

CADTH Reference List

Surveillance Colonoscopy Following Surgery for Colon Cancer

July 2022

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Cite As: *Surveillance Colonoscopy Following Surgery for Colon Cancer*. (CADTH reference list: summary of abstracts). Ottawa: CADTH; 2022 Jul.

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Key Messages

Twenty evidence-based guidelines describing colonoscopic surveillance following colon cancer surgery were identified.

Research Question

What are the evidence-based guidelines regarding colonoscopic surveillance following colon cancer surgery?

Methods

Literature Search Methods

A limited literature search was conducted by an information specialist on key resources including MEDLINE, the Cochrane Database of Systematic Reviews, the International HTA Database, the websites of Canadian and major international health technology agencies, as well as a focused internet search. The search strategy comprised both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concepts were colon cancer, post-surgery/surveillance, and colonoscopies. CADTH-developed search filters were applied to limit retrieval to guidelines. When possible, retrieval was limited to the human population. The search was completed on June 14, 2022, and limited to English-language documents published since January 1, 2017. Internet links were provided, if available.

Selection Criteria and Summary Methods

One reviewer screened literature search results (titles and abstracts) and selected publications according to the inclusion criteria presented in [Table 1](#). Full texts of study publications were not reviewed. The Overall Summary of Findings was based on information available in the abstracts of selected publications. Open-access, full-text versions of evidence-based guidelines were reviewed when available, and relevant recommendations were summarized. Publications were included if they mentioned a population with cancer who had surgery that was curative or potentially curative. Publications were excluded if they focused on rectal cancer only.

Results

Twenty relevant evidence-based guidelines describing colonoscopic surveillance following colon cancer surgery were identified for this report.¹⁻²⁰

Additional references of potential interest that did not meet the inclusion criteria are provided in [Appendix 1](#).

Table 1: Selection Criteria

Criteria	Description
Population	Patients who have had colon cancer surgery or colorectal surgery
Intervention	Follow-up surveillance colonoscopy
Comparator	Not applicable
Outcomes	Evidence-based recommendations regarding best practices for follow-up surveillance colonoscopy (e.g., frequency, appropriate surveillance intervals)
Study designs	Evidence-based guidelines, systematic reviews of evidence-based guidelines

Overall Summary of Findings

Twenty evidence-based guidelines were identified.¹⁻²⁰ A detailed summary of the guideline development group, the region they are from, relevant recommendations, quality of evidence, and strength of recommendations are presented in [Table 2](#). Some guidelines refer to both index and surveillance colonoscopies as “surveillance colonoscopies.” Only recommendations beyond 1 year are reported in the table.

Of the 20 guidelines identified,¹⁻²⁰ 5 are from North America,^{1,3,4,12,14} 11 from Europe,^{2,5,9-11,13,15-18,20} and 4 from Asia.^{6-8,19} Three guidelines are from Canada.^{1,4,12}

Some guidelines report recommendations for different populations based on stage of cancer^{1,3,4,11,12,14} or comorbidities.^{5,7,12,15} Four guidelines^{10,14,16,17} have recommendations for an upper age limit for performing surveillance colonoscopies. Other guidelines have broader recommendations that do not specify recommendations for particular populations.^{2,6,8,9,13,17-20} These details are reported in [Table 2](#).

Beyond index colonoscopies performed within or at 1 year after surgery, recommendations for surveillance colonoscopies range from no surveillance,^{10,20} within 1 to 2 years,^{14,20} within 3 years,^{2,3,6,10,11,15-18} between 3 and 5 years,^{8,9,12,19} every 2 years,⁵ every 5 years,^{1,3,10,11,14-18} every 10 years,¹⁰ to lifelong regular colonoscopy⁷ (interval was not provided) depending on coloscopy results. One guideline mentions that the optimum schedule for surveillance colonoscopies is unclear.¹³ Another guideline reports that an intense annual schedule is not recommended.¹⁶ Eight guidelines^{1,3,4,10,12,16,19,20} also mention that further surveillance intervals depend on previous findings or patient risk.

