



## HHS PUBLIC ACCESS

Author manuscript

*Am J Prev Med.* Author manuscript; available in PMC 2015 October 24.

Published in final edited form as:

*Am J Prev Med.* 2013 November ; 45(5): 644–648. doi:10.1016/j.amepre.2013.06.010.

# Colorectal Cancer Control Program Grantees' Use of Evidence-Based Interventions

Peggy A. Hannon, PhD, Annette E. Maxwell, DrPH, Cam Escoffery, PhD, Thuy Vu, MPH, Marlana Kohn, MPH, Jennifer Leeman, DrPH, Michelle L. Carvalho, MPH, Debbie J. Pfeiffer, MA, Andrea Dwyer, MPH, Maria E. Fernandez, PhD, Sally W. Vernon, PhD, Lily Liang, MPH, and Amy DeGross, PhD

Health Promotion Research Center (Hannon, Vu, Kohn), Department of Health Services, School of Public Health, University of Washington, Seattle, Washington; the Center for Cancer Prevention and Control Research (Maxwell), Department of Health Policy and Management, Fielding School of Public Health and Jonsson Comprehensive Cancer Center, University of California Los Angeles, Los Angeles, California; the Emory University (Escoffery, Carvalho), Rollins School of Public Health; the Division of Cancer Prevention and Control (DeGross), CDC, Atlanta, Georgia; the School of Nursing (Leeman), University of North Carolina, Chapel Hill, North Carolina; the Health Communication Research Laboratory (Pfeiffer), Washington University at St. Louis, St. Louis, Missouri; the Colorado School of Public Health (Dwyer), University of Colorado, Denver, Colorado; and the Division of Health Promotion and Behavioral Sciences (Fernandez, Vernon, Liang), School of Public Health, University of Texas Health Science Center at Houston, Houston, Texas

## Abstract

**Background**—Colorectal cancer (CRC) screening is recommended for adults aged 50–75 years, yet screening rates are low, especially among the uninsured. The CDC initiated the Colorectal Cancer Control Program (CRCCP) in 2009 with the goal of increasing CRC screening rates to 80% by 2014. A total of 29 grantees (states and tribal organizations) receive CRCCP funding to (1) screen uninsured adults and (2) promote CRC screening at the population level.

**Purpose**—CRCCP encourages grantees to use one or more of five evidence-based interventions (EBIs) recommended by the *Guide to Community Preventive Services*. The purpose of the study was to evaluate grantees' EBI use.

**Methods**—A web-based survey was conducted in 2011 measuring grantees' use of CRC screening EBIs and identifying their implementation partners. Data were analyzed in 2012.

**Results**—Twenty-eight grantees (97%) completed the survey. Most respondents (96%) used small media. Fewer used client reminders (75%); reduction of structural barriers (50%); provider reminders (32%); or provider assessment and feedback (50%). Provider-oriented EBIs were rated as harder to implement than client-oriented EBIs. Grantees partnered with several types of organizations to implement EBIs, many with county- or state-wide reach.

---

Address correspondence to: Peggy A. Hannon, PhD, 1107 NE 45th St., Ste. 200, Seattle WA 98105. [peggyh@uw.edu](mailto:peggyh@uw.edu).

No financial disclosures were reported by the authors of this paper.

**Conclusions**—Almost all grantees implement EBIs to promote CRC screening, but the EBIs that may have the greatest impact with CRC screening are implemented by fewer grantees in the first 2 years of the CRCCP.

---

## Introduction

Colorectal cancer (CRC) is the second-leading cause of cancer death in the U.S. An estimated 143,460 new cases of CRC are expected to occur in 2012, and 51,690 deaths.<sup>1</sup> CRC screening through fecal occult blood or immunochemical tests, flexible sigmoidoscopy, or colonoscopy significantly reduces CRC mortality by detecting cancer early and prevents CRC by identifying and removing precancerous polyps; it is recommended for all adults aged 50–75 years.<sup>2–6</sup> CRC screening rates are low in the U.S.; 65% of adults in this age group report current screening, and rates drop below 40% among those without insurance or a medical home.<sup>7</sup>

The CDC Colorectal Cancer Control Program (CRCCP) awarded a 5-year cooperative agreement to 25 states and four tribal organizations for CRC screening in 2009–2010. The purpose of the CRCCP is to increase CRC screening rates among all age-eligible adults in participating states and tribes to 80% by 2014 and, consequently, to reduce CRC incidence and mortality ([www.cdc.gov/cancer/crccp/](http://www.cdc.gov/cancer/crccp/)).<sup>8</sup> The CRCCP includes two program components: (1) CRC screening of low-income, uninsured, and underinsured people (screening provision) and (2) increasing population-level screening rates (screening promotion). Grantees are strongly encouraged to implement one or more of the five evidence-based interventions (EBIs) that are recommended in the *Guide to Community Preventive Services (Community Guide; www.thecommunityguide.org/cancer/index.html; Table 1)*.<sup>9–13</sup> Use of these EBIs resulted in median post-intervention increases of 11%–15% in completed CRC screening.<sup>9,12,13</sup>

The CRCCP's focus on the entire age-eligible population represents a shift in CDC's approach compared to the National Breast and Cervical Cancer Early Detection Program ([www.cdc.gov/cancer/nbccedp/about.htm](http://www.cdc.gov/cancer/nbccedp/about.htm)), which focuses on providing screening to uninsured and underinsured, low-income women. Therefore, assessing EBI use and implementation is necessary to inform potential modifications of the CRCCP operational model and future technical assistance for grantees on how to use EBIs. The present study was conducted by the Cancer Prevention and Control Research Network, a national network funded by CDC and the National Cancer Institute.<sup>14</sup> The purpose of this study is to present how CRCCP grantees implemented EBIs to *promote* population-wide CRC screening within the first 1–2 years of funding.

## Methods

Respondents completed an online survey in Fall 2011; the survey was programmed using Qualtrics survey software ([www.qualtrics.com](http://www.qualtrics.com)). The survey was declared exempt from review by the University of Washington and CDC IRBs.

## Survey Questionnaire

The questionnaire included questions about use of each of the five *Community Guide*-recommended EBIs. For each EBI, respondents were asked whether their CRCCP currently uses it, or plans to use it in the next 12 months. Respondents currently using an EBI were asked questions about the external partners they are working with and how they are implementing the EBIs. Respondents rated the ease of implementing the EBIs and of forming their partnerships on 5-point scales (1=very difficult, 5=very easy). Respondents provided open-ended responses to questions about facilitators and barriers to implementing EBIs and forming partnerships.

## Data Analysis

The authors performed descriptive analyses to determine the frequency of CRCCP grantees' use of EBIs, engagement with partners, and mean ratings of "ease of implementing" EBIs and forming partnerships. All quantitative analyses were conducted in 2012, using SPSS version 18.

## Results

The CDC awarded \$49,682,917 to the 29 grantees over the first 2 years, with individual annual awards ranging from \$358,283 to \$1,757,615. In all, 28 of the 29 grantees (97%) completed the questionnaire. The majority of respondents had been involved with their CRCCP for 1 year (82%).

## Current and Planned Implementation

All but one grantee (96%) reported currently implementing one or more EBI (Table 2). On average, the grantees implemented 3.15 EBIs (SD=1.35, range=0–5). Grantees were most likely to implement small media (96%) and client reminders (75%) and also rated these as easier to implement than the other strategies (Table 2). Several grantees noted in comments that off-the-shelf materials and resources such as CDC's *Screen for Life* ([www.cdc.gov/screenforlife](http://www.cdc.gov/screenforlife)) and Washington University's *Make It Your Own* (MIYO)<sup>15</sup> made small media and client reminders fairly easy to implement. Many grantees also noted that working with providers was difficult given challenges in changing their systems or practice patterns and that they are often overburdened and have limited time.

## Activities

Most grantees ( $n=27$ ) distributed multiple types of small media designed to promote CRC screening, such as brochures/booklets, flyers, and posters. Electronic media and videos were also used by the majority of grantees. Most grantees reported using *Screen for Life* materials and *MIYO* resources to create small media. All grantees implementing client reminders ( $n=21$ ) reported using mailings (such as postcards, letters, and greeting cards), and over half also used telephone, text, and/or e-mail reminders (client reminders could be from healthcare providers/clinics, insurers, the public health department). Grantees that reported reducing structural barriers to screening ( $n=14$ ) commonly tried to simplify administrative procedures or eliminate obstacles to screening (e.g., by providing transport or reducing fees). All of the grantees implementing provider reminders ( $n=9$ ) used reminders built into

the providers' electronic medical records (EMR) system, and the majority also used patient chart reminders.

### Partnerships

Most grantees worked with one or more partners (Table 3). Grantees' roles varied in terms of whether the grantee, the primary partner, or both led implementation. Grantees were more likely to lead implementation of small media and client reminders; partners were more likely to lead reducing structural barriers, provider reminders, and provider assessment and feedback interventions. Nearly all of the primary partners' reach covered at least a single county or tribe; most of the primary partners had statewide reach.

### Discussion

Nearly all CRCCP grantees used one or more EBI. Overall, more grantees used small media and client reminders, and rated these EBIs easier to implement than interventions to reduce structural barriers, provider reminders, or provider assessment and feedback, which have been shown to have greater impact on improving screening rates than either small media or client reminders.<sup>13</sup> Given the evidence base for provider reminders and reducing structural barriers,<sup>16</sup> helping grantees to implement and sustain provider-oriented EBIs may have a powerful impact on screening rates.

### Limitations and Strengths

The primary limitations of this study are the cross-sectional design and the small number of respondents. The small sample size precluded subgroup analyses. The study has several strengths, including the unique sample—cancer control programs that were funded to promote CRC screening using EBIs—and the exceptional response rate.

### Implications for Future Research

Those who receive CRCCP grants provide and promote CRC screening to a diverse group of U.S. residents, including those who have the lowest screening rates.<sup>7</sup> The ultimate goal of using EBIs is to increase CRC screening; future research should examine the intensity with which these EBIs were implemented and to what extent CRC screening rates changed, especially in groups with low screening rates. Studying factors associated with maintaining or abandoning the EBIs will create a catalog of lessons learned that can be shared among grantees to help them increase effectiveness in selecting and implementing EBIs.

### Conclusion

Those who receive CRCCP grants are implementing EBIs to promote CRC screening, and many grantees are planning to implement additional EBIs in the next 12 months. Overall, grantees are implementing more client-oriented than provider-oriented strategies; efforts to help grantees implement provider-oriented strategies and reduce structural barriers to CRC screening may significantly increase screening rates. Studying how CRCCP grantees implement EBIs will offer insights for improving both the CRCCP and other programs that encourage use of EBIs.

## Acknowledgments

The authors thank the CRCCP grantees for their participation in the survey. This publication was supported by the CDC and the National Cancer Institute through the Cancer Prevention and Control Research Network, a network within the CDC's Prevention Research Centers Program (University of Washington, U48DP001911; University of California at Los Angeles, U48DP001934; Emory University, U48DP001909; University of North Carolina, U48DP000059; Washington University at St. Louis, U48DP001903; University of Colorado, U48DP001938; and University of Texas at Houston, U48DP001949).

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the CDC.

