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Endoscopic recommendations for colorectal cancer screening and surveillance in patients with inflammatory bowel disease: Review of general recommendations

Jose María Huguet, Patricia Suárez, Luis Ferrer-Barceló, Lucía Ruiz, Ana Monzó, Ana Belén Durá, Javier Sempere

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Abstract

Screening for colorectal cancer (CRC) in patients with inflammatory bowel disease (IBD) is recommended by all scientific societies. However, there are differences in the recommendations they make regarding screening and surveillance. We address a series of questions that come up in the daily clinical practice of a physician. The first two questions that are raised are: (1) Who should be offered screening for CRC? and (2) When should the first colonoscopy be performed? The next step is to decide who should undergo endoscopic surveillance and at what intervals they should be performed. Chromoendoscopy is emerging as the recommended endoscopic technique for screening and surveillance. The terminology for describing lesions detected with endoscopy is also changing. The management of visible lesions or non-visible dysplasia is also a motive for the review. We end the review by addressing the follow-up for endoscopically resected lesions. These questions often cannot be answered easily due to the varying degrees of evidence available; therefore, we have made some general recommendations based on those made by the various guidelines and consensuses. The first screening colonoscopy should be offered 8 years after a IBD diagnosis and we recommend that patients be stratified according to the individual risk for each for endoscopic surveillance intervals.

Key words: Colitis surveillance; Colitis screening; Chromoendoscopy; Colorectal cancer; Inflammatory bowel disease

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Core tip: There is a worldwide consensus among all scientific societies regarding the recommendation

of screening for colorectal cancer in patients with inflammatory bowel disease (IBD). However, there are differences between the various recommendations that they make regarding the screening and surveillance that must be performed with these patients. We have reviewed the guidelines and consensuses from around the world on this subject and extracted some simple, general recommendations that can be used by all physicians who treat patients of this type. The first screening colonoscopy should be offered 8 years after a IBD diagnosis and we recommend that patients be stratified according to the individual risk for each for endoscopic surveillance intervals.

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INTRODUCTION

There is a worldwide consensus among all scientific societies regarding the recommendation of screening for colorectal cancer (CRC) in patients with inflammatory bowel disease (IBD)^[1-19]. This should be carried out by means of colonoscopy. The optimal timing for the performance of the colonoscopy, as far as possible, is during the remission phase and with appropriate colonic cleansing. The objective is to detect potentially resectable premalignant lesions (dysplasia) and CRC in the early stages, which gives a better prognosis. Since the introduction of endoscopic screening techniques, the risk of CRC in IBD does not appear to have decreased, but CRC-related mortality has^[20].

However, there are differences among the various recommendations of the scientific societies about the screening and surveillance which must be performed with these patients. The reasons for this are the different dates of publication of these consensuses and the fact that, in some aspects, there is no clear evidence that can be applied. In addition, adherence to the guidelines is not always optimal, and this was demonstrated in a recent Japanese study in which only 63% of the respondents stated that they started screening between seven to ten years after onset of ulcerative colitis (UC), while up to 20% initiated it at three years or less^[21], thus not conforming to the Guidelines for the management of UC in Japan^[19].

The objective of this review is to address all the recommendations of the scientific societies regarding the screening and surveillance of CRC in IBD, so that the opportunity to formulate recommendations based on the guidelines and consensuses of the various scientific societies can be made available throughout the world. For

Table 1 Consensus of reviewed scientific societies

Abbreviations	Scientific society
ECCO	European Crohn's and Colitis Organisation
NZGG	New Zealand Guidelines Group
BSG	The British Society of Gastroenterology
ACPGBI	The Association of Coloproctology for Great Britain and Ireland
CCA	Cancer Council Australia
ASGE	American Society for Gastrointestinal Endoscopy
ESGE	European Society of Gastrointestinal Endoscopy
ACG	American College of Gastroenterology
NASPAN	North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition
CCFA	Crohn's and Colitis Foundation of America
NICE	National Institute for Health and Clinical Excellence
WGO	World Gastroenterology Organisation
AGA	American Gastroenterological Association
CAG	Canadian Association of Gastroenterology
Asia-Pacific	Asia Pacific Association of Gastroenterology
ACOG	Asociación Colombiana de Gastroenterología
SVG	Sociedad Venezolana de Gastroenterología
JPN	Research Group of Intractable Inflammatory Bowel Disease. Japan

our revision, we selected every scientific society whether local, national or international who ever published one or several papers with recommendations about the screening and surveillance process of the CRC in patients with IBD (Table 1). To make our recommendations we followed these criteria: (1) publishing date of the guide (stronger as more recent the date was); (2) number of scientific societies that supported the recommendations; and (3) agreement of at least 70% of the authors (5 out of 7) to add a recommendation to the list. The present review is structured as a series of questions which the physician poses in his or her daily clinical practice, followed by our recommendation with a subsequent review of the evidence available in the published guidelines and consensuses.