Table 2: Summary of Recommendations in Included Guidelines

Guideline development group(s) (year)	Guideline development group(s) (region)	Summary of recommendations	Quality of evidence and strength of recommendation
PEBC of Ontario Health and Cancer Care Ontario (2022) ¹	Canada	<p>Stage I to stage III colon cancer survivors:</p> <p>“At 1 year following surgery, the frequency of subsequent surveillance colonoscopies should be dictated by the findings of the previous one but, in general, a colonoscopy should be performed every 5 years if the findings of the previous one are normal (p. 727).”</p> <p>“There was insufficient evidence to support these recommendations for...patients with stage IV colon cancer, and patients over the age of 75 years. Therefore, the follow-up in those patients is at the discretion of the treating physician. There was no evidence to support follow-up in patients with stage I–III colon cancer beyond three years. Therefore, follow-up after this time period is at the discretion of the treating physician. These recommendations do not apply to...patients with increased risk of cancer including but not limited to inflammatory bowel disease, familial adenomatous polyposis, and Lynch syndrome (p. 728).”</p>	NR
NICE (2022) ²	UK	<p>Adults who have had potentially curative surgical treatment for non-metastatic colorectal cancer:</p> <p>“Healthcare professionals...ensure that these adults have... colonoscopy in the first 3 years after potentially curative surgery (p. 17).”</p>	NR
American Society of Colon and Rectal Surgeons (2021) ³	US	<p>Patients with colon cancer with high-risk stage I, stage II, and stage III or stage IV disease treated with curative intent:</p> <p>“Colonoscopy depending on findings repeat in 3 years, repeat every 5 years or more frequently if indicated (p. 524).”</p>	Unclear
PEBC of Ontario Health and Cancer Care Ontario (2021) ⁴	Canada	<p>Adult survivors of colorectal cancer, defined as patients who have completed primary, curative treatment for colorectal cancer stages I to IV and are without evidence of disease:</p> <p>“For patients with stage I-III colon cancer...[t]he frequency of subsequent surveillance colonoscopy should be dictated by the findings of the previous one, but it generally should be performed every five years if the findings of the previous one is normal (p. 8-9).”</p>	NR

Guideline development group(s) (year)	Guideline development group(s) (region)	Summary of recommendations	Quality of evidence and strength of recommendation
EHTG and ESCP (2021) ⁵	Europe	"For patients with LS with a history of CRC and segmental colectomy, biennial colonoscopies should be performed (p. 486)."	Moderate-quality evidence Strong recommendation
		"For patients with LS with a history of CRC and segmental colectomy, biennial rectosigmoidoscopies should be performed (p. 486)."	Moderate-quality evidence Strong recommendation
Japanese Society of Gastroenterology (2021) ⁶	Japan	"How should surveillance be planned after endoscopic resection of T1 (SM) ^a colorectal cancer? Close monitoring is necessary for not only local recurrence but also lymph node metastasis and distant metastasis. Careful follow-up for a minimum of 3 years should be performed after endoscopic resection (p. 327)."	Level of evidence: C ^b Weak recommendation
Japanese Society for Cancer of the Colon and Rectum (2021) ⁷	Japan	"Attention should be paid to the possible development of metachronous cancer in the remaining colorectum after surgery for colorectal cancer in patients with Lynch syndrome, and lifelong regular colonoscopy surveillance is required (p. 1398)."	NR
ESMO–Pan-Asian adapted (2021) ⁸	Pan-Asian	Pan-Asian adapted follow-up of patients with localized colon cancer: "Colonoscopy must be carried out...every 3-5 years thereafter, looking for metachronous adenomas and cancers (p. 1500)."	Strong or moderate-quality evidence, limited clinical benefit Generally recommended
ESMO (2020) ⁹	Europe	Follow-up after curative resection: "Colonoscopy must be carried out...every 3-5 years thereafter, looking for metachronous adenomas and cancers (p. 1302)."	Strong or moderate-quality evidence, limited clinical benefit Generally recommended

