2. Colonoscopy indications and contraindications

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Synopsis

In general, the indications for colonoscopy have expanded since its inception. In recent years, the largest growth in the use of colonoscopy in the United States has resulted from the acceptance of colorectal cancer screening in average risk subjects. The first mention of colonoscopy for average risk screening appeared in 1988 [1], the first studies of colonoscopy for average risk screening in 1990 [2,3], and the first appearance in a guideline appeared from the GI Consortium in 1997 [4]. This was followed very closely by the American Cancer Society in the same year [5]. In 2000, the American College of Gastroenterology recommended colonoscopy as the preferred colorectal cancer screening strategy, whenever the expertise, resources, and reimbursement for the procedure were available [6].

In many countries, colonoscopy is not used for colorectal cancer screening because of costs, or inadequate manpower and facilities. Thus, indications for colonoscopy are likely to differ between countries, depending on the available resources and the perceptions of local healthcare experts in that country regarding the benefits, costs, and risks of colonoscopy relative to other diagnostic strategies. The concept of limiting the indications for colonoscopy according to the feasibility of supplying the service can be readily extended beyond the decision of whether to provide the service for screening. Thus, within the symptomatic population and the surveillance population, there is a very large range of yield for cancer that can be determined by indication [7]. When resources are limited, it may be appropriate to confine the use of colonoscopy to indications with a higher yield for cancer and to use other diagnostic strategies, such as a barium enema, for lower yield indications.

This chapter assumes that the resources are available to provide colonoscopy for a broad range of indications. However, emphasis is placed on the relative yields of different indications for both cancers and adenomas. These comparisons are of value in determining what indications are most appropriate when resources are limited. Even in the United States, where resources and personnel are very widely available there are patients in whom colonoscopy is inappropriate. Factors that may suggest when colonoscopy would be inappropriate include the indication, age, and gender of the patient, and the presence or absence of various other risk factors for disease.

Classification of indications

Diagnostic vs. therapeutic

Colonoscopic indications are commonly classified as diagnostic or therapeutic (Fig. 1). Colonoscopy provides an excellent view of the mucosal surface from the anal canal to the terminal ileum. Almost any intraluminal lesion can be detected and biopsied. For any diagnostic procedure that does not involve biopsy, there are alternatives, either barium enema or, in a few centres, virtual colonoscopy. The distinction between diagnostic and therapeutic colonoscopy has some value in understanding complication rates, since complication rates are expected to be higher in therapeutic compared to diagnostic procedures. However, the distinction between diagnostic and therapeutic procedures is less relevant clinically, since the designation can be assigned only after the procedure in most cases. The need for therapy (e.g. polypectomy) is usually unknown prior to the procedure. For the same reason, it is generally unacceptable to perform diagnostic procedures without the skill to perform therapeutic maneuvers that are likely to be indicated. All colonoscopists must be trained in polypectomy, and be
able to clear the colon of polyps on the initial examination.

**High-risk vs. low-risk**

A second classification of indications is by risk. Not all factors that increase the risk for colonoscopy have well-defined associations. However, situations that are generally associated with increased risk include decompression of acute colonic pseudoobstruction, polypectomy of large polyps, stricture dilatation, and stent placement. Preexisting conditions associated with high risk include acute colonic pseudoobstruction, sigmoid volvulus, cecal volvulus, prior radiation therapy, chronic steroid use, colonic strictures, extensive pelvic adhesions, severe diverticular disease, and severe colitis. Patients with ASA 3 or higher cardiac or pulmonary disease are at risk for cardiopulmonary compromise with sedation. These same patients (plus those with severe liver or kidney disease) do not tolerate well any surgery needed for management of colonoscopic complications. Specific procedures that are associated with risk follow closely the high risk indications, including removal of large polyps, particularly sessile lesions in the right colon, stricture dilation (particularly if the etiology is nonanastomotic Crohn's strictures or radiation strictures), stent placement, and tumor ablation. The potential benefits of the procedure vs. the risks should always be taken into account in determining whether the indication is valid in a given patient.

Screening procedures, which are generally performed in asymptomatic persons who are healthy or relatively healthy, have been associated with a very low risk of serious complications. No perforations have yet occurred in more than 6000 reported screening colonoscopies in average risk persons [8–10].

**High-yield vs. low-yield**

A final method of classifying diagnostic indications for colonoscopy is by their expected yield for disease, particularly neoplasia. The yield for cancer is highly dependent on indication. For example, bleeding indications consistently have the highest yield for cancer (Fig. 2). The lowest cancer yields come in surveillance for ulcerative colitis and after polypectomy. In most circumstances, the yield of cancer increases with age. For example, an 80-year-old with rectal bleeding or with a positive fecal occult blood test is many times more likely to have colorectal cancer than a 30-year-old patient with the same findings. To a substantial extent, the prevalence of adenomas is independent of indication; rather the prevalence reflects demographic features, including age and gender and to some extent family history of colorectal cancer or adenomas [7]. Age is the most powerful predictor but male gender is a consistent predictor of both adenomas and advanced adenomas [8,10]. Patients with bleeding have an increased yield for large adenomas.

In the absence of overt or occult bleeding, symptoms such as abdominal pain and altered bowel habit have no predictive value for colorectal cancer [11,12]. In these persons, the yield of colonoscopy for neoplasia essentially reflects the age, gender, and family history of the patient. This observation becomes the justification for making a positive diagnosis of irritable bowel syndrome (without colonoscopy) in women aged less than 50 years with non-bleeding colonic symptoms. Colonoscopy in persons aged 50 and older with only non-bleeding colonic symptoms is justified based on the increased prevalence of disease with age.

To summarize, the decision whether to advise colonoscopy should balance the anticipated risk and potential benefit of the procedure. The potential for benefit can be approximated by estimating the likely yield for neoplasia, which is a function of the indication (with regard to cancer) and the patient's age, gender, and family history (with regard to adenomas).
Alternatives to colonoscopy

Decisions regarding colonoscopy must also take into account the cost, risk, and accuracy of alternative diagnostic methods. Double contrast barium enema (DCBE) is several times more likely than colonoscopy to miss colorectal cancer [13,14] and has a sensitivity of only about 50% for large adenomas. Although these recent studies have clearly established the superiority of colonoscopy over DCBE for detection of both cancer and adenomas, reviews of earlier studies by independent groups clearly indicated that barium enema had limited effectiveness [15]. The results of the barium enema concerning the detection of mucosal lesions is extremely dependent on the quality of the technique, which varies widely. Similarly, CT colonography (virtual colonoscopy) has had marked variability in results when all reported studies are considered [16]. Because of its high cost, virtual colonoscopy is still a research tool with regard to colorectal cancer screening. DCBE and virtual colonoscopy are most appropriate for low prevalence populations and indications. Thus, patients under age 50, particularly females without a family history of colorectal cancer, who present with non-bleeding symptoms, would be appropriate candidates for double contrast barium enema (or virtual colonoscopy if it is available and is demonstrated to have high quality locally) if imaging the colon is judged necessary.

In practice, choices are affected by local availability and expertise. Virtual colonoscopy is available in very few centres and of these, only a limited number have proven their ability to achieve adequate sensitivity for colon neoplasms. DCBE sensitivity varies markedly between hospitals and may be a function of the interest and training of radiologists. Colonoscopy effectiveness and risks also vary between examiners. Ideally, one would like to know the local effectiveness and safety of colonoscopy and radiographic imaging studies and take these factors into account, combined with the anticipated risk and yield of colonoscopy, in deciding the best diagnostic approach to an individual patient.

Specific indications

Bleeding

Evidence for bleeding has the highest yield of neoplasia of any indication for colonoscopy. Positive fecal occult blood test is perhaps the single best indication for colonoscopy, since it is associated not only with a high prevalence of cancer of (2–12%) [17–19] but also cancers tend to be early stage (80% Stage I or II) and therefore associated with higher survival rates. Hematochezia, iron deficiency anaemia, and melena with a negative upper endoscopy are all associated with a substantial prevalence of colon cancer [7]; the positive predictive value of each of these findings increases with age [20]. A report of blood only on the toilet tissue paper is invariably from an anal source. However, if blood is passed into the toilet, there is no reliable way to distinguish an anal source from a colonic source and no reliable way to distinguish a distal colonic source from a proximal colonic source [21]. Certain features, such as blood dripping from the anus after bowel movements, are more often associated with an anal source but do not always separate anal from colonic sources [22].

All persons with positive fecal occult blood tests and all persons age 50 and older with any of the other bleeding indications should undergo initial colonoscopy. In the United States, most persons age 40 and older with bleeding indications undergo full colonoscopy, but practices vary. A recent cost-analysis of approaches to bleeding showed that even persons in their 20s and 30s with rectal bleeding should undergo at least distal colon visualization initially, and if no source is identified, should proceed to full colon evaluation [23].
Colonoscopic treatment of bleeding ▲▼

Control of active bleeding is an important therapeutic indication for colonoscopy. Hemostasis can be applied in postpolypectomy bleeding, vascular ectasias, radiation injury of the rectosigmoid, diverticular hemorrhage, and colonic varices. Control of bleeding is accomplished by any of the methods available including monopolar or bipolar coagulation, heater probe, injection of various agents, and clipping. The method used depends largely on the personal experience of the colonoscopist but also on the nature of the lesion responsible for bleeding.

Abdominal pain and constipation ▲▼

The prevalence of irritable bowel syndrome in the general population is sufficiently high that abdominal pain with or without constipation in the absence of bleeding (defined as no history of hematochezia, negative stool tests for fecal occult blood, and normal hemoglobin) is not associated with colorectal cancer [9,11]. Colonoscopy in the presence of these symptoms yields a prevalence of neoplasia similar to that of screening colonoscopy. When patients aged 50 or older present with these symptoms, colonoscopy is justified based on age. Many patients younger than age 50 with these symptoms will undergo colonoscopy, sigmoidoscopy, or barium enema, as the symptoms tend to be chronic, and patients may be reassured and have an improved quality of life based on the negative examination. Abdominal pain and constipation are late symptoms of colorectal cancer. In general then, isolated abdominal pain with or without constipation is a poor indication for colonoscopy, except to the extent that these symptoms help to convince patients to undergo screening that may be indicated on the basis of age or family history.

Chronic diarrhea ▲▼

Colonoscopy is often performed in patients with chronic watery diarrhea to exclude collagenous or lymphocytic colitis. With this indication, random biopsies should be performed, including from the proximal colon, even if the mucosa appears normal. The yield of microscopic colitis ranges from 5 to 15% and is clearly higher in older females [24]. Patients with collagenous and lymphocytic colitis generally have some abnormalities when the left colon is biopsied and therefore sigmoidoscopy and biopsy can be used as an initial diagnostic test to screen for these disorders. If chronic diarrhea is accompanied by abdominal pain, it is preferable to begin with colonoscopy and include intubation of the terminal ileum to assist in the exclusion of Crohn's disease.

Abnormal radiographs or sigmoidoscopy ▲▼

Filling defects identified on barium enema or virtual colonoscopy are usually considered an indication for colonoscopy. An exception is some patients with small polypoid defects, who are elderly or have significant comorbidities, in which case the abnormalities can be ignored. Strictures found by radiographic imaging should be examined by colonoscopy. Routine abdominopelvic CT scans sometimes identify areas of colonic thickening, suggesting tumor or inflammation. Colonoscopy in these circumstances is often negative.

Colonoscopy is indicated in patients with adenomas at sigmoidoscopy, although in some centres colonoscopy is performed only if advanced adenomas are found during sigmoidoscopy [25].
Established ulcerative colitis

Colonoscopy can be used to evaluate the extent and severity of ulcerative colitis, which can be useful in guiding medical therapy and in the consideration of surveillance examinations. Intubation of the terminal ileum and biopsy can be useful in distinguishing ulcerative colitis from Crohn's disease, which may be critical in decisions about whether to proceed with surgery or what operation to perform. Colonoscopy can be used to assess disease activity when patients present with symptoms that are not clearly attributable to ulcerative colitis, though in many cases sigmoidoscopy will suffice. In clinical trials, colonoscopy and sigmoidoscopy with biopsy are often used to assess histologic improvement as a measure of the effectiveness of a medical treatment. The use of endoscopy in clinical practice for this purpose is less well established.

Surveillance in ulcerative colitis

Surveillance examinations in ulcerative colitis are performed in persons at risk for cancer. Interval colonoscopies and multiple biopsies are obtained in an attempt to identify premalignant neoplastic cellular changes. The initial diagnostic examination in an individual with longstanding ulcerative colitis is not considered a surveillance study. Colonoscopy is indicated beginning 8–10 years after the onset of symptoms in patients with pancolitis (disease extending proximal to the splenic flexure) and after 15 years of left-sided disease. Surveys in the United States and United Kingdom indicate that gastroenterologists are poorly informed about the proper intervals at which to perform ulcerative colitis surveillance and seldom use an adequate biopsy protocol [26,27]. The yield for cancer in ulcerative colitis surveillance is the lowest of any indication for colonoscopy [28], and recognized experts have argued against its use [29]. However, in the United States, surveillance colonoscopy and biopsies is standard practice. The interval of examination is usually every two years until 20 years after the onset of symptoms and then annually thereafter. Careful analysis suggests that the cost-effectiveness of this practice is very low [30]. Patients with primary sclerosing cholangitis appear to be at risk of colorectal cancer from the time their colitis is recognized and surveillance should begin after this diagnosis.

Established Crohn's disease

After establishing the initial diagnosis, colonoscopy has traditionally had a limited role in the management of patients with Crohn's disease. Therapeutic decisions are determined by clinical response, since therapy can produce symptomatic relief without endoscopic evidence of healing. The role of colonoscopy in evaluating the response to infliximab is currently under evaluation.

The risk of developing colorectal cancer in longstanding Crohn's colitis is comparable to that of ulcerative colitis. Cancers tend to occur in areas of active disease. A surveillance protocol similar to that in ulcerative colitis should be utilized, though published experience is limited [31].

Surveillance after colonoscopic polypectomy

Postpolypectomy surveillance accounts for 25% of colonoscopies performed in the United States [32] and up to 50% of colonoscopies in some practices. As the use of screening increases, the cost and complications associated with postpolypectomy surveillance will also increase. However, recent data suggests that initial clearing examinations have a much greater effect on colorectal cancer incidence than does subsequent postpolypectomy surveillance [33]. Therefore, recent guidelines have emphasized the limited benefits of postpolypectomy surveillance and the importance of expanding intervals between examinations. Figure 3 summarizes three US guidelines [34–36] on postpolypectomy surveillance and the Norwegian guidelines [37]. In the US, the ACG guideline [34] and the AGA
Consortium guidelines [35] are very similar. The most important recent change has been that patients with only 1–2 tubular adenomas should have their first follow-up examination in five years, rather than three years. The American Cancer Society [36] guideline differs in several regards (Fig. 3). In particular, patients with 1 or 2 negative examinations (depending on their initial adenoma findings) can be returned to general population screening (Fig. 3). The Norwegian guideline [37] (Fig. 3) reflects a perspective that places very limited value on postpolypectomy surveillance relative to the initial clearing colonoscopy.

All US guidelines call for a three year examination in patients with three or more adenomas or with adenomas that are > 1 cm, contain high grade dysplasia, or villous elements. Patients with numerous adenomas may require additional clearing examinations, and patients with large sessile adenomas removed piecemeal require additional follow-ups at 3–6 month intervals until it is established that the polypectomy site is clear. In the case of distal polyps, these follow-up examinations can be performed by flexible sigmoidoscopy.

In general, patients with only hyperplastic polyps should be considered to have had normal examinations, unless they have 20 or more hyperplastic polyps [14].

**Surveillance after cancer resection**

After resection of colon and rectal cancers, colonoscopy is primarily used to detect metachronous disease. The rate of anastomotic occurrences is approximately 2%, and most are accompanied by intra-abdominal or pelvic disease that is unresectable for cure [38]. Colonoscopy should be performed in the perioperative period to clear the colon of synchronous neoplasia. In the nonobstructed patient, this colonoscopy can be performed preoperatively. In the obstructed patient, either a barium enema or virtual colonoscopy should be performed, and colonoscopy should be completed 3–6 months after segmental resection, even if the radiographic studies were negative.

**Timing of surveillance**

Guidelines differ with regard to the timing of the next colonoscopy. The American Cancer Society (Fig. 4) recommends repeat at one year. This is currently the most common practice in the United States, though there is no strong evidence to support it. The rationale has traditionally been that 80% of recurrences occur within the first two years; but, colonoscopy has not been shown to improve survival from the original cancer. This principle was verified in a recent meta-analysis of trials of intensive surveillance measures after colorectal cancer resection [39]. For reasons that are not clear, there is a higher occurrence of second primary cancers after resection of a colorectal cancer than after excision of adenomas [7]. A recent study of patients with Stage 2 and 3 resected cancers participating in a randomized trial of 5-fluorouracil chemotherapy identified an alarming occurrence rate of second primary cancers within a short interval of the initial cancer and within short intervals of surveillance examinations, including colonoscopy [40]. Though the results of that study defy explanation, they do support the performance of colonoscopy at one year to identify second primaries (not anastomotic occurrences). The AGA Consortium Guideline and the American Society for Gastrointestinal Endoscopy recommend that the first subsequent examination be performed in three years, since other than the above study there is little evidence that second primary cancers develop more rapidly in patients with previous colon cancers than in patients without such cancers. Subsequent surveillance examinations are planned, based on adenoma findings, and therefore in most cases would be performed at 3–6 years by current guidelines (Fig. 3). However, patients with family or personal histories compatible with or suggestive of HNPCC should continue examinations at 1–2 years intervals.
Rectal cancer ▲▼

Patients with resected rectal cancer have much higher recurrence rates than those with colon cancer, at least if they are operated by traditional blunt dissection techniques. Conversely, patients operated by total mesorectal excision have recurrence rates of less than 10%, which can be further lowered to recurrence rates comparable to those seen in colon cancer if patients are given neoadjuvant radiation [41], or chemoradiation in appropriate cases. Depending on anticipated recurrence rates, interval use of flexible sigmoidoscopy or endoscopic ultrasound during the first two years after resection can be used, though there are no randomized controlled trials to support either modality.

Screening average risk subjects ▲▼

The greatest expansion in use of, and indications for colonoscopy, has come through its endorsement as a screening measure in average risk persons. Recommendations for colonoscopy screening in the United States are summarized in Fig. 4. The position of US societies regarding colonoscopy screening in average risk persons is summarized in Fig. 5. Current screening guidelines tend to separate screening strategies into distinct categories, giving the impression that clinicians would choose either colonoscopy every 10 years or another strategy, such as annual fecal occult blood tests plus flexible sigmoidoscopy every five years. However, in countries with limited resources, there is a strong rationale for mixing various options such as sigmoidoscopy at age 50, followed by colonoscopy at age 60 or 65, a strategy that may maximize impact and optimize the use of scarce resources. Combining various options for screening can result in appropriate diagnostic pathways since the prevalence of adenomas and advanced adenomas doubles between age 50 and 60, and between age 50 and 80 the distribution of colorectal cancer shifts dramatically from the distal to the proximal colon [42,43]. Thus, the rationale for colonoscopy is stronger in persons age 60 and older than it is in younger persons.

Miscellaneous indications ▲▼

Miscellaneous therapeutic indications for colonoscopy are listed in Fig. 1. In general, the use of colonoscopy for therapeutic indications has expanded and its use has increased particularly for palliation of cancer. Colonoscopy is now less often used for decompression of acute colonic pseudoobstruction, with the advent of effective medical therapy (neostigmine).

Contraindications to colonoscopy ▲▼

Contraindications to colonoscopy can be classified as absolute and relative (Fig. 6).

Absolute contraindications ▲▼

Absolute contraindications include a competent patient who is unwilling to give consent, and an uncooperative patient in whom consent has been given but in whom adequate sedation cannot be achieved. In addition, toxic megacolon, fulminant colitis, and a known free colonic perforation are usually included in this list of contraindications.

Relative contraindications ▲▼

Relative contraindications are those situations in which risk is substantially increased. It may be appropriate to proceed if the information that may be acquired or a treatment that can be given is critical to the welfare of the patient. Relative contraindications include acute diverticulitis, very large
abdominal aortic aneurysms (particularly if they are symptomatic), patients who are immediately postoperative, and patients who have suffered recent myocardial infarction, pulmonary embolism, or are currently hemodynamically unstable. Severe coagulopathies constitute a relative contraindication also, particularly for therapeutic procedures (Fig. 6). Colonoscopy can generally be performed safely during pregnancy but should be deferred in most instances if the indication does not require immediate resolution. In general, colonoscopy is contraindicated when the risks to the patient's health or life outweigh the potential benefits of colonoscopy.

**Conclusion**

Colonoscopists must have a working knowledge of acceptable indications, and must know the risks and potential yield associated with each indication. The risks are then further adjusted by consideration of the patient's age and medical condition and the potential benefits are adjusted for the patient's age, gender, and family history. The colonoscopist must also consider his/her own skills in colonoscopy relative to the availability and expertise of local radiologists in determining the appropriateness of diagnostic colonoscopy in some patients. Finally, the colonoscopist must consider the national consensus in his/her country regarding whether resources can be expended for indications such as screening or low yield symptoms. When all of these factors are considered, colonoscopy will be used in a fashion that is best for patients and assists optimal allocation of medical resources.

**References**


8. Rex, DK, Lehman, GA & Ulbright, TM et al. Colonic neoplasia in asymptomatic persons with


22 Church, JM. Analysis of the colonoscopic findings in patients with rectal bleeding according to the pattern of their presenting symptoms. *Dis Colon Rectum* 1991; **34**: 391–5. PubMed


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Diagnostic and therapeutic indications for colonoscopy

Diagnostic indications

- Evaluation of an abnormality on barium enema (or virtual colonoscopy) such as a filling defect or stricture
- Evaluation of unexplained gastrointestinal bleeding
  1. Hematochezia in absence of convincing anorectal source
  2. Melena after an upper GI source has been excluded
  3. Presence of fecal occult blood
  4. Unexplained iron deficiency anemia
- Surveillance after removal of adenomas (see Fig 3)
- Surveillance after resection of colorectal cancer
- After identification of adenomas during sigmoidoscopy or for clearing the colon of synchronous neoplasia in patients with colorectal cancer
- In patients with ulcerative pancolitis or Crohn's colitis of eight or more years' duration or left sided colitis 15 or more years duration
- Colorectal cancer screening (see Fig 4)
- Chronic inflammatory bowel disease of the colon if more precise diagnosis or determination of the extent of activity of disease will influence management
- Clinically significant diarrhea of unexplained origin
- Intraoperative identification of a lesion not apparent at surgery (e.g. polypectomy site, location of a bleeding site)

Miscellaneous therapeutic indications (from ASGE guideline)

- Treatment of bleeding from such lesions as vascular malformation, ulceration, neoplasia and polypectomy site (e.g. electrocaulation, heater probe, laser or injection therapy)
- Foreign body removal
- Excision of colonic polyp
- Decompression of acute non toxic megacolon or sigmoid volvulus
- Balloon dilation of stenotic lesions (e.g. anastomotic strictures)
- Palliative treatment of stenosing or bleeding neoplasms (e.g. laser, electrocaulation, stenting)
- Marking a neoplasm for localization
## Yield of colonoscopy by indication

<table>
<thead>
<tr>
<th>Indication</th>
<th>Procedures to detect one cancer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two consecutive positive FOBT; neither rehydrated</td>
<td>2.7</td>
</tr>
<tr>
<td>Rectal bleeding – nonemergent</td>
<td>8.9</td>
</tr>
<tr>
<td>Positive FOBT – nonrehydrated</td>
<td>9.8</td>
</tr>
<tr>
<td>Melena with negative EGD</td>
<td>9.9</td>
</tr>
<tr>
<td>Acute lower GI hemorrhage</td>
<td>11.8</td>
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<tr>
<td>Iron deficiency anemia</td>
<td>13</td>
</tr>
<tr>
<td>Colonic symptoms without bleeding</td>
<td>36</td>
</tr>
<tr>
<td>Screening Lynch syndromes</td>
<td>39</td>
</tr>
<tr>
<td>Positive FOBT – rehydrated</td>
<td>45</td>
</tr>
<tr>
<td>Screening average-risk males ≥ 60 y</td>
<td>64</td>
</tr>
<tr>
<td>Surveillance after cancer resection: anastomotic recurrence</td>
<td>74</td>
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<tr>
<td>Surveillance after cancer resection: metachronous cancer</td>
<td>82</td>
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<tr>
<td>Colonic symptoms without bleeding exclusion of reference 50</td>
<td>109</td>
</tr>
<tr>
<td>Screening positive family history; non-Lynch kindred</td>
<td>141</td>
</tr>
<tr>
<td>Screening average-risk persons ≥ 50</td>
<td>143</td>
</tr>
<tr>
<td>Screening positive family history prospective studies only</td>
<td>286</td>
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<tr>
<td>Postpolypectomy surveillance</td>
<td>317</td>
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<tr>
<td>Prospective U.S. surveillance</td>
<td>360</td>
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FOBT, fecal occult blood test; EGD, esophagogastroduodenoscopy.

From Rex 1995 with permission
US and Norwegian post-polypectomy surveillance recommendations

<table>
<thead>
<tr>
<th>Finding</th>
<th>Next examination</th>
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<tr>
<td><strong>AGA Consortium</strong></td>
<td></td>
</tr>
<tr>
<td>1-2 tubular adenomas &lt;1cm</td>
<td>5 y</td>
</tr>
<tr>
<td>Normal follow-up or only hyperplastic polyps</td>
<td>5 y</td>
</tr>
<tr>
<td>≥1 cm, HGD, villous elements or &gt; 2 adenomas</td>
<td>3 y</td>
</tr>
<tr>
<td>Numerous adenomas or large sessile adenoma</td>
<td>Clinical judgment</td>
</tr>
<tr>
<td><strong>ACG</strong></td>
<td></td>
</tr>
<tr>
<td>1-2 tubular adenomas &lt;1cm</td>
<td>5 y</td>
</tr>
<tr>
<td>Normal follow-up</td>
<td>5 y</td>
</tr>
<tr>
<td>≥1 cm, HGD, villous elements or &gt; 2 adenomas or family history of colorectal cancer</td>
<td>3 y</td>
</tr>
<tr>
<td>Numerous adenomas or large sessile adenoma</td>
<td>Additional clearing as needed</td>
</tr>
<tr>
<td><strong>ACS</strong></td>
<td></td>
</tr>
<tr>
<td>1 tubular adenoma &lt;1cm</td>
<td>3-6 y, if then negative return to general screening</td>
</tr>
<tr>
<td>≥1 cm, HGD, villous elements, &gt;1 adenoma</td>
<td>3 y, if negative repeat in 3 y, if still negative return to general screening</td>
</tr>
<tr>
<td><strong>Norwegian guidelines (Hoff, 1996)</strong></td>
<td></td>
</tr>
<tr>
<td>&gt;2 adenomas, OR biopsy verified adenomas 1-4 mm left in situ, OR adenomas plus previous gynecologic cancer AND age &lt;75 y</td>
<td>5 y</td>
</tr>
<tr>
<td>HGD or villous elements AND age &lt;75 y</td>
<td>10 y</td>
</tr>
<tr>
<td>1 or 2 tubular adenomas &lt;1cm, OR age &gt;75 y</td>
<td>No follow-up recommended</td>
</tr>
</tbody>
</table>
Indications for screening colonoscopy

- Average-risk persons beginning at age 50 y, every 10 years.
- Persons with one first-degree relative diagnosed with colorectal cancer (or adenomas) at age >60 y, beginning at age 40 y, every 10 y.
- Persons with two first-degree relatives (or adenomas) diagnosed with colorectal cancer (or adenomas), or one first-degree relative with colorectal cancer or adenoma) at age < 60 y, beginning at age 40 or 10 y before age of diagnosis of youngest relative, every 5 y.
- HNPCC, beginning at age 20-25 y, every 1-2 y until age 40, then every 1 y.
- Women with endometrial or ovarian cancer diagnosed at age <50 y, beginning at time of diagnosis, every 5 y.
- Patients with FAP in whom surgery is being postponed, every 6-12 months.
- Patients with possible or gene test proven attenuated FAP, every 1 y until surgery is performed.

Positions of US societies on average-risk screening colonoscopy

- **AGA consortium and ACS**: Colonoscopy q10 y is one of 5 options for screening; others are annual FOBT, flex sig q 5 y, annual FOBT plus flex sig q 5 y, and DCBE q 5 y.
- **ACG**: Colonoscopy is the preferred strategy whenever resources, expertise and reimbursement are available; alternative of annual FOBT plus flex sig q 5 y is also acceptable.
- **US Preventive Services Task Force**: CRC screening is a Grade A recommendation (should be offered to all eligible patients). There is insufficient evidence to indicate that one screening strategy as preferred; in particular the superior effectiveness of colonoscopy may not outweigh its risks.
Contraindications

Absolute

- Competent patient who refuses to consent
- Consented patient who is unable to cooperate and cannot be adequately sedated
- Known perforated viscus communicating freely with the peritoneal cavity
- Toxic megacolon
- Fulminant colitis

Relative

- Acute diverticulitis (diagnosis established)
- Hemodynamic instability
- Recent myocardial infarction or pulmonary embolism
- Immediate postoperative stage
- Very large and/or symptomatic abdominal aortic aneurysm
- Pregnancy