TO WHOM SHOULD CRC SCREENING BE OFFERED?

Our recommendation: Screening for CRC should be offered to the following patients with IBD: Patients with UC regardless of its extent; Patients with Crohn's disease (CD) which affects at least 1/3 of the colon or with complex perianal disease; Patients with an ileo-anal pouch; Patients with indeterminate or unclassified colitis (IC). The endoscopy should preferably be performed in clinical-biological remission situations and should allow an estimation of the individual risk of CRC, as well as the extent of the disease.

All scientific societies agree on this point^[1-19] without exception, in offering screening to patients with IBD. NZGG (New Zealand Guidelines Group) recommends a risk-benefit assessment for patients with significant associated comorbidities and for patients over 75 years of age for whom screening risks may outweigh the

benefits^[4]. These issues are also taken into account by European Crohn's and Colitis Organisation (ECCO)^[22] and NICE (National Institute for Health and Clinical Excellence)^[13]. The ECCO guidelines^[1-2] mention that the ileo-anal pouch should be examined, but given the low evidence available, that decision is left to the discretion of the clinician. Its assessment is also recommended by BSG (The British Society of Gastroenterology) and ACPGBI (The Association of Coloproctology for Great Britain and Ireland)^[5], CCA (Cancer Council Australia)^[6] and SVG (Sociedad Venezolana de Gastroenterología)^[18].

WHEN SHOULD THE FIRST SCREENING COLONOSCOPY BE PERFORMED?

Our recommendation: The first screening colonoscopy should be offered 8 years after a CD or UC diagnosis. For a diagnosis of primary sclerosing cholangitis (PSC), colonoscopy should be performed as soon as possible. With an ileo-anal pouch, it should be performed one year after the surgical intervention. Patients with first-degree relatives who have been diagnosed with CRC at an age of less than 50 should be offered the first endoscopy ten years before the age of the family member when affected by CRC or eight years after diagnosis of IBD (whichever occurs earlier).

Most scientific societies recommend performing the first endoscopy between eight and ten years after the diagnosis or onset of symptoms. North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition (NASPGHAN) recommends starting screening 1 year earlier than other protocols. The 2013 ECCO guidelines for UC^[3] management bring this first colonoscopy forward to six to eight years from the onset of symptoms. However, ECCO recommends starting the screening at eight years in its 2013 endoscopy guideline^[1], as do CCA^[6], American Society for Gastrointestinal Endoscopy (ASGE)^[7], American Gastroenterological Association (AGA)^[15] and Asia-Pacific in its CD guideline^[23]. However, BSG^[5], Asociación Colombiana de Gastroenterología (ACOG)^[17] and NICE^[13] recommend initiating the first screening endoscopy ten years after the diagnosis. Yet other scientific societies delay the initiation of screening depending on whether it is a left-side colitis or pancolitis^[12]. The rest recommend the first screening at between eight and ten years after diagnosis or the onset of symptoms^[4,9,11]. For a PSC diagnosis, there is a consensus that the first endoscopy should be performed when the disease is detected and, as we will see later, there is no doubt that there should be annual colonoscopy^[1,3-7,9-11,13,15-18]. None of the guidelines or consensuses specify when the first endoscopy should be performed for an ileo-anal pouch, although there is more consensus regarding the subsequent follow-up. There is a consensus that there is an added risk factor for CRC in patients with IBD who have a family history of CRC. However, CCA is the only society that makes

a specific recommendation, indicating that if there is a family history of CRC, screening should begin before eight years after the diagnosis of the disease^[6]. It also indicates that, in those young patients whose only additional risk factor is having a first-degree relative with CRC at less than 50 years of age, the screening should be performed ten years before the age of the affected family member at the time of diagnosis^[6].

WHO SHOULD BE OFFERED ENDOSCOPIC SURVEILLANCE?

Our recommendation: After endoscopic screening, endoscopic follow-up should be performed for all patients except for those with ulcerative proctitis, CD with involvement of less than 1/3 of the colon, and those in which the risks outweigh the possible benefits.

This aspect is addressed by the majority of the guidelines, and there is a general consensus about not performing endoscopic surveillance for CRC screening in patients with proctitis or with CD of minimal extent^[3,6,7,9,11,12,13,18,23], as their risk of developing neoplasia is very low. AGA also excludes patients with procotosigmoiditis from follow-up^[15]. Only the ECCO-Elderly^[22], NICE^[13] and NZGG^[4] guidelines refer to the need for balancing the risks and benefits of performing endoscopic surveillance for elderly patients and those with significant comorbidities or with a short life expectancy.

