CLINICAL PRACTICE GUIDELINES

FOR SURVEILLANCE COLONOSCOPY

SHORT FORM SUMMARY OF NHMRC APPROVED RECOMMENDATIONS

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Cancer Council Australia

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The Australian Government Department of Health commissioned and funded Cancer Council Australia to develop this guideline. This is a short-form summary of the recommendations. The complete guideline and technical documentation can be accessed online: wiki.cancer.org.au/australia/Guidelines:Colorectal_cancer/Colonoscopy_surveillance. Please also access the guidelines website for the latest version of the short-form summary.

The guidelines are a general guide to appropriate practice, to be followed subject to the clinician's judgment and the patient's preference in each individual case. The guidelines are designed to provide information to assist in decision-making.

The development of the *Clinical Practice Guidelines for Surveillance Colonoscopy* was undertaken by a non-remunerated Working Party. A membership list and disclosure of their interests is available in the long-form guidelines (online).

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Publication Approval

Australian Government
National Health and Medical Research Council

NHMRC

The guideline recommendations on pages 3–39 of this document were approved by the Chief Executive Officer of the National Health and Medical Research Council (NHMRC) on 7 December 2018 under section 14A of the National Health and Medical Research Council Act 1992.

In approving the guideline recommendations, NHMRC considers that they meet the NHMRC standard for clinical practice guidelines. This approval is valid for a period of five years.

NHMRC is satisfied that the guideline recommendations are systematically derived, based on the identification and synthesis of the best available scientific evidence, and developed for health professionals practising in an Australian health care setting.

This publication reflects the views of the authors and not necessarily the views of the Australian Government.

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INTRODUCTION

Colorectal cancer is a major cause of morbidity and mortality in Australia.

Colorectal cancer (CRC) is the second most common internal malignancy affecting Australians.[1] Age-standardised incidence and mortality rates are falling, yet CRC still kills more Australians than any other cancer except for lung cancer despite the fact that CRC biology offers a window of opportunity for prevention and cure.

The adenoma-cancer sequence means that appropriately timed colonoscopy could dramatically reduce both CRC incidence and mortality by detecting and completely removing conventional and serrated adenomas, from which the majority of CRC arises. To maximise this potential benefit, colonoscopy must be performed to a very high standard at appropriate intervals.

The *Clinical Practice Guidelines for Surveillance Colonoscopy* update the 2011 edition by reviewing literature published in the interim. They focus on the appropriate use of colonoscopy in CRC prevention and address three main questions:

- when to repeat colonoscopy after removal of adenomatous polyps?
- when to repeat colonoscopy after curative resection of CRC?
- when to perform colonoscopy in those patients with inflammatory bowel disease (IBD) who have an increased risk of developing CRC?

Please note that this is a short-form summary document. To read the full guideline, including details about the development process, methodology and Working Party membership (chapter authorship), please see the online guidelines at: wiki.cancer.org.au/australia/Guidelines:Colorectal_cancer/Colonoscopy_surveillance. The Working Party Membership (authorship) is listed on pages 35–39 in this document.

1. Australian Institute of Health and Welfare (AIHW). *Cancer compendium: information and trends by cancer type.* Australian Government; 2018 [Version updated 2018 Aug 22]. Available from: https://www.aihw.gov.au/reports/cancer/cancer-compendium-information-trends-by-cancer/report-contents/colorectal-cancer.

SUMMARY

Summary of recommendations

This guideline includes evidence-based recommendations (EBR), consensus-based recommendations (CBR) and practice points (PP) as defined in the table below.

Recommendations and practice points were developed by working party members and sub -committee members. Each EBR was assigned a grade by the expert working group, taking into account the volume, consistency, generalisability, applicability and clinical impact of the body of evidence according to *NHMRC Level and Grades for Recommendations for Guidelines Developers*.[1]

NHMRC APPROVED RECOMMENDATION TYPES AND DEFINITIONS

TYPE OF RECOMMENDATION	DEFINITION
Evidence-based recommendation	A recommendation formulated after a systematic review of the evidence, indicating supporting references
Consensus-based recommendation	A recommendation formulated in the absence of quality evidence, after a systematic review of the evidence was conducted and failed to identify admissible evidence on the clinical question
Practice point	A recommendation on a subject that is outside the scope of the search strategy for the systematic review, based on expert opinion and formulated by a consensus process

SOURCE: National Health and Medical Research Council. Procedures and requirements for meeting the NHMRC standard for clinical practice guidelines. Melbourne: National Health and Medical Research Council, 2011

EVIDENCE-BASED RECOMMENDATION GRADES

GRADE OF RECOMMENDATION	DESCRIPTION
A	Body of evidence can be trusted to guide practice
B	Body of evidence can be trusted to guide practice in most situations
C	Body of evidence provides some support for recommendations but care should be taken in its application
D	Body of evidence is weak and recommendation must be applied with caution

SOURCE: National Health and Medical Research Council. NHMRC levels of evidence and grades for recommendations for developers of guidelines. Canberra: NHMRC; 2009. Available from: www.nhmrc.gov.au/_files_nhmrc/file/guidelines/developers/nhmrc_levels_grades_evidence_120423.pdf

PLEASE NOTE THAT SOME CHAPTERS DO NOT HAVE ASSOCIATED RECOMMENDATIONS.

1. National Health and Medical Research Council. *NHMRC levels of evidence and grades for recommendations for guideline developers.* Canberra: National Health and Medical Research Council; 2009 Available from: www.nhmrc.gov.au/_files_nhmrc/file/guidelines/developers/nhmrc_levels_grades_evidence_120423.pdf

Advances in colonoscopy, CT colonography and other methods

Bowel preparation

Practice point

High-quality bowel preparation is a crucial pre-requisite for successful colonoscopy. Optimal preparation is achieved with split-dose or same-day preparation timing.

Practice point

PEG-based bowel preparations are safer for those with co-morbidities and the elderly.

Practice point

A low-residue diet can be used on the days prior to colonoscopy with appropriate preparation timing.

Practice point

Factors associated with poor preparation should be assessed and patients at high risk of poor preparation should be offered additional preparation volume and split-dose timing.

Practice point

Preparation quality should be documented on the colonoscopy report using a validated preparation scale.

Practice point

Where the preparation is inadequate, repeat colonoscopy should normally be offered within 12 months.

Practice point

Successful bowel preparation should be achieved in ≥90% of all colonoscopies.

Advances in technique

Practice point

Fundamental colonoscopic inspection technique should ensure systematic exposure of the proximal sides of folds and flexures, intensive intraprocedural cleansing and adequate distension of the colon.

ADVANCES IN COLONOSCOPY, CT COLONOGRAPHY AND OTHER METHODS

Practice point

Colonoscopists should undergo training in the fundamentals of mucosal exposure and inspection techniques, and in the endoscopic appearance of adenomas and serrated lesions to increase detection rates and improve clinical outcomes of colonoscopy.

Practice point

Water exchange should be considered to improve adenoma detection through an effect on mucosal cleansing and higher rates of adequate bowel preparation.

Practice point

A second examination of the proximal colon in either the forward view or in retroflexion is recommended to improve lesion detection, particularly in patients with an expected higher prevalence of neoplasia.

Practice point

Sessile polyps under 10mm in size should be removed using cold snare polypectomy. This is preferred over hot snare, which is unnecessary in most situations. Hot biopsy forceps should not be used because they are associated with unacceptably high rates of incomplete resection and deep mural injury.

Technological advances

Practice point

High-definition colonoscopes should be used routinely, as the mainstay of colonoscopy is a careful white-light examination of the well prepared colon.

Practice point

Electronic chromoendoscopy should be used for lesion characterisation, but has limited value in lesion detection.

Adjunct technologies

Practice point

Chromoendoscopy should be considered for routine colonoscopy to improve the detection and characterisation of colorectal polyps.

Practice point

Chromoendoscopy should be considered for patients undergoing surveillance for inflammatory bowel disease, although a recent study has shown equivalence with high resolution white-light endoscopy.

Practice point

CO_2 insufflation should be used routinely to improve patient tolerability of colonoscopy.

ADVANCES IN COLONOSCOPY, CT COLONOGRAPHY AND OTHER METHODS

Quality of colonoscopy

Practice point
Accurate and sufficient information about the procedure (and optimally consent) should be provided to patients prior to the commencement of bowel preparation for colonoscopy.

Practice point
Colonoscopy should be performed only for accepted indications, which should be clearly documented.

Practice point
Less than 10% of patients should require a repeat procedure due to poor bowel preparation, this should be offered within 12 months.

Practice point
Unadjusted rates for caecal intubation should be ≥90%.

Practice point
Photo-documentation, that terminal ileum or the base of the caecum (appendix orifice and ileocaecal valve) has been reached, should be performed to confirm completeness of the examination.

Practice point
Withdrawal times of >6 minutes for examinations without polypectomy are a surrogate marker for adenoma detection rates, but cannot be relied on as an independent quality indicator.

Practice point
Individual proceduralists should routinely document and maintain their adenoma detection rate at >25% in patients over the age of 50-years and without a diagnosis of inflammatory bowel disease.

Practice point
Serrated polyp detection rates are likely to be an equally valid marker of quality as adenoma detection rate, and increasing evidence suggests that maintaining a rate of >10% in patients over age 50 years without a diagnosis of inflammatory bowel disease may prove to be an additional, useful quality indicator in the future.

Practice point
Perforation rates post colonoscopy should be <1/1000. This is more relevant for population programs and large endoscopy units rather than individual colonoscopists.

ADVANCES IN COLONOSCOPY, CT COLONOGRAPHY AND OTHER METHODS

Practice point

All colonoscopists should have their training certified by the Conjoint Committee for the Recognition of Training in Gastrointestinal Endoscopy and undergo regular recertification through an endorsed program.

Practice point

Comprehensive computer-generated colonoscopy reports with embedded photo-documentation should be generated at the time of the procedure, and provided to patients and relevant clinicians.

CT colonography

Practice point

Due to its excellent safety profile and high accuracy for detecting colonic carcinoma, CT colonography is an alternative for patients unable to have colonoscopy. Bowel preparation is still required prior to the examination.

Practice point

In patients at risk of colorectal carcinoma who have had an incomplete colonoscopy, CT colonography should be performed to allow assessment of the entire colonic mucosa.

Practice point

It is safe to perform same-day CT colonography following incomplete colonoscopy, including in patients who have had a biopsy or simple polypectomy. However, CT colonography should be delayed in patients with complex endoscopic intervention and in patients at high risk of perforation such as active colitis or high-grade stricture.

Practice point

CT colonography should only be interpreted by radiologists who have undergone specialist training and are accredited by RANZCR.

Practice point

Patients with a CT colonography detected polyp over 10mm should be referred for polypectomy. Patients with polyps 6–9mm can be offered either polypectomy or repeat colonic examination at 3 years.

ADVANCES IN COLONOSCOPY, CT COLONOGRAPHY AND OTHER METHODS

Colonoscopic surveillance after polypectomy

Practice point

Endoscopists and pathologists need to be aware of serrated polyps and be able to recognise and endoscopically manage them.

Practice point

Hyperplastic polyps should be clearly distinguished from sessile serrated adenomas and traditional serrated adenomas. Although hyperplastic polyps are classified amongst serrated polyps, they do not have malignant potential when they are diminutive, confined to the rectosigmoid colon and not associated with proximal serrated polyps.

Practice point

Consistently high quality colonoscopy is imperative for optimal cost-effectiveness and for implementation of uniform surveillance guidelines.

First surveillance intervals following removal of low risk conventional adenomas only

Evidence-based recommendation	Grade
Low-risk individuals – conventional adenomas only First surveillance intervals should be no sooner than 5 years following the complete removal of low-risk conventional adenomas only (1–2 small [<10mm] tubular adenomas without high-grade dysplasia).	**D**

Consensus-based recommendation

Low-risk individuals – conventional adenomas only

First surveillance interval of 10 years is appropriate for most individuals following complete removal of low-risk conventional adenomas only (1–2 small [<10mm] tubular adenomas without high-grade dysplasia).

Practice point

Consistently high-quality colonoscopy is imperative for optimal cost effectiveness and for implementation of uniform surveillance guidelines.

Practice point

Polyp/adenoma size as per the endoscopist documentation should be used for determining surveillance intervals. All endoscopists should ensure size measurements are accurate using a reference standard (eg. an open biopsy forceps or snare).

COLONOSCOPIC SURVEILLANCE AFTER POLYPECTOMY

Practice point

Surveillance intervals should be determined after the colon has been cleared of all significant neoplasia, once histology is known and in the context of individualised assessment of benefit to the patient.

Practice point

Surveillance intervals should be determined after the colon has been cleared of all significant neoplasia, once histology is known and in the context of individualised assessment of benefit to the patient.

Practice point

A shorter surveillance interval of 5 years could be considered for men who fit the criteria for the metabolic syndrome, because they may have increased risk of metachronous advanced neoplasia following removal of low-risk adenomas.

Practice point

Return to the National Bowel Cancer Screening Program with a faecal occult blood test after 4 years, is an appropriate option and should be discussed with the patient.

Practice point

Patients with 1–2 diminutive (<6mm) low-risk adenomas have a very low risk of metachronous neoplasia and should be returned to the NBCSP after 4 years unless there are significant extenuating factors.

Practice point

Individuals with a significant family history of colorectal cancer should be assessed according to current Australian *Clinical practice guidelines for the prevention, early detection and management of colorectal cancer* (see Risk and screening based on family history) in addition to these recommendations, and the shorter interval used.

First surveillance intervals following removal of high risk conventional adenomas only

Evidence-based recommendation	Grade
High-risk individuals – conventional adenomas only First surveillance intervals should be within 5 years following removal of high-risk conventional adenomas only, i.e. those with one or more of the following features: • size ≥10mm • high-grade dysplasia • villosity • 3–4 adenomas.	**D**

COLONOSCOPIC SURVEILLANCE AFTER POLYPECTOMY

Consensus-based recommendation

High-risk individuals – conventional adenomas only

First surveillance intervals following removal of high-risk conventional adenomas only should be stratified according to the type and number of high-risk features (size ≥10mm, high-grade dysplasia (HGD), villosity, 3–4 adenomas):

A surveillance interval of 5 years is recommended for patients with either of the following:

- 1–2 tubular adenomas with HGD or tubulovillous or villous adenomas (with or without HGD), all of which are <10mm
- 3–4 tubular adenomas without HGD, all of which are <10mm.

A surveillance interval of 3 years is recommended for patients with any of the following:

- 1–2 tubular adenomas with HGD or tubulovillous or villous adenomas (with or without HGD), where the size of one or both is ≥10mm
- 3–4 tubular adenomas, where the size of one or more is ≥10mm
- 3–4 tubulovillous and/or villous adenomas and/or HGD, all <10mm.

Practice point

Surveillance intervals should be determined after the colon has been cleared of all significant neoplasia, once histology is known, and in the context of individualised assessment of benefit to the patient.

Practice point

Consistently high-quality colonoscopy is imperative for optimal cost effectiveness and for implementation of uniform surveillance guidelines.

Practice point

Polyp/adenoma size as per the endoscopist documentation should be used for determining surveillance intervals. All endoscopists should ensure size measurements are accurate using a reference standard (eg an open biopsy forceps or snare).

Practice point

Polyps removed at colonoscopy should be sent separately for histology to guide surveillance recommendations.

Practice point

Clinicians should accurately include features relevant to surveillance intervals in their procedure reports so that individualised surveillance recommendations can be made.

COLONOSCOPIC SURVEILLANCE AFTER POLYPECTOMY

First surveillance intervals following removal of ≥5 conventional adenomas only

Evidence-based recommendation	Grade
≥5 conventional adenomas only First surveillance intervals following complete removal of ≥5 conventional adenomas only, should be no longer than 3 years.	D

Consensus-based recommendation

≥5 conventional adenomas only

First surveillance intervals should be within 3 years and stratified based on the number, size and histology following complete removal of ≥5 adenomas only.

For those with 5–9 adenomas, recommended surveillance intervals are:

- 3 years if all tubular adenomas <10mm without high grade dysplasia (HGD)
- 1 year if any adenoma ≥10mm or with HGD and/or villosity.

For those with ≥10 adenomas, the recommended surveillance interval is 1 year, regardless of size or histology.

Practice point

Surveillance intervals should be determined after the colon has been cleared of all significant neoplasia, once histology is known, and in the context of individualised assessment of benefit to the patient.

Practice point

Consistently high-quality colonoscopy is imperative for optimal cost effectiveness and for implementation of uniform surveillance guidelines.

Practice point

Polyp/adenoma size as per the endoscopist documentation should be used for determining surveillance intervals. All endoscopists should ensure size measurements are accurate using a reference standard (eg an open biopsy forceps or snare).

Practice point

Polyps removed at colonoscopy should be sent separately for histology to guide surveillance recommendations.

Practice point

Clinicians should accurately record adenoma features relevant to surveillance intervals so that individualised surveillance recommendations can be made.

COLONOSCOPIC SURVEILLANCE AFTER POLYPECTOMY

Practice point

An underlying familial predisposition to colorectal cancer should be considered in all individuals with ≥10 polyps removed. Referral to a familial cancer clinic should be considered, along with appropriate psychological support.

Separate screening and surveillance recommendations apply to patients with diagnosed or likely familial syndromes (see Should family history affect surveillance intervals?).

Table 3. Summary of recommendations for first surveillance intervals following removal of conventional adenomas only

Current colonoscopy findings		Conventional adenoma Size <10mm		Conventional adenoma Size ≥10mm[d,e]	
		HGD and/or villosity		HGD and/or villosity	
		No	Yes	No	Yes
Total number of conventional adenomas	1-2	10Y[a,b,c]	5Y	3Y	3Y
	3-4	5Y[d]	3Y	3Y	1Y
	5-9	3Y	1Y	1Y	1Y
	≥10	1Y	1Y	1Y	1Y

Surveillance recommendations should be made after the colon has been cleared of all significant neoplasia, once histology is known and in the context of individualised assessment of benefit to the patient. Villosity is defined in the *First surveillance intervals following removal of high-risk conventional adenoma* section.

Polyp/adenoma size as per the endoscopist documentation should be used for determining surveillance intervals.

[a] Consider colonoscopy at an interval of 5 years (Y) in low risk individuals with clinical evidence of the metabolic syndrome

[b] If a significant family history of CRC is present, use screening recommendation if the interval is shorter than 10Y (see the *Clinical practice guidelines for the prevention, early detection and management of colorectal cancer*)

[c] Return to the NBCSP with FOBT after 4 years is also an appropriate option and should be discussed with the patient

[d] Complete excision of lesions is required before surveillance intervals can be recommended

[e] Adenomas ≥20mm are more likely to be excised piecemeal and should be considered under the large and laterally spreading adenomas section (see section on *Large and laterally spreading adenomas*)

First surveillance intervals following removal of serrated polyps (± conventional adenomas)

Evidence-based recommendation	Grade
Sessile and traditional serrated adenomas (with or without conventional adenomas) First surveillance intervals should be no greater than 5 years and should be based on features of synchronous conventional adenomas (if present) following complete removal of sessile and	**D**

COLONOSCOPIC SURVEILLANCE AFTER POLYPECTOMY

Consensus-based recommendation

Sessile and traditional serrated adenomas (with or without conventional adenomas)

First surveillance intervals should be based on the number, size and presence of dysplasia in the serrated polyps and synchronous conventional adenomas (if present) following complete removal of sessile and traditional serrated adenomas.

Clinically significant serrated polyps only

5 years for:

- 1–2 sessile serrated adenomas all <10mm without dysplasia.

3 years for:

- 3–4 sessile serrated adenomas, all <10mm without dysplasia
- 1–2 sessile serrated adenomas ≥10mm or with dysplasia, or hyperplastic polyp ≥10mm
- 1–2 traditional serrated adenomas, any size.

1 year for:

- ≥5 sessile serrated adenomas <10mm without dysplasia
- 3–4 sessile serrated adenomas, one or more ≥10mm or with dysplasia
- 3–4 traditional serrated adenomas, any size.

Clinically significant serrated polyps and synchronous conventional adenomas

5 years for:

- 2 in total, sessile serrated adenoma <10mm without dysplasia.

3 years for:

- 3–9 in total, all sessile serrated adenomas <10mm without dysplasia
- 2–4 in total, any serrated polyp ≥10mm and/or dysplasia
- 2–4 in total, any traditional serrated adenoma.

1 year for:

- ≥10 in total, all sessile serrated adenomas <10mm without dysplasia
- ≥5 in total, any serrated polyp ≥10mm and/or dysplasia
- ≥5 in total, any traditional serrated adenoma.

Synchronous high-risk conventional adenoma (tubulovillous or villous adenoma, with or without HGD and with or without size ≥10mm)

3 years for:

- 2 in total, sessile serrated adenoma <10mm, without dysplasia
- 2 in total, serrated polyp ≥10mm and/or dysplasia
- 2 in total, any traditional serrated adenoma.

1 year for:

- ≥3 total adenomas, sessile serrated adenoma any size with or without dysplasia
- ≥3 total adenomas, one or more traditional serrated adenoma.

COLONOSCOPIC SURVEILLANCE AFTER POLYPECTOMY

Practice point

Surveillance is recommended for 'clinically significant' serrated polyps:

- sessile serrated adenomas
- traditional serrated adenomas
- hyperplastic polyps ≥10mm.

Practice point

High-quality endoscopy is imperative to identify accurately and to completely remove sessile and traditional

Practice point

Polyp/adenoma size as per the endoscopist documentation should be used for determining surveillance intervals. All endoscopists should ensure size measurements are accurate using a reference standard (eg an open biopsy forceps or snare).

Practice point

Polyps removed should be submitted separately for histologic assessment to inform surveillance

Practice point

High-quality pathology interpretation is critical to correctly diagnose sessile and traditional serrated lesions and

Practice point

High-quality reporting from endoscopists and pathologists is required to allow accurate risk stratification for

Practice point

Surveillance intervals should be determined after the colon has been cleared of all significant neoplasia, once

Practice point

Small, particularly distal, true hyperplastic polyps do not require surveillance.

Practice point

Clinicians should be aware of the cumulative serrated polyp count and diagnostic criteria for serrated polyposis syndrome and recommend surveillance. See *Clinical practice guidelines for the prevention, early detection and management of colorectal cancer*, Serrated polyposis syndrome for diagnostic criteria and recommended

COLONOSCOPIC SURVEILLANCE AFTER POLYPECTOMY

Table 9. Summary of recommendations for first surveillance intervals following removal of clinically significant serrated polyps (± conventional adenomas)

First surveillance - clinically significant serrated polyps only		
Current colonoscopy findings (no. clinically significant serrated polyps)	Advanced serrated polyps (≥10 mm, dysplasia or TSA)	
	No	Yes
1-2	5Y	3Y
3-4	3Y	1Y
≥5	1Y	

First surveillance - clinically significant serrated polyps with synchronous conventional adenomas				
Current colonoscopy findings (combined no. clinically significant serrated polyps and conventional adenomas)	Low risk conventional adenomas		High risk conventional adenomas	
	Advanced serrated polyps (≥10 mm, dysplasia or TSA)		Advanced serrated polyps (≥10 mm, dysplasia or TSA)	
	No	Yes	No	Yes
2	5Y	3Y	3Y	3Y
3-4	3Y	3Y	1Y	1Y
5-9	3Y	1Y	1Y	1Y
≥10	1Y	1Y	1Y	1Y

Polyp/adenoma size as per the endoscopist documentation should be used for determining surveillance intervals.
Clinically significant serrated polyp: sessile serrated adenoma, traditional serrated adenoma, large (≥10mm) hyperplastic polyp.
Low-risk conventional adenoma: small (<10 mm) tubular adenoma without high-grade dysplasia.
High-risk conventional adenoma: size ≥10 mm, high-grade dysplasia or villosity.
TSA: traditional serrated adenoma; Y: years.

First surveillance intervals following removal of large sessile or laterally spreading adenomas

Consensus-based recommendation

Large sessile and laterally spreading lesions

First surveillance interval should be approximately 12 months in individuals who have undergone **en-bloc** excision of large sessile and laterally spreading lesions.

COLONOSCOPIC SURVEILLANCE AFTER POLYPECTOMY

Consensus-based recommendation

Large sessile and laterally spreading lesions

First surveillance interval should be approximately 6 months in individuals who have undergone **piecemeal** excision of large sessile and laterally spreading lesions.

Practice point

Consideration should be given to referring large sessile and laterally spreading lesions to experienced clinicians trained in and regularly undertaking high quality EMR to reduce the risk of recurrence.

Practice point

Patients with large sessile and laterally spreading lesions should be informed of the requirement for scheduled surveillance before proceeding to EMR.

Practice point

At surveillance following piecemeal or en-bloc excision of large sessile and laterally spreading lesions, the EMR scar should be identified, photodocumented and systematically evaluated for recurrence, including biopsies. These individuals are at high risk for synchronous and/or metachronous lesions and require very careful evaluation of the remaining colon at the same time.

Practice point

Endoscopic mucosal resection (EMR) of large sessile and laterally spreading lesions (>20mm) is usually piecemeal and all lesions that undergo piecemeal excision are at higher risk of recurrence and require scheduled surveillance. Risk factors for recurrence after EMR are piecemeal excision, larger lesion size (>40mm) and the presence of high-grade dysplasia in the resected specimen.

Practice point

In patients who have undergone piecemeal excision of large sessile and laterally spreading lesions (in whom the first surveillance colonoscopy at 6 months is clear), the next surveillance colonoscopy should be considered around 12–18 months, especially in those who had large lesions (>40mm) or high-grade dysplasia at index EMR.

Practice point

Consideration should be given to tattooing all lesions which may need to be identified subsequently. Those that may need surgical resection should be tattooed distal to the lesion in three locations around the circumference of the bowel to facilitate recognition.

Practice point

Consistently high-quality colonoscopy is imperative for optimal cost effectiveness and for implementation of uniform surveillance guidelines.

COLONOSCOPIC SURVEILLANCE AFTER POLYPECTOMY

Practice point
Polyp/adenoma size as per the endoscopist documentation should be used for determining surveillance intervals. All endoscopists should ensure size measurements are accurate using a reference standard (eg an open biopsy forceps or snare).

Should family history affect surveillance intervals?

Evidence-based recommendation	Grade
Family history of CRC First surveillance intervals following adenoma removal in those with a family history of colorectal cancer should be based on patient factors and the adenoma history, unless a genetic syndrome is known or suspected.	**D**

Practice point
To identify those who may have an increased familial risk of colorectal cancer, a family history of colorectal cancer and associated malignancies including number of affected relatives, relatedness and age of onset should be taken and updated every 5 to 10 years.

Practice point
In individuals who are undergoing screening colonoscopy for colorectal cancer based on family history, adenoma surveillance and screening recommendations should be compared and the shorter interval used. Refer to *Clinical practice guidelines for the prevention, early detection and management of colorectal cancer* (2017) (see Recommendations for risk and screening based on family history of colorectal cancer).

Practice point
To address individual's concerns, clinicians should take adequate time to explain the relationship of family history to recommended surveillance intervals and refer for counselling where appropriate.

Subsequent surveillance colonoscopies

Practice point
The findings of the previous two colonoscopies predict high-risk findings on the subsequent colonoscopy and should be considered when recommending subsequent surveillance intervals.

Practice point
For individuals who have undergone two or more colonoscopies, the surveillance interval for the next (3rd) colonoscopy should be based on the reports and histology from the two most recent procedures (1st and 2nd colonoscopies) as per Tables 14–16 (see Table 13 as a quick reference guide).

COLONOSCOPIC SURVEILLANCE AFTER POLYPECTOMY

Table 13 Colonoscopy findings and surveillance intervals: reference guide to Tables 14–16

1st colonoscopy findings	2nd colonoscopy findings	3rd colonoscopy surveillance interval
Conventional adenomas only	Normal colonoscopy or conventional	Table 14
	Clinically significant serrated polyps *without* synchronous conventional adenomas	Table 15a
	Clinically significant serrated polyps *with* synchronous conventional adenomas	Table 15b
Clinically significant serrated polyps *with or without* synchronous conventional adenomas	Normal colonoscopy or conventional	Table 16
	Clinically significant serrated polyps *without* synchronous conventional adenomas	Table 15a
	Clinically significant serrated polyps *with* synchronous conventional adenomas	Table 15b

COLONOSCOPIC SURVEILLANCE AFTER POLYPECTOMY

Table 14. Recommended surveillance intervals for 3rd colonoscopy – conventional adenomas only

Recommended interval for 2nd colonoscopy and risk category Conventional adenomas only				
1st colonoscopy (no. adenomas)	<10mm		≥10mm	
	HGD and/or villosity		HGD and/or villosity	
	No	Yes	No	Yes
1–2	*10Y LOW*	*5Y INT*	*3Y HIGH*	*3Y HIGH*
3–4	*5Y INT*	*3Y HIGH*	*3Y HIGH*	*1Y HIGHEST*
5–9	*3Y HIGH*	*1Y HIGHEST*	*1Y HIGHEST*	*1Y HIGHEST*
≥10	*1Y HIGHEST*	*1Y HIGHEST*	*1Y HIGHEST*	*1Y HIGHEST*

LOW RISK on 1st colonoscopy Conventional adenomas only				
2nd colonoscopy (no. adenomas)	<10mm		≥10mm	
	HGD and/or villosity		HGD and/or villosity	
	No	Yes	No	Yes
0	*FOBT screening as per NBCSP*			
1–2	*10Y*	*5Y*	*3Y*	*3Y*
3–4	*5Y*	*3Y*	*3Y*	*1Y*
5–9	*3Y*	*1Y*	*1Y*	*1Y*
≥10	*1Y*	*1Y*	*1Y*	*1Y*

INTERMEDIATE RISK on 1st colonoscopy Conventional adenomas only				
2nd colonoscopy (no. adenomas)	<10mm		≥10mm	
	HGD and/or villosity		HGD and/or villosity	
	No	Yes	No	Yes
0	*10Y*			
1–2	*5Y*	*5Y*	*3Y*	*3Y*
3–4	*5Y*	*3Y*	*3Y*	*1Y*
5–9	*3Y*	*1Y*	*1Y*	*1Y*
≥10	*1Y*	*1Y*	*1Y*	*1Y*

HIGH RISK on 1st colonoscopy Conventional adenomas only				
2nd colonoscopy (no. adenomas)	<10mm		≥10mm	
	HGD and/or villosity		HGD and/or villosity	
	No	Yes	No	Yes
0	*5Y*			
1–2	*5Y*	*3Y*	*3Y*	*3Y*
3–4	*3Y*	*3Y*	*3Y*	*1Y*
5–9	*3Y*	*1Y*	*1Y*	*1Y*
≥10	*1Y*	*1Y*	*1Y*	*1Y*

HIGHEST RISK on 1st colonoscopy Conventional adenomas only				
2nd colonoscopy (no. adenomas)	<10mm		≥10mm	
	HGD and/or villosity		HGD and/or villosity	
	No	Yes	No	Yes
0	*5Y*			
1–2	*5Y*	*3Y*	*1Y*	*1Y*
3–4	*3Y*	*1Y*	*1Y*	*1Y*
5–9	*1Y*	*1Y*	*1Y*	*1Y*
≥10	*1Y*	*1Y*	*1Y*	*1Y*

Polyp/adenoma size as per the endoscopist documentation should be used for determining surveillance intervals.
HGD: high-grade dysplasia; Y: years.

COLONOSCOPIC SURVEILLANCE AFTER POLYPECTOMY

Table 15. Recommended surveillance intervals for 3rd colonoscopy

a. (top) Clinically significant serrated polyps only at 2nd colonoscopy. b. (bottom) Clinically significant serrated polyps with synchronous conventional adenomas at 2nd colonoscopy.

a)

2nd colonoscopy (no. CS serrated polyps#)	Advanced serrated polyps (≥10mm, dysplasia or TSA)	
	No	Yes
1-2	5Y	3Y
3-4	3Y	1Y
≥5	1Y	

b)

2nd colonoscopy (combined no. CS serrated polyps# and synchronous adenomas)	Low-risk conventional adenoma		High-risk conventional adenoma	
	Advanced serrated polyps (≥10mm, dysplasia or TSA)		Advanced serrated polyps (≥10mm, dysplasia or TSA)	
	No	Yes	No	Yes
2	5Y	3Y	3Y	3Y
3-4	3Y	3Y	1Y	1Y
5-9	1Y	1Y	1Y	1Y
≥10	1Y	1Y	1Y	1Y

Polyp/adenoma size as per the endoscopist documentation should be used for determining surveillance intervals.
Clinically significant serrated polyp (CS serrated polyp): sessile serrated adenoma, traditional serrated adenoma, large (≥10mm) hyperplastic polyp (HP)
High-risk conventional adenoma: size≥10mm, high-grade dysplasia (HGD) or villosity
Low-risk conventional adenoma: small (<10mm) tubular adenoma without HGD
TSA: traditional serrated adenoma; Y: years.

COLONOSCOPIC SURVEILLANCE AFTER POLYPECTOMY

Table 16. Recommended surveillance intervals for 3rd colonoscopy – clinically significant serrated polyps at 1st colonoscopy, no adenomas or conventional adenomas only at 2nd colonoscopy

Clinically significant serrated polyps# only		
1st colonoscopy findings (no. csserrated polyps#)	Advanced serrated polyps (≥10mm, dysplasia or TSA)	
	No	Yes
1-2	5Y	3Y
3-4	3Y	1Y
≥5	1Y	

Recommended interval for 3rd colonoscopy INTERMEDIATE RISK on first colonoscopy				
2nd colonoscopy (no. adenomas)	Size <10mm		Size ≥10mm	
	HGD and/or villosity		HGD and/or villosity	
	No	Yes	No	Yes
0	5Y			
1–2	5Y	5Y	3Y	3Y
3–4	3Y	3Y	3Y	1Y
5–9	3Y	1Y	1Y	1Y
≥10	1Y	1Y	1Y	1Y

Recommended interval for 3rd colonoscopy HIGH RISK on 1st colonoscopy				
2nd colonoscopy (no. adenomas)	Size <10mm		Size ≥10mm	
	HGD and/or villosity		HGD and/or villosity	
	No	Yes	No	Yes
0	5Y			
1–2	5Y	3Y	3Y	3Y
3–4	3Y	3Y	3Y	1Y
5–9	3Y	1Y	1Y	1Y
≥10	1Y	1Y	1Y	1Y

Recommended interval for 3rd colonoscopy HIGHEST RISK on 1st colonoscopy				
2nd colonoscopy (no. adenomas)	Size <10mm		Size ≥10mm	
	HGD and/or villosity		HGD and/or villosity	
	No	Yes	No	Yes
0	3Y			
1–2	3Y	3Y	1Y	1Y
3-4	3Y	1Y	1Y	1Y
5-9	1Y	1Y	1Y	1Y
≥10	1Y	1Y	1Y	1Y

Polyp/adenoma size as per the endoscopist documentation should be used for determining surveillance intervals.

#Clinically significant serrated polyp (csserrated polyp): sessile serrated adenoma, traditional serrated adenoma, large (≥10mm) hyperplastic polyp (HP).

HGD: high-grade dysplasia; TSA: traditional serrated adenoma; Y: years.

The elderly and stopping rules

Practice point

Careful assessment and shared decision-making should be utilised when considering surveillance colonoscopy in the elderly, most of whom will have no significant findings and will not benefit.

Practice point

Surveillance colonoscopy in those ≥75 years should be considered based on age, co-morbidity and the preferences of the patient. The reproducible and validated Charlson score is useful to assess life expectancy and could be implemented to assist decision-making (see Tables 17 and 18 below).

Practice point

In obtaining consent for colonoscopy for an elderly patient, complication rates should reflect the individual risk based on age and comorbidity rather than 'standard' figures.

Table 17. Surveillance recommendations for individuals age ≥75 years

Age (years)	Charlson score[a]	
	≤4	>4
75–80	Surveillance colonoscopy to be considered [b,c]	Surveillance colonoscopy not recommended
>80	Surveillance colonoscopy not recommended	

[a]Charlson for colonoscopy benefit can be simplified as per Table 18; [b]colonoscopy should be considered an option dependent on a clear conversation about the low risk of significant colorectal pathology, taking the patient's wishes into consideration; [c]consent for colonoscopy should include age appropriate statistics on risk.

Table 18 . Charlson score for colonoscopy benefit

Age	**Medical conditions**	
75–79 years (3 points)	**May** have *one* of these conditions only (1 point each): Mild liver disease Diabetes without end-organ damage Cerebrovascular disease Ulcer disease Connective tissue disease Chronic pulmonary disease Dementia Peripheral vascular disease Congestive heart failure Myocardial infarction	**May not** have *any* of these medical conditions (≥1 point each): Moderate/severe liver disease Diabetes with end-organ damage Hemiplegia Moderate or severe renal disease AIDS Metastatic or non-metastatic solid organ or haematopoietic malignancy
80 years (4 points)	May not have any of the above medical conditions	

COLONOSCOPIC SURVEILLANCE AFTER POLYPECTOMY

Malignant polyps

Practice point

Endoscopists should be familiar with endoscopic appearances suggestive of a malignant polyp.

Practice point

Removal of polyps likely to be malignant should be en-bloc or patients should be referred to a centre specialising in endoscopic excision of large and flat polyps.

Practice point

Tattoos should be applied 2–3cm distal to the polypectomy site if future site localisation or surgery is necessary.

Practice point

Malignant polyps should be reviewed by a second pathologist with a specialist gastrointestinal interest where histological diagnosis is unclear or difficult. Multidisciplinary review and management (endoscopist, pathologist

Practice point

Standardised synoptic reporting should be used to assist clinical decision making (structured reporting protocols

Practice point

Low-risk malignant polyps have all of the following features: superficial submucosal invasion (<1000 microns), moderate or well differentiated histology, no lymphovascular invasion, clear margins and no other risk features. In these cases, where the endoscopist is certain that the lesion has been completely removed, then the neoplasm should be considered cured by endoscopic polypectomy.

Practice point

Polyps that do not satisfy low risk criteria or have other histological risk features (often not routinely reported) including: malignant invasion depth >2mm, invasion width >3mm, tumour budding and cribriform architecture, should be considered at risk of harbouring residual bowel wall cancer or lymph node metastases. A magnitude of

Practice point

Cases considered for surgery must have an assessment of surgical risk using validated surgical risk scoring systems, e.g. Risk Prediction in Surgery.

Practice point

A discussion of risk of residual cancer balanced against risk of surgery must occur with the patient to determine

COLONOSCOPIC SURVEILLANCE AFTER POLYPECTOMY

Practice point

Multi-disciplinary management and audit are important.

Practice point

Surveillance recommendations for a T1 adenocarcinoma as per 2017 *Australian Clinical practice guidelines for the prevention, early detection and management of colorectal cancer* should be followed for completely resected malignant polyps.

Practice point

A patient who has had potential incomplete endoscopic resection of a malignant polyp not undergoing surgery

ROLE OF SURVEILLANCE COLONOSCOPY AFTER CURATIVE RESECTION FOR CRC

The role of surveillance colonoscopy after curative resection for colorectal cancer

Preoperative and perioperative colonoscopy in patients with colorectal cancer undergoing resection

Evidence-based recommendation	Grade
A preoperative colonoscopy should be attempted in all patients with a newly diagnosed colorectal cancer.	C

Evidence-based recommendation	Grade
Colonoscopy should be performed 3–6 months after resection for patients with obstructive colorectal cancer in whom a complete perioperative colonoscopy could not be performed and in whom there is residual colon proximal to the location of the pre-operatively obstructing cancer.	C

Practice point

In cases of a colorectal cancer that may be difficult to identify at surgery, particularly using the laparoscopic approach, submucosal tattoo should be placed in three places approximately 2 cm distal to the lesion at the time of colonoscopy. This should be clearly documented in the colonoscopy report.

Practice point

If the index colorectal cancer (CRC) obstructs the lumen and prevents passage of a colonoscope, consideration should be given to specific pre-operative assessment of the proximal colon by alternative means. CT colonography (CTC) can be considered. However, its role in this clinical scenario requires further analysis. It is safe to perform same-day CTC following an incomplete colonoscopy, including in patients who have had a biopsy or simple polypectomy. CTC should be delayed in patients with complex endoscopic intervention and in patients at high risk of perforation, such as those with active colitis or high-grade stricture.

Practice point

Proximal visualisation is unnecessary if the colon proximal to the cancer is to be included in the resection specimen. In patients with residual un-visualised colon, colonoscopy should be performed 3–6 months after surgery, providing no non-resectable distant metastases are found.

Practice point

In patients with a defunctioning loop ileostomy, it is preferable to undertake colonoscopy after this is reversed to enable adequate bowel preparation.

ROLE OF SURVEILLANCE COLONOSCOPY AFTER CURATIVE RESECTION FOR CRC

Follow-up colonoscopy after colorectal cancer resection

Evidence-based recommendation	Grade
Colonoscopy should be performed 1 year after the resection of a sporadic cancer, unless a complete postoperative colonoscopy has been performed sooner. **Recommendation unchanged from 2011 edition of clinical practice guidelines for surveillance**	**C**

Evidence-based recommendation	Grade
If the perioperative colonoscopy or the colonoscopy performed at 1 year reveals advanced adenoma, then the interval before the next colonoscopy should be guided by recommended surveillance intervals according to polyp features. **Recommendation unchanged from 2011 edition of clinical practice guidelines for surveillance colonoscopy.**	**C**

Evidence-based recommendation	Grade
If the colonoscopy performed at 1 year is normal or identifies no advanced adenomas, then the interval before the next colonoscopy should be five 5 years (i.e. colonoscopies at 1, 6, and 11 years after resection). **Recommendation unchanged from 2011 edition of clinical practice guidelines for surveillance**	**C**

Consensus-based recommendation

If surveillance colonoscopy reveals adenoma, then the interval before the next colonoscopy should be guided by polyp features (evidence-based recommendation, Grade C). However, if subsequent colonoscopy is normal, then surveillance should revert back to the intervals recommended for initial cancer surveillance (colonoscopy at 6 and 11 years post resection).

Recommendation unchanged from 2011 edition of clinical practice guidelines for surveillance colonoscopy.

Consensus-based recommendation

If all colonoscopies performed at 1, 6 and 11 years post resection are normal, follow-up can be with either of the following options:

- faecal occult blood test every 2 years
- colonoscopy at 10 years (i.e. 21 years post resection)

Recommendation unchanged from 2011 edition of clinical practice guidelines for surveillance colonoscopy.

ROLE OF SURVEILLANCE COLONOSCOPY AFTER CURATIVE RESECTION FOR CRC

Practice point

Patients undergoing either local excision (including transanal endoscopic microsurgery) of rectal cancer or advanced adenomas or ultra-low anterior resection for rectal cancer should be considered for periodic examination of the rectum at 6-monthly intervals for 2 or 3 years using either digital rectal examination, rigid proctoscopy, flexible proctoscopy, and/or rectal endoscopic ultrasound. These examinations are considered to be independent of the colonoscopic examination schedule described above.

Practice point

Patients with incomplete colonoscopy pre-operatively (e.g. impassable distal lesion) should have a semi-urgent elective post-operative colonoscopy when feasible, independent of surveillance intervals.

Practice point

Surveillance colonoscopy in those age ≥75 years should be based on age and comorbidity as assessed by the reproducible and validated Charlson score. Charlson score is useful to assess life expectancy and could be implemented to stratify benefits of surveillance colonoscopy in the elderly (see Table 18 Charlson score for colonoscopy benefit).

Patient selection for surveillance colonoscopy following resection

Practice point

Patients with hereditary colorectal cancer syndromes should have surveillance colonoscopy performed post-operatively as per the *Clinical practice guidelines for the prevention, early detection and management of colorectal cancer*.

Practice point

Other clinically high-risk patients should be considered for more frequent surveillance colonoscopy after surgery than would otherwise be recommended (e.g. initial post-operative colonoscopy at 1 year and then 1–3 yearly depending on personalised estimate of risk). These include patients:

- whose initial diagnosis was made younger than age 40 years
- with suspected but un-identified hereditary colorectal cancer syndromes
- with multiple synchronous cancers or advanced adenomas at initial diagnosis.

Colonoscopic surveillance and management of dysplasia in IBD

Initiation of surveillance in IBD

Evidence-based recommendation	Grade
Surveillance colonoscopy should commence after 8 years of onset of inflammatory bowel disease symptoms in those with at least distal (left-sided) ulcerative colitis or Crohn's colitis with involvement of at least one third of the colon.	C

Evidence-based recommendation	Grade
In the presence of primary sclerosing cholangitis (PSC), surveillance colonoscopy should commence upon the diagnosis of PSC.	**B**

Practice point
A family history of colorectal cancer in a first degree relative represents an intermediate risk factor. Surveillance colonoscopy may begin after 8 years of the onset of symptoms of inflammatory bowel disease, or 10 years before the age of the youngest relative with colorectal cancer whichever is earliest.

Practice point
Those with isolated proctitis or small bowel Crohn's disease do not require surveillance colonoscopy.

Surveillance interval for IBD patients

Consensus-based recommendation
Patients with IBD at high risk of CRC (those with PSC, ongoing chronic active inflammation, prior colorectal dysplasia, evidence of intestinal damage with colonic stricture, pseudopolyps or foreshortened tubular colon or family history of CRC at age ≤50 years) should undergo yearly surveillance colonoscopy.

Consensus-based recommendation
Patients with IBD at intermediate risk of CRC (those with quiescent disease, no high risk features or family history of CRC in a first-degree relative) should undergo surveillance colonoscopy every 3 years.

ADVANCES IN COLONOSCOPY, CT COLONOGRAPHY AND OTHER METHODS

Consensus-based recommendation
Patients with IBD at low risk of CRC (those with quiescent disease and no other risk factors, and with inactive disease on consecutive surveillance colonoscopies) may undergo surveillance colonoscopy every 5 years.

Practice point
Consider increased frequency of surveillance (intervals less than 3 years) in patients with a family history of CRC in a first-degree relative <50 years of age because this may be an additional risk factor for CRC.

Recommended surveillance techniques in IBD patients

Evidence-based recommendation	Grade
Chromoendoscopy should be incorporated into surveillance procedures, especially in high-risk patients.	**A**

Evidence-based recommendation	Grade
Taking targeted, rather than random, biopsies is the recommended method of identifying dysplasia in patients with inflammatory bowel disease.	**B**

Evidence-based recommendation	Grade
Random biopsies are recommended in IBD patients with PSC, prior dysplasia, and intestinal damage (colonic stricture or foreshortening).	**C**

Evidence-based recommendation	Grade
Standard-definition colonoscopy is not recommended for surveillance procedures, especially in the absence of chromoendoscopy.	**B**

Consensus-based recommendation
Proceduralists performing surveillance colonoscopy in patients with IBD should be familiar with and adhere to surveillance guidelines.

Practice point
IBD surveillance requires high-quality colonoscopy: • performing the colonoscopy when the patient is in clinical and endoscopic remission • excellent bowel preparation • the use of high-definition colonoscopes • ensuring optimal and full visualisation of the mucosal surface during slow withdrawal.

ADVANCES IN COLONOSCOPY, CT COLONOGRAPHY AND OTHER METHODS

Practice point
Dye spray chromoendoscopy can be applied with a spray catheter or by incorporating dye in the reservoir of the water pump.

Practice point
Either methylene blue or indigo carmine is an appropriate dye for chromoendoscopy.

Practice point
Upon identification of invisible dysplasia on random biopsies, confirmation of diagnosis and grade is required by at least two GI pathologists. Chromoendoscopy is then recommended to determine if there is multifocal dysplasia.

Management of elevated dysplasia in IBD

Evidence-based recommendation	Grade
Raised lesions containing dysplasia may be treated endoscopically provided that the entire lesion is removed and there is no dysplasia in flat mucosa elsewhere in the colon.	C

Evidence-based recommendation	Grade
If a raised dysplastic lesion cannot be completely removed, surgical intervention is strongly recommended.	D

Consensus-based recommendation
In the presence of multifocal low-grade dysplasia that cannot be removed endoscopically, at least frequent surveillance colonoscopy is required. Surgical management is an alternative based on case-by-case discussion. Surveillance colonoscopy with chromoendoscopy within 3–12 months should be carried out after endoscopic re-

Practice point
The important objective for the endoscopist performing surveillance procedures is to identify lesions that are safely and completely resectable endoscopically. This is based on endoscopic features of the identified lesion and elsewhere in the colon.

Practice point
Nomenclature should reflect the SCENIC international consensus statement on surveillance and management of dysplasia in inflammatory bowel disease. The term 'dysplasia associated lesion or mass (DALM)' should not be used.

ADVANCES IN COLONOSCOPY, CT COLONOGRAPHY AND OTHER METHODS

Practice point
Consider referral to an experienced endoscopist to perform surveillance for inflammatory bowel disease using chromoendoscopy to exclude multi-focal dysplasia followed by endoscopic resection of the dysplastic lesion.

Practice point
Close colonoscopic surveillance is required following endoscopic resection of dysplasia given the risk of multifocal dysplasia and metachronous dysplasia.

High-grade dysplasia in IBD

Evidence-based recommendation	Grade
Patients with endoscopically non-resectable high-grade dysplasia should undergo colectomy.	C

Evidence-based recommendation	Grade
For patients with endoscopically resectable high-grade dysplasia, whether polypoid or non-polypoid, continued colonoscopic surveillance after complete resection of the lesion is	C

Consensus-based recommendation
Patients with resected high-grade dysplasia should undergo further surveillance in 3–12 months. Subsequent surveillance intervals depend on the findings of each subsequent surveillance colonoscopy.

Consensus-based recommendation
Patients with invisible high-grade dysplasia (HGD) should undergo more intensive colonoscopic surveillance than patients with visible HGD.

Low-grade dysplasia in IBD

Evidence-based recommendation	Grade
Unifocal low-grade dysplasia should be followed by ongoing surveillance using high-definition white-light endoscopy and chromoendoscopy at 6 months. If 6-month surveillance colonoscopy is normal, surveillance should be repeated annually.	C

Evidence-based recommendation	Grade
Low-grade dysplasia in flat mucosa should be evaluated for multifocal dysplasia by an endoscopist with expertise in inflammatory bowel disease surveillance using high-definition white-light endoscopy and/or chromoendoscopy.	C

ADVANCES IN COLONOSCOPY, CT COLONOGRAPHY AND OTHER METHODS

Consensus-based recommendation

Visible dysplasia should be resected endoscopically and then followed up with surveillance colonoscopy with high-definition white-light endoscopy and chromoendoscopy within 3–12 months.

Consensus-based recommendation

Consider shorter surveillance intervals for flat dysplasia located in the distal colon, as this is associated with higher risk of progression.

Practice point

When determining an individual's appropriate surveillance frequency, the risk factors for progression of low-grade dysplasia (LGD) towards high-grade dysplasia (HGD) or colorectal cancer are: older age at diagnosis of LGD (age >55 years), male sex and inflammatory bowel disease duration of >8 years at diagnosis of LGD.

Practice point

Multifocal low-grade dysplasia is associated with a sufficiently high risk of future cancer that colectomy is usually recommended. Patients who elect to avoid surgery require follow-up surveillance at 3 months, preferably with chromoendoscopy and high-definition white-light endoscopy. If 3-month surveillance colonoscopy is normal, surveillance should be repeated annually.

Indefinite dysplasia in IBD

Evidence-based recommendation	Grade
Indefinite dysplasia in flat mucosa does not require surgery, but follow-up colonoscopic surveillance is recommended, preferably with chromoendoscopy, at more frequent intervals.	**D**

Consensus-based recommendation

Indefinite dysplasia should be reviewed by a second gastro-intestinal pathologist.

Consensus-based recommendation

After detecting indefinite dysplasia, inflammation (if present) should be treated and colonoscopy should be

Practice point

If indefinite dysplasia is detected at random biopsy, repeat colonoscopy with enhanced imaging techniques may assist in defining an endoscopically resectable lesion, or a lesion amenable to further targeted biopsies.

Practice point

If there are features of active inflammation, repeat colonoscopy following escalation of therapy may assist in further defining indefinite dysplasia.

Anxiety in colonoscopy: approaches to minimise anxiety and its adverse effects

Anxiety and colonoscopy: approaches to minimise anxiety and its adverse effects

Practice point
Providing pre-colonoscopic advice to patients by means of educational material, video and clinical explanation can assist in improving the patient experience with the procedure, and in reducing decreasing anxiety and abdominal pain during the procedure.

Practice point
Endoscopists should aim to control pain and discomfort during a colonoscopy procedure in order to reduce patient anxiety.

Practice point
Physicians should be able to provide accurate and relevant information about colonoscopy for patients who are undergoing open access colonoscopy (without prior consultation with an endoscopist).

Practice point
Gastroenterology clinics are recommended to evaluate shifting towards a biopsychosocial approach to healthcare and encouraging patients to participate in decision-making in order to provide them with a greater sense of control, thus reducing anxiety.

Practice point
The use of neutral language around colonoscopy may be useful in order to break down the stigma and taboo surrounding the procedure and bowel health issues.

Practice point
Clinicians should ensure that patients understand the standard practice and convey information about the procedure as clearly as possible (e.g., whether they will be conscious, whether they will experience pain, etc.). Note: Clinicians should also follow the Clinical Care Standards that apply to the preparation of patients for procedures, including informed consent (see Australian Commission on Safety and Quality in Health Care Colonoscopy Clinical Care Standards).

ANXIETY IN COLONOSCOPY

Practice point
Patients who receive the amount of information consistent with their preferences (information seekers versus avoiders) report lower anxiety and more satisfaction with the intervention, and experience less pain and shorter time in recovery. Colonoscopists can assess patients' desire for information by asking the patient directly, for example "how much information would you like about XX (this procedure)? Are you someone who prefers to get a lot of information or just the basics?"

Practice point
Music provided to patients prior to and during colonoscopy may reduce their discomfort.

Socioeconomic factors

Impact of socioeconomic factors on surveillance colonoscopy

Practice point
Clinicians should advise patients that modification of lifestyle factors can reduce their risk of polyp recurrence and

Practice point
Information and instructions for bowel preparation and colonoscopy need to be tailored to meet the needs of most

Impact made by socioeconomic factors in treatment groups undergoing surveillance colonoscopy

Practice point
After curative resection for colorectal cancer, survival outcomes in disadvantaged patients may be improved by clinicians and health systems by addressing the barriers and access to optimal clinical care.

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