

## The Colorectal Cancer Control Program: partnering to increase population level screening

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Colorectal cancer (CRC) is the second leading cause of cancer deaths in the United States, killing more nonsmokers than any other cancer.<sup>1</sup> In 2006, more than 139,000 people were diagnosed with CRC and more than 53,000 died of the disease.<sup>2</sup> Screening can effectively decrease CRC incidence and mortality in 2 ways: first, unlike most cancers, screening offers the opportunity to prevent cancer by removing premalignant polyps; second, screening can detect CRC early when treatment is more effective.<sup>3,4</sup> If CRC is diagnosed at early stages, the 5-year survival rate is more than 88%.<sup>5</sup> In a modeling study to assess deaths prevented through increased use of clinical preventive services, Farley et al<sup>6</sup> estimated that 1900 deaths could be prevented for every 10% increase in CRC screening with a colonoscopy.

The U.S. Preventive Services Task Force recommends CRC screening for average-risk individuals beginning at age 50 by using annual high-sensitivity fecal occult blood testing, sigmoidoscopy every 5 years, or colonoscopy every 10 years.<sup>7</sup> Data from the Centers for Disease Control and Prevention (CDC) suggest that only 62.9% of Americans aged 50 to 75 years are up to date with CRC screening, with more than 22 million adults estimated to be

untested.<sup>1,8</sup> Screening prevalence is lower for some segments of the population including Hispanics (49.8%), persons with lower income (47.6%), and those without health insurance (35.6%).<sup>1</sup> The use of colonoscopy has increased significantly over the past decade with declines observed for use of other screening methods (fecal occult blood testing, sigmoidoscopy).<sup>9,10</sup> A study of primary care physicians found that colonoscopy was the most frequently recommended screening test for CRC.<sup>11</sup>

Public health plays an important role in helping to improve CRC screening prevalence through support of traditional strategies such as public education and outreach to increase awareness of the need for screening. Public health can also advance increased screening by partnering with health service delivery systems to provide patient-level interventions (eg, patient education) and to support implementation of system-level strategies that improve the quality of CRC screening and surveillance, such as patient navigation and reminder systems.<sup>12</sup> This article addresses the importance of CRC screening as a public health strategy to decrease CRC incidence and mortality and describes the CDC's new Colorectal Cancer Control Program. In addition, we suggest ways in which providers can more effectively collaborate with public health stakeholders to increase the practice of high-quality CRC screening.

### PUBLIC HEALTH AND CRC SCREENING

The CDC was founded in 1946 and is a federal agency within the Department of Health and Human Services. As the nation's leading public health institution, CDC's mission is to collaborate to create the expertise, information, and tools that people and communities need to protect their health, through health promotion; prevention of disease, injury, and disability; and preparedness for new health threats. The CDC accomplishes its mission through surveillance, research, and policy development, among other activities. The National Center for Chronic Disease Prevention and Health Promotion, Division of Cancer Prevention and Control (DCPC), leads the CDC in public health efforts to address cancer, including CRC.

*Abbreviations:* CDC, Centers for Disease Control and Prevention; CRC, colorectal cancer; CRCCP, Colorectal Cancer Control Program; DCPC, Division of Cancer Prevention and Control; NCCRT, National Colorectal Cancer Roundtable.

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To promote effective strategies for preventing and controlling cancer, the DCPC works closely with other federal health agencies within the Department of Health and Human Services such as the National Institutes of Health (including the National Cancer Institute), Centers for Medicare and Medicaid Services, Health Resources and Services Administration, Agency for Healthcare Research and Quality, and Indian Health Services, among others. In addition, the DCPC collaborates with state, tribal, and territorial health agencies, providing funding and technical assistance to support critical programming. A landmark DCPC program, the National Breast and Cervical Cancer Early Detection Program, was authorized by Congress through the Breast and Cervical Cancer Mortality Prevention Act of 1990 and provides screening and diagnostic services to low-income, underinsured women in all 50 states, 12 tribes or tribal organizations, and 5 U.S. territories. Through the National Breast and Cervical Cancer Early Detection Program, the DCPC in partnership with many stakeholders has demonstrated great success working with provider networks, community partners, professional organizations, and others to increase awareness, provide access to quality screening and diagnostic services including ensuring that women with abnormal tests receive appropriate monitoring and follow-up, and ensure access to treatment by priority populations. Other key DCPC programs include the National Program of Cancer Registries, which funds 45 state-based registries to collect data on all diagnosed cancer cases, and the National Comprehensive Cancer Control Program, which funds states, tribes, and territories to form community-based coalitions that leverage resources to engage in a broad array of activities to reduce the burden of cancer.

