

## Background

Colorectal cancer is common, being the fourth most commonly diagnosed cancer in the United States, after lung, prostate, and breast cancers.<sup>1</sup> Approximately 4.2% of people are diagnosed at some point in their lifetime.<sup>1</sup> However, colon cancer is the second leading cause of cancer death in the United States, following lung cancer, showing the need for interventions around screening.<sup>1</sup> Colon cancer is much more common in older adults than those who are younger 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.<sup>2</sup>

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.<sup>3</sup> 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.<sup>3</sup>

Colorectal cancer screening decreases both the incidence of and mortality from colorectal cancer due to finding cancer in earlier stages where cancer is not as widespread and through finding and removing precancerous lesions through direct visualization tests.<sup>4</sup> Nationally, the age-adjusted rate of newly diagnosed colon cancers has decreased from 56% in 2000 to 37% in 2016.<sup>2,5</sup> 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.<sup>6</sup> 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.<sup>5</sup>

The risks and benefits of various screening modalities vary and are either stool-based tests (i.e., annual guaiac-based fecal occult blood test (gFOBT), annual fecal immunochemical testing (FIT), FIT-DNA every one or three years, or are 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).<sup>5</sup>

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.<sup>7</sup> 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.<sup>8</sup>

## Interventions

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.<sup>9</sup> A failure at any one of these points significantly increases the likelihood of death from colorectal cancer when

compared to those experiencing adherence to clinical best practice.<sup>9</sup> Of these modifiable failure points in the screening pathway, interventions to increase colorectal cancer screening have been well-studied and are most numerous.<sup>4</sup> 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.<sup>4,10</sup> Point of care reminders for clinicians embedded within an electronic health record resulted in an increase in being current on colorectal cancer screening from 26% to 51%, increasing to 65% when nurse navigation is added.<sup>11</sup> 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 telephone call.<sup>12,13</sup> 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%.<sup>14</sup> 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.<sup>4</sup> 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.<sup>4</sup>

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 lack of accountability for owning the testing process.<sup>4</sup> 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.<sup>15</sup>

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.<sup>16</sup> 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.<sup>11</sup>

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

- Mechanisms to increase appropriate use of colorectal cancer screening including follow-up after a positive stool test
- Reviewing existing guidelines by age and other relevant factors to begin and end screening, including risk factors that indicate earlier screening or need for further diagnostic test
- Appropriate colorectal cancer screening modalities
- Informed decision making around anesthesia during screening, including no anesthesia
- Addressing disparities in colorectal cancer screening rates (e.g., geographic, by race, by payer)

## 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](#).
- 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*

- Fecal testing mailing process ?
- Provider notifications for patients who are 50-75
- Provider education
- Patient messaging

### *Providers*

- 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 or 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 CRC test result.

### *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 to report on percentage of eligible adults screened for colorectal cancer.
- Certify patient decision aids for colorectal cancer screening for those who are 75 to 85 years old.

- *From Alliance - increase funding to provide colorectal cancer screenings to the uninsured; and*
- *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***

- Registry?
- Mechanism to compare rate of colorectal cancer screening, stage at diagnosis, and mortality compared across health plans – delivery systems?

## 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
AHRQ: Research Findings and Reports	2019	<a href="#">Achieving Health Equity in Preventive Services</a>	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.
	2016	<a href="#">Improving Cultural Competence to Reduce Health Disparities</a>	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.

	2012 <a href="#">Fecal DNA Testing in Screening for Colorectal Cancer in Average Risk Adults</a>	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.
Cochrane Collection	2012 <a href="#">Narrow band imaging versus conventional white light colonoscopy for the detection of colorectal polyps</a>	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 <a href="#">Interventions to encourage uptake of cancer screening for people with severe mental illness</a>	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 <a href="#">Follow-up strategies for patients treated for non-metastatic</a>	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.

[colorectal cancer](#)

2013	<a href="#">Personalised risk communication for informed decision making about taking screening tests</a>	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	<a href="#">Strategies for detecting colon cancer in patients with inflammatory bowel disease</a>	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	<a href="#">Decision aids for people facing health treatment or screening decisions</a>	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	<a href="#">Flexible sigmoidoscopy versus faecal occult blood testing for colorectal cancer screening in</a>	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.

[asymptomatic 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.