SHOULD THE SAME ENDOSCOPIC SURVEILLANCE INTERVALS BE FOLLOWED FOR ALL PATIENTS?

Our recommendation: No. We recommend that patients be stratified according to the individual risk for each.

The most recently published guidelines and consensuses recommend stratifying patients with IBD who will be included in an endoscopic surveillance programme according to individual risk^[1,3-7,11,13-15,17,18]. In this way, we will be able to offer a more individualised endoscopic follow-up to each patient.

ARE THERE INDIVIDUAL RISK FACTORS THAT ALLOW US TO STRATIFY ENDOSCOPIC SURVEILLANCE?

Our recommendation: Yes.

In patients with left-sided UC or pancolitis and CD which affects at least 1/3 of the colon, having any of the following must be considered high risk factors: PSC, extensive involvement, moderate-severe active inflammation sustained over time (endoscopic or histological), first-degree relative with CRC at an age of less than 50, stenosis or dysplasia detected during the previous five years. Any of the following should also be

Table 2 Risk factors for the development of colorectal cancer in patients with inflammatory bowel disease and recommended surveillance^[1-7,9,11,13-15,17,18,24]

	High risk	Intermediate risk	Low risk
Risk factors	PSC Extensive involvement Moderate-severe active inflammation sustained over time (endoscopic or histological) First-degree relative with CRC at an age of less than 50 Stenosis or dysplasia detected during the previous five years Appearance of IBD at a young age ¹ If ileo-anal pouch: Dysplasia Previous CRC PSC Type C mucosa in the pouch	Extensive colitis with mild or moderate sustained inflammatory activity (endoscopic or histological) Inflammatory polyps First-degree relative with CRC at an age of above 50	Other factors different from high and intermediate risk
Surveillance	Annual	Every three years	Every five years

¹BSG^[5], CCFA^[11], WGO^[14] and SVG^[18]. CRC: Colorectal cancer; IBD: Inflammatory bowel disease; PSC: Primary sclerosing cholangitis.

considered as intermediate risk factors: Extensive colitis with mild or moderate sustained active inflammation (endoscopic or histological), the occurrence of inflammatory polyps or having a first-degree relative with CRC at an age of greater than 50. A diagnosis of IBD at a young age should be taken into account as a relative risk factor (due to the long duration of the disease).

The following should be considered high-risk factors in cases where there is an ileo-anal pouch: Dysplasia or previous CRC, PSC, type C mucosa in the pouch (persistent atrophy and severe inflammation).

The most recent recommendations coincide in establishing some risk factors for the development of CRC in patients with IBD. The following are risk factors according to ECCO, NZGG, BSG and ACPGBI, CCA, ASGE, American College of Gastroenterology (ACG), Crohn's and Colitis Foundation of America (CCFA), NICE, AGA, World Gastroenterology Organization (WGO), ACOG and SVG: PSC, extensive involvement, moderate-severe active inflammation sustained over time (endoscopic or histological), first-degree relative with CRC at an age of less than 50, and stenosis or dysplasia detected during the previous five years^[1-4,6,7,9,11,13-15,17,18,24]. They also agree that a liver transplant for PSC does not eliminate the risk of CRC. There is no consensus in the guidelines regarding whether the onset of IBD at a very young age should be considered a risk factor. In relation to this, AGA considers that the screening should be performed on these patients more for the duration of the disease than for its appearance at a young age^[24]. However, according to BSG^[5], CCFA^[11], WGO^[14] and SVG^[18], the appearance of IBD at a young age should be considered a high risk factor. The following are considered intermediate risk factors according to ECCO, NZGG, BSG and ACPGBI, NICE, and ACOG: Extensive colitis with mild or moderate sustained inflammatory activity (endoscopic or histological), the occurrence of inflammatory polyps, and a first-degree relative with CRC at an age of above 50^[1,4,5,13,17] (Table 2).

On the other hand, ECCO, BSG and ACPGBI, CCA and SVG consider the following to be high risk factors for

patients with an ileo-anal pouch: Dysplasia or previous CRC, PSC, type C mucosa in the pouch (persistent atrophy and severe inflammation)^[1,5,6,18].

HOW LONG SHOULD THE ENDOSCOPIC FOLLOW-UP INTERVALS BE?

Our recommendation: Patients with IBD: According to the presence of risk factors for each patient. High risk factors: Annual colonoscopy. Intermediate risk factors: Colonoscopy every three years. Low risk factors or without other risk factors: Colonoscopy every five years. Patients with an ileo-anal pouch: According to the presence of risk factors: With risk factors: Annual colonoscopy. Without risk factors: Colonoscopy every five years.

There is some consensus in clinical practice guidelines which stratify patients according to risk for deciding on the follow-up intervals according to the risk presented. Patients with high risk factors should have an annