POST POLYPECTOMY SURVEILLANCE GUIDELINES

Recommendations on follow-up after colonoscopy and post polypectomy in Alberta

Alberta Colorectal Cancer Screening Program

ALBERTA HEALTH SERVICES | 2022

Acknowledgements

Alberta Health Services, Alberta Colorectal Screening Program is appreciative to:

- Michael R Kolber MD CCFP MSc, for co-chairing this committee.
- The Guideline Panel, for their time commitment and guidance.
- Jessica Wiseman for the evidence review and meta-analysis.
- KeeLee Scutt for on-going administrative support and editing contributions.
- Project Sponsors: Dr. Huiming Yang, Screening Program Medical Director, and Barbara Moysey, ACRCSP Program Manager.

The ACRCSP would like to thank the following external reviewers for their valuable input into this document:

- Dr. Jennifer Telford, MD, MPH, FRCPC, Clinical Professor of Medicine, University of British Columbia, and Medical Director, BC Colon Screening Program
- Dr. Alan Barkun, MD, CM, FRCP (C), FACP, FACG, AGAF, MSc, Chairholder, Douglas G. Kinnear Chair in Gastroenterology, and Professor of Medicine, McGill University and the McGill University Health Center
- Dr. Harminder Singh, MD, MPH, FRCPC, Clinician Scientist, Assistant Professor of Medicine in the departments of Internal Medicine and Community Health Sciences at the University of Manitoba and Consultant Medical Staff, Department of Medical Oncology and Hematology, CancerCare Manitoba.
- Dr. Jerry McGrath, BSC., MSc., MD, FRCPC, CAGF, Head of Gastroenterology, General Hospital, Health Sciences Centre, Eastern Health, Medical Director, Newfoundland and Labrador Colon Cancer Screening Program, and Associate Professor of Medicine, Memorial University
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Supplemental literature review and meta-analysis provided by Jessica Wiseman, Screening Program's Evaluation Coordinator.

Funding

Funding was through in-kind support (AHS Screening Programs).

Declared Competing Interest of Panel

For declared competing interest refer to Appendix B: Guideline Panel Members.

Suggested Citation

Sadowski D, Kolber MR, Nemecek N, Wiseman J, on behalf of the ACRCSP Post Polypectomy Working Group Panel (2022). Post polypectomy surveillance guidelines: recommendations on follow-up after colonoscopy and post polypectomy in Alberta. Alberta Health Services. Retrieved from Colorectal Screening Information - Screening For Life | Screening For Life

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Acronyms and Abbreviations

AA – advanced adenoma

ACRCSP- Alberta Colorectal Cancer Screening Program

ACRN- advanced colorectal neoplasia

BSG- British Society of Gastroenterology

CCO- Cancer Care Ontario

CCSC- [Forzani & MacPhail] Colon Cancer Screening Centre

CPG- clinical practice guideline

CRC – colorectal cancer

ESGE- European Society of Gastrointestinal Endoscopy

FIT- fecal immunochemical test

HP – hyperplastic polyp

HGD- high grade dysplasia

HRA- high risk adenoma

HRL – high risk lesion

IBD- Inflammatory bowel disease

LGD- low-grade dysplasia

LRA- low risk adenoma

SPS- serrated polyposis syndrome

SSA- sessile serrated adenoma

SSP-sessile serrated polyp

SSL - sessile serrated lesion

TA – tubular adenoma

USMSTF-United States Multi-Society Task Force

WHO-World Health Organization

Executive Summary

Guidelines for post-polypectomy surveillance were first published by the Alberta Colorectal Cancer Screening Program (ACRCSP) in 2013 and were in accordance with 2012 recommendations from the US Multi-Society Task Force (USMSTF) on Colorectal Cancer Post-Polypectomy Surveillance. Most recently as new evidence has emerged, updated surveillance guidelines have been published by the US Multi-Society Task Force on Colorectal Cancer (2020), the European Society of Gastrointestinal Endoscopy (2020), British Society of Gastroenterology (2020), and Cancer Care Ontario (2019).

In spring of 2021, the ACRCSP convened an expert panel to update post-polypectomy guidelines to reflect this new evidence, ensuring that standardized recommendations pertaining to surveillance colonoscopy are available and accessible to all those involved in the provision of colorectal cancer screening. The revised Alberta guidelines will advise practicing endoscopists, referring physicians and their patients to make evidence-informed decisions.

An initial systematic review revealed significant advances in the scientific literature since the last ACRCSP guidelines in 2013. Review of existing clinical practice guidelines identified inconsistencies and gaps that precluded making several recommendations in the Alberta context. Accordingly, the guideline panel performed several reviews to garner the latest evidence regarding pertinent questions.

The following guiding principles were adhered to in formulating evidence reviews and recommendations:

1) Improve population health. The goal of screening is to reduce colorectal cancer mortality and incidence. Surrogate markers such as the occurrence of advanced adenomas were given less weight in the decision making.
2) Reduction of harms. Colonoscopy is an invasive procedure not without risk. The benefits of surveillance colonoscopy need to be maximized while the potential harms (i.e., adverse events) are minimized.
3) Costs and resource allocation. Consideration of healthcare system costs and adequate resources to ensure equitable distribution of benefits.

The recommendations for post-polypectomy surveillance are found in Table 1: ACRCSP Recommendations for Post-Polypectomy Surveillance Summary Table.

Table 1: ACRCSP Recommendations for Post-Polypectomy Surveillance Summary Table

Initial Colonoscopy Findings	Recommendations for next test and interval	Subsequent colonoscopy for polyps/lesions requiring surveillance
Normal or no polyps	FIT screening in 10 years[i]	
Hyperplastic polyp(s) <10mm		
Hyperplastic polyp(s) ≥10mm	Colonoscopy in 3 years if proximal to sigmoid colon[ii] Colonoscopy in 5 years if in rectosigmoid	If no polyps requiring surveillance detected, then subsequent colonoscopy at 5 years. Consider return to average risk FIT screening if both scopes normal.
Adenoma		
1 - 2 tubular adenoma(s) <10 mm	FIT screening in 5 years	
3 - 4 tubular adenomas <10mm	Colonoscopy in 5 years	Consider return to FIT screening in five years.
5 - 10 tubular adenomas <10mm	Colonoscopy in 3 years	If no polyps requiring surveillance detected, then subsequent colonoscopy at 5 years. Consider return to average risk FIT screening if both scopes normal.
≥10mm in size		
Villous histology or high-grade dysplasia		
>10 tubular adenomas	Colonoscopy in 1 year and genetic counselling[iii]	At endoscopist discretion
Sessile Serrated Lesion (SSL)		
1 - 2 SSL(s) <10 mm	Colonoscopy in 5 years	Consider return to FIT screening in five years.
3 - 10 SSLs <10mm	Colonoscopy in 3 years	If no polyps requiring surveillance detected, then subsequent colonoscopy at 5 years. Consider return to average risk FIT screening if both scopes normal.
≥10 mm in size (any number)		
[with] dysplasia (any size)		
Traditional serrated adenoma (any size)		
Serrated polyposis syndrome[iv]	Colonoscopy in 1 years	At endoscopist discretion
Piecemeal Resection		
Large (≥10mm) non-pedunculated polyp or lesion	Colonoscopy[v] in 6 months	If initial polyp was ≥20mm, next surveillance colonoscopy in 1 year. If no recurrence detected at resection site, subsequent colonoscopy surveillance in 3 years If initial polyp was ≥10mm-19mm, next surveillance colonoscopy in 3 years[vi]. If no recurrence detected at resection site, subsequent colonoscopy surveillance in 5 years.

[i] More than 20 hyperplastic polyps, especially if proximal to sigmoid colon, consider serrated polyposis syndrome[v]

[ii] Hyperplastic polyp(s) ≥10mm proximal to sigmoid colon should be considered a sessile serrated lesion (SSL) with colonoscopy surveillance recommended in 3 years.

[iii] Consider genetic testing referral. Patients with >10 adenomas found on a single colonoscopy have an increased risk for hereditary polyposis. Timely clearing colonoscopy is required to ensure that all adenomatous lesions have been removed.

[iv] Serrated polyposis syndrome: *1) at least five serrated lesions proximal to the rectum, with two or more that are >10mm or 2) more than 20 serrated lesions or polyps of any size distributed throughout the large bowel, with at least five proximal to the rectum.*

[v] For recto-sigmoid lesions, the choice of limited flexible sigmoidoscopy vs full colonoscopy is left to endoscopist's discretion.

[vi] Consideration for 12-month follow-up if high grade dysplasia, resection required multiple passes or challenging position noted.

Background

Launched in 2007, the Alberta Colorectal Cancer Screening Program (ACRCSP) is an organized provincial colorectal cancer screening program coordinated by Alberta Health Services (AHS) and operates in partnership with healthcare providers. Evidence from randomized controlled trials indicates that population-based screening programs can reduce the burden of cancer. Colorectal cancer (CRC) screening particularly among 50–74-year-olds is known to reduce CRC incidence, morbidity, and mortality in a cost-effective manner provided that screening is done in accordance with evidence-based guidelines.

Guidelines regarding post-polypectomy surveillance were first published in 2013 by the ACRCSP and were in keeping with the recommendations from the concurrent US Multi-Society Task Force on Colorectal Cancer. The current document is an update on the 2013 guidelines and reflects both emerging evidence and recommendations from other expert groups (see Appendix A: Post-Polypectomy Colonoscopy Surveillance CPG Appraisal Table).

In providing evidence-based recommendations for patients who have had colonic polyps removed, the following caveats must be considered:

- Surveillance colonoscopy after polyp removal should be targeted at patients who are most likely to benefit; with the primary aim to reduce colorectal cancer (CRC) incidence and mortality [1].
- A high-quality baseline colonoscopy has been performed. A high-quality colonoscopy is one where: the cecum was reached with photo documentation, bowel preparation allowed adequate visualization of all colonic mucosa, with a recommended minimum withdrawal time, with complete removal of all polyps seen and with documentation that meets endoscopy reporting standards [2].
  - Polyp size is objectively estimated in reference to either snare diameter or open biopsy forceps
  - All polypectomies are carried out with good technique and all polypectomy material is sent to pathology [3].
- The colonoscopy procedure report should clearly state who is responsible for arranging the follow-up colonoscopy.
- The decision regarding surveillance interval should be based on the most advanced finding(s) at initial colonoscopy. Colonoscopy findings should be confirmed by final pathology results.
- Post-polypectomy outcomes have not been thoroughly studied in populations of patients younger than age 50.
- Follow-up for patients diagnosed with a colorectal cancer are excluded from these recommendations and would require case specific management.
- Surveillance recommendations also need to consider baseline risk for CRC based on other factors such as family history (outside the scope of this guideline, see colorectal-cancer-screening-guideline.pdf (albertadoctors.org).

Methodology

Recommendations for post-polypectomy follow-up were created for each distinct polyp type. Confusing terminology such as low or high-risk adenomas for the most part was eliminated. These recommendations were based on an evidence review and consideration of current recommendations from other expert groups, published within the last 5 years. Given that there have been several recent systematic reviews with subsequent guideline recommendations, that work was not duplicated here. Rather, this guideline considered the available evidence and expert recommendations as pertaining to the Alberta clinical milieu. Selective supplemental literature reviews were carried out when there was new literature available.

A range of stakeholders were identified for this 10-member panel, including endoscopists, with backgrounds in gastroenterology (4), surgery (2) and family medicine (1). The panel also included two nurses and one pathologist (Appendix B: Guideline Panel Members).

Ranking of existing Clinical Practice Guidelines:

- The AGREE II tool was selected as the CPG appraisal tool [4].
- 2 evaluators from AHS Screening Programs worked independently to appraise the CPGs.
- Discrepancies of significance (more than a 2-point difference) were discussed between the appraisers and each appraiser revisited the CPG independently to re-evaluate and resolve the discrepancy.

Results:

- Total scores were calculated and are presented in Appendix A: Post-Polypectomy Colonoscopy Surveillance CPG Appraisal Table.
- The overall assessments of the CPGs found scores ranging from 58% (Ontario) to 92% (United Kingdom, Australia) [5, 6].

Based on the results, local regional influence and ease of reviewing, the panel selected three clinical practice guidelines (ESGE 2020, USMSTF 2020 and CCO 2019) [7, 8, 9]. Similarities or differences in key recommendations of preferred guidelines were highlighted. Members further examined the evidence and proposed recommendations for endoscopic surveillance depending on findings at index and subsequent colonoscopy.

Process

The guideline panel met in a series of virtual meetings held over 10 months. As part of the decision-making process, a recommendation should remain unchanged unless there is new/emerging evidence since the previous update (Appendix C: Decision Making Process for Program Guideline Recommendations).

