

Background

Colorectal cancer is common, being the fourth most commonly diagnosed cancer in the United States, after lung, prostate, and breast cancers.¹ Approximately 4.2% of people are diagnosed at some point in their lifetime.¹ However, colon cancer is the second leading cause of cancer death in the United States, following lung cancer, showing the need for better interventions to increase screening.¹ Colon cancer is much more common in older adults with the rate of diagnosis being 237 per 100,000 people for those 85 years and older while the rate is less than 1 per 100,000 in those 10-14 years.²

Survival rates vary based on the stage of cancer at diagnosis, but also by race with black Americans having a 9-10% net lower survival at five years than white Americans.³ Part of this disparity is due to cancer being diagnosed at a later stage for black Americans. Of all people diagnosed with colon cancer, approximately 64.6% survive for five years post diagnosis, increasing to 89.7% if cancer is localized at diagnoses and decreasing to 13.8% if cancer is distant and more widespread.³

Colorectal cancer screening decreases both the incidence of and mortality from colorectal cancer due to finding cancer in earlier stages where cancer is not widespread and through finding and removing precancerous lesions through direct visualization tests.⁴ Nationally, the age-adjusted rate of newly diagnosed colon cancers has decreased from 56% in 2000 to 37% in 2016.^{2,5} Currently, the United States Preventive Services Task Force strongly recommends to start screening for colorectal cancer at age 50 and continuing to age 75, with some risk factors such as a family history indicating earlier screening.⁶ For those 75 to 85 years, the USPSTF recommends screening to be a personal decision, taking into account a person's overall health and history of prior screening.⁵ Further, colorectal cancer screening is cost effective, lowering overall health care cost relative to no screening.⁷

Healthy People 2020, the Federal initiative to set goals to improve the health of all Americans in specific topic areas, aims to increase appropriate colorectal cancer screening to 70.5%, from the current rate of 52% nationally.⁸ Nationally, the Medicare colorectal cancer screening rate is 73%. In Washington State, of adults aged 50 to 75 years, only 63% with commercial insurance and 43% Medicaid recipients received screening, with significant variation county by county.⁹

The risks and benefits of various screening modalities and the interval between taking the tests varies. Tests are either stool-based or are direct visualization tests that are more invasive. Stool-based tests include: annual guaiac-based fecal occult blood test (gFOBT), annual fecal immunochemical testing (FIT) every year, FIT-DNA every one or three years.⁵ Direct visualization tests (i.e., colonoscopy every ten years, CT colonography every five years, flexible sigmoidoscopy every five years, flexible sigmoidoscopy every ten years plus annual FIT).⁵

The workgroup met from January to X 2020 to develop recommendations to increase the rate of appropriate colorectal cancer screening.

Recommendation Framework

The workgroup’s goal is to increase appropriate colorectal cancer screening in Washington State in order to decrease incidence of and mortality from colorectal cancer. Focus areas include:

Focus Area	Action Steps
<p>Increasing appropriate colorectal cancer screening</p>	<p>Track need for cancer screening including colon cancer screening of people attributed to your practice using a registry. who have had a positive FIT test and need a colonoscopy, intervals?</p> <p>Require measurement of colorectal cancer screening rate for all populations including Medicaid.</p> <p>Tie provider payments to showing improvement in colorectal cancer screening rates in state health care purchasing contracts</p> <p>Offer shared decision making around type of screening, if appropriate.</p> <p>Eliminate patient financial obligations for colonoscopies that are part of preventive care including if become diagnostic when a polyp is removed</p> <p>Develop a cost calculation worksheet to show a return on investment for colorectal cancer screening</p>
<p>Increasing follow-up after a positive stool test</p>	<p>Outreach from registry – dedicated staff to follow-up on positive FIT from registry, nurse/medical assistant,</p> <p>Eliminate patient financial obligations for colonoscopies after a positive FIT</p>
<p>Addressing disparities in colorectal cancer screening rates</p>	<p>Allow patients who are income-eligible to have the same access to free screening and treatment as those with breast and cervical cancer</p> <p>Conduct targeted outreach to populations with lower colorectal cancer screening rates including Black Americans.</p>
<p>Anesthesia use during colonoscopy</p>	<p>Offer shared decision making around type of anesthesia during a colonoscopy including the option of no anesthesia.</p>