Guideline development group(s) (year)	Guideline development group(s) (region)	Summary of recommendations	Quality of evidence and strength of recommendation
British Society of Gastroenterology, ACPGBI, PHE (2020) ¹⁰	UK	<p>Post-polypectomy and post-cancer resection surveillance:</p> <p>Refer to Figure 1 (p. 205)</p> <p>“We recommend that people with high-risk findings on index colonoscopy who are under the age of 75 years should have a surveillance colonoscopy performed after an interval of 3 years (note the one exception in the next statement) (p. 206).”</p>	<p>Low-quality evidence</p> <p>Strong recommendation</p>
		<p>Post-polypectomy and post-cancer resection surveillance:</p> <p>Refer to Figure 1 (p. 205)</p> <p>“We suggest that due to the long timeline from a clearance colonoscopy through the potential development of new polyps to the possible development of a symptomatic cancer, surveillance should only be performed in people whose life-expectancy is greater than 10 years, and in general not in people older than about 75 years (p. 206).”</p>	<p>Low-quality evidence</p> <p>Weak recommendation</p>
		<p>Post-polypectomy and post-cancer resection surveillance:</p> <p>Refer to Figure 1 (p. 205)</p> <p>“We recommend that people with no high-risk findings on index colonoscopy should not undergo colonoscopic surveillance (p. 206).”</p>	<p>Low-quality evidence</p> <p>Strong recommendation</p>
		<p>Post-polypectomy and post-cancer resection surveillance:</p> <p>Refer to Figure 1 (p. 205)</p> <p>“We suggest that people with premalignant polyps but no high-risk findings on index colonoscopy, who are more than 10 years younger than the national bowel screening program lower age limit, should be considered for a surveillance colonoscopy performed after an interval of 5 or 10 years, individualised to their age and other risk factors (p. 207).”</p>	<p>Low-quality evidence</p> <p>Weak recommendation</p>

Guideline development group(s) (year)	Guideline development group(s) (region)	Summary of recommendations	Quality of evidence and strength of recommendation
		<p>Post-polypectomy and post-cancer resection surveillance: Refer to Figure 1 (p. 205)</p> <p>“We recommend that once a clearance colonoscopy has been performed in the postoperative period in patients who have had a CRC resection, their next surveillance should be performed after an interval of 3 years. The need for further surveillance should then be determined in accordance with the post-polypectomy high-risk criteria (p. 207-208).”</p> <p>“We recommend no surveillance if life-expectancy < 10 years or if older than about 75 years (p. 205).”</p>	<p>Low-quality evidence Strong recommendation</p>
Italian Medical Oncology Association (2020) ¹¹	Italy	<p>Management of patients with early-stage colon cancer: “Considering that 95% of recurrences occurs within 5 years from surgery, the duration of follow-up should be 5 years (p. 7).”</p>	<p>High-certainty evidence Strong recommendation</p>
		<p>Management of patients with early-stage colon cancer: “Although no universally shared indications for the ideal follow-up procedure exist, the following guidelines should be followed: Colonoscopy, if complete and negative, should be repeated after 1 year from surgery, then after 3 years, and in absence of adenomas every 5 years (p. 7).”</p>	<p>High-certainty evidence Strong recommendation</p>
Alberta Health Services (2019) ¹²	Canada	<p>Adults older than 18 years who have completed treatment for stage I, stage II, or stage III CRC</p> <p>“The same surveillance protocol is recommended for all non-metastatic CRC patients who undergo curative intent surgery, regardless of stage, who would potentially be considered a candidate for therapy in the event of disease recurrence (p. 6).”</p> <p>“Colonoscopy is recommended at 1 year post-surgery and every 3-5 years thereafter, based on findings, for all non-metastatic patients who would potentially be considered a candidate for additional treatment. Patients with high risk hereditary genetic features (i.e., HNPCC, FAP) may require more frequent colonoscopies, at the discretion of their surgeon or oncologist (p. 6).”</p>	NR