A final vote was administered through Select Survey. Members were asked to agree or disagree on 14 proposed statements. Unanimity (100%) was achieved for 12 of the 14 recommendations. See full summary of 2021 recommendations from guideline committee (Appendix D: Summary of 2021 recommendations from guideline committee).

Recommendations for Post Polypectomy Surveillance

Initial colonoscopy finding of: **Normal or no polyps**

RECOMMENDATION:

2021 statement
For an average risk patient with no polyps or normal findings on colonoscopy, the panel recommends FIT in 10 years.

2013 statement
Patients with no adenomas or sessile serrated lesions should undergo screening based on their underlying risk level: Average risk patient should rescreen in 10 years, using the screening modality that is recommended for average risk.

In alignment with existing clinical practice guidelines (Appendix E: Initial Colonoscopy Findings of Normal or Hyperplastic Polyp(s), Tubular Adenoma(s), and Sessile Serrated Lesion(s)), average risk patients[ii]. should rescreen with FIT in 10 years, following a normal (i.e., no polyps) finding on initial colonoscopy. Evidence confirms that average-risk individuals who have a normal (i.e., no polyps) initial colonoscopy have a decreased future risk of colorectal cancer to below that of unscreened populations [10].

Surveillance recommendations also need to consider baseline risk for CRC based on family history or other heritable factors or existing illness (such as IBD) and adjustments may need to be made within the 10-year interval. For CRC screening guidelines for family history please refer to colorectal-cancer-screening-guideline.pdf (albertadoctors.org).

Voting results:
Decision achieved by consensus (10/10).

Initial colonoscopy finding of: Hyperplastic polyp(s) <10mm

RECOMMENDATION:

2021 statement
For an average risk patient with finding(s) of hyperplastic polyp(s) <10mm, the panel recommends FIT in 10 years*.
*More than 20 hyperplastic polyps, especially if found proximal to the sigmoid colon, should lead to consideration of serrated polyposis syndrome.

2013 statement
Patients with small (<10mm) hyperplastic polyps in rectum or sigmoid should maintain screening interval based on underlying risk level (consider colonoscopy results as synonymous to normal).

Review of currently existing CPGs (Appendix E: Initial Colonoscopy Findings of Normal or Hyperplastic Polyp(s), Tubular Adenoma(s), and Sessile Serrated Lesion(s)).

[ii] Average risk refers to individuals who are asymptomatic, no history of inflammatory bowel disease and no personal or family history of colorectal cancer or advanced adenomas. The ACRCSP recommends average-risk screening with FIT every 1-2 years for those aged 50-74.

Hyperplastic polyps (HP) in the rectosigmoid are common findings at colonoscopy and can be readily identified by their typical appearance using image enhancement such as electronic chromoendoscopy. Small rectal HP's do not routinely require endoscopic removal.

The presence of up to 20 HPs has not been associated with increased subsequent risk of CRC [11]. However, the finding of more than 20 HPs, especially if found proximal to sigmoid colon should lead to consideration of serrated polyposis syndrome that carries an increased risk of subsequent CRC.

The 2021 Alberta recommendation states *FIT in 10 years* rather than *return to routine screening*. This wording is to prevent FITs being done too soon after a colonoscopy, as well as to prevent routine screening being mistaken for average risk colonoscopies. In Alberta, FIT is the entry-level CRC screening test for average risk populations.

Voting results:
Decision achieved by consensus (10/10).

Initial colonoscopy finding of: Hyperplastic polyp(s) ≥10mm

RECOMMENDATION:

2021 statement

For a colonoscopy finding of hyperplastic polyp(s) ≥10mm:

1. **Proximal to sigmoid colon, the panel recommends colonoscopy in 3 years*.**
   *Hyperplastic polyp(s) proximal to sigmoid colon should be considered sessile serrated lesion (SSL) with colonoscopy surveillance in 3 years.
2. **In rectosigmoid, the panel recommends colonoscopy in 5 years.**

2013 statement

Repeat colonoscopy in 5 years if, four or more hyperplastic polyps proximal to sigmoid colon or any hyperplastic polyp >5mm proximal to sigmoid colon.

Because of inter observer variation in the pathological differentiation of HP from SSA/P, proximal colonic serrated lesions >10mm in size that are designated HP may be considered to be SSA/P by clinicians. Conversely, it would be unusual for a small (<5mm) polyp in the rectosigmoid to represent a SSA/P rather than a HP.

Review of currently existing CPGs (Appendix E: Initial Colonoscopy Findings of Normal or Hyperplastic Polyp(s), Tubular Adenoma(s), and Sessile Serrated Lesion(s)):

- ESGE recommends serrated polyps ≥10mm and serrated polyps with dysplasia yield similar metachronous advanced neoplasia or CRC and require surveillance at 3 years [7].
- USMSTF recommends colonoscopy in 3-5 years for HP ≥10mm. A 3-year follow-up is favored if concerns about consistency in distinguishing SSP from HP locally [8].
- Locally, within Calgary (CCSC) proximal hyperplastic polyps ≥10mm are treated as SSL's.

Histologically, it may be difficult to distinguish between SSL's and HP's particularly if the specimen sectioning is not optimal to see entire crypts in the resected specimen. There is large inter-observer variability in pathologists when distinguishing between SSL's and HP's.

Voting results:
Decision achieved by consensus (10/10).

Initial colonoscopy finding of: 1 or 2 tubular adenoma(s) <10mm

RECOMMENDATION:

2021 statement
For a colonoscopy finding of 1 or 2 tubular adenoma(s) <10mm, the panel recommends FIT in 5 years.

2013 statement
Patients with 1 or 2 small (<1cm) tubular adenomas with low-grade dysplasia, repeat colonoscopy in 5-10 years.

Return to screening intervals based on underlying risk level (discontinue surveillance) if follow-up colonoscopy is normal.

Recent studies suggest that patients who undergo colonoscopy with removal of adenomas less than 10 mm without evidence for high grade dysplasia have a **similar r**isk of CRC cancer incidence and mortality compared to patients with a normal colonoscopy and a **lower** risk of CRC compared to an age-matched unscreened population [10 – 14].

Review of currently existing CPGs (Appendix E: Initial Colonoscopy Findings of Normal or Hyperplastic Polyp(s), Tubular Adenoma(s), and Sessile Serrated Lesion(s)):

- ESGE recommends patients with complete removal of 1-2 (<10mm) adenomas do not require endoscopic surveillance and should be returned to screening [7].
- USMSTF recommends colonoscopy in 7-10 years for 1-2 small adenomas (essentially average risk screening) [8].
- Within Canada, CCO recommends that low risk adenomas (defined as 1-2 tubular adenomas [<10mm] without high-grade dysplasia) be screened with FIT five years after their initial colonoscopy [9].

An evidence review regarding the influence of the number of adenomas on the downstream risk for the development of colorectal cancer was performed. Full-text screening of retrieved publications was completed by 2 independent reviewers from AHS Screening Programs, with exclusions being made based on the following criteria (Appendix F: Figure A. PRISMA 2020 flow diagram for evidence review of # of adenomas and risk of CRC).

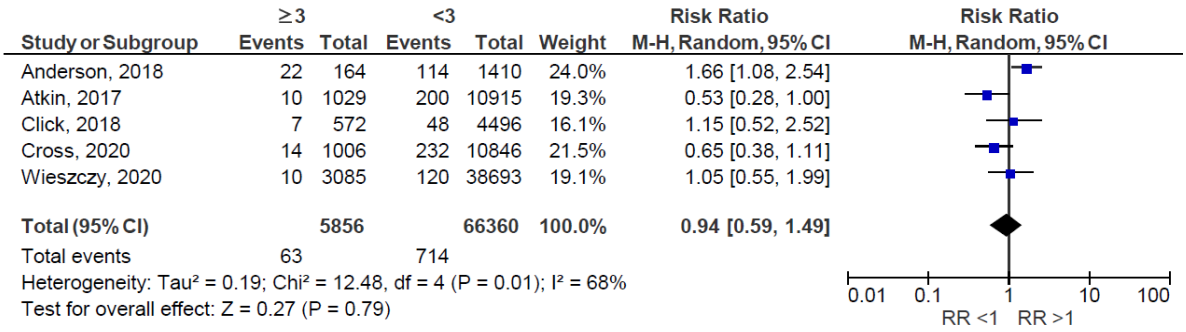
Exclusion criteria:

- if number of adenomas ≤ 5 and CRC risk is not present
- if not multi-centre study
- if N less than 1000

Meta-analysis 1: ≥3 vs <3 adenomas

Figure 1 shows the group comparison between number of adenomas and the risk of CRC events (including advanced neoplasia). No significant difference in risk of CRC was identified between the patients with ≥3 or <3 adenomas. However, there was considerable heterogeneity between studies which may be the result of variable lengths of follow-up and differing patient related outcomes. The panel noted that the power analysis was 0.779, indicating the possibility of a Type 2 error.

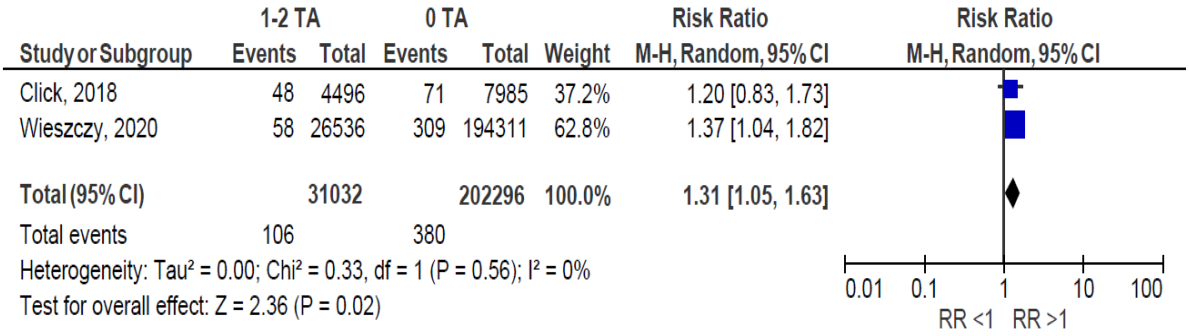
Figure 1: ≥ 3 vs. < 3 TA and subsequent risk of CRC



Meta-analysis 2: 1-2 TA's vs 0 TA's

Using the studies from the previous meta-analysis, a revised analysis was done comparing the risk ratio for 1-2 TA vs average risk (absence of adenoma). Out of the five studies included for review, only Click (2018) and Wieszczy (2020) provided sufficient data to do a comparison.

Figure 2: 1-2 TA vs 0 TA and subsequent risk of CRC



- Overall, the risk ratio of 1.31 (95% CI 1.05, 1.63) indicates a slightly increased risk of CRC incidence with the presence of 1-2 TA compared to those with no TA's (Figure 2). However, the included studies did not control for polyp size or dysplasia.
- The panel concluded that our literature review would suggest that patients with less than three adenomas have a subsequent risk of CRC that is essentially the same as those who are at average risk for CRC. This is supported by a recent meta-analysis published after our review that draws the same conclusions [15]. Thus, it's reasonable through shared decision making, to offer a return to FIT screening rather than colonoscopy
- Given that this patient group has at most an average risk for CRC, some guideline panels have recommended a return to FIT screening in 10 years. However, the panel felt that this was too drastic a change for primary care physicians to enact in the short to intermediate term and thus a 5-year follow-up with FIT was recommended.

Voting results:

Decision achieved by consensus (10/10).

Initial colonoscopy finding of: 3 or 4 tubular adenomas <10mm

RECOMMENDATION:

2021 statement

For a colonoscopy finding of 3 or 4 tubular adenomas <10mm, the panel recommends colonoscopy in 5 years.

2013 statement

Patients with 3 to 10 adenomas, repeat colonoscopy in 3 years.

If the follow-up colonoscopy is normal or shows only 1 or 2 small TA with no HGD, then the interval for the subsequent examination should be 5 to 10 years.

Previous recommendations for aggressive surveillance in patients with three or more small adenomas were based on studies prior to 2000. Since that time, high-definition endoscopes, better bowel prep and attention to adenoma detection rates have resulted in proportionally more small adenomas being found during endoscopy [16]. This has resulted in a screening paradox where aggressive surveillance is recommended for lesions that may not confer increased risk for CRC. At least three more recent large observational cohort studies have demonstrated that the number of non-advanced adenomas less than 10 mm in diameter does not have an impact on the risk for colorectal cancer incidence or mortality. This effect appears to extend up to and probably beyond 5 colonic adenomas [16 – 18].

