understanding clinician perspectives on Guideline implementation is imperative for improving health care delivery and related policy (20).

This R2R mentorship project was valuable for the mentee, the parent program, and the health care community in which it was conducted. First, the R2R project provided the mentee a foundation in evidence-based public health. The NCI trainings allowed the mentee to gain a greater understanding of how to partner with a hospital community, engage clinicians to assess their practices and beliefs regarding treatment of tobacco use, and collect, analyze, and interpret survey data. Second, the project made a substantive contribution to the TCI parent program. Through the TCI program, Guideline recommendations for treatment of tobacco use were successfully implemented in a public health care system (16). Patient and EHR data are used to assess Guideline adherence; however, provider perspectives had not been obtained. The R2R mentorship project gave the TCI an opportunity to assess clinician practices and beliefs. This information will guide the development of interventions to improve clinician adherence to the Guideline.

There was also an unforeseen benefit of the R2R project. Through the project, an existing resource was identified for conducting research in the HCSD system. A review of health care provider surveys published between 2000 and 2010 found that the number of provider surveys (primarily mailed surveys) with a 60% response rate (minimum requirement) had been declining (7). Clinician e-mails can increase Internet and e-mail data collection methods (20). Using e-mail for initial contact and the Internet for survey data collection, our study achieved a 94% cooperation rate among physicians and a 78% cooperation rate among nurses. E-mail/Internet administration appears to have resulted in higher cooperation rates, and these delivery methods may be more efficient in gathering health-care provider input. WILMA provided a single portal to access all clinicians in the HCSD system via e-mail. Contact information was current and specific to the population of interest. The R2R project demonstrated that other electronic-based methods can become a part of the research infrastructure.

To those who intend to conduct similar research in the hospital community, authors stress the importance of involving all stakeholders early in the process, using existing infrastructure to collect information, and including enough time in the implementation schedule to accommodate protocol changes. Partnering with the hospital community was a viable approach to determine clinician practices and beliefs about the treatment of tobacco use and adherence to the Guideline.

Acknowledgments

This study was supported by a contract (CFMS no. 599454) from the Louisiana Cancer Research Consortium.

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Table

Table. Frequencies of 5 A's Performance From TCI Patient Survey and EHR Query in the LSU Health System Among Primary Care Outpatients, January–March 2010

Return

	Frequency (%)	
5 A's Protocol	**Patient Survey 2010**	**EHR Query 2010**
Asked about tobacco use.	740/820 (90.2)	39,424/48,913 (80.6)
Advised to quit smoking.	164/192 (85.8)	11,224/11,372 (98.7)
Assessed willingness to make a quit attempt.	136/192 (71.7)	11,224/11,372 (98.7)
Assisted with selecting or prescribing/recommending a treatment option.	124/164 (76.3)	2,183/3,220 (67.8)
Arranged follow-up contact within 1 week or 1 month.	48/164 (31.4)	2,183/2,183 (100.0)

Abbreviations: TCI, Tobacco Control Initiative; EHR, electronic health record; LSU, Louisiana State University.

Post-Test Information

To obtain credit, you should first read the journal article. After reading the article, you should be able to answer the following, related, multiple-choice questions. To complete the questions (with a minimum 75% passing score) and earn continuing medical education (CME) credit, please go to http://www.medscape.org/journal/pcd . Credit cannot be obtained for tests completed on paper, although you may use the worksheet below to keep a record of your answers. You must be a registered user on Medscape.org. If you are not registered on Medscape.org, please click on the "Register" link on the right hand side of the website to register. Only one answer is correct for each question. Once you successfully answer all post-test questions you will be able to view and/or print your certificate. For questions regarding the content of this activity, contact the accredited provider, CME@medscape.net. For technical assistance, contact CME@webmd.net. American Medical Association's Physician's Recognition Award (AMA PRA) credits are accepted in the US as evidence of participation in CME activities. For further information on this award, please refer to http://www.ama-assn.org/ama/pub/about-ama/awards/ama-physicians-recognition-award.page . The AMA has determined that physicians not licensed in the US who participate in this CME activity are eligible for ***AMA PRA Category 1 Credits***™. Through agreements that the AMA has made with agencies in some countries, AMA PRA credit may be acceptable as evidence of participation in CME activities. If you are not licensed in the US, please complete the questions online, print the AMA PRA CME credit certificate and present it to your national medical association for review.

Post-Test Questions

Article Title: Partnering With Health Care Systems to Assess Tobacco Treatment Practices and Beliefs Among Clinicians: Evaluating the Practice

CME Questions

1. Which of the following statements regarding sociodemographic variables associated smoking status among residents of Louisiana is most accurate?
    - A. Not having health insurance is associated with a higher rate of smoking
    - B. Gender has no effect on the rate of smoking
    - C. The prevalence of smoking is increasing fastest among college graduates
    - D. Income has no effect on the rate of smoking
2. Clinicians perform ***best*** in which of the "5 A's" in clinical practice?
    - A. Asking about tobacco use
    - B. Assessing willingness to quit
    - C. Assisting with a quit attempt
    - D. Arranging for follow-up
3. Which of the following statements regarding the response to the email invitation for participation in the current study is ***most*** accurate?
    - A. Most physicians opened the email letter
    - B. Most physicians who opened the letter activated the embedded Web link
    - C. A higher proportion of physicians opened the letter compared with nurses
    - D. Few health personnel who opened the letter actually completed the survey
4. Which of the following characteristics describes survey respondents in the current study?
    - A. Usually men
    - B. Usually white
    - C. Nearly 90% younger than 45 years
    - D. Collective rate of smoking less than 1%

Evaluation

1. The activity supported the learning objectives.

Strongly Disagree **Strongly Agree**

1 2 3 4 5

2. The material was organized clearly for learning to occur.

Strongly Disagree **Strongly Agree**

1 2 3 4 5

3. The content learned from this activity will impact my practice.

Strongly Disagree **Strongly Agree**

1 2 3 4 5

4. The activity was presented objectively and free of commercial bias.

Strongly Disagree **Strongly Agree**

1 2 3 4 5

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Page last reviewed: May 29, 2014
Page last updated: May 29, 2014
Content source: National Center for Chronic Disease Prevention and Health Promotion