The DCPC recognizes the significant public health impact of CRC and over the past decade has led epidemiologic studies to better understand its burden, participated in studies to model potential cost savings of screening, explored provider practices related to CRC screening, conducted a study of endoscopic capacity, and developed a national campaign to support CRC screening (Screen for Life).<sup>13-17</sup>

Much has been learned about CRC prevention and control through these and others' efforts, including a better understanding of factors that influence the use of CRC screening that exist at the patient, provider, and systems levels. Systematic evidence-based review efforts, such as the *Guide to Community Preventive Services*, have identified effective public health strategies that address many of these barriers and support increased CRC screening.<sup>18</sup> Currently, the *Community Guide* recommends small media, patient, and provider reminder systems, provider assessment and feedback, and the reduction of structural barriers as effective strategies for CRC control.<sup>18</sup> These strategies, several of which involve health care providers or health care delivery settings, reflect the importance of the interface between public health and primary health care. In a

resource-limited environment, collaboration among the public health and clinical communities is essential to increase CRC screening and reduce the CRC burden. Recently, DCPC funded a new public health program aimed at increasing CRC screening that prioritizes the public health and health care provider alliance in achieving its goal.

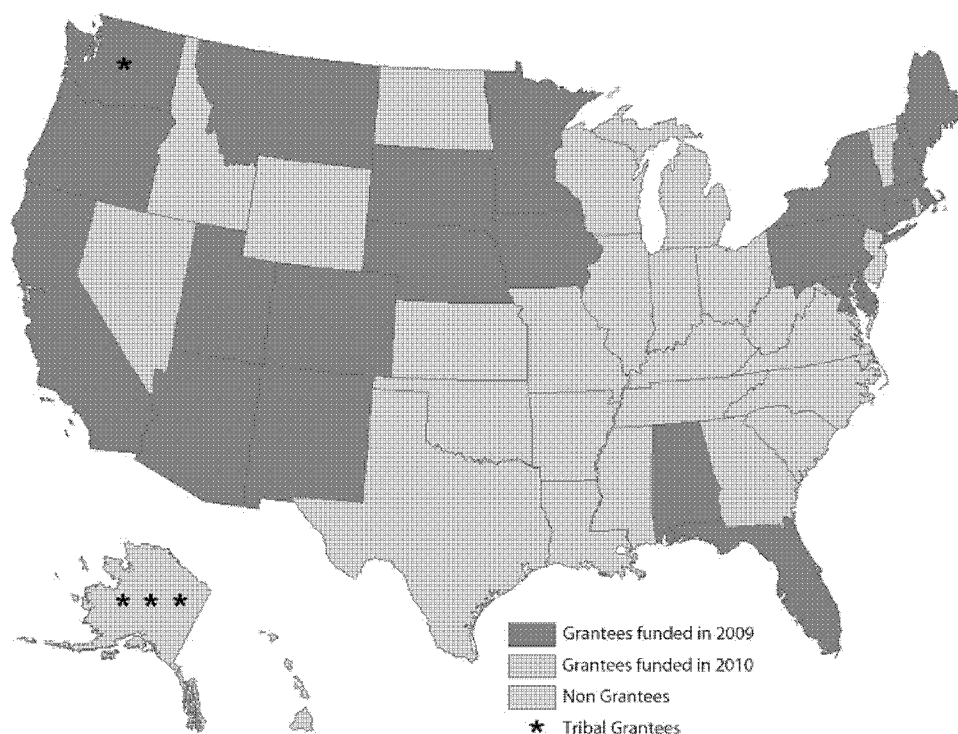
## THE COLORECTAL CANCER CONTROL PROGRAM

In July 2009, DCPC funded the Colorectal Cancer Control Program (CRCCP) for a 5-year period. Through a competitive application process, 22 states and 4 tribal organizations received CRCCP cooperative agreement awards totaling \$22.5 million. In July 2010, the CDC funded 3 additional states, bringing the total number of grantees to 29. Overall funding was increased to nearly \$27 million with a median award of \$900,005. Figure 1 highlights the CRCCP grantees.

The goal of the CRCCP is to increase CRC screening prevalence to 80% in funded states and tribal areas and, subsequently, to reduce CRC incidence and mortality. The CRCCP includes 2 program components: (1) screening provision, supporting clinical service delivery for low-income, underinsured persons and (2) screening promotion, involving activities to encourage broad, population-level screening.

