

# Colorectal Cancer Screening: Recommendations for Physicians and Patients from the U.S. Multi-Society Task Force on Colorectal Cancer

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## **Abstract**

This document updates the colorectal cancer (CRC) screening recommendations of the U.S. Multi-Society Task Force of Colorectal Cancer (MSTF), which represents the American College of Gastroenterology, the American Gastroenterological Association, and The American Society for Gastrointestinal Endoscopy. CRC screening tests are ranked in 3 tiers based on performance features, costs, and practical considerations. The first-tier tests are colonoscopy every 10 years and annual fecal immunochemical test (FIT). Colonoscopy and FIT are recommended as the cornerstones of screening regardless of how screening is offered. Thus, in a sequential approach based on colonoscopy offered first, FIT should be offered to patients who decline colonoscopy. Colonoscopy and FIT are recommended as tests of choice when multiple options are presented as alternatives. A risk-stratified approach is also appropriate, with FIT screening in populations with an estimated low prevalence of advanced neoplasia and colonoscopy screening in high prevalence populations.

The second-tier tests include CT colonography every 5 years, the FIT-fecal DNA test every 3 years, and flexible sigmoidoscopy every 5 to 10 years. These tests are appropriate screening tests, but each has disadvantages relative to the tier 1 tests. Because of limited evidence and current obstacles to use, capsule colonoscopy every 5 years is a third-tier test. We suggest that the Septin9 serum assay (Epigenomics, Seattle, Wash) not be used for screening.

Screening should begin at age 50 years in average-risk persons, except in African Americans in whom limited evidence supports screening at 45 years. CRC incidence is rising in persons under age 50, and thorough diagnostic evaluation of young persons with suspected colorectal bleeding is recommended. Discontinuation of screening should be considered when persons up to date with screening, who have prior negative screening (particularly colonoscopy), reach age 75 or have <10 years of life expectancy. Persons without prior screening should be considered for screening up to age 85, depending on age and comorbidities.

Persons with a family history of CRC or a documented advanced adenoma in a first-degree relative age <60 years or 2 first-degree relatives with these findings at any age are recommended to undergo screening by colonoscopy every 5 years, beginning 10 years before the age at diagnosis of the youngest affected relative or age 40, whichever is earlier. Persons with a single first-degree relative diagnosed at ≥60 years with CRC or an advanced adenoma can be offered average-risk screening options beginning at age 40 years.

### **Introduction**

Colorectal cancer (CRC) screening is the process of detecting early-stage CRCs and precancerous lesions in asymptomatic people with no prior history of cancer or precancerous lesions. The U.S. Multi-Society Task Force of Colorectal Cancer (MSTF) is a panel of expert gastroenterologists representing the American College of Gastroenterology, the American Gastroenterological Association, and the American Society for Gastrointestinal Endoscopy. The MSTF, like others, has long endorsed systematic offers of CRC screening to average-risk persons (persons without a high-risk family history of colorectal neoplasia) beginning at age 50 years, with general evidence supporting screening reviewed in previous publications (1). This publication updates the screening recommendations of the MSTF for screening in average-risk persons (1).

Screening differs from surveillance. Surveillance refers to the interval use of colonoscopy in patients with previously detected CRC or precancerous lesions and interval colonoscopy in patients performed to detect dysplasia in persons with inflammatory bowel disease affecting the colon. Surveillance recommendations from the MSTF on surveillance after cancer (2) and removal of precancerous lesions (3) are available in other documents. Screening is also distinct from diagnostic examinations, which refer to the investigation of patients with symptoms or positive screening tests other than colonoscopy. Colonoscopy is generally the test of choice for diagnostic examinations.

