Table 3. Frequently Asked Questions from Patients to Enhance Colonoscopy Quality

<table>
<thead>
<tr>
<th>Question for colonoscopists to help ensure a high-quality examination:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What is your adenoma detection rate?</td>
</tr>
<tr>
<td>2. Is CT colonography every 5 years recommended?</td>
</tr>
<tr>
<td>3. Do you use split-dosing of bowel preparations?</td>
</tr>
<tr>
<td>4. What is your cecal intubation rate?</td>
</tr>
<tr>
<td>5. Colonoscopy every 10 years</td>
</tr>
</tbody>
</table>

Table 4. USMSTF Ranking of Current Colorectal Cancer Screening Tests

<table>
<thead>
<tr>
<th>Tier 1:</th>
<th>Colonoscopy every 10 years</th>
<th>Annual fecal immunochemical test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier 2:</td>
<td>CT colonography every 5 years</td>
<td>FEE–DNA analysis every 3 years</td>
</tr>
<tr>
<td>Tier 3:</td>
<td>Capsule colonoscopy every 5 years</td>
<td></td>
</tr>
</tbody>
</table>

Available tests not currently recommended: | Septin 9 |

Table 5. USMSTF Recommendations for Persons With High-Risk Family Histories Not Associated With Polyposis Syndromes

<table>
<thead>
<tr>
<th>Family history</th>
<th>Recommended screening</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family Colon Cancer Syndrome X</td>
<td>Colonoscopy every 5–3 years beginning 10 years before the age at diagnosis of the youngest affected relative.</td>
</tr>
<tr>
<td>Colorectal cancer or an advanced precursor lesion (advanced adenoma or serrated lesion ≥6 mm in size or coexisting dysplasia) diagnosed in a single first-degree relative at age ≥40 years or two first-degree relatives at any age</td>
<td>Begin screening at age 50 years – tests and intervals are per average-risk screening recommendations. (Table 6)</td>
</tr>
</tbody>
</table>

Visit gacho.org/guidelineapp to learn about the AGA Clinical Guidelines App. Available for download on the iTunes and Google Play Store.

Key Points

- **Diagnosis**
  - Colonoscopy: Advantages include high sensitivity for cancer and all classes of precancerous lesions, single-session diagnosis and treatment, and long intervals between examinations in subjects with normal examinations. Disadvantages include the need for thorough bowel cleansing, a higher risk of perforation relative to other screening tests, higher risk of aspiration pneumonitis, a small risk of splenic injury requiring splenectomy, and a greater risk of post procedural bleeding compared with other screening tests. A major disadvantage of colonoscopy is operator dependence in performance.
  - FIT: Advantages include its non-invasive nature, 1-time sensitivity for cancer of 79%, fair sensitivity for advanced adenomas and low 1-time cost. Disadvantages include the need for repeated testing, MSEP considers FIT an essential element of the CRC screening armamentarium of all practitioners.
  - FIT-long compared with other screening tests. The major disadvantages of the FIT-fecal DNA test are a substantial decrease in specificity and high cost relative to FIT. Annual FIT is more effective and less costly than FIT-fecal DNA every 3 years.
  - CT colonography: Advantages include a lower risk of perforation compared with colonoscopy and sensitivity of 82% to 92% for adenomas ≥3mm in size. Disadvantages include the use of bowel preparation. The sensitivity for polyps <1cm is less than colonoscopy and detection of flat and serrated lesions are major deficiencies of CT colonoscopy. Evidence that CT colonoscopy reduces CRC incidence or mortality is lacking.
  - Flexible Sigmoidoscopy: Advantages include disproportionally lower cost and risk compared with colonoscopy, a more limited bowel preparation, and no need for sedation. Disadvantages include a lower benefit in protection against right-sided colon cancer compared with colonoscopy.
  - Capsule Colonoscopy: Advantages of capsule colonoscopy are the achievement of endoscopic imaging without an invasive procedure and avoiding the risks of colonoscopy. Disadvantages are that the bowel preparation is more extensive than that for colonoscopy. Also, most patients with positive studies will require re-preparation and colonoscopy on a separate day.
  - Septin8: Advantage of Septin8 assay is that it is a serum assay and is at least potentially more convenient for patients. The major disadvantages of the Septin8 assay are the markedly inferior performance characteristics compared with FIT, including lower sensitivity for cancer, inability to detect advanced adenomas and low cost-effectiveness relative to other screening tests.

- **Recommendations from the U.S. Multi-Society Task Force on Colorectal Cancer**
  - Colonoscopy every 5–3 years beginning 10 years before the age at diagnosis of the youngest affected individual at age 40, whichever is earlier.

- **Colorectal Cancer Screening**
  - Lynch Syndrome:
  - Family Colon Cancer Syndrome X
    - Colonoscopy every 5–3 years beginning 10 years before the age at diagnosis of the youngest affected individual at age 40, whichever is earlier.
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    - Begin screening at age 50 years – tests and intervals are per average-risk screening recommendations. (Table 6)

- **Abbreviations**
  - AGA, American Gastroenterological Association Inc.; CRC, colorectal cancer; FIT, fecal immunochemical test; USMSTF, U.S. Multi-Society Task Force on Colorectal Cancer

- **Disclaimer**
  - The AGA/GIAC guidelines are intended to define principles of practice that should produce high-quality patient care. It is applicable to specialty, primary care, and providers at all levels. This guideline should not be considered an exclusion of other methods of care reasonably utilized at obtaining the same results. The ultimate judgment concerning the propriety of any course of treatment must be made by the clinician. Neither the authors nor any product or service associated with the distributor of this clinical reference tool.

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Diagnosis

- Colorectal cancer (CRC) screening should begin at age 50 years in asymptomatic persons.
- Colonoscopy every 10 years and annual fecal immunochemical test (FIT) are currently the first considerations for screening.
- 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.

GRADE Strength of Recommendations and Implications

<table>
<thead>
<tr>
<th>Grade</th>
<th>Quality of Evidence</th>
<th>Approach</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong</td>
<td>Moderate</td>
<td>Sequential testing</td>
<td>Coloscopy 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.</td>
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<td>Strong</td>
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Key Points

- The USMSTF suggests that persons who are up-to-date with screening and have negative prior screening tests, particularly colonoscopy, consider stopping screening at age 75 years when life expectancy is <20 years (Weak; Low Quality of Evidence).
- The USMSTF suggests that persons without prior screening should be considered for screening up to age 85, depending on consideration of their age and comorbidities (Weak; Low Quality of Evidence).

Table 1. Approaches to Offering Screening in the Opportunistic Setting

<table>
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<td>Multiple options</td>
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Table 2. Histologic Classification of the Two Major Classes of Colorectal Polyps

<table>
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<tr>
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<th>Description</th>
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<tr>
<td>II. Serrated lesions</td>
<td>a. Hyperplastic polyp (not considered precancerous) b. Sessile serrated polyp i. Without dysplasia ii. With dysplasia c. Traditional serrated adenoma</td>
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</tbody>
</table>

Figure 1. Endoscopic Photographs of Conventional Adenomas and Sessile Serrated Polyps

(A) Small (8 mm diameter) conventional adenoma. The red lines are surface blood vessels. 
(B) A portion of a 40-mm advanced conventional adenoma — one of the targets of all screening tests. The prominent blood vessel pattern is again visible. 
(C) A conventional adenoma with a focus of invasive cancer. The prominent blood vessel pattern of a conventional adenoma is visible over the lesion except in the ulcerated area. The cancer is located at the ulcer (arrow). 
(D) A sessile serrated polyp without cytologic dysplasia. Note the absence of blood vessels on the surface. 
(E) A sessile serrated polyp (visualized in narrow-band imaging) with multiple foci of cytologic dysplasia (yellow arrows). The dysplastic areas have the blood-vessel pattern (and the histologic features) of an adenoma. The white arrows point to non-dysplastic portions of this sessile neoplasm. 
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**Table 2. Histologic Classification of the Two Major Classes of Colorectal Polyps**

I. Conventional adenomas
   - a. Dysplasia grade
     i. High-grade
     ii. Low-grade
   - b. Villous adenoma
   - c. Tubulovillous
   - d. Villous

II. Serrated lesions
   - a. Hyperplastic polyps (not considered precancerous)
   - b. Sessile serrated polyp
     - i. Without cytologic dysplasia
     - ii. With cytologic dysplasia
   - c. Traditional serrated adenoma

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</tr>
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For the Patient

- Most individuals in this situation would want the recommended course of action and only a small proportion would refuse.
- Different choices will be appropriate for different patients.
- Decision aid may be useful in helping individuals make decisions consistent with their values and preferences.
- Clinicians should expect to spend more time with patients when working toward a decision.

For the Clinician

- Different choices will be appropriate for different patients.
- Decision aid may be useful in helping individuals make decisions consistent with their values and preferences.
- Clinicians should expect to spend more time with patients when working toward a decision.

Conditional (weak)

The majority of individuals in this situation would want the suggested course of action, but many would not.

Approach Description

- 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.

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I. Conventional adenomas

a. Dysplasia grade
   i. High-grade
   ii. Low-grade
b. Villous
   i. tubulovillous
   ii. tubuliform
   iii. villous

II. Serrated lesions

a. Hyperplastic polyp (not considered precancerous)
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   i. Without dysplasia
   ii. With dysplasia
c. Traditional serrated adenoma

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(F) A sessile serrated polyp with invasive cancer. White arrows designate the residual sessile serrated polyp, whereas yellow arrows indicate the ulcerated malignant portion of the lesion.
Diagnosis

Our confidence in the effect estimate is limited. The true effect may be substantially different from the estimate of the effect. The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.

Conditional

Moderate

High

Low

Very low

The USMSTF suggests against Septin 9 for CRC screening (Weak; Low Quality of Evidence).

The USMSTF recommends that physicians performing colonoscopy measure quality, including the adenoma detection rate (Strong; High Quality of Evidence).

The USMSTF recommends colonoscopy every 10 years or annual FIT for first-tier options for screening average-risk persons for colorectal neoplasia (Strong; Moderate Quality of Evidence).

The USMSTF recommends that physicians performing screening colonoscopy measure quality, including the adenoma detection rate (Strong; High Quality of Evidence).

The USMSTF recommends colonoscopv and FIT.

The USMSTF recommends colonoscopy every 10 years and annual fecal immunochemical test (FIT) (Weak).

A risk-stratified approach is also appropriate, with FIT screening in average-risk persons at age 50 years (Weak; Low Quality of Evidence).

The USMSTF suggests that sequential offers of screening tests, offering multiple screening options, and risk-stratified screening are all reasonable approaches to offering screening (Weak; Low Quality of Evidence).

The USMSTF recommends that physicians performing screening colonoscopy measure quality, including the adenoma detection rate (Strong; High Quality of Evidence).

Grade Strength of Recommendation

Weak

Moderate

Strong

For the Patient

For the Clinician

Most individuals in this situation would want the recommended course of action and only a small proportion would not.

Most individuals in this situation would want the recommended course of action and only a small proportion would not.

Different choices will be appropriate for different patients.

Decision aid may be useful in helping individuals making decisions consistent with their values and preferences.

Clinicians should expect to spend more time with patients when working toward a decision.

Individuals considering screening with specific characteristics should be counseled about the potential risks and benefits of screening, including the potential for receiving false-negative and false-positive results.

Key Points

1. Conventional adenomas
   a. Dysplasia grade
      i. High-grade dysplasia
         ii. Tubulo-villous
         iii. Villous
   b. Location
      i. Colon
      ii. High-grade dysplasia
      iii. Tubulo-villous
      iv. Villous

2. Serrated lesions
   a. Hyperplastic polyposis (not considered precancerous)
   b. Sessile serrated polyp
      i. Without cytologic dysplasia
      ii. With cytologic dysplasia
   c. Traditional serrated adenoma

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<th>Approach Description</th>
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<tr>
<td>Multiple options</td>
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</tr>
<tr>
<td>Sequential testing</td>
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Figure 1. Endoscopic Photographs of Conventional Adenomas and Sessile Serrated Polyps (A) Small (8 mm diameter) conventional adenoma. The red lines are surface blood vessels. (B) A portion of a 40 mm advanced conventional adenoma — one of the targets of all screening tests. The prominent blood vessel pattern is, again, visible. (C) A conventional adenoma with a focus of invasive cancer. The prominent blood vessel pattern of a conventional adenoma is visible over the lesion except in the ulcerated area. The cancer is located at the ulcer (arrow). (D) A sessile serrated polyp without cystic dysplasia. Note the absence of blood vessels on the surface.
What is your adenoma detection rate?
Flexible sigmoidoscopy every 10 years (or every 5 years)
Is the bowel preparation quality described?
What is your cecal intubation rate?
Does the report include photographs of the end of the colon, including the appendiceal orifice and ileocecal valve/terminal ileum?
FIT–fecal DNA every 3 years
Septin 9
Colonoscopy every 10 years
CT colonography every 5 years
Capsule colonoscopy every 5 years

Available tests not currently recommended:
Tier 3:
Tier 2:
Tier 1:

Table 4. USMSTF Ranking of Current Colorectal Cancer Screening Tests

Table 5. USMSTF Recommendations for Persons With High-Risk Family Histories Not Associated With Polyposis Syndromes

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AGAOS17726
Table 3. Frequently Asked Questions from Patients to Enhance Colonscopy Quality

<table>
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<tr>
<th>Question</th>
<th>Answer</th>
</tr>
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<tbody>
<tr>
<td>What is your adenoma detection rate?</td>
<td>Should be ≥95% for screening colonoscopies and ≥99% overall.</td>
</tr>
<tr>
<td>CT colonography every 5 years</td>
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</tr>
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<td>What is your cecal intubation rate?</td>
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</tr>
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<td>FIT–fecal DNA every 3 years</td>
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<td>Is the bowel preparation quality described?</td>
<td>Yes, it should be ≥95% for screening colonoscopies and ≥90% overall.</td>
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<td>Capsule colonoscopy every 5 years</td>
<td></td>
</tr>
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2. Have you seen the patient’s endoscopy report after the procedure?

• This will reveal if preparation was adequate to ensure effective examination.
• This demonstrates that the full extent of the colon was examined.
• Effective bowel preparation requires that at least half the preparation be ingested on the day of the colonoscopy.

3. Do you get my test results?

• FIT–fecal DNA: Advantages include the highest single-time sensitivity for colorectal cancer of any non-invasive, non-imaging CRC screening test. The major advantages of the FIT–fecal DNA test are a substantial decrease in specificity and high cost relative to FIT. Annual FIT is more effective and less costly than FIT–fecal DNA every 3 years.
• CT colonography: Advantages include a lower risk of perforation compared with colonoscopy and sensitivity of 82% to 92% for adenomas ≥3mm in size. Disadvantages include the need of bowel preparation. The sensitivity for polyps <1cm is less than colonoscopy and detection of flat lesions are major deficiencies of CT colonography. Evidence compared with colonoscopy and sensitivity of 82% to 92% for adenomas ≥3mm in size. Disadvantages include the need of bowel preparation. The sensitivity for polyps <1cm is less than colonoscopy and detection of flat lesions are major deficiencies of CT colonography. The major disadvantages of the FIT–focal DNA test is a substantial decrease in specificity and high cost relative to FIT. Annual FIT is more effective and less costly than FIT–focal DNA every 3 years.