For the CRC screening provision component, grantees may use a small portion of their award to fund clinical screening services. Grantees typically establish contracts with health care providers (eg, primary care providers, endoscopists) to deliver screening services to the priority population. The CDC established patient eligibility criteria for this component that include asymptomatic persons aged 50 years and older who are at average risk of CRC, have low incomes, and inadequate or no health insurance coverage for CRC screening. Grantees may support the use of any screening test approved by the U.S. Preventive Services Task Force.<sup>7</sup> This component of the CRCCP builds on the work of the Colorectal Cancer Screening Demonstration Project, which was funded from 2005 to 2009 and included 5 sites.<sup>19</sup> Additional program activities that support screening such as patient outreach and awareness, patient navigation, provider education, quality assurance, and data management are also funded under this component of the program.

As part of the second component, screening promotion, grantees implement evidence-based activities aimed at increasing population-level use of CRC screening. This component is a departure from the Colorectal Cancer Screening Demonstration Project, expanding on screening service delivery efforts. In particular, grantees are encouraged to implement the evidence-based strategies identified in *The Guide to Community Preventive Services*, such as patient and provider reminder systems, discussed ear-



**Figure 1.** Colorectal Cancer Control Program grantees, 2009-2010.



**Figure 2.** Colorectal Cancer Control Program social ecological model.

lier.<sup>18</sup> Consistent with the health impact pyramid, the CDC promotes the implementation of these strategies at organizational, community, and policy-levels where greater impact is expected than if implemented at the individual or interpersonal level.<sup>20</sup> At the same time, the importance of health education strategies at the individual and interpersonal level is also recognized.<sup>21</sup>

The CDC has adapted the social ecological model of health promotion to represent the CRCCP.<sup>22</sup> As reflected in Figure 2, the social ecological model is a systems model with multiple spheres of influence and the individual at the core. CRCCP grantees will implement activities at mul-

multiple levels to maximize synergies across the varied levels of intervention and promote program sustainability.

As an example, a grantee may work with advocacy organizations to affect state policy (eg, eliminate insurance copays for colonoscopy), collaborate with professional organizations in their state (eg, a state gastroenterological association) to advance quality standards for endoscopy, contract with a media consultant to implement a mass media campaign to promote CRC prevention, and fund patient navigators to help patients of federally qualified health centers access screening. The CDC is leading an evaluation of the CRCCP to assess program costs, imple-