### **Process and Levels of Evidence**

Guidance statements were developed by consensus obtained through joint teleconferences. The completed article was reviewed and approved by all 3 gastroenterology societies. The use of GRADE for MSTF guidance papers has been outlined in detail elsewhere (2). GRADE involves comprehensive literature search and summary (often through meta-analysis) and then a separate review of literature quality and development of recommendations. The MSTF uses a modified qualitative approach based on literature review (as described above for this article) but without formal meta-analysis. GRADE allows for a separate assessment of the quality of the evidence and strength of recommendation. This approach explicitly recognizes the importance of literature in informing clinical recommendations but allows latitude because recommendations may be influenced by other factors, such as patient preference, cost, and expert consensus. “Strong recommendations” are those that would be chosen by most informed patients. “Weak recommendations” are those where patient values and preferences might play a larger role than the quality of evidence. Within the document we preface strong recommendations with phrases such as “we recommend” and weak recommendations with “we suggest.”

<b>Recommendations</b>	
Approaches to Screening	
1.	We recommend that clinicians offer CRC screening beginning at age 50 (strong recommendation, high-quality evidence). (See below for adjustments in recommended age for onset of screening based on race and family history.)
2.	We suggest that sequential offers of screening tests, offering multiple screening options, and risk-stratified screening are all reasonable approaches to offering screening (weak recommendation, low-quality evidence).
Specific Screening Tests	
1.	We recommend colonoscopy every 10 years or annual FIT as first-tier options for screening the average-risk persons for colorectal neoplasia (strong recommendation; moderate-quality evidence).
2.	We recommend that physicians performing screening colonoscopy measure quality, including the adenoma detection rate (strong recommendation, high-quality evidence).
3.	We recommend that physicians performing FIT monitor quality (strong recommendation, low-quality evidence). The recommended quality measurements for FIT programs are detailed in a prior publication (86).
4.	We recommend CT colonography every 5 years or FIT-fecal DNA every 3 years (strong recommendation, low-quality evidence) or flexible sigmoidoscopy every 5 to 10 years (strong recommendation, high-quality evidence) in patients who refuse colonoscopy and FIT.
5.	We suggest that capsule colonoscopy (if available) is an appropriate screening test when patients decline colonoscopy, FIT, FIT-fecal DNA, CT colonography, and flexible sigmoidoscopy (weak recommendation, low-quality evidence).
6.	We suggest against Septin9 for CRC screening (weak recommendation, low-quality evidence).
Family History of CRC and Polyps	
1.	We suggest that persons with 1 first-degree relative with CRC or a documented advanced adenoma diagnosed at age <60 years or with 2 first-degree relatives with CRC and/or documented advanced adenomas undergo colonoscopy every 5 years beginning 10 years younger than the age at which the youngest first-degree relative was diagnosed or age 40, whichever is earlier (weak recommendation, low-quality evidence).
2.	We suggest that persons with 1 first-degree relative diagnosed with CRC or a documented advanced adenoma at age ≥60 years begin screening at age 40. The options for screening and the recommended intervals are the same as those for average-risk persons (weak recommendation, very-low-quality evidence).
3.	We suggest that persons with 1 or more first-degree relatives with a documented advanced serrated lesion (SSP or traditional serrated adenoma ≥10 mm in size or an SSP with cytologic dysplasia) should be screened according to above recommendations for persons with a family history of a documented advanced adenoma (weak recommendation, very-low-quality evidence).
4.	We suggest that persons with 1 or more first-degree relatives with a documented advanced serrated lesion (SSP or traditional serrated adenoma ≥10 mm in size or an SSP with cytologic dysplasia) should be screened according to above recommendations for persons with a family history of a documented advanced adenoma (weak recommendation, very-low-quality evidence).

<b>Recommendations continued</b>	
Considerations Regarding Age and CRC Risk	
1.	We recommend that screening begin in non-African American average-risk persons at age 50 years (strong recommendation; moderate-quality evidence).
2.	We suggest that screening begin in African Americans at age 45 years (weak recommendation, very-low-quality evidence).
3.	We recommend that adults age <50 years with colorectal bleeding symptoms (hematochezia, unexplained iron deficiency anemia, melena with a negative upper endoscopy) undergo colonoscopy or an evaluation sufficient to determine a bleeding cause, initiate treatment, and complete follow-up to determine resolution of bleeding (strong recommendation, moderate-quality evidence).
4.	We suggest that persons who are up to date with screening and have negative prior screening tests, particularly colonoscopy, consider stopping screening at age 75 years or when life expectancy is less than 10 years (weak recommendation, low-quality evidence).
5.	We suggest that persons without prior screening should be considered for screening up to age 85, depending on consideration of their age and comorbidities (weak recommendation, low-quality evidence).

<b>Table 1. Approaches to offering screening in the opportunistic setting</b>	
<b>Approach</b>	<b>Description</b>
Multiple options	The relative benefits, risks, and costs of 2 or more options are presented
Sequential testing	A preferred test is offered first. If the patients decline another option(s) is offered
Risk stratified approach	Colonoscopy is offered to patients predicted to have a high prevalence of advanced pre-cancerous lesions; other tests are offered to patients predicted at low risk

<b>Table 4. Multi-Society Task Force ranking of current colorectal cancer screening tests</b>
Tier 1
Colonoscopy every 10 years
Annual fecal immunochemical test
Tier 2
CT colonography every 5 years
FIT-fecal DNA every 3 years
Flexible sigmoidoscopy every 10 years (or every 5 years)
Tier 3
Capsule colonoscopy every 5 years
Available tests not currently recommended
Septin 9

**Table 5.** MSTF recommendations for persons with high-risk family histories not associated with polyp syndromes

Family History	Recommended Screening
Lynch Syndrome	See ref. (34) (34. Giardiello FM, Allen JI, Axilbund JE et al. Guidelines on genetic evaluation and management of Lynch syndrome: a consensus statement by the U.S. Multi-Society Task Force on Colorectal Cancer. <i>Gastrointest Endosc</i> 2014;80:197–220.)
Family Colon Cancer Syndrome X	Colonoscopy every 3–5 years beginning 10 years before the age at diagnosis of the youngest affected relative
Colorectal cancer or an advanced adenoma in two first-degree relatives diagnosed at any age OR colorectal cancer or an advanced adenoma in a single first-degree relative at age <60 years	Colonoscopy every 5 years beginning 10 years before the age at diagnosis of the youngest affect interval or age 40, whichever is earlier; for those with a single first-degree relative with colorectal cancer in whom no significant neoplasia appears by age 60 years, physicians can offer expanding the interval between colonoscopies
Colorectal cancer or an advanced adenoma in a single first-degree relative diagnosed at age ≥60 years	Begin screening at age 40 years; tests and intervals are as per the average-risk screening recommendations (Table 4)

**Summary**

CRC screening should begin at age 50 years in asymptomatic persons. Colonoscopy every 10 years and annual FIT are currently the first considerations for screening. Colonoscopy every 10 years has advantages in the opportunistic screening setting. Annual FIT is likely to be preferred in organized screening programs. Positioning of the 2 tests can be reasonably based on a sequential offer (colonoscopy first with FIT offered to patients who decline colonoscopy, followed by second-tier tests for patients who decline FIT), a multiple-options approach where both tests are discussed with patients (followed by a sequential offer of second-tier tests to patients who decline both colonoscopy and FIT), or a risk-stratified approach (colonoscopy is offered to patients with a higher pretest probability of neoplasia, and FIT is used in persons with a lower pretest probability of neoplasia).

Persons with a history of CRC or a documented advanced adenoma in a first-degree relative age <60 years or 2 first-degree relatives with these findings at any age are recommended to undergo screening by colonoscopy every 5 years, beginning 10 years before the age at diagnosis of the youngest affected relative, or at age 40, whichever is earlier. Persons with a single first-degree relative diagnosed at ≥60 years with CRC or an advanced adenoma can be offered average-risk screening options beginning at age 40 years.

The incidence of CRC is rising in persons under age 50. Patients under age 50 with bleeding symptoms consistent with a colorectal source should be aggressively evaluated and treated. We suggest that screening begin at age 45 in African Americans. Discontinuation of screening should be considered when patients who are up to date with screening and have had negative screening tests, particularly colonoscopy, reach age 75 years or when life expectancy is <10 years. Persons without prior screening

should be considered for screening up to age 85 years, depending on comorbid conditions and life expectancy.