## References

1. Siegel R, Naishadham D, Jemal A. Cancer statistics, 2012. *CA Cancer J Clin.* 2012; 62(1):10–29. [PubMed: 22237781]
2. Selby JV, Friedman GD, Quesenberry CP Jr, Weiss NS. Effect of fecal occult blood testing on mortality from colorectal cancer. A case-control study. *Ann Intern Med.* 1993; 118(1):1–6. [PubMed: 8416152]
3. Selby JV, Friedman GD, Quesenberry CP Jr, Weiss NS. A case-control study of screening sigmoidoscopy and mortality from colorectal cancer. *N Engl J Med.* 1992; 326(10):653–657. [PubMed: 1736103]
4. Mandel JS, Church TR, Bond JH, et al. The effect of fecal occult-blood screening on the incidence of colorectal cancer. *N Engl J Med.* 2000; 343(22):1603–1607. [PubMed: 11096167]
5. Newcomb PA, Norfleet RG, Storer BE, Surawicz TS, Marcus PM. Screening sigmoidoscopy and colorectal cancer mortality. *J Natl Cancer Inst.* 1992; 84(20):1572–1575. [PubMed: 1404450]
6. Edwards BK, Ward E, Kohler BA, et al. Annual report to the nation on the status of cancer, 1975–2006, featuring colorectal cancer trends and impact of interventions (risk factors, screening, and treatment) to reduce future rates. *Cancer.* 2010; 116(3):544–573. [PubMed: 19998273]
7. Joseph DA, King JB, Miller JW, Richardson LC. Prevalence of colorectal cancer screening among adults—behavioral Risk Factor Surveillance System, U.S., 2010. *MMWR Morb Mortal Wkly Rep.* 2012; 61(S):51–56. [PubMed: 22695464]
8. Joseph DA, DeGroff AS, Hayes NS, Wong FL, Plescia M. The Colorectal Cancer Control Program: partnering to increase population level screening. *Gastrointest Endosc.* 2011; 73(3):429–434. [PubMed: 21353839]
9. Baron RC, Melillo S, Rimer BK, et al. Intervention to increase recommendation and delivery of screening for breast, cervical, and colorectal cancers by healthcare providers: a systematic review of provider reminders. *Am J Prev Med.* 2010; 38(1):110–117. [PubMed: 20117566]
10. Baron RC, Rimer BK, Breslow RA, et al. Client-directed interventions to increase community demand for breast, cervical, and colorectal cancer screening a systematic review. *Am J Prev Med.* 2008; 35(1S):S34–S55. [PubMed: 18541187]
11. Baron RC, Rimer BK, Coates RJ, et al. Client-directed interventions to increase community access to breast, cervical, and colorectal cancer screening a systematic review. *Am J Prev Med.* 2008; 35(1S):S56–S66. [PubMed: 18541188]
12. Sabatino SA, Habarta N, Baron RC, et al. Interventions to increase recommendation and delivery of screening for breast, cervical, and colorectal cancers by healthcare providers systematic reviews of provider assessment and feedback and provider incentives. *Am J Prev Med.* 2008; 35(1S):S67–S74. [PubMed: 18541190]
13. Sabatino SA, Lawrence B, Elder R, et al. Effectiveness of interventions to increase screening for breast, cervical, and colorectal cancers: nine updated systematic reviews for the guide to community preventive services. *Am J Prev Med.* 2012; 43(1):97–118. [PubMed: 22704754]
14. Harris JR, Brown PK, Coughlin S, et al. The cancer prevention and control research network. *Prev Chronic Dis.* 2005; 2(1):A21. [PubMed: 15670474]
15. Pfeiffer D. Introducing MIYO. 2012. [miyo.gwb.wustl.edu/MIYOFactSheet\\_Large30082011.pdf](http://miyo.gwb.wustl.edu/MIYOFactSheet_Large30082011.pdf).

16. Frieden TR. A framework for public health action: the health impact pyramid. *Am J Public Health.* 2010; 100(4):590–595. [PubMed: 20167880]

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

**Table 1**

*Community Guide* evidence-based interventions to increase colorectal cancer screening

<b>Intervention</b>	<b>Definition</b>
<b>Client-oriented interventions</b>	
Small media	Small media include videos and printed materials such as letters, brochures, and newsletters. These materials can be used to inform and motivate people to be screened for cancer. They can provide information tailored to specific individuals or targeted to general audiences.
Client reminders	Client reminders are written (letter, postcard, e-mail) or telephone messages (including automated messages) advising people that they are due for screening. Reminder messages may be tailored or untailored.
Reducing structural barriers	Structural barriers are noneconomic burdens or obstacles that make it difficult for people to access cancer screening. Interventions designed to reduce these barriers may facilitate access to cancer screening services by reducing time or distance between service delivery settings and target populations, modifying hours of service to meet client needs, offering services in alternative or nonclinical settings, or eliminating or simplifying administrative procedures and other obstacles.
<b>Provider-oriented interventions</b>	
Reminders and recall systems	Reminders inform healthcare providers it is time for a client's cancer screening test (reminder) or that the client is overdue for screening (recall). The reminders can be provided in different ways, such as client charts or by e-mail.
Assessment and feedback	Provider assessment and feedback interventions both evaluate provider performance in delivering or offering screening to clients (assessment) and present providers with information about their performance in providing screening services (feedback). Feedback may describe the performance of a group of providers or an individual provider, and may be compared with a goal or standard.

*Note.* Definitions are from [www.thecommunityguide.org/cancer/index.html](http://www.thecommunityguide.org/cancer/index.html). Recommended interventions are updated based on the latest evidence; the interventions measured in this survey include the five interventions recommended to increase colorectal cancer screening at the time the CRCCP grantees received funding.

CRCCP, Colorectal Cancer Control Program

CRCCP grantees' current and planned EBI implementation,  $n=28$ ,  $n$  (%) unless otherwise noted<sup>a</sup>

**Table 2**

	Client-oriented interventions			Provider-oriented interventions		
	Small media	Client reminders	Reducing structural barriers	Provider reminders	Provider assessment and feedback	
Currently uses EBI	27 (96)	21 (75)	14 (50)	9 (32)	14 (50)	
Does not use EBI, but plans to in next 12 months	1 (4)	4 (14)	9 (32)	12 (43)	5 (18)	
Does not use EBI, and does not plan to in next 12 months	0 (0)	2 (7)	4 (14)	6 (21)	8 (29)	
Ease of EBI implementation, M <sup>b</sup>	4.15	3.95	3.43	3.56	3.71	

<sup>a</sup> One grantee did not answer most EBI questions, as their study was funded later than other grantees and not yet at the implementation stage. All tribal grantees implemented two to five EBIs, whereas state grantees (excluding the one not at implementation) implemented a range of 1–5 EBIs; the small number of tribal grantees precluded a statistical comparison of state and tribal grantees, but they appeared to be similar overall in the number and type of EBIs they implemented.

<sup>b</sup> Ease of implementation was rated 1 (very difficult) to 5 (very easy); only grantees currently implementing a given EBI were asked to rate ease. CRCCP, Colorectal Cancer Control Program; EBI, evidence-based intervention



**Table 3**

Grantees' EBI implementation partnerships, *n*=28

Number of partner organizations	Small media, <i>n</i> =27	Client reminders, <i>n</i> =21	Reducing structural barriers, <i>n</i> =27	Provider reminders, <i>n</i> =9	Provider assessment and feedback, <i>n</i> =14
0	0	6	3	4	2
1	2	2	2	1	4
2-5	9	7	5	1	6
6-10	8	4	2	1	0
10	8	2	2	2	2
<b>Primary partner organization role</b>					
Partner organization leads activity	7	5	5	3	6
CRCCP organization leads activity	15	7	3	1	3
CRCCP and partner co-lead activity	5	3	3	1	3
<b>Partner's geographic reach</b>					
Community/neighborhood/city/local	1	0	0	0	1
Single county or tribe	3	1	2	1	1
Multiple counties or tribes	4	6	1	2	2
Statewide	18	8	6	2	7
Regional (covers other states)	1	0	2	0	1
<b>Primary partner organization type<sup>a</sup></b>					
Comprehensive Cancer Coalition	7	0	0	0	0
Federally qualified health center	1	2	2	2	2
Local health department	6	1	1	0	0
Private and/or nonprofit healthcare system	4	1	2	1	2
Other	9	11	5	1	5
<b>Ease of forming primary partnership<sup>b</sup></b>	4.33	3.80	3.91	4.20	4.00

<sup>a</sup>Other primary partner organization types included academic institutions (3); advocacy groups and community-based organizations (4); American Cancer Society (1); other CRCCP grantees (2); IHS clinics (1); Medicare QIO office (3); private health insurers (3); professional organizations (2); quality assurance organizations (1); state Medicaid office (4); and tribal councils (1).

<sup>b</sup>Ease of forming partnership was rated 1 (very difficult) to 5 (very easy); only grantees with partners were asked to rate ease of forming partnerships. CRCCP, Colorectal Cancer Control Program; EBI, evidence-based intervention; IHS, Indian Health Service; QIO, quality improvement organizations