Guideline development group(s) (year)	Guideline development group(s) (region)	Summary of recommendations	Quality of evidence and strength of recommendation
European Society of Coloproctology (2019) ¹³	Europe	<p>Follow-up after curative-intent treatment of non-metastatic colorectal cancer:</p> <p>“Surveillance colonoscopy should be routinely performed during the follow-up after CRC (p. 19).”</p>	<p>“Consensus (recommended in 21 [100%] of the 21 guidelines that discussed this topic). Highest level of evidence referred to in the guidelines: 2b. The evidence supports the conclusion, since it shows that endoscopic surveillance is associated with improved survival (p. 19).”</p>
		<p>Follow-up after curative-intent treatment of non-metastatic colorectal cancer:</p> <p>“The optimum time schedule for surveillance colonoscopies is unclear, as well as duration of endoscopic surveillance (p. 19).”</p>	<p>“Controversy (No consensus on a specific time schedule) Highest level of evidence referred to in the guidelines: 1b (p. 19).”</p>
American Society of Clinical Oncology (2018) ¹⁴	US	<p>Treated patients with stage II CRC:^c</p> <p>“Colonoscopy once in the first 1-2 years after surgery (if colonoscopy available in local or referral setting) (p. 12).”</p>	<p>Low-quality evidence</p> <p>Weak recommendation</p>
		<p>Treated patients with stage II CRC:^c</p> <p>“Colonoscopy once in the first 1-2 years after surgery (if colonoscopy available in local or referral setting) (p. 12).”</p>	<p>Intermediate evidence</p> <p>Moderate recommendation</p>
		<p>Treated patients with stage II CRC at standard risk:^c</p> <p>“Colonoscopy 1 year after surgery then every 5 years or earlier as clinically indicated up to 75 years of age (p. 12).”</p>	<p>Intermediate evidence</p> <p>Moderate recommendation</p>
		<p>Treated patients with stage II CRC at high risk:^c</p> <p>“Colonoscopy 1 year after surgery then every 5 years or earlier as clinically indicated up to 75 years of age (p. 12).”</p>	<p>Intermediate evidence</p> <p>Moderate recommendation</p>
		<p>Treated patients with stage II CRC at standard and high risk:^c</p> <p>“Colonoscopy 1 year after surgery then every 5 years or earlier as clinically indicated up to 75 years of age (p. 12).”</p>	<p>Intermediate evidence</p> <p>Moderate recommendation</p>

Guideline development group(s) (year)	Guideline development group(s) (region)	Summary of recommendations	Quality of evidence and strength of recommendation
German Guideline Program in Oncology (2019) ¹⁵	Germany	"After complete removal (R0) of low-risk (pT1, low-grade (G1, G2, L0)) cancer...[a] complete colonoscopy shall be performed after three years (p. 98)."	Strong recommendation
		Patients with HNPCC: "After cancer resection in addition to the usual follow-up-colonoscopy must be performed in the same interval as preoperatively (p. 135)."	Strong recommendation
		"A colonoscopy should be performed after 1 year and subsequently, if negative, every 5 years to detect metachronic cancer or polyps. If a complete colonoscopy was done postoperatively within 6 months, the next one should be done after 5 years. If neoplasia is detected during colonoscopy after 6 or 12 months, further follow-up should be performed according to Chapter 6.5 (p. 232)."	Recommendation
		"After complete removal (R0) of low-risk (pT1, low-grade (G1, G2, L0)) cancer...[a] complete colonoscopy shall be performed after three years (p. 236)."	Strong recommendation
European Society of Gastrointestinal Endoscopy, ESDO (2019) ¹⁶	Europe	"We recommend post-surgery endoscopic surveillance for CRC patients after intent-to-cure surgery and appropriate oncological treatment for both local and distant disease (p. 268)."	Low-quality evidence Strong recommendation
		"We do not recommend an intensive endoscopic surveillance strategy, e.g., annual colonoscopy, because of a lack of proven benefit (p. 271)."	Moderate-quality evidence Strong recommendation
		"After the first surveillance colonoscopy following CRC surgery, we suggest the second colonoscopy should be performed 3 years later, and the third 5 years after the second. If additional high-risk neoplastic lesions are detected, subsequent surveillance examinations at shorter intervals may be considered (p. 272)."	Low-quality evidence Weak recommendation
		"After the initial surveillance colonoscopy, we suggest halting post-surgery endoscopic surveillance at the age of 80 years, or earlier if life-expectancy is thought to be limited by comorbidities (p. 273)."	Low-quality evidence Weak recommendation
		"In patients with a low risk pT1 CRC treated by endoscopy with an R0 resection, we suggest the same endoscopic surveillance schedule as for any CRC (p. 273)."	Low-quality evidence Weak recommendation

Guideline development group(s) (year)	Guideline development group(s) (region)	Summary of recommendations	Quality of evidence and strength of recommendation
<p>AEG, semFYC, Spanish Society of Digestive Endoscopy, Colorectal Cancer Screening Group of the Spanish Society of Epidemiology (2018)¹⁷</p>	<p>Spain</p>	<p>Patients treated with curative-intent colorectal cancer resection: Refer to Figure 1 (p. 196) “We recommend performing the first surveillance colonoscopy one year after the intervention, three years after the first follow-up and then every five years if the colonoscopies are normal or only show non-advanced lesions (p. 197).” “If metachronous colorectal lesions are detected, the same recommendations as for post-polypectomy surveillance described above should be followed (p. 197).”</p>	<p>Low-quality evidence Strong recommendation</p>
		<p>Refer to Figure 1 (p. 196) “Thereafter, the endoscopic surveillance interval will be established on the basis of the lesions detected: Three years if lesions requiring endoscopic surveillance are detected and five years if no such lesions are detected. Patients will be reincorporated into the CRC population screening program if no lesions requiring surveillance are detected in two consecutive colonoscopies. Endoscopic surveillance will end when the patient reaches 80 years of age (or 75 in case of associated comorbidities) (p. 197-198).”</p>	<p>Unclear</p>
<p>Spanish Society of Family and Community Medicine, Spanish Association of Gastroenterology (2018)¹⁸</p>	<p>Spain</p>	<p>Surveillance in patients with resected colorectal cancer with curative intent: “We recommend performing the first surveillance colonoscopy at one year after the intervention, 3 years after the first follow-up and then every 5 years if the colonoscopies are normal or show only non-advanced lesions (p. 594).”</p>	<p>Low-quality evidence Strongly in favour</p>
		<p>Surveillance in patients with resected colorectal cancer with curative intent: “If metachronous colorectal lesions are detected, the same recommendations as for post-polypectomy surveillance described above should be followed (p. 594).”</p>	<p>Low-quality evidence Strongly in favour</p>
<p>Malaysia Health Technology Assessment Section (2017)¹⁹</p>	<p>Malaysia</p>	<p>Management of colorectal carcinoma: “Surveillance colonoscopy at year one and every three to five years thereafter, dictated by the findings of the previous investigation. If a colonoscopy has not been performed before diagnosis, it should be done after completion of adjuvant therapy (before one year) (p. 35).”</p>	<p>Level III evidence: “Opinions of respected authorities based on clinical experience; descriptive studies and case reports; or reports of expert committees (p. i).”</p>

Guideline development group(s) (year)	Guideline development group(s) (region)	Summary of recommendations	Quality of evidence and strength of recommendation
<p>Polish Network of Neuroendocrine Tumours (2017)²⁰</p>	<p>Poland</p>	<p>Colorectal neuroendocrine neoplasms:</p> <p>“After a complete endoscopic or surgical removal of the colorectal neuroendocrine neoplasm, the following follow-up is recommended: G1, G2 tumours up to 1 cm, without lymph node metastases, without invasion of the muscularis propria –regular monitoring of patients is not recommended; G3 tumours smaller than 1 cm and G1–3 tumours of 1–2 cm: colonoscopy every 12 months; tumours larger than 2 cm: obligatory follow-up examinations: G1/G2 tumours: colonoscopy/imaging examination/ CgA in the first year; for G3 tumours, the same examinations every 4–6 months in the first year, then once a year (p. 258).”</p> <p>“Follow-up imaging examinations: for lesions in the colon: CT, colonoscopy (p. 259).”</p> <p>“All lesions larger than 2 cm will require follow-up; smaller tumours should be followed up in the presence of poor prognostic factors (p. 259).”</p>	<p>Evidence level: III^b</p>

ACPGBI = Association of Coloproctology of Great Britain and Ireland; AEG = Asociacion Espanola de Gastroenterologia/Spanish Association of Gastroenterology; CEA = carcinoembryonic antigen; CRC = colorectal cancer; EHTG = European Hereditary Tumour Group; ESCP = European Society of Coloproctology; ESDO = European Society of Digestive Oncology; ESMO = European Society for Medical Oncology; FAP = familial adenomatous polyposis; HNPCC = hereditary nonpolyposis colorectal cancer; LS = Lynch syndrome; PEBC = Program in Evidence-Based Care; PHE = Public Health England; NICE = National Institute for Health and Care Excellence; NR = not reported; semFYC = Spanish Society of Family and Community Medicine; TCS = total colonoscopy.

^aT1 (SM) was not defined in the article.

^bLevel of evidence was not defined in the article.

^cFurther details about the differences between each recommendation are located in the full-text article.

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Guidelines and Recommendations

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Refer to 4.5 Follow-up on p. 258-259

Appendix 1: References of Potential Interest

Note that this appendix has not been copy-edited.

Previous CADTH Reports

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Guidelines and Recommendations

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