Review of currently existing CPGs (Appendix E: Initial Colonoscopy Findings of Normal or Hyperplastic Polyp(s), Tubular Adenoma(s), and Sessile Serrated Lesion(s)):

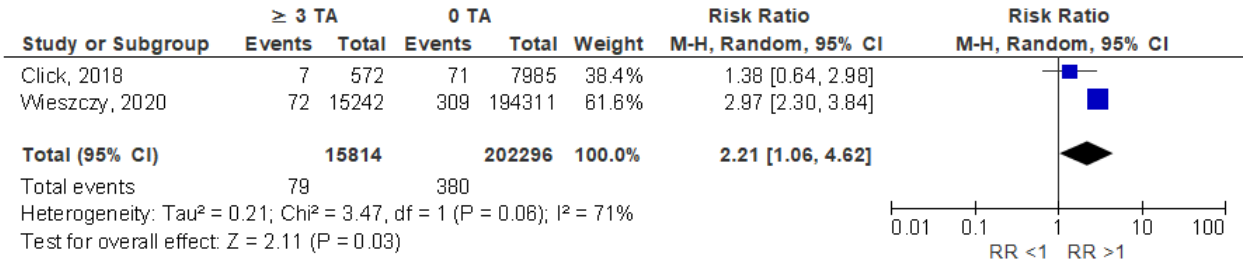
- ESGE recommends patients with complete removal of 1-4 (<10mm) adenomas do not require endoscopic surveillance and should be returned to screening [7].
- USMSTF recommends colonoscopy in 3-5 years for 3-4 small adenomas [8].
- Within Canada, CCO recommends that 3-4 tubular adenomas (<10mm) repeat colonoscopy in 3 years [9].

An evidence review regarding the influence of the number of adenomas on the downstream risk for the development of colorectal cancer was performed.

Meta-analysis

Using the studies from the previous meta-analysis, a revised analysis comparing the risk ratio for 3-4 TA vs average risk was requested. Out of the five studies included for review, only Click (2018) and Wieszczy (2020) had a comparison addressing the presence of adenomas. However, neither study made a comparison to groups with average risk or those with no adenoma. The analysis was tailored to the data provided and thus ≥3 vs no adenoma groups were compared (Appendix G: Number of Adenoma and CRC incidence - Evidence Review Table).

Figure 3: ≥ 3 TA vs 0 TA and subsequent risk of CRC



- This paned noted that the RR of 2.21 was only modestly statistically significant (95%CI 1.06, 4.62)
- The panel noted that the analysis may not have been adequately powered to avoid a Type II error.
- Given that there does appear to be an increase in subsequent risk of CRC with ≥ 3 TA's, the panel felt that the ESGE recommendation to return to average risk screening (e.g., FIT) could not be supported by the evidence.
- As well, the 2013 AHS recommendation for a 3-year follow-up colonoscopy seemed too aggressive given the low relative risk in this patient population.
- Thus, the panel recommended a repeat colonoscopy in 5 years to remain within recognized interval groupings.

Voting results:
Decision achieved by consensus (10/10).

Initial colonoscopy finding of: 5 to 10 tubular adenomas <10mm, or any adenoma ≥10mm, or with villous/tubulovillous features or high grade dysplasia

RECOMMENDATION:

2021 statement

For a colonoscopy finding of 5 to 10 tubular adenomas <10mm, or any adenoma ≥10mm, or with villous/tubulovillous features or high-grade dysplasia, the panel recommends colonoscopy in 3 years.

2013 statement

Patients with 3 to 10 adenomas, or any adenoma >1cm, or with villous features or high-grade dysplasia, repeat colonoscopy in 3 years.

If the follow-up colonoscopy is normal or shows only 1 or 2 small TA with no HGD, then the interval for the subsequent examination should be 5 to 10 years.

The risk of advanced adenomas rises in individuals with 5 or more adenomas. Multiple studies have confirmed that identification of 1 or more adenomas >10 mm in size is an independent risk factor for the development of CRC [19 – 21].

The ESGE has recommended that villous histology in polyps less than 10 mm does **not** require surveillance. Polyps less than 10 mm in size with villous histology are a rare event. Yet, more recent evidence does suggest that villous histology confers slightly increased risk of CRC cancer incidence and mortality. However, this effect does appear to have less importance when polyp size is factored in [18].

Wieszczy (2020) identified that individuals who had at least 1 adenoma with high grade dysplasia of any size were at higher risk of developing CRC. However, number of adenomas or villous histology were not found to be independent risk factors for colorectal cancer incidence or mortality. [17].

Because of the uncertainty of the consequences of villous histology on the development of CRC, the current recommendation is for a surveillance colonoscopy in 3 years.

- Given the above available evidence, the panel felt it was too premature to make a significant change. Thus, the recommendation for polyps with villous or tubulovillous histology is unchanged from 2013.

Voting results:
Decision achieved by consensus (9/10). One member disagreed with the 3-year recommendation, citing that the finding of high-grade dysplasia may warrant an earlier follow-up depending on polyp morphology and size.

Initial colonoscopy finding of: More than 10 tubular adenoma(s)

RECOMMENDATION:

2021 statement

For a colonoscopy finding of more than 10 tubular adenomas on a single colonoscopy, the panel recommends colonoscopy in 1 year and genetic counselling*.

*Consider genetic testing referral. Patients with >10 adenomas found on colonoscopy have an increased risk for hereditary polyposis. Timely clearing colonoscopy is required to ensure that all adenomatous lesions have been removed.

2013 statement

Patients with >10 small (<1cm) adenomas on a single examination, repeat colonoscopy in less than 3 years. Consider the possibility of an underlying familial syndrome.

Patients with >10 adenomas found on a single colonoscopy have an increased risk of hereditary polyposis syndromes (e.g., familial adenomatous polyposis). Timely clearing colonoscopy is required to ensure that all adenomatous lesions have been removed. Multiple groups have recommended referral for genetic testing in all patients with >10 adenomas [22, 23].

Review of currently existing CPGs (Appendix E: Initial Colonoscopy Findings of Normal or Hyperplastic Polyp(s), Tubular Adenoma(s), and Sessile Serrated Lesion(s)).

- ESGE recommends patients with 10 or more adenomas should be referred for genetic counselling [7].
- USMSTF recommends patient with >10 adenomas completely removed at high-quality exam, repeat colonoscopy in 1 year [8].
- Within Canada, CCO recommends that people with >10 adenomas undergo genetic assessment and receive a clearing colonoscopy within one year [9].

The panel suggested a wording change - *consider* genetic counselling rather than recommend. Alberta has extremely limited access to genetic counselling, and this can then be left to endoscopist discretion.

Voting results:
Decision achieved by consensus (10/10).

Sessile Serrated Lesions

Serrated lesions of the colon are precursors to as many as one-fifth of CRC's [24]. Currently, there is significant variation in the nomenclature used to describe these lesions including terms such as hyperplastic polyp, sessile serrated adenoma/polyp with or without dysplasia, and traditional serrated adenoma**. The most recent WHO Classification of Digestive System Tumors recommends that sessile serrated adenomas/polyps should now be called sessile serrated lesions (SSL) or sessile serrated lesions with dysplasia (SSLD)** [25].

Sessile serrated lesion (SSL) is the nomenclature accepted by the Alberta Provincial GI Pathology Group (2020) and is consistent with WHO 2019 terminology. In Alberta, Pathologists who adopt the term SSL will continue to distinguish hyperplastic polyps from SSLs. Pathologists should work with their gastroenterologists to ensure no confusion arises because of terminology [26, 27].

Initial colonoscopy finding of: 1 or 2 sessile serrated lesions <10mm

RECOMMENDATION:

2021 statement
For a colonoscopy finding of 1 or 2 sessile serrated lesions <10mm, the panel recommends colonoscopy in 5 years.

2013 statement
Repeat colonoscopy in 5 years if 1-2 small (<10mm) sessile serrated adenomas/polyps or traditional serrated adenomas with no dysplasia.

Evidence for the development of metachronous CRC following removal of small (< 10 mm) serrated lesions is still evolving. Two recent large retrospective cohort studies demonstrated non-significant hazard ratios compared to no polyps for small SSL's removed from either the proximal or distal colon [28].

In contrast, a large retrospective cohort study of 233,393 individuals identified that proximal small SSLs were associated with an increased risk of CRC with the risk beginning to rise after 3 years of follow-up (HR 2.6 [1.7–3.9]). There was no increased risk of CRC seen for small distal SSL's [29].

Review of currently existing CPGs (Appendix E: Initial Colonoscopy Findings of Normal or Hyperplastic Polyp(s), Tubular Adenoma(s), and Sessile Serrated Lesion(s)):

- ESGE recommends patients undergoing complete removal of any serrated polyp <10mm without dysplasia do not require endoscopic surveillance and should be returned to screening [7]. It should be noted that this guideline includes HPs within the category of SSL's.
- USMSTF recommends colonoscopy in 5-10 years for 1-2 sessile serrated polyp(s) (<10mm) [8].
- Within Canada, CCO recommends one or more sessile serrated adenoma(s) <10mm without dysplasia should lead to a repeat colonoscopy in 5 years [9].

To better inform our decision, a literature review was performed. The research questions were:

1. Are patients with 1-2 SSLs at baseline colonoscopy at higher risk for CRC than:
    - those with no polyps (normal colonoscopy)
    - those with 1-2 TA's
    - the general population (never screened)

Full -text screening was completed by 1 reviewer from AHS Screening Programs with exclusions being made based on the following criteria (Appendix H: Figure B. PRISMA 2020 flow diagram for evidence review of # of sessile serrated polyps and risk of CRC).

Exclusion criteria:

- If number of SSL ≤ 5 and CRC risk is not present
- If not multicenter study
- If N less than 1000

As a result of the full-text screening only a recently published meta-analysis was identified [30]. In the subgroup analysis between SSL's alone and LRA's alone, there was no difference between groups in metachronous ACRN or CRC (OR 1.0; 95% CI, 0.18–5.52). In the analysis between SSL's alone and HRA's alone, patients with SSL's alone had a tendency to a lower risk of metachronous ACRN than those with HRAs alone however, this was not statistically significant (OR, 0.31; 95% CI, 0.07–1.44). It should be noted that in this meta-analysis, there was significant heterogeneity between studies with differing definitions used for HRA and ACRN.

This paucity of evidence is consistent with what has been reported by other jurisdictions around the world. Further research is needed regarding the impact of size, location, and number of SSLs on the development of metachronous colorectal cancer.

Voting results:
In the absence of new evidence, decision to continue with 2013 ACRSP recommendation. Decision achieved by consensus (10/10).

Initial colonoscopy finding of: 3 to 10 sessile serrated lesions <10mm

RECOMMENDATION:

2021 statement

For a colonoscopy finding of 3 to 10 sessile serrated lesions <10mm, the panel recommends colonoscopy in 3 years.

2013 statement

Repeat colonoscopy in 3 years if 3 or more small (<10mm) sessile serrated adenomas/polyps or traditional serrated adenomas.

Review of currently existing CPGs (Appendix E: Initial Colonoscopy Findings of Normal or Hyperplastic Polyp(s), Tubular Adenoma(s), and Sessile Serrated Lesion(s)):

- ESGE recommends patients with complete removal of any serrated polyp <10mm without dysplasia do not require endoscopic surveillance and should be returned to screening. The number of serrated lesions if <10mm does not impact on this decision [7].

- USMSTF recommends colonoscopy in 3-5 years for 3-4 sessile serrated polyps (<10mm) and colonoscopy in 3 years for 5-10 sessile serrated polyps (<10mm) [8].
- Within Canada, CCO recommends one or more sessile serrated adenoma(s) <10mm without dysplasia repeat colonoscopy in 5 years [9].

A literature review was performed. The research questions were:

- Are patients with 3-4 SSLs at baseline at higher risk than:
  - those with no polyps
  - those with 1-2 SSLs
- Are patients with 5-10 SSLs who do not meet the criteria for Serrated Polyposis Syndrome at higher risk than those with 1-2 SSLs.

As a result of the full-text screening there were no studies that met the needs of our inclusion/exclusion criteria. This paucity of evidence is consistent with what has been reported by other jurisdictions around the world. Further research is needed regarding the impact of size, location, and number of SSLs on the development of metachronous colorectal cancer. The cut off for this recommendation at 10 polyps is somewhat arbitrary. More than 10 sessile serrated lesions should raise the possibility of a serrated polyposis syndrome (see below).

Voting results:
In the absence of new evidence, decision to continue with 2013 recommendation. Decision achieved by consensus (10/10).

Initial colonoscopy finding of: One or more sessile serrated lesion(s) >10mm, or traditional serrated adenomas (any size) or SSL with dysplasia (any size)

RECOMMENDATION:

2021 statement

For a colonoscopy finding of one or more sessile serrated lesion(s) >10mm, or traditional serrated adenoma(s) (any size), or sessile serrated lesion with dysplasia (any size), the panel recommends colonoscopy in 3 years.

2013 statement

Repeat colonoscopy in 3 years if any sessile serrated adenomas/polyps or traditional serrated adenomas >/= 10mm OR with dysplasia.

There is consistent evidence that TSA, large SSL's and any SSL with dysplasia pose significant increased risk for subsequent CRC [13, 29]. This is reflected in congruent recommendations from all expert groups. The recommendation for colonoscopy in 3 years is based on similar risk for development of CRC as for large adenomas. This recommendation is unchanged from 2013.

Voting results:
Decision achieved by consensus (10/10).

Initial colonoscopy finding of: Serrated polyposis syndrome

RECOMMENDATION:

2021 statement

For a colonoscopy finding of serrated polyposis syndrome (SPS), the panel recommends colonoscopy in 1 year.

Serrated polyposis syndrome: ***1) at least five serrated lesions proximal to the rectum, with two or more that are > 10mm or; 2) more than 20 serrated lesions or polyps of any size distributed throughout the large bowel, with at least five proximal to the rectum.***

2013 statement

Repeat colonoscopy in 1 year.

Serrated polyposis syndrome: 1) at least 5 serrated polyps proximal to sigmoid colon, with 2 or more ≥10mm; 2) any serrated polyps proximal to sigmoid colon with family history of serrated polyposis syndrome; 3) >20 serrated polyps of any size throughout the colon.

Serrated polyposis syndrome (SPS) is characterized by multiple serrated polyps found on colonoscopy and is associated with an increased risk of CRC.

The 2019 World Health Organization (WHO) guideline contains the following updated criteria for serrated polyposis syndrome (SPS) diagnosis:

I) *≥5 serrated lesions/polyps proximal to the rectum, all being ≥5 mm in size, with ≥2 being ≥10 mm in size, or;*

II) *More than 20 serrated lesions/polyps of any size distributed throughout the large bowel, with ≥5 being proximal to the rectum.*

Any serrated polyp subtype (HP, SSL, and TSA) is to be included in the final polyp count and the polyp count is cumulative over multiple colonoscopies [31].

Voting results:

Decision achieved by consensus (10/10).

Initial colonoscopy finding of: Synchronous sessile serrated lesion and tubular adenoma

RECOMMENDATION:

2021 statement

For a colonoscopy finding of synchronous sessile serrated lesions and tubular adenomas, no recommendation made.

2013 statement

No recommendation.

Review of existing CPG's:

- BSG (2020) – "There is evidence to suggest that the future CRC risk may be additive between serrated and adenomatous polyps and their numbers should be summated when determining surveillance intervals [5]."
- ESGE – "There is evidence that advanced adenoma with synchronous serrated polyp of any kind results in higher metachronous advanced neoplasia risk compared to advanced adenoma without synchronous serrated polyp. However, such patients would already be classified as in need of surveillance, regardless of the presence of serrated polyps. Any added value of combining adenomas with serrated polyp count to fulfill multiplicity criteria is therefore not supported [7]."
- USMSTF – "Future research may clarify whether patients with a combination of <10mm SSPs and conventional adenomas have a distinct risk that should merit different management [8]."
- CCO – No recommendation.

We identified 2 recent publications pertinent to this issue. One small study of 1389 patients [32] compared those who had 1-2 TA's (<10 mm) at baseline colonoscopy with patients who had 1-2 TA's and 1-2 SSL's (all < 10 mm). The risk of total metachronous advanced neoplasia in the TA/SSL group was not statistically different from the TA alone group ($p < 0.056$). A recent meta-analysis [29] compared patients with SSL + LRA vs LRA alone. The odds ratio of subsequent ACRN was 1.5 (0.25-9.81).

Voting results:
The panel determined that there was insufficient current evidence to make a recommendation for a colonoscopy finding of synchronous sessile serrated lesion and tubular adenoma. Decision achieved by consensus (9/10).

Initial colonoscopy finding of: Piecemeal resection of a large (≥10mm) non-pedunculated polyp or lesion

RECOMMENDATION:

2021 statement

Following complete endoscopic piecemeal* removal of a large (≥10mm) non-pedunculated polyp or lesion, recommend first repeat endoscopic assessment in 6 months.**

*Piecemeal resection is the resection of a ≥10mm non-pedunculated polyp or lesion, where more than one pass of the snare is required either due to size or polyp orientation.

**For recto-sigmoid lesions, the choice of limited flexible sigmoidoscopy vs full colonoscopy is left to endoscopist's discretion.

Subsequent colonoscopy surveillance intervals***:**

- **If the initial polyp was ≥20mm, the next surveillance colonoscopy should be in 1 year. If no recurrence is detected at the resection site, the panel recommends subsequent colonoscopy surveillance in 3 years.**
- **If the initial polyp was ≥10mm-19mm, the next surveillance colonoscopy should be in 3 years******. If no recurrence is detected at the resection site, the panel recommends subsequent colonoscopy surveillance in 5 years.**

***Endoscopist discretion to perform surveillance at an earlier interval if concern for advance histological findings or other conflicting issues.

****Consideration for 12-month follow-up if high grade dysplasia, resection required multiple passes or challenging position noted.

2013 statement

Patients with sessile lesions that are removed piecemeal, repeat colonoscopy in 2-6 months to verify complete removal. Once complete removal has been established, repeat colonoscopy in 3 years.

Review surveillance interval after 2 consecutive three-yearly examinations.

Review of currently existing CPGs (Appendix E: Initial Colonoscopy Findings of Normal or Hyperplastic Polyp(s), Tubular Adenoma(s), and Sessile Serrated Lesion(s)):

- ESGE "recommends a 3-6 month early repeat colonoscopy following piecemeal endoscopic resection of polyps ≥20mm. A first surveillance colonoscopy 12 months after repeat colonoscopy is recommended to detect late recurrence [7]."
- USMSTF recommends repeat colonoscopy (first surveillance) in 6 months for patients with piecemeal resection of adenoma or SSP >20mm. Second surveillance 1 year from first surveillance, and third surveillance 3 years from the second surveillance [8].
- Within Canada, CCO recommends a colonoscopy to check the polypectomy site within 6 months for large sessile polyp removed piecemeal. Subsequent surveillance recommendations are at the endoscopist's discretion [9].

A study of 1427 patients [33] compared piecemeal vs en-bloc polypectomy in 5-20 mm polyps. There was an increased risk of incomplete polyp resection in the piecemeal group (20% vs 8.4%). Risk for incomplete resection was also associated with increased polyp size and histology (SSL's > TA's).

A systematic review of 38 studies [34] identified that the risk of recurrence at subsequent scopes was: 20% (95% CI:16, 25) with piecemeal polypectomy vs 3% (95% CI:2,5) in the en-bloc resection group. 75% of polyp recurrences were identified at 3 months and 96% at 6 months. Polyp size did not affect recurrence: 10-20mm, 20-30mm and >30 mm polyps all had recurrence rates of 18-19%.

The panel identified that there is a lack of uniformity in the definition of piecemeal resection. For all lesions, it is key that a complete polypectomy with removal of all abnormal tissue is carried out. It is also recognized that polyp size is only one factor in determining risk of incomplete resection. Polyp location, orientation and morphology also play a role. The panel was also cognizant that there is a wide range in polypectomy ability among colonoscopists and any recommendation should reflect the skill level of the average endoscopist. Recommendations for subsequent polypectomy intervals after piecemeal resection are based on expert opinion only due to the current lack of evidence.

Voting results:
Decision achieved by consensus (10/10).

Initial colonoscopy finding of: Subsequent colonoscopy surveillance after high-risk lesions

RECOMMENDATION:

2021 statement

High risk lesions[iii] require surveillance colonoscopy at 3 and then subsequent colonoscopy in 5 years. If no polyps requiring surveillance are detected at both scopes, the panel recommends considering a return to average risk FIT screening.

2013 statement
Subsequent intervals based on findings at first surveillance (3-year follow-up) colonoscopy.
No adenoma or low risk adenoma[iv]: 5-10 years. High risk adenoma[v]: 3 years

Review of currently existing CPGs (Appendix E: Initial Colonoscopy Findings of Normal or Hyperplastic Polyp(s), Tubular Adenoma(s), and Sessile Serrated Lesion(s)).

- ESGE recommends a surveillance colonoscopy after 3 years for complete removal of at least 1 adenoma ≥10mm or with high grade dysplasia, or ≥5 adenomas, or any serrated polyp ≥10mm or with dysplasia. If that colonoscopy is normal, a colonoscopy in 5 years is recommended. If the 5-year colonoscopy is normal, the patient is to return to average-risk screening [7].
- USMSTF recommends interval for next surveillance is based on findings at first surveillance. If normal colonoscopy or 1-2 small TA(s) then colonoscopy in 5 years. If 3-4 TA's <10mm colonoscopy in 3-5 years. If adenoma ≥10mm or with tubulovillous/villous histology; or adenoma with high grade dysplasia; or 5-10 adenomas (<10mm) then interval for next surveillance in 3 years. "New evidence is required to guide serial surveillance of individuals with SSPs and large HPs [8]."
- Within Canada, CCO recommends subsequent colonoscopy based on the finding at 3 years. If no polyps, or hyperplastic polyp(s) in rectum or sigmoid, or low risk adenoma[vi] then colonoscopy in 5 years. If high risk adenoma(s)[vii] then colonoscopy in 3 years. Sessile serrated adenomas and TSA require surveillance, but no specific surveillance interval recommendations made due to insufficient evidence. There was no subsequent surveillance addressed [9].

The guideline panel noted that these recommendations are supported by expert opinion only and thus recommendations should also reflect operational practicalities and clarity. As well, stopping rules may need to be enacted for patients who continue to receive surveillance colonoscopies for remote advanced lesions despite multiple normal subsequent colonoscopies.

Voting results:
Decision achieved by consensus (10/10).

[iii] Alberta defines high risk lesions: 5-10 tubular adenomas <10mm, tubular adenoma ≥10mm, tubular adenoma with villous or HGD, or 3-10 sessile serrated lesions <10mm, any sessile serrated lesion ≥10mm, any sessile serrated lesion with dysplasia or traditional serrated adenoma.
[iv] ACRCSP 2013 refers to 1-2 small (<10mm) adenomas with low grade dysplasia
[v] ACRCSP 2013 refers to tubular adenomas >/=10mm, 3 or more adenomas, adenoma with villous histology, or high-grade dysplasia
[vi] CCC low risk adenomas: one to two tubular adenomas less than 10mm in diameter without high grade dysplasia.
[vii] CCC high risk adenomas (also called advanced adenomas): one or more tubular adenomas 10mm or greater, three or more adenomas of any size, or adenomas with villous histology, or adenomas with high-grade dysplasia.

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Appendix A: Post-Polypectomy Colonoscopy Surveillance CPG Appraisal Table

		Average score between 2 appraisers - Scores are between 1 to 7, using AGREE II				
		United Kingdom, (Rutter, *et al.* 2019)	**Europe,** (Hassan, *et al.* 2020)	**Ontario,** (Dubé, *et al.* 2019)	**Australia,** (Barclay, *et al.* 2019)	**United States,** (Gupta, *et al.* 2020)
Scope & Purpose	1. Objectives	7	6.5	7	7	7
	2. Health question	7	6	2.5	7	7
	3. Target population	7	5.5	5.5	7	7
Domain Score		100%	83%	67%	100%	100%
Stakeholder Involvement	4. Relevant professional groups represented	5.5	2.5	6.5	7	5
	5. Target population preferences	6	6	1	7	2.5
	6. Target users defined	4.5	6.5	5.5	7	1
Domain Score		72%	67%	56 %	100%	31%
Rigour of Development	7. Systematic search conducted	7	3	5.5	7	7
	8. Selection criteria described	7	2	5.5	7	7
	9. Evidence strengths and limitations described	7	7	5.5	7	7
	10. Methods used to formulate recommendations described	7	6.5	3.5	7	5
	11. Benefits, side effects, risks considered	7	6.5	7	7	6
	12. Link between recommendations and evidence	7	7	6.5	5.5	7
	13. External review by experts	2.5	5.5	6	6	1
	14. Updating procedure described	6	6	3	7	1
Domain Score		89%	74%	72%	95%	69%
Clarity of Presentation	15. Specific, unambiguous recommendations	7	7	7	7	7
	16. Different management options presented	7	7	6	7	6.5
	17. Key recommendations easily identifiable	7	7	7	7	7
Domain Score		100%	100%	94%	100%	97%
Applicability	18. Facilitators and barriers discussed	7	6	1	6	4.5
	19. Support materials provided	7	6	6	7	5.5
	20. Resource implications considered	7	6.5	1	7	1
	21. Monitoring or audit criteria presented	6	6	3	1	1
Domain Score		96%	85%	29%	71%	33%
Editorial Independence	22. Editorially independent from funding body	5	1	1	6.5	6.5
	23. Competing interests reported	6.6	6	2	7	6
Domain Score		79%	42%	8%	96%	88%
Overall Assessment		**92%**	**75%**	**58%**	**92%**	**67%**

Appendix B: Guideline Panel Members

Panel Members	Role/affiliation	Non-pertinent COI disclosed
Dr. Daniel Sadowski	Chair, ACRCSP Post-Polypectomy Surveillance Guideline Working Group Quality Lead, ACRCSP/ Gastroenterologist, AHS Edmonton Zone	Physician Lead for Quality, Alberta Health Services Professor, University of Alberta Wrote the previous ACRCSP 2013 guidelines, published on Screeningforlife.ca
Dr. Michael R Kolber	Co-Chair, ACRCSP Post-Polypectomy Surveillance Guideline Working Group GP Endoscopist / ASEP Faculty, AHS North Zone	Founder and President of EMPRSS (Electronic Medical Procedure Reporting Systems) Honoraria for presenting, Alberta College of FPs, Society of Rural Physicians of Alberta, Canadian College of FPs – not for profits Co-investigator Bed Med study, CIHR (CIHR grant funded) Presented general GI updates which could have included topics to be discussed at upcoming guidelines
Nicole Nemecek	Project lead, Data Integration & Clinical Management RN, ACRCSP	None disclosed
Dr. Tony Gomes	General Surgeon / Endoscopist, AHS South Zone	None disclosed
Dr. Robert Hilsden	Director of Research, Forzani & MacPhail Colon Cancer Screening Centre / Gastroenterologist, AHS Calgary Zone	Advisory Board, Exact Sciences Inc. Contract, Freenome Holdings Inc. Director of Research, Forzani & MacPhail Colon Cancer Screening Centre, AHS Calgary zone Professor, University of Calgary Various publications related to guideline
Dr. Dave Ryan	Gastroenterologist, AHS Central Zone	None disclosed
Dr. Richard Sultanian	Medical Director, SCOPE / Gastroenterologist, AHS Edmonton Zone	B-CLEAN bowel prep study Pendopharm Canada SEE™ Polypectomy Course Instructor, CDDW
Linda Hickle	Care Manager, SCOPE, AHS Edmonton Zone	None disclosed
Dr. Ross McLean	Pathologist, RAH, AHS Edmonton Zone	Monthly contract, Alberta Health Services Review of colon polyps, 2016 Drive Days
Dr. Derek Mok	Colorectal Surgeon, Facility Medical Director, Ambulatory Care QEII Regional Hospital, AHS North Zone	Education speaking engagement, Janssen pharmaceutical Zone facility medical director, Alberta Health Services

Appendix C: Decision Making Process for Program Guideline Recommendations

The following highlights the process for how decisions regarding the Program Guideline will be made:

Decision Criteria

Decisions on recommendations should be made by considering the totality of the evidence. The strength of the evidence should also be taken into consideration, i.e., the reliability of the study results (weak vs strong) and the size of the impact (small vs large change compared to the current standard).

As this panel is tasked with updating the current guideline, unless there is new/emerging evidence since the last guideline update, the recommendations should remain unchanged.

Recommendations

Recommendations for each topic can be made by consensus or a voting/ranking system, when necessary. A decision on a given topic can be made either by consensus or through an option ranking (voting) system:

Level 1 - Consensus

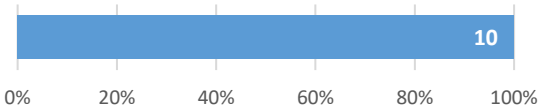
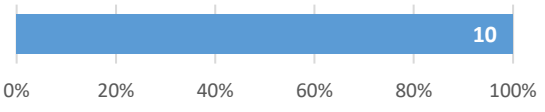
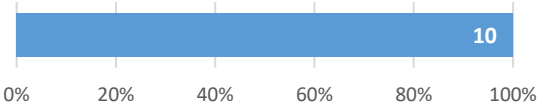
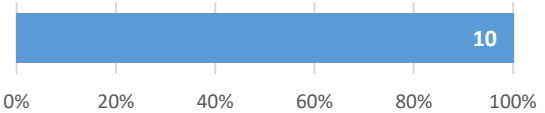
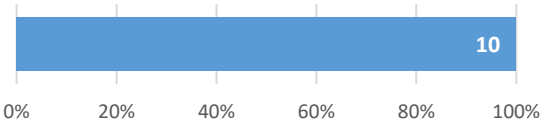
If there are no objections on a specific recommendation, then consensus is reached during the meeting. If consensus to any recommendation (current or new) cannot be reached the following options will be employed to reach consensus.

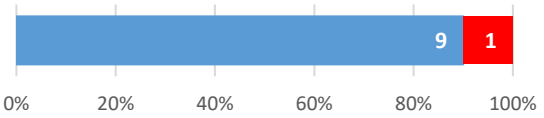
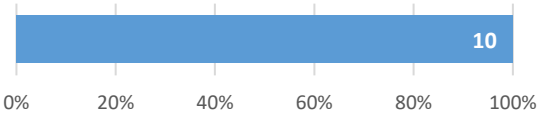
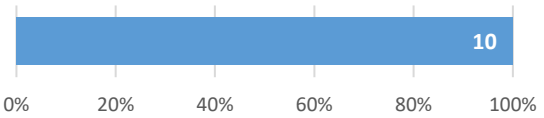
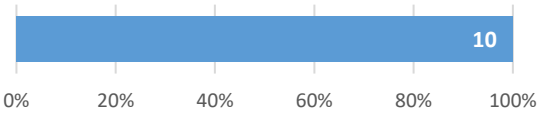
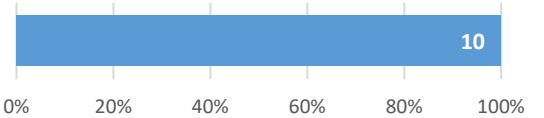
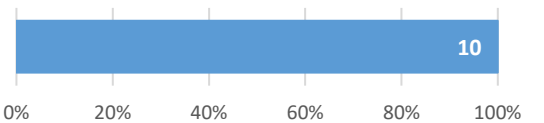
Level 2 –Ranking or Voting

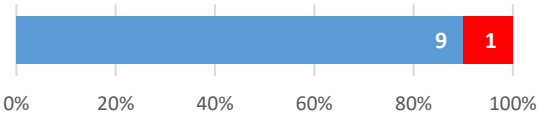
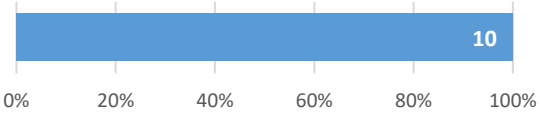
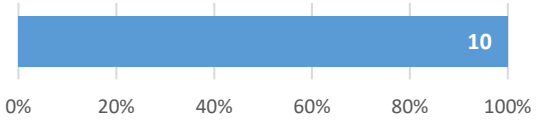
If consensus cannot be reached on a specific recommendation during working group meetings, members will be asked to vote on the recommendation statement. In order to obtain input from the entire group – voting in absentia will be permitted. 50% of members+1 will be required for a guideline statement to stand.

Proposed statements that do not reach a majority vote are an opportunity for further consideration of the scientific evidence as well as continuing dialogue. Comments arising from these discussions will form part of the discussion section of the guideline to provide insight into the decision-making process of the group. The statement in question will be redrafted and revoted upon until a majority can be reached. If there is no majority despite multiple rounds of voting, the original 2013 guideline statement will stand.

Appendix D: Summary of 2021 recommendations from guideline committee

Initial colonoscopy findings		Recommendation	Level of agreement Agree Disagree
1.	Normal or no polyps	For an average risk patient with no polyps or normal findings on colonoscopy, recommend FIT in 10 years.	100% (consensus reached) 
2.	Hyperplastic polyp(s) <10mm	For an average risk patient with finding(s) of hyperplastic polyp(s) <10mm, recommend FIT in 10 years*. *More than 20 hyperplastic polyps, especially if found proximal to the sigmoid colon, should lead to consideration of serrated polyposis syndrome.	100% (consensus reached) 
3.	Hyperplastic polyp(s) ≥10mm	For a colonoscopy finding of hyperplastic polyp(s) ≥10mm: 1. Proximal to sigmoid colon, recommend colonoscopy in 3 years*. 2. In rectosigmoid, recommend colonoscopy in 5 years. *Hyperplastic polyp(s) proximal to sigmoid colon should be considered sessile serrated lesion (SSL) with colonoscopy surveillance in 3 years.	100% (consensus reached) 
4.	1 or 2 tubular adenoma(s) <10mm	For a colonoscopy finding of 1 or 2 tubular adenoma(s) <10mm, recommend FIT in 5 years.	100% (consensus reached) 
5.	3 or 4 tubular adenomas <10mm	For a colonoscopy finding of 3 or 4 tubular adenomas <10mm, recommend colonoscopy in 5 years.	100% (consensus reached) 

6.	5 to 10 tubular adenomas <10mm, or any adenoma ≥10mm, or with villous/tubulovillous features or high-grade dysplasia	For a colonoscopy finding of 5 to 10 tubular adenomas <10mm, or any adenoma ≥10mm, or with villous/tubulovillous features or high-grade dysplasia, recommend colonoscopy in 3 years.	90% (consensus reached) 
7.	>10 tubular adenoma(s)	For a colonoscopy finding of more than 10 tubular adenomas, recommend colonoscopy in 1 year and genetic counselling*. *Consider genetic testing referral. Patients with >10 adenomas found on colonoscopy have an increased risk for hereditary polyposis. Timely clearing colonoscopy is required to ensure that all adenomatous lesions have been removed.	100% (consensus reached) 
8.	1 or 2 sessile serrated lesions <10mm	For a colonoscopy finding of 1 or 2 sessile serrated lesions <10mm, recommend colonoscopy in 5 years.	100% (consensus reached) 
9.	3 to 10 sessile serrated lesions <10mm	For a colonoscopy finding of 3 to 10 sessile serrated lesions <10mm, recommend colonoscopy in 3 years.	100% (consensus reached) 
10.	One or more sessile serrated lesion(s) >10mm, or traditional serrated adenomas (any size) or SSL with dysplasia (any size)	For a colonoscopy finding of one or more sessile serrated lesion(s) >10mm, or traditional serrated adenoma(s) (any size), or sessile serrated lesion with dysplasia (any size), recommend colonoscopy in 3 years.	100% (consensus reached) 
11.	Serrated polyposis syndrome	For a colonoscopy finding of serrated polyposis syndrome (SPS), recommend colonoscopy in 1 year. Serrated polyposis syndrome: *1) at least five serrated lesions proximal to the rectum, with two or more that are >10mm or; 2) more than 20 serrated lesions or polyps of any size distributed throughout the large bowel, with at least five proximal to the rectum.*	100% (consensus reached) 

12.	Synchronous sessile serrated lesion and tubular adenoma	For a colonoscopy finding of synchronous sessile serrated lesion and tubular adenoma, no recommendation made.	90% (consensus reached) 
13.	Piecemeal resection of a large (≥10mm) non-pedunculated polyp or lesion	Following complete endoscopic piecemeal* removal of a large (≥10mm) non-pedunculated polyp or lesion, recommend first repeat endoscopic assessment in 6 months**. **Piecemeal resection is the resection of a ≥10mm non-pedunculated polyp or lesion, where more than one pass of the snare is required either due to size or polyp orientation.* ***For recto-sigmoid lesions, choice of limited flexible sigmoidoscopy vs full colonoscopy is at endoscopist's discretion. Subsequent colonoscopy surveillance intervals***: ▪ If polyp ≥20mm, next surveillance colonoscopy in 1 year. If no reoccurrence detected at site, recommend subsequent surveillance in 3 years. ▪ If polyp ≥10mm-19mm, next surveillance colonoscopy in 3 years****. If no reoccurrence detected at site, recommend subsequent surveillance in 5 years. ***Endoscopist discretion to perform surveillance at an earlier interval if concern for advance histological findings or other conflicting issues. ****Consideration for 12-month follow-up if high grade dysplasia, resection required multiple passes or challenging position noted.	100% (consensus reached) 
14.	Subsequent colonoscopy surveillance after high-risk lesions	High risk lesions* require surveillance colonoscopy at 3 and then 5 years. If no polyps requiring surveillance are detected at both scopes, consider return to average risk FIT screening. *High risk lesions: tubular adenomas 5-10 (<10mm), ≥10mm, villous or HGD, or sessile serrated lesions 3-10 (<10mm), ≥10mm, TSA and HGD.	100% (consensus reached) 

Appendix E: Initial Colonoscopy Findings of Normal or Hyperplastic Polyp(s), Tubular Adenoma(s), and Sessile Serrated Lesion(s)

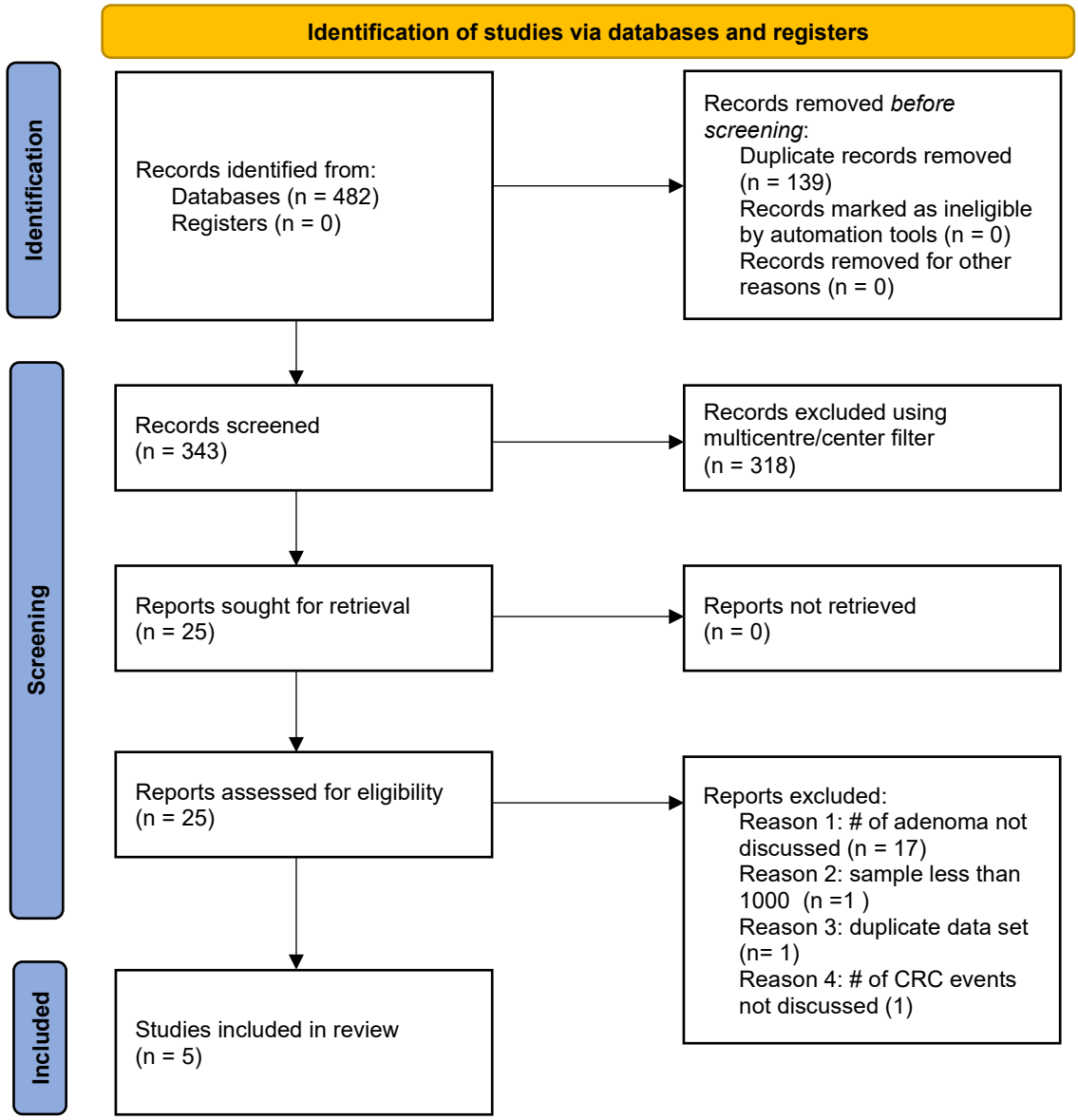
Colonoscopy Findings:	**Europe ESGE** (Hassan, et al. 2020)	**United States USMSTF** (Gupta, et al. 2020)	**Ontario CCO** (Dubé, et al. 2019)	**Alberta ACRCSP 2021 (new)**	**Alberta ACRCSP 2013**
No polyps	Return to screening	Colonoscopy in 10 years	FIT in 10 years	No colonoscopic surveillance, FIT in 10 years	FIT in 10 years
Hyperplastic polyp(s) <10mm	No recommendation[i]	Colonoscopy in 10 years (or other screening modality) if ≤20 in rectum or sigmoid colon or; Colonoscopy in 10 years if ≤20 proximal to sigmoid colon	FIT in 10 years (HP in rectum or sigmoid)	FIT in 10 years[ii]	Maintain screening interval based on underlying risk level (consider as normal)
Hyperplastic polyp(s) ≥10mm	3 years[iii]	Colonoscopy in 3-5 years for HP ≥10mm[iv]	No recommendation	Colonoscopy in 3 years if HP ≥10mm proximal to sigmoid colon[v] Colonoscopy in 5 years if HP ≥10mm in rectosigmoid	Colonoscopy in 5 years, if ≥4 HP proximal to sigmoid or any HP >5mm proximal to sigmoid
1-2 Tubular Adenoma(s) <10mm	Return to screening program (or colonoscopy in 10 years if no screening program exists)	Colonoscopy 7- 10 years	FIT in 5 years	FIT in 5 years	Colonoscopy 5 – 10 years
3-4 Tubular Adenomas <10mm		3-5 years	3 years	Colonoscopy in 5 years	3 years
5-10 Tubular Adenomas <10mm	3 years	3 years		3 years	
≥10mm in size					
High Grade Dysplasia					

Colonoscopy Findings:	**Europe ESGE** (Hassan, et al. 2020)	**United States USMSTF** (Gupta, et al. 2020)	**Ontario CCO** (Dubé, et al. 2019)	**Alberta ACRCSP 2021 (new)**	**Alberta ACRCSP 2013**
Villous/Tubulovillous	Return to screening program[vi]	3 years	3 years	3 years	3 years
>10 Tubular Adenomas	Genetic counselling	1 year and genetic counselling	Within 1 year and genetic assessment[vii]	Within 1 year and genetic counselling[viii]	< 3 years
Large adenoma piecemealed	Colonoscopy 3-6 months following piecemeal of polyps ≥20mm	Colonoscopy in 6 months following piecemeal of adenoma ≥20mm	N/A	Colonoscopy in 6 months following piecemeal of adenoma ≥10mm	N/A
1-2 SSP <10 mm in size	Any serrated polyp without dysplasia <10 mm: Return to screening program (or colonoscopy in 10 years if no screening program exists).	Colonoscopy in 5-10 years	Colonoscopy in 5 years	Colonoscopy in 5 years	Colonoscopy in 5 years
3-4 SSP <10 mm in size		Colonoscopy in 3-5 years		Colonoscopy in 3 years	Colonoscopy in 3 years
5-10 SSP <10 mm in size		Colonoscopy in 3 years			
≥ 10mm in size (any number)	Colonoscopy in 3 years		Colonoscopy in 3 years		
[with] dysplasia (any size)					
Traditional serrated adenoma (any size)					Colonoscopy in: 3 years if dysplasia; 5 years if 1-2 <10mm or no dysplasia
[large] SSP removed piecemeal	Colonoscopy in 3-6 months following piecemeal of polyps >20mm	Colonoscopy in 6 months	Colonoscopy in ≤6 months	Colonoscopy in ≤6 months	Repeat colonoscopy in 2-6 months, then 3 years
Serrated polyposis syndrome	No recommendation[ix]	No recommendation[x]	Colonoscopy in 1 year[xi]	Colonoscopy in 1 year[xii]	Colonoscopy in 1 year

ESGE: European Society of Gastrointestinal Endoscopy; USMSTF: United States Multi-Society Task Force; CCO: Cancer Care Ontario; ACRCSP: Alberta Colorectal Cancer Screening Program

[i] ESGE recommends that any serrated polyp <10 mm without dysplasia does not require endoscopic surveillance and should return to screening. If organized screening not available, repetition of colonoscopy 10 years afterindex procedure recommended.
[ii] More than 20 HP's, especially if found proximal to the sigmoid colon, should lead to consideration of serrated polyposis syndrome.
[iii] Serrated polyp ≥10mm and with dysplasia yield similar metachronous advanced neoplasia or CRC and require surveillance at 3 years.
[iv] A 3-year follow-up is favored if concern about consistency in distinction between sessile serrated polyp and hyperplastic locally, bowel prep or complete excision, whereas a 5-year interval is favored if low concerns forconsistency in distinction, adequate bowel prep and confident complete excision.
[v] HP ≥ 10mm proximal to sigmoid colon should be considered sessile serrated lesion (SSL) and colonoscopy surveillance in 3 years.
[vi] Return to screening program or colonoscopy in 10 years if no screening program exists.
[vii] People with > 10 adenomas should undergo genetic assessment for familial adenomatous polyposis syndromes. The subsequent surveillance interval will depend on the results of the genetic assessment and whether the colonoscopy is cleared of polyps.
[viii] Consideration for genetic testing referral. Patients with >10 adenomas found on colonoscopy have an increased risk for hereditary polyposis. Timely clearing colonoscopy is required to ensure that all adenomatous lesions have been removed.
[ix] High risk conditions, such as those with serrated polyposis syndrome or hereditary syndromes should receive an individualized surveillance schedule.
[x] Patients with cumulative >20 hyperplastic polyps distributed throughout the colon, with at least five being proximal to the rectum, as well as those with five serrated polyps proximal to the rectum > 5mm, with at least two ≥ 10 mm meet criteria for serrated polyposis syndrome and may require specialized management.
[xi] Serrated polyposis syndrome: At least five serrated polyps proximal to the sigmoid colon, two of which are greater than 10mm; or any number of serrated occurring proximal to the sigmoid colon in someone who has a first degree relative with serrated polyposis; or more than 20 serrated polyps of any size throughout the colon.
[xii] Serrated polyposis syndrome: At least five serrated lesions proximal to the rectum, with two or more that are >10mm, or more than 20 serrated lesion or polyps of any size distributed throughout the large bowel, with at least five proximal to the rectum.

Appendix F: Figure A. PRISMA 2020 flow diagram for evidence review of # of adenomas and risk of CRC



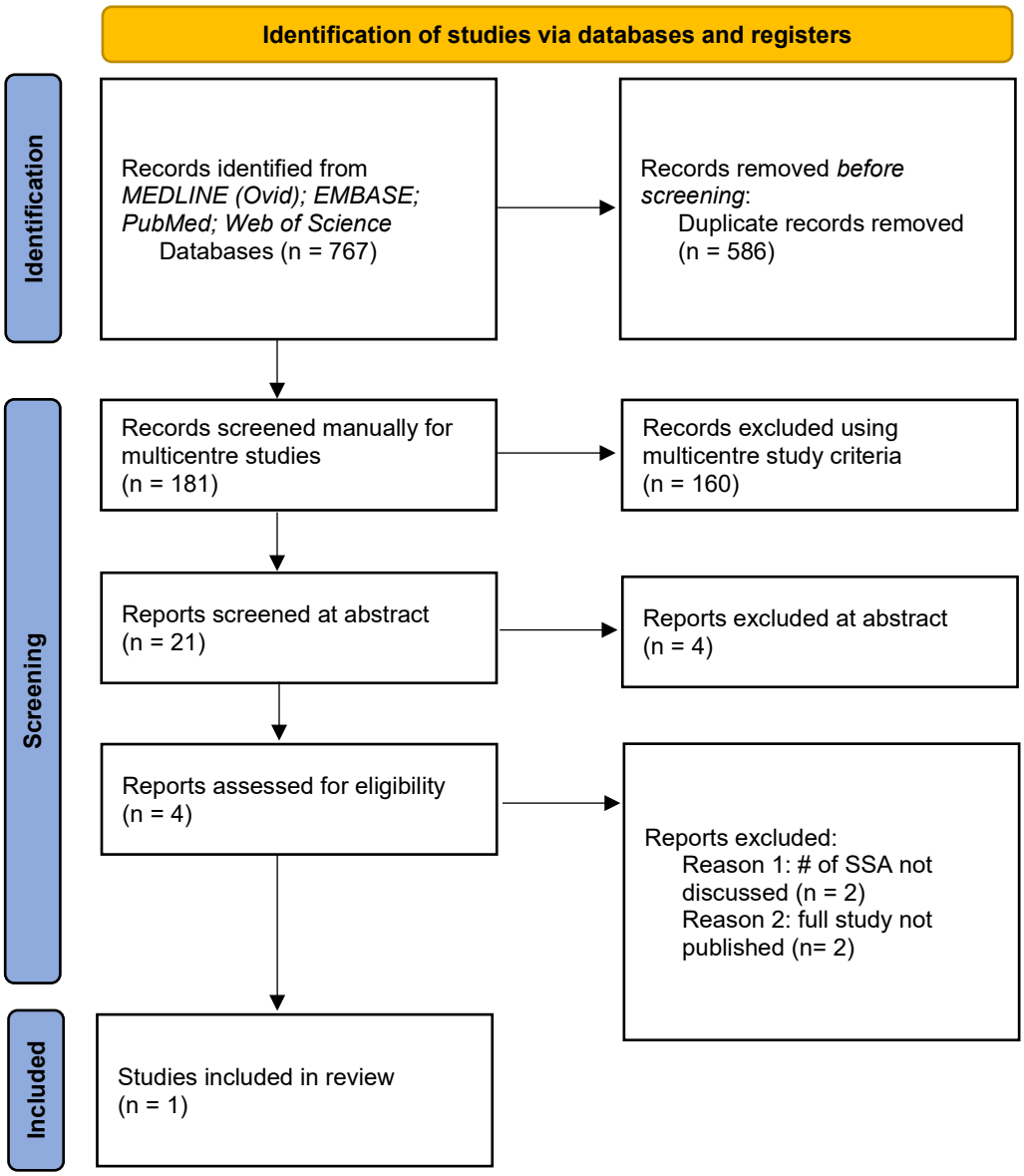
From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71.
For more information, visit: http://www.prisma-statement.org/