Stakeholder Recommendations

Patients and Family Members

- Understand your personal family history and risk of colorectal cancer. You can find information from the American Cancer society [here](#) and if high risk, consider screening earlier than age 50.
- Understand the signs and symptoms of colorectal cancer and talk to your doctor or care team if you have concerns.
- If you are 50 to 75, you should be screened for colorectal cancer.
- If you are 75 to 85, think about your broad health and wellness-related goals (e.g., being able to attend an upcoming family wedding), your personal preferences, and whether you have been screened previously
 - Give your provider(s) information about your values and preferences and discuss options, tradeoffs, and implications of a decision together.
 - Ask about whether a patient decision aid is available.

Health Care Delivery Organizations and Systems

- Develop a mechanism to identify people on providers' panels who are appropriate for colorectal cancer screening at appropriate intervals for the modality selected by the person.
- Electronically notify providers during a visit with patients aged 50-75 or who are otherwise appropriate of the need for colorectal cancer screening.
- Educate providers on the signs and symptoms that would warrant a colonoscopy.
- Train providers on how to have a conversation about selecting the modality of colorectal cancer screening using shared decision making for patients aged 50-75 or who are otherwise appropriate.
- Implement mailed FIT programs among average risk individuals not current for colorectal cancer screening
- Patient messaging

Providers

- Understand patient risk factors for colorectal cancer including symptoms, family history, and genetic factors
- Participate in skills training around shared decision making. This is a learned skill set that is supported by patient decision aids.

Health Plans

- Do not require out-of-pocket costs for colonoscopies that convert from screening to diagnostic following a positive fecal test

- Do not require out-of-pocket costs for colonoscopies that begin as screening and convert to diagnostic due to the identification and removal of a polyp.
- Track and report colorectal cancer screening for eligible adults (NQF #0034).
- Track and report follow-up colonoscopy rates after a positive fecal test result.
- Track and report follow-up colonoscopy rates for high risk adenomas

Employers

- Incorporate metrics around colorectal cancer screening in value-based contracting (e.g., Centers of Excellence, Accountable Care Organizations).

Washington State Health Care Authority

- Require Medicaid Managed Care Plans to report on percentage of eligible adults screened for colorectal cancer NQF #0034
- Certify patient decision aids for colorectal cancer screening for those who are 75 to 85 years old.
- *Increase funding to provide colorectal cancer screenings to the uninsured*
- *Allow patients who are income-eligible to have the same access to free screening and treatment as those with breast and cervical cancer.*

Washington State Department of Health

- Develop a registry for breast, cervical, and colorectal cancer including tracking modality of screening and intervals of screenings.
- Use data from the registry to compare the rate of colorectal cancer screening, stage at diagnosis, and mortality compared across health plans and delivery systems.

Increasing Colorectal Cancer Screening

Death from colorectal cancer occurs when screening does not occur, when screening does not occur at the appropriate interval(s), when screening is inaccurate or fails, when surveillance following the identification of an adenoma fails, or when follow-up from a positive screen does not occur.¹⁰ A failure at any one of these points significantly increases the likelihood of death from colorectal cancer when compared to those who experience adherence to clinical best practice.⁹ Of these modifiable failure points in the screening pathway, interventions to increase the initial colorectal cancer screening have been the most well-studied and are most numerous.⁴ The most effective interventions are direct mailing of fecal testing to a person's home, as well as patient navigation alone and especially when coupled with mailed fecal testing.^{4,11} Direct mailing of fecal tests to age eligible individuals overdue for colorectal cancer screening increased the percent current for colorectal cancer screening to 51% compared to 26% over usual care, adding navigation to the mailed fecal testing program increased screening uptake to 65%.¹² The state of Delaware established a cancer treatment program in 2004 that emphasized colonoscopy and provided a nurse navigator and care coordinator at all five acute care hospital sites and physician communities that increased colorectal cancer screening rates from 57% to 74% overall.¹³ The program cost \$1 million annually but saved \$6 million annually in downstream costs.¹³