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Septin9: Advantage of Septin9 assay is that it is a serum assay and is less costly than FIT–fecal DNA every 3 years. Disadvantages are that the bowel preparation is more extensive than that for colonoscopy. Septin9 assay are the markedly inferior performance characteristics compared with FIT, including lower sensitivity for cancer, inability to detect advanced adenomas and low cost-effectiveness relative to other screening tests. Use gastro.org/guidelinesapp to learn about the AGA Clinical Guidelines App. Available for download on the iTunes and Google Play Store.

Table 5. U.S.MSTF Recommendations for Persons With High-Risk Family Histories Not Associated With Polyposis Syndromes

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References

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Summary

1. CT colonography every 5 years: Advantages include a lower risk of perforation compared with colonoscopy and sensitivity of ≥80% to ≥90% for adenomas ≥3mm in size. Disadvantages include the need of bowel preparation. The sensitivity for polyps <1cm is less than colonoscopy and detection of flat lesions are major deficiencies of CT colonography. Evidence compared with colonoscopy and sensitivity of ≥80% to ≥90% for adenomas ≥3mm in size. Disadvantages include the need of bowel preparation. The sensitivity for polyps <1cm is less than colonoscopy and detection of flat lesions are major deficiencies of CT colonography. The major disadvantages of the CT colonography are the markedly inferior performance characteristics compared with FIT, including lower sensitivity for cancer, inability to detect advanced adenomas and low cost-effectiveness relative to other screening tests.

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Available tests not currently recommended: Septin 9
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1. What is your adenoma detection rate?
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3. Do you use split-dosing of bowel preparations?
4. Colonoscopy every 10 years
5. Annual fecal immunochemical test
6. FIT–fecal DNA every 3 years
7. Is the bowel preparation quality described?
8. Flexible sigmoidoscopy every 10 years (or every 5 years)
9. Does the report include photographs of the end of the colon, including the appendiceal orifice and ileocecal valve/terminal ileum?
10. CT colonography every 5 years

Table 4. USMSTF Ranking of Current Colorectal Cancer Screening Tests

Tier 1:
1. Colonoscopy every 10 years
2. Annual fecal immunochemical test

Tier 2:
1. CT colonography every 5 years
2. FIT–fecal DNA every 5 years
3. Flexible sigmoidoscopy every 10 years (or every 5 years)

Tier 3:
1. Capsule colonoscopy every 5 years

Available tests not currently recommended:
• Septin 9

Table 5. USMSTF Recommendations for Persons With High-Risk Family Histories Not Associated With Polyposis Syndromes

<table>
<thead>
<tr>
<th>Family History</th>
<th>Recommended Screening</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family Colon Cancer Syndrome X</td>
<td>Colonoscopy every 3–5 years beginning 10 years before the age at diagnosis of the youngest affected relative.</td>
</tr>
<tr>
<td>Colon cancer or an advanced precursor lesion (advanced adenoma or serrated lesion ≥1 cm in size)</td>
<td>Colonoscopy every 5 years beginning 10 years before the age at diagnosis of the youngest affected individual or age 40, whichever is earlier.</td>
</tr>
<tr>
<td>Colorectal cancer or an advanced precursor lesion is a single first-degree relative diagnosed at age ≥65 years</td>
<td>Begin screening at age 60 years – tests and intervals are per average-risk screening recommendations. (Table 6)</td>
</tr>
</tbody>
</table>

Visit qaco.org/guidelinapp to learn about the AGA Clinical Guidelines App. Available for download on the iTunes and Google Play Store.

Abbreviations
AGA: American Gastroenterological Association; CRC: colorectal cancer; FIT: fecal immunochemical test; USMSTF: U.S. Multi-Society Task Force on Colorectal Cancer

Disclaimer
This Guideline attempts to define principles of practice that should produce high-quality patient care. It is applicable to specialists, primary care providers, and providers at all levels. This guideline should not be considered exclusive of other methods of care reasonably directed at obtaining the same results. The ultimate judgment concerning the propriety of any course of conduct must be made by the clinician, and the patient is the ultimate judge of the care that the clinician endorses any product or service associated with the distributor of this clinical reference tool.

Colorectal Cancer Screening

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