Appendix G: Number of Adenoma and CRC Incidence – Evidence Review Table

Study	1-2 TA		No adenoma		Risk	≥3 TA		No adenoma		Risk
	Events	Total	Events	Total		Events	Total	Events	Total	
1. Anderson, JC et al. 2018	114	1410				22	164			
2. Atkin, W, Wooldrage, K et al. 2017	200	10,915				10	1029			
3. Click, B et al. 2018	48 *(1-2TA)*	4496	71	7985	ARR 1.2 (0.5 to 2.9) *P*=0.19	7 *(≥3 TA)*	572	71	7985	ARR 1.3 (0.9 to 1.9) *P*=0.73
4. Cross, AJ et al. 2020	195 *(Low risk)*	14,401				14 *(intermediate risk)*	1006			
5. Wieszczy, P et al. 2020	58 *(Low risk, 1-2TA)*	26,536	309	194,311	SIR 0.35 (0.26 to 0.45)	72 *(High risk, ≥3 TA)*	15,242	309	194,311	SIR 0.65 (0.51 to 0.82)

ARR= adjusted risk ratio, SIR= standardized incidence ratio

Appendix H: Figure B. PRISMA 2020 flow diagram for evidence review of # of sessile serrated polyps and risk of CRC



From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statementan updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71.
For more information, visit: http://www.prisma-statement.org/

Appendix I: External Reviewer Comments and Feedback

Reviewer/Titles	Jurisdiction	Text (pg. #)	Reviewer Feedback	ACRCSP Response
Dr. Jennifer J. Telford Clinical Professor of Medicine, University of British Columbia Medical Director, BC Colon Screening Program	British Columbia, Canada		*I found the conclusions from the available literature regarding number of low risk adenomas contradictory. I understand how the meta-analyses were done and interpreted but to say that there is no difference in CRC incidence between those with no TAs vs. 1-2 TAs and between those with 1-2 TAs and > 2 TAs, yet the risk with > 2 TAs vs. no TAs is high enough to warrant a colonoscopy at 5 years rather than a FIT is confusing. Particularly as all of those groups have a lower risk of CRC than the general population who is undergoing average risk screening.*	Agree with Dr. Telford's observation. The guideline panel chose a 5-year interval for 3-4 TA's to be more aligned with the USMSTF recommendations and to graduate the change from aggressive surveillance to FIT.
		12	*I'm not sure if your group looked at the UK data and guidelines. There most updated data was published in Gut last year. Cross AJ et al. Gut 2021;70:2307-2320.* *They have used > 4 TAs (or low risk SSLs) as their cut-off for multiplicity of precancerous lesions and found that the CRC risk was lower or equivalent to the general population.*	Added the Cross et al. 2021 reference as per Dr. Telford's suggestion to page 12.
Dr. Alan Barkun Chairholder, Douglas G. Kinnear Chair in Gastroenterology Professor of Medicine, McGill University and the McGill University Health Center	Quebec, Canada		A very special acknowledgement to Dr. Alan Barkun for thoroughly reviewing the guidelines and not only providing valuable feedback, but grammatical edits. Not all grammatical edits shown here, as were embedded in the draft and accepted where applicable.	
		6	Improve population health. The goal of screening is to reduce colorectal cancer mortality and incidence. Surrogate markers such as the occurrence of advanced adenomas were given less weight in the decision making. *You took 9mm as cut-off, not the ususal 10mm? And refer to severe not high grade dysplasia?*	Removed footnote.
		7	Table 1: ACRCSP Recommendations for Post-Polypectomy Surveillance Summary Table: "[1] High risk lesions refer to: tubular adenomas 5-10 (<10mm), ≥10mm, villous or HGD, or sessile serrated lesions 3-10 (<10mm), ≥10mm, traditional serrated adenomas and high-grade dysplasia." *What is in the footnote is not clear: small TAs not high-risk, unless numerous, for eg.*	Removed footnote.
			Table 1: ACRCSP Recommendations for Post-Polypectomy Surveillance Summary Table: Hyperplastic polyp(s) ≥10mm	Statement has been modified and now reads:

			"If no polyps requiring surveillance, then subsequent colonoscopy at 5 years. If normal, consider return to average risk FIT screening." *Not clear what this means, also does it apply to both lines of the cell to its left.*	"If no polyps requiring surveillance detected, then subsequent colonoscopy at 5 years. Consider return to average risk FIT screening if both scopes normal." The recommendation for large HP's is the same as for large SSL.
			Table 1: ACRCSP Recommendations for Post-Polypectomy Surveillance Summary Table: 5-10 tubular adenomas <10mm ≥10mm in size Villous histology or high-grade dysplasia "If no polyps requiring surveillance, then subsequent colonoscopy at 5 years. If normal, consider return to average risk FIT screening." *Seems surpring to go back to FIT in this group after only 1 round when that patient had a high-risk lesion.*	The practice of continuing aggressive surveillence in this group is not supported by evidence either for or against. The panel opted for patient safety by reducing exposure to colonoscopy which is most likely unnecessary.
			Table 1: ACRCSP Recommendations for Post-Polypectomy Surveillance Summary Table: 1 or 2 SSL(s) <10 mm "Colonoscopy in 5 years" *This cell being filled suggests you consider a SSL <10mm as high risk even if less than 3; is that correct?*	Table 1 was modified.
			Table 1: ACRCSP Recommendations for Post-Polypectomy Surveillance Summary Table: Large (≥10mm) non-pedunculated polyp or lesion "If initial polyp was ≥20mm: Colonoscopy in 1 year, if no site reoccurrence subsequent surveillance in 3 years If initial polyp was ≥10mm-19mm: Colonoscopy in 3 years , if no site reoccurrence subsequent surveillance in 5 years." *I was not aware there were data for that 20mm dichotimization.*	Recommendations for subsequent polypectomy intervals after piecemeal resection are based on expert opinion only due to the current lack of evidence.
		8	*What about the final pathology results? When is that info "fed into the decision-taking" process?*	Statement has been modified and now reads: "The decision regarding surveillance interval should be based on the most advanced finding(s) at initial colonoscopy. Colonoscopy findings should be confirmed by final pathology results."
		8	*I presume you excluded follow-up for patients diagnosed with a colorectal cancer? Maybe good to mention it and refer them to the appropriate document?*	

		9	*Is that fair to say since if eventual subsequant FIT +ve or a new finding at subsequent colonoscopy, these will then change.*	Follow-up colonoscopy will be required if a 5-year FIT is positive or if there are new findings on colonoscopy.
		12	*Exclusion criteria:* • if number of adenomas ≤ 5 and CRC risk is not present • if not multi-centre study • if N less than 1000 *What do you mean? confusing, have those not already been excluded from our discussions (so even if exclusion in the search, no need to repeat?)*	Exclude- number of adenoma and CRC risk not discussed. Outcome need to be number of CRC cases.
		16	'Patients with >10 adenomas found on colonoscopy have an increased risk of hereditary polyposis syndromes (e.g., familial adenomatous polyposis or Lynch syndrome)." *one-shot or lifetime?*	Statement has been modified and now reads: "Patients with >10 adenomas found on a single colonoscopy have an increased risk of hereditary polyposis syndromes (e.g., familial adenomatous polyposis)."

		19	A literature review was performed. The research questions were:
			• Are patients with 3-4 SSLs at baseline at higher risk than:
			  ○ those with no polyps
			  ○ those with 1-2 SSLs
			• 5-10 SSLs: not meeting Serrated Polyposis Syndrome definition?"
			
			ALSO AT HIGHER RISK THAN those with no polyps OR those with 1-2 SSL – NOT CLEAR
				Statement has been modified and now reads:
				"Are patients with 5-10 SSLs who do not meet the criteria for Serrated Polyposis Syndrome at higher risk than those with 1-2 SSLs."

		21	BSG (2020) – "There is evidence to suggest that the future CRC risk may be additive between serrated and adenomatous polyps and their numbers should be summated when determining surveillance intervals [4]." *Why do you mention here the BSG for this and not other recommendations?*	This discussion regarding synchronous sessile serrated lesion and tubular adenoma was brought to the panel because of the BSG guideline wording.
		21	Following complete endoscopic piecemeal* removal of a large (≥10mm) non-pedunculated polyp or lesion, recommend first repeat endoscopic assessment** in 6 months.	"If initial polyp was ≥20mm, next surveillance colonoscopy in 1 year. If no recurrence detected at resection site, subsequent colonoscopy surveillance in 3 years If initial polyp was ≥10mm-19mm, next surveillance colonoscopy in 3 years[7]. If no recurrence detected at

[7] Consideration for 12-month follow-up if high grade dysplasia, resection required multiple passes or challenging position noted.

			Why did you say 10 as most guidelines say 20mm?	resection site, subsequent colonoscopy surveillance in 5 years."
		21	"Subsequent colonoscopy surveillance intervals***: ▪ If initial polyp ≥20mm, next surveillance colonoscopy in 1 year. If no recurrence detected at site, the panel recommends subsequent surveillance in 3 years. ▪ If initial polyp ≥10mm-19mm, next surveillance colonoscopy in 3 years****. If no recurrence detected at site, the panel recommends subsequent surveillance in 5 years." ***Endoscopist discretion to perform surveillance at an earlier interval if concern for advance histological findings or other conflicting issues. ****Consideration for 12-month follow-up if high grade dysplasia, resection required multiple passes or challenging position noted. *Should you specify colonoscopy surveillance or is it obvious?*	Statement has been modified and now reads: "Subsequent colonoscopy surveillance intervals***: ▪ If the initial polyp was ≥20mm, the next surveillance colonoscopy should be in 1 year. If no recurrence is detected at the resection site, the panel recommends subsequent colonoscopy surveillance in 3 years. ▪ If the initial polyp was ≥10mm-19mm, the next surveillance colonoscopy should be in 3 years****. If no recurrence is detected at the resection site, the panel recommends subsequent colonoscopy surveillance in 5 years." ***Endoscopist discretion to perform surveillance at an earlier interval if concern for advance histological findings or other conflicting issues. ****Consideration for 12-month follow-up if high grade dysplasia, resection required multiple passes or challenging position noted.
		22	"A systematic review of 38 studies [30] identified that the risk of recurrence at subsequent scopes was: 20% (95% CI:16, 25) with piecemeal polypectomy vs 3% (95% CI:2,5) in the en-bloc resection group. 75% of polyp recurrences were identified at 3 months and 96% at 6 months. Polyp size did not affect recurrence: 10-20mm, 20-30mm and >30 mm polyps all had recurrence rates of 18-19%." *So if so, why not choose 30mm (would limit the number of scopes to do)?*	Agree, but the panel sought to be consistent with existing guidelines in the absence of specific evidence.
		22	"The panel identified that there is a lack of uniformity in the definition of piecemeal resection. For all lesions, it is key that a complete polypectomy with removal of all abnormal tissue is carried out. It is also recognized that polyp size is only one factor in determining risk of incomplete resection. Polyp location, orientation and morphology also play a role. The panel was also cognizant that there is a wide range in polypectomy ability among colonoscopists and any recommendation should reflect the skill level of the average endoscopist."	Resection technique is dependent on the skill of the endoscopist and is beyond the scope of this guideline.

			Would you also mention here technique – such as underwater, coagulating the edge…?	
Dr. Harminder Singh Associate Professor of Medicine, Dept. of Internal Medicine and Community Health Sciences, Max Rady College of Medicine, Rady Faculty of Health Sciences, University of Manitoba. Director of Research, WRHA City Wide Endoscopic Services.	Manitoba, Canada	9	*Why not use to grade recommendations strong or weak and the quality of evidence?*	We did not use GRADE methodology to rank guideline statements as we did not perform systematic reviews of PICO questions.
		12	*In general, these studies* [9 – 12] *have not controlled for surveillance colonoscopies which will reduce the risk. Plus, these are highly selective cohorts. ESGE recommendation is for those in programs and not in usual practice. Difference because of quality of colonoscopy*	
		12	"For a colonoscopy finding of 1 or 2 tubular adenoma(s) <10mm, the panel recommends FIT in 5 years." *And why 5 years? 10 years would be easier to recall, no?*	Given that this patient group has at most an average risk for CRC, some guideline panels have recommended a return to FIT screening in 10 years. However, the Alberta panel felt that this was too drastic a change for primary care physicians to enact in the short to intermediate term and thus a 5-year follow-up with FIT was recommended.
		12	"Meta-analysis 1: ≥3 vs <3 adenomas Figure 1 shows the comparison of the number of adenomas and the number of CRC events (including advanced neoplasia). No significant difference in risk of CRC was identified between the patients with ≥3 or <3 adenomas. However, there was considerable heterogeneity between studies which may be the result of variable lengths of follow-up and differing patient related outcomes. The panel noted that the power analysis was 0.779 indicating the possibility of a Type 2 error." *I guess this is being ignored?* *I am not sure what is power analysis*	The recommendation for FIT in 5 years for a colonoscopy finding of 1 or 2 tubular adenoma(s) <10mm, is based upon this evidence.
		13	"The panel concluded that the most current evidence would suggest that patients with three or less adenomas have a subsequent risk of CRC that is the same or lower than those who are at average risk for CRC. Therefore, it is reasonable through shared decision making, to offer a return to FIT screening rather than colonoscopy. " *Suggest to list that evidence. None of what is listed evidence comes to that conclusion*	Statement has been modified and now reads: "The panel concluded that our literature review would suggest that patients with less than three adenomas have a subsequent risk of CRC that is essentially the same as those who are at average risk for CRC. This is supported by a recent meta-analysis published after our review that draws the same conclusions [15]. Thus, it's reasonable through shared decision making, to offer a return to FIT screening rather than colonoscopy."

		15	Figure 3: ≥ 3 TA vs 0 TA and subsequent risk of CRC • "Given that there does appear to be a modest increase in subsequent risk of CRC with ≥ 3 TA's, the panel felt that the ESGE recommendation to return to average risk screening could not be supported by the evidence." *2.2 is not modest, no?*	Statement has been modified and now reads: "Given that there does appear to be an increase in subsequent risk of CRC with ≥ 3 TA's, the panel felt that the ESGE recommendation to return to average risk screening (e.g., FIT) could not be supported by the evidence."
		16	'Timely clearing colonoscopy is required to ensure that all adenomatous lesions have been removed. Multiple groups have recommended referral for genetic testing in all patients with >10 adenomas. " *Some have moved to 20 as detection rates have increased.*	
Dr. Jerry McGrath Head of Gastroenterology, General Hospital, Health Sciences Centre, Eastern Health Medical Director, Newfoundland and Labrador Colon Cancer Screening Program Associate Professor of Medicine, Memorial University	Newfoundland and Labrador, Canada		*This document is an updated set of guidelines, based on the most recent evidence based medical literature available to support the recommendations made. The guidelines represent a significant advance since the last instalment.*	
			The guidelines are clear, well written and the conclusion made are supported. I particularly like the fact that a greater emphasis is placed on average risk patients moving back to FIT testing after normal findings, hyperplastic polyps (<10mm) or low risk adenomas are found. The former recommendations placed too much emphasis on surveillance colonoscopy, resulting in overutilization of a limited valuable resource, specifically colonoscopy. It is also noteworthy that there is a timely recommendation for larger +/- proximal hyperplastic polyps.	
			The guidelines are also progressive in that they have moved patients with 3-4 diminutive adenomas to a five year follow up colonoscopy as opposed to three years. I suspect at some point these patients may also move back to FIT testing as is done in many parts of Europe, however that would be a major shift in North American and more data is probably required.	
			The revised emphasis on serrated lesions and literature to support follow up recommendations regarding these lesions is also noteworthy.	

			In summary, these recommendations are timely and well researched. There are slight differences from other major organizations, however the rationale for these differences has evidence to support them and those recommendations were reached by consensus. These guidelines are a valuable resource for physicians in Alberta and will also serve as a reference point for other provinces and jurisdictions.	
Dr. Catherine Dubé Clinical Lead, ColonCancerCheck Associate Professor, Department of Medicine, Division of Gastroenterology, University of Ottawa	Ontario, Canada		*They were derived using a systematic and rigorous methodology, at a time where new and relevant evidence could be incorporated. A tremendous amount of work was performed in order to systematically review and synthetize the literature; where evidence was incomplete or unavailable, balanced statements were made by consensus.*	
			The guidelines tackle a wide array of findings, leading to more specific guidance than are otherwise currently available in Canada. The categorization of findings, by type, number, and size of polyps makes excellent clinical sense. I expect that these excellent guidelines will become a key reference for clinicians in Canada and -hopefully- achieve significant improvement in the quality of care for patients with a history of polyps.	
		8	*The addition of "screening-related" in the title of the guideline may pose a problem for implementation. Does this suggest that these recommendations should not be used in patients who are found to have polyps when undergoing a diagnostic colonoscopy? Does it instead imply that the guidelines apply to the screen-eligible population, ages 50 or over? Depending on these considerations, I would recommend removing "screening-related" from the title. I would also suggest adding a caveat that post-polypectomy outcomes have not been specifically studied in the younger population.*	"Screening-related" removed from title. Statement added to page 8: "Post-polypectomy outcomes have not been thoroughly studied in populations of patients younger than age 50."
		6	*Edit or remove the footnote at bottom of page 5, which presents an unconventional definition of high risk adenomas which was not used elsewhere in the document; I am not sure which part of the document it refers to either*	Footnote removed.

		7	*Table 1 footnotes are somewhat unclear. The definitions of high risk lesions at bottom of the page could be clearer, e.g. Suggest "5-10 tubular adenomas <10mm" instead of "tubular adenoma 5-10 (<10mm)". Consider adding "with no high grade dysplasia" to the definition of low risk adenoma. Also suggest creating a table listing high-risk lesion types for clarity*	Table 1 was edited. Confusing terminology such as low or high-risk adenomas for the most part was eliminated.
		8	*Surveillance recommendations in people who also have a family history of CRC: for implementation, consider presenting specific scenarios, in particular for pts with polyps who also have one FDR age 60 or over at CRC diagnosis (i.e., the majority of people with FHx), and state whether this type of FHx affects guidelines or not*	Surveillance recommendations also need to consider baseline risk for CRC based on other factors such as family history (outside the scope of this guideline, see colorectal-cancer-screening-guideline.pdf (albertadoctors.org).
			SSLs: in some parts of the document, terminology changes from SSL to SSA or SSP; suggest using same consistent terminology throughout	The updated ACRCSP guideline use sessile serrated lesion (SSL), as endorsed by the WHO and accepted by the expert panel. As this document refers to other major guidelines, significant variation in the nomenclature appears where applicable.
		15-16	*Verify reference to Wieszczy 2020 on page 14-15: the authors in the Gastroenterology paper found an increased risk of CRC and CRC mortality in people with polyps>20mm or with high grade dysplasia, not in those with villous/tubulovillous polyps ("Neither number of adenomas (³3 vs 1–2) nor growth pattern (tubulo-villous or villous versus tubular) were independent risk factors"). The discussion on pages 14-15 mentions a significant increase in CRC risk in polyps with villous histology, although the paper does not state that.*	Statement was corrected and now reads: "Wieszczy (2020) identified that individuals who had at least 1 adenoma with high grade dysplasia of any size were at higher risk of developing CRC. However, number of adenomas or villous histology were not found to be independent risk factors for colorectal cancer incidence or mortality. [17]."
Dr. Ross Stimpson Medical Lead, ColonCheck	Manitoba, Canada		*Overall, this was a good review process with adequate consideration of the available literature and overall good consensus. I would applaud the overall trend to be more restrictive in terms of colonoscopy surveillance recommendations with a goal to reducing low-yield procedures. It was also useful to highlight the differences to the other major guidelines provided by CCO, USMSTF, ESGE and BSG. Simplicity and consistency in surveillance intervals should be a major objective in guideline development to ensure compliance and ease of use of the recommendations.*	
		7	*It was useful to see the acknowledgement that there is often difficulty distinguishing a large hyperplastic polyp from an SSL, particularly in proximal lesions. I think this caveat*	Footnote added to Table 1 "Hyperplastic polyp(s) ≥10mm proximal to sigmoid colon should be considered

			should be stated in the summary table as there is confusion in many recommendations due to the belief that a true hyperplastic polyp has no malignant potential. Similarly, there are situations where a pathologist may be relatively confident that a proximal serrated lesion is definitely a hyperplastic polyp.	a sessile serrated lesion (SSL) with colonoscopy surveillance recommended in 3 years."
			It would be useful to group the recommendations according to high-risk and low risk lesions in the recommendations to help group similar surveillance intervals. The provision of subsequent follow-up recommendations is very useful but somewhat limited by any real data.	Confusing terminology such as low or high-risk adenomas for the most part was eliminated.
		7	*The following statement in the table was confusing in subsequent follow-up and appears in 3 places:* *"If no polyps requiring surveillance, then subsequent colonoscopy at 5 years.* *If normal, consider return to average risk FIT screening."* *It may be a formatting issue, but the 2 statements appear to be separate when it is intended to be one statement as below:* *"If no polyps requiring surveillance, then subsequent colonoscopy at 5 years and if normal, consider return to average risk FIT screening."*	Statement has been modified and now reads: "If no polyps requiring surveillance detected, then subsequent colonoscopy at 5 years. Consider return to average risk FIT screening if both scopes normal."
		7	*The table seems clear, but this footnote is unclear:* *[1] High risk lesions refer to: tubular adenomas 5-10 (<10mm), ≥10mm, villous or HGD, or sessile serrated lesions 3-10 (<10mm), ≥10mm, traditional serrated adenomas and high-grade dysplasia.* *All TSAs have dysplasia and are high risk. They may have high-grade dysplasia as well. SSLs with dysplasia are high-risk. Shouldn't it be:* *[1] High risk lesions refer to: tubular adenomas 5-10 (<10mm), ≥10mm, villous or HGD, or sessile serrated lesions 3-10 (<10mm), any SSL ≥10mm or with dysplasia or any traditional serrated adenoma.*	Footnote has been removed from Table 1.
			The differing recommendations for follow-up after piecemeal removal based on size and dysplasia seem not to be supported and add complexity to the guidelines.	Recommendations for subsequent polypectomy intervals after piecemeal resection are based on expert opinion only due to the current lack of evidence.
	Alberta, Canada		*It is a VERY WELL done guideline, it reads well and the results of the individual statements are well defended.*	

Dr. Sander Veldhuyzen van Zanten Professor of Medicine, Division of Gastroenterology AHS Senior Medical Director, Digestive Health, Clinical Network			*I agree with all the proposed recommendations including the one regarding villous histology. As the document points out in polyps with villous histology size is probably the most important driver of CC risk.*	
			The one point that I would add in the document is (a) statement(s) regarding how size is determined. In practice histologic size is often smaller than the endoscopically reported size. This may be the formalin but how size is assessed and pointers how to do it might benefit the document, e.g., compare it to open snare measurements.	Statement regarding reporting of polyp size is included on page 8. "A high-quality baseline colonoscopy has been performed. A high-quality colonoscopy is one where: the cecum was reached with photo documentation, bowel preparation allowed adequate visualization of all colonic mucosa, with a recommended minimum withdrawal time, with complete removal of all polyps seen and with documentation that meets endoscopy reporting standards [2]. ○ **Polyp size is objectively estimated in reference to either snare diameter or open biopsy forceps** ○ All polypectomies are carried out with good technique and all polypectomy material is sent to pathology [3]. "
			Finally I personally strongly favor average risk screening with FIT to be done every two years rather than every year. That would be cost saving. I hope that at the same time these surveillance guidelines come out a guideline on FIT is published as well. That would allow for very concise and focused messaging especially towards primary care. Primary care will need to be informed about the changes in guidelines, especially regarding the low risk 1-2 small adenomas.	The recommendation regarding FIT screening interval for average risk individuals is outside the scope of these guidelines for post polypectomy surveillance.