Among Medicaid recipients, mailed fecal testing from the health plan has been shown to be effective in increasing screening rates, especially if the recipient received a follow-up telephone call.^{14,15} The most effective reported intervention is within the Kaiser Northern California system using mailed fecal testing kits and resulting in screening rates of 83% and a decrease in colorectal cancer mortality of 50%.¹⁶ Coupling fecal testing with annual flu shots has been moderately effective, but patient education alone and provider education alone have not been shown to be effective at increasing screening rates.⁴

Barriers to these interventions include capacity within health care delivery systems for initiatives, higher cost for initiatives that need dedicated resources, lack of time in the clinical visit, and assuring follow-up for positive tests.⁴ Further, stigma around the colorectal system and fecal matter, the difficulties in preparing for a colonoscopy, and issues with copays being present if a colonoscopy is indicated after a positive fecal test serve as significant barriers.¹⁷ Many researchers and organizations promote the idea that the best test is the one that gets done, acknowledging a patient preference for the annual fecal test over the more invasive colonoscopy.¹¹

Follow-Up After Positive Fecal Test

Following up after an abnormal fecal test with a diagnostic colonoscopy, increasing long-term adherence to screening at recommended intervals, and knowledge about which interventions work best for which types of population are less well studied than the initial screening.⁴

At a healthcare delivery level among a safety net system, having a registry at the site to track abnormal FIT results and colonoscopy completion, having at least two staff members tasked with communicating abnormal FIT results to the patient, and having those staff members include a nurse and medical assistant were associated with higher rates of follow-up after a positive FIT.¹⁸

Addressing Disparities

For those who are underserved, as indicated through lower colorectal cancer screening rates and higher mortality for black Americans as well as other groups, targeted efforts are needed to reduce disparity in screening.¹⁹ In the state of Delaware, targeted efforts to reduce colorectal cancer screening between white and black residents resulted in an increase from 48% to 74% among black residents, mirroring the overall population screening rate post-intervention of 74%.¹³

Anesthesia During Colonoscopy

Anesthesia during a colonoscopy is meant to help manage discomfort. Sedation options range from none to general anesthesia, which are both rare, and includes light in which the patient can feel pain, moderate in which the patient is conscious, and deep in which the patient falls asleep and wakes up rapidly. Risks and cost increase with level of sedation. Approximately 34.4% of colonoscopies nationally use anesthesia services (ranging from 53% to 8% in the Western region) but was increased with an increased risk of complications within 30 days of the procedure and with increased risk of perforation, hemorrhage, abdominal pain, and stroke.²⁰ Moderate sedation is the most common, practice patterns show midazolam to be the most commonly used sedative and fentanyl the most commonly analgesic (moderate) with propofol, that results in a lack of memory and is considered deep sedation, showing an increase in use.²¹ Some studies have shown that patients prefer deep sedation.²²

Recommendations from a multidisciplinary group prioritizing patient safety around sedation were that all endoscopists be able to perform colonoscopy with moderate sedation, that an endoscopist and a single trained nurse are sufficient for performing colonoscopy with moderate sedation, and that anesthesia- provided deep sedation be used for select patients.²³

Measurement

Options for tracking colorectal cancer screening are below including those aligning with value-based reimbursement models from the Bree Collaborative and Federal programs:

- **Colorectal Cancer Screening**

NQF #0034

DESCRIPTION: Percentage of patients 50-75 years of age who had appropriate screening for colorectal cancer

INSTRUCTIONS: This measure is to be submitted a minimum of once per performance period for patients seen during the performance period. There is no diagnosis associated with this measure. Performance for this measure is not limited to the performance period. This measure may be submitted by Merit-based Incentive Payment System (MIPS) eligible clinicians who perform the quality actions described in the measure based on services provided and the measure specific denominator coding.