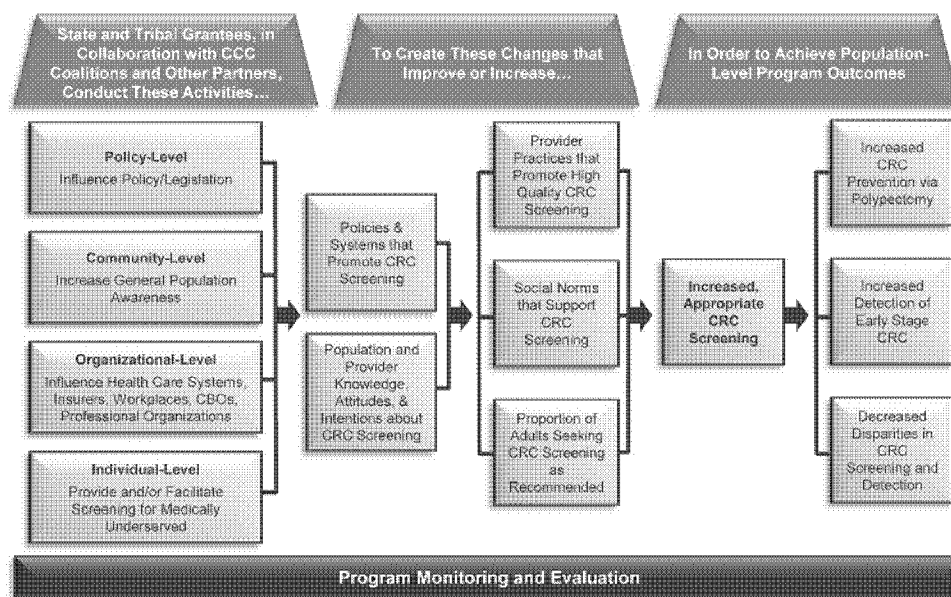


Figure 3. Colorectal Cancer Control Program simplified logic model.

mentation, and impact. As indicated in the CRCCP logic model (Fig. 3), outcomes are expected in both the short term (1-3 years) and intermediate (4-5 years) time frames.

### THE ROLE OF ENDOSCOPISTS IN PUBLIC HEALTH

The CDC recognizes that, for any screening program to be effective, whether stool-based or endoscopy-based, high-quality colonoscopy must be available.<sup>23</sup> Consequently, skilled endoscopists are integral to public health efforts and for the success of the CRCCP.

To promote high-quality endoscopy, the CDC has worked through the National Colorectal Cancer Roundtable (NCCRT) to support the advancement of quality standards. The NCCRT was formed by the CDC and the American Cancer Society in 1997 to bring together organizations interested in reducing CRC mortality and morbidity. Today, the NCCRT represents more than 50 U.S. organizations. The NCCRT's commitment to quality is warranted, given the variability in the quality of colonoscopy services that have been documented.<sup>24</sup>

In 2002, the U.S. Multi-Society Task Force on Colorectal Cancer published recommendations for standards for the performance of high-quality colonoscopy intended to support continuous quality improvement programs.<sup>24</sup> Recommended quality indicators include the identification of American Society of Anesthesiology class, cecal intubation rate, documentation of cecal intubation, withdrawal times, documentation of the quality of bowel preparation, adenoma detection rates, documentation of complications, and appropriate surveillance intervals, among others.<sup>24</sup> Inadequate bowel preparation has been associated with impaired detection of adenomas, and longer withdrawal

times have been associated with improved adenoma detection rates in some studies.<sup>25-28</sup> Recently, the adenoma detection rate has been shown to be a predictor of risk of interval cancer.<sup>29</sup> Levels of evidence supporting other quality indicators were further described by Rex et al.<sup>30</sup>

The NCCRT's Quality Assurance Task Group recognized the need for a standardized reporting system for endoscopy. Without a standardized system, it is difficult, if not impossible, to measure and improve quality across a variety of settings. Therefore, to advance the recommendations of the U.S. Multi-Society Task Force on Colorectal Cancer, the NCCRT, in 2007, developed a standardized colonoscopy reporting and data system with the goal of providing a tool to support quality improvement among endoscopists and to ensure that referring health care providers received an endoscopic report based on standard terms and recommendations for follow-up.<sup>23</sup> The NCCRT has also published guidance for referring clinicians regarding their responsibilities in ensuring that their patients receive quality endoscopy services.<sup>31,32</sup>

The CDC and the American Cancer Society also sponsor the International Colorectal Cancer Screening Network, which represents organized CRC screening initiatives from around the world.<sup>33</sup> The network supports quality assurance and program evaluation with the aim of maximizing the benefit and minimizing the risk associated with CRC screening. The International Colorectal Cancer Screening Network developed and piloted a minimum set of quality indicators designed to assess the short-term performance of a screening program and plans to develop a international quality assurance guideline for the delivery of CRC screening.<sup>33</sup>

Many organizations and individuals outside public health have made well-established efforts to improve the

quality of colonoscopy. The Clinical Outcomes Research Initiative consortium collects data from 73 gastroenterology practice sites in 24 states, representing private practice, academic, and Veterans Administration sites.<sup>34</sup> The centrally collected, standardized colonoscopy reports constitute a national sampling of colonoscopy reports, which serve as a surrogate for colonoscopy quality, that allow assessment of colonoscopy use and other analyses.<sup>23,34-36</sup> The Clinical Outcomes Research Initiative serves as a vital quality improvement tool, allowing participating providers to compare themselves with a broad array of practices and provides a snapshot of endoscopic practice across the nation. Other U.S. efforts to assess the quality and outcomes of endoscopic screening include the New Hampshire Colonoscopy Registry, which collects not only endoscopic report information, but also detailed information on patient demographics, pathology, and outcomes.<sup>37,38</sup>

Various national and international organizations have issued guidelines for determining competence, credentialing, and privileging in GI endoscopy, but a single, agreed-on, uniform standard does not exist for ensuring the competence of endoscopists and the quality of the services that they provide.<sup>39-41</sup> In the United Kingdom, the Joint Advisory Group on Gastrointestinal Endoscopy is in the process of accrediting all endoscopy units based on the Global Rating Scale, which assesses the quality of endoscopy services across several domains, including clinical quality and quality of the patient experience.<sup>42,43</sup> The CDC engaged in a similar process with mammography by supporting the American College of Radiology in developing a comprehensive mammography accreditation program that addressed concerns about variability in the quality of mammography services.<sup>44</sup> The accreditation program, which serves as the basis for the Mammography Quality Standards Act, has proven to be successful at improving the quality of mammography services throughout the United States.<sup>44</sup>

Today, participation in efforts to improve the quality of CRC testing is voluntary; consequently, those enthusiastic about quality improvement are likely advocates, whereas others with little or no interest may not be affected. The principal limitation of voluntary standards is the absence of consequence and disincentive for those who fail to meet quality standards.

Organizations such as the American Society for Gastrointestinal Endoscopists, the American College of Gastroenterology, the American Gastroenterological Association, the Society of American Gastrointestinal and Endoscopic Surgeons, and others currently support quality improvement of endoscopic services through issuing guidelines on quality improvement and quality assurance topics, supporting a program to certify high-quality endoscopy units, and supporting national GI endoscopy data repositories to support benchmarking and quality improvement efforts.<sup>45-47</sup> Collaboration among public health, professional organizations, and other organizations will further

develop and strengthen these efforts by continuing to develop and support unified surveillance systems that collect national, population-based data for recommended quality indicators for colonoscopy; provide feedback and the opportunity for quality improvement to endoscopists; provide connections between colonoscopy, pathology, and outcomes data; and support mechanisms to assist endoscopists in monitoring and improving performance. Additional data systems are also needed to support quality improvement of CRC screening with other methods, such as stool-based tests and sigmoidoscopy.

## CONCLUSION

The CRCCP represents an opportunity for the CDC, state health departments, health systems, insurers, professional organizations, individual clinicians, and others to collaborate to develop, implement, and evaluate strategies to increase CRC screening in the population; develop systems to identify eligible patients who have not been screened; track patient and clinician adherence to screening, diagnostic, and surveillance recommendations and monitor and support quality improvement efforts; and educate providers and the public about the importance of high-quality CRC screening. The anticipated availability of preventive services, such as CRC screening, to those who have not had access to these services in the past reinforces the critical importance of finding effective strategies to accomplish these goals.

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