## References

- <sup>1</sup> National Cancer Institute Surveillance, Epidemiology, and End Results Program. Cancer Stat Facts: Colorectal Cancer. Available: <https://seer.cancer.gov/statfacts/html/colorect.html>.
- <sup>2</sup> <https://gis.cdc.gov/Cancer/USCS/DataViz.html>
- <sup>3</sup> White A, Joseph D, Rim SH, Johnson CJ, Coleman MP, Allemani C. Colon cancer survival in the United States by race and stage (2001-2009): Findings from the CONCORD-2 study. *Cancer*. 2017;123 Suppl 24(Suppl 24):5014–5036. doi:10.1002/cncr.31076
- <sup>4</sup> Green BB. Colorectal Cancer Control: Where Have We Been and Where Should We Go Next?. *JAMA Intern Med*. 2018;178(12):1658–1660. doi:10.1001/jamainternmed.2018.4627
- <sup>5</sup> Centers for Disease Control and Prevention. Colorectal (Colon) Cancer. Available: [www.cdc.gov/cancer/colorectal/basic\\_info/screening/index.htm](http://www.cdc.gov/cancer/colorectal/basic_info/screening/index.htm)
- <sup>6</sup> US Preventive Services Task Force, Bibbins-Domingo K, Grossman DC, et al. Screening for Colorectal Cancer: US Preventive Services Task Force Recommendation Statement [published correction appears in *JAMA*. 2016 Aug 2;316(5):545] [published correction appears in *JAMA*. 2017 Jun 6;317(21):2239]. *JAMA*. 2016;315(23):2564–2575. doi:10.1001/jama.2016.5989
- <sup>7</sup> <https://www.healthypeople.gov/2020/topics-objectives/topic/cancer/objectives>
- <sup>8</sup> Washington Health Alliance. “As new report shows colorectal cancer rates rising, Washington lags in appropriate screening.” August 9, 2017. Available: <https://wahealthalliance.org/as-new-report-shows-colorectal-cancer-rates-rising-washington-lags-in-appropriate-screening/>
- <sup>9</sup> Doubeni CA, Fedewa SA, Levin TR, et al. Modifiable Failures in the Colorectal Cancer Screening Process and Their Association With Risk of Death. *Gastroenterology*. 2019;156(1):63–74.e6. doi:10.1053/j.gastro.2018.09.040
- <sup>10</sup> Dougherty MK, Brenner AT, Crockett SD, et al. Evaluation of Interventions Intended to Increase Colorectal Cancer Screening Rates in the United States: A Systematic Review and Meta-analysis. *JAMA Intern Med*. 2018;178(12):1645–1658. doi:10.1001/jamainternmed.2018.4637
- <sup>11</sup> Green BB, Wang CY, Anderson ML, et al. An automated intervention with stepped increases in support to increase uptake of colorectal cancer screening: a randomized trial. *Ann Intern Med*. 2013;158(5 Pt 1):301-311.
- <sup>12</sup> Coronado GD, Green BB, West II, et al. Direct-to-member mailed colorectal cancer screening outreach for Medicaid and Medicare enrollees: Implementation and effectiveness outcomes from the BENEFIT study. *Cancer*. 2020;126(3):540-548. doi:10.1002/cncr.32567
- <sup>13</sup> Brenner AT, Rhode J, Yang JY, et al. Comparative effectiveness of mailed reminders with and without fecal immunochemical tests for Medicaid beneficiaries at a large county health department: A randomized controlled trial. *Cancer*. 2018;124(16):3346-3354.
- <sup>14</sup> Levin TR, Corley DA, Jensen CD, et al. Effects of Organized Colorectal Cancer Screening on Cancer Incidence and Mortality in a Large Community-Based Population. *Gastroenterology*. 2018;155(5):1383-1391.e5.
- <sup>15</sup> Washington Health Alliance. Community Checkup : Improving Health Care in Washington State. April 2020. Accessed: May 2020. Available: <https://wacommunitycheckup.org/reports/2019-community-checkup-report/#Endnotes>.
- <sup>16</sup> Gupta S, Sussman DA, Doubeni CA, et al. Challenges and possible solutions to colorectal cancer screening for the underserved. *J Natl Cancer Inst*. 2014;106(4):dju032. doi:10.1093/jnci/dju032