- Follow-up colonoscopy after a positive fecal test

Appendix C: Guideline and Systematic Review Search Results

Year	Title	Summary or Findings
<p>AHRQ: Research Findings and Reports</p>	<p>2019 Achieving Health Equity in Preventive Services</p>	<p>No eligible studies evaluated effects of provider-specific barriers; 18 studies of population barriers provided low or insufficient evidence regarding insurance coverage, access, age, rural location, low income, language, low health literacy, country of origin, and attitudes. In 12 studies of clinician interventions, screening was higher for colorectal cancer with patient navigation, risk assessment and counseling, educational materials, and decision aids; breast and cervical cancer with reminders involving lay health workers; and cervical cancer with outreach and health education. Clinician-delivered interventions were effective for smoking cessation and weight loss. In 11 studies of health information technologies, automated reminders and electronic decision aids increased colorectal cancer screening, and web- or telephone-based self-monitoring improved weight loss, but other technologies were not effective. In 88 studies of health system interventions, evidence was strongest for patient navigation to increase screening for colorectal (risk ratio [RR] 1.64; 95% confidence interval [CI] 1.42 to 1.92; 22 trials), breast (RR 1.50; 95% CI 1.22 to 1.91; 10 trials), and cervical cancer (RR 1.11; 95% CI 1.05 to 1.19). Screening was also higher for colorectal cancer with telephone calls, prompts, other outreach methods, screening checklists, provider training, and community engagement; breast cancer with lay health workers, patient education, screening checklists, and community engagement; cervical cancer with telephone calls, prompts, and community engagement; and lung cancer with patient navigation. Trials of smoking cessation and obesity education and counseling had mixed results. In populations adversely affected by disparities, evidence is strongest for patient navigation to increase colorectal, breast, and cervical cancer screening; telephone calls and prompts to increase colorectal cancer screening; and reminders including lay health workers encouraging breast cancer screening. Evidence is low or insufficient to determine effects of barriers or effectiveness of other interventions because of lack of studies and methodological limitations of existing studies.</p>
	<p>2016 Improving Cultural Competence to Reduce Health Disparities</p>	<p>None of the included studies measured the effect of cultural competence interventions on health care disparities. Most of the training interventions measured changes in professional attitudes toward the population of interest but did not measure the downstream effect of changing provider beliefs on the care delivered to patients. Interventions that altered existing protocols, empowered patients to interact with the formal health care system or prompted provider behavior at the point of care were more likely to measure patient-centered outcomes. The medium or high risk of bias of the included studies, the heterogeneity of populations, and the lack of measurement consensus prohibited pooling estimates or commenting about efficacy in a meaningful or responsible way. The term "cultural competence" is not well defined for the LGBT and disability populations and is often conflated with patient-centered or individualized care. There are many gaps in the literature; many large subpopulations are not represented.</p>

Cochrane Collection	2012 Fecal DNA Testing in Screening for Colorectal Cancer in Average Risk Adults	Fecal DNA tests have insufficient evidence about its diagnostic accuracy to screen for colorectal cancer in asymptomatic, average-risk patients. There is also insufficient evidence for the harms, analytic validity, and acceptability of testing in comparison to other screening modalities. Existing evidence has little or no applicability to currently available fecal DNA testing.
	2012 Narrow band imaging versus conventional white light colonoscopy for the detection of colorectal polyps	We could not find convincing evidence that NBI is significantly better than high definition WLC for the detection of patients with colorectal polyps, or colorectal adenomas. We found evidence that NBI might be better than standard definition WLC and equal to high definition WLC for detection the patients with colorectal polyps, or colorectal adenomas.
	2016 Interventions to encourage uptake of cancer screening for people with severe mental illness	A comprehensive search showed that currently there is no RCT evidence for any method of encouraging cancer screening uptake in people with SMI. No specific approach can therefore be recommended. High-quality, large-scale RCTs are needed urgently to help address the disparity between people with SMI and others in cancer screening uptake.
	2019 Follow-up strategies for patients treated for non-metastatic colorectal	The results of our review suggest that there is no overall survival benefit for intensifying the follow-up of patients after curative surgery for colorectal cancer. Although more participants were treated with salvage surgery with curative intent in the intensive follow-up groups, this was not associated with improved survival. Harms related to intensive follow-up and salvage therapy were not well reported.

[cancer](#)

2013	Personalised risk communication for informed decision making about taking screening tests	There is strong evidence from three trials that personalised risk estimates incorporated within communication interventions for screening programmes enhance informed choices. However the evidence for increasing the uptake of such screening tests with similar interventions is weak, and it is not clear if this increase is associated with informed choices. Studies included a diverse range of screening programmes. Therefore, data from this review do not allow us to draw conclusions about the best interventions to deliver personalised risk communication for enhancing informed decisions. The results are dominated by findings from the topic area of mammography and colorectal cancer. Caution is therefore required in generalising from these results, and particularly for clinical topics other than mammography and colorectal cancer screening.
2017	Strategies for detecting colon cancer in patients with inflammatory bowel disease	The current data suggest that colonoscopic surveillance in IBD may reduce the development of both CRC and the rate of CRC-associated death through early detection, although the quality of the evidence is very low. The detection of earlier stage CRC in the surveillance group may explain some of the survival benefit observed. RCTs assessing the efficacy of endoscopic surveillance in people with IBD are unlikely to be undertaken due to ethical considerations.
2017	Decision aids for people facing health treatment or screening decisions	Compared to usual care across a wide variety of decision contexts, people exposed to decision aids feel more knowledgeable, better informed, and clearer about their values, and they probably have a more active role in decision making and more accurate risk perceptions. There is growing evidence that decision aids may improve values-congruent choices. There are no adverse effects on health outcomes or satisfaction. New for this updated is evidence indicating improved knowledge and accurate risk perceptions when decision aids are used either within or in preparation for the consultation. Further research is needed on the effects on adherence with the chosen option, cost-effectiveness, and use with lower literacy populations.
2013	Flexible sigmoidoscopy versus faecal occult blood testing for colorectal cancer screening in asymptomatic	There is high quality evidence that both flexible sigmoidoscopy and faecal occult blood testing reduce colorectal cancer mortality when applied as screening tools. There is low quality indirect evidence that screening with either approach reduces colorectal cancer deaths more than the other. Major complications associated with screening require validation from studies with more complete reporting of harms.

[individuals](#)

Veterans Administration Evidence-based Synthesis Program

2014 The Effects of Shared Decision Making on Cancer Screening
The ideal SDM intervention would enhance Decision Quality (i.e., increase knowledge and values clarity) and Impact (i.e., increase satisfaction, reduce decision conflict, and have minimal impact on service utilization). The desired impact on Decision Action depends on the screening decision. For decisions about how to screen (such as colorectal cancer screening), the ideal SDM intervention would exert the desired effects on Decision Quality and Impact without reducing measures of Decision Action such as screening intention and behavior. For decisions about whether to screen (such as breast, cervical, and prostate cancer in some age groups and risk categories), the goal is to facilitate personalized decision making based on values and preferences. Hence, there are no desired effects on Decision Action per se in this context.

2013 Patients with Positive Screening Fecal Occult Blood Tests: Evidence Brief on the Delay Between Time to Colonoscopy and Colorectal Cancer Outcomes
No direct evidence supports the current VHA policy that requires follow-up colonoscopy to be done within 60 days of a positive screening FOBT. There is very low-strength evidence that longer post-referral delays do not worsen survival or CRC stage in patients with various signs and symptoms. One potential explanation for the nonsignificant results is the potential confounding effects of various symptomatic presentations; such that clinicians may prioritize colonoscopy in those with cancer-specific symptoms, thus obscuring a natural association between increased delays and more advanced cancers.

Health Technology Assessment Program

2008 Virtual colonoscopy or computed tomographic colonography (CTC)
Computed Tomographic Colonography (CTC) for routine colorectal cancer screening is not a covered benefit. This decision does not apply to use of CTC for other diagnostic purposes.

Centers for Disease Control and Prevention

Colorectal (Colon) Cancer
<https://www.cdc.gov/cancer/colorectal/index.htm>

2008	Computed tomography (CT) colonography	Given the possible benefits of introducing a widely available minimally-invasive option for colorectal cancer screening, there is considerable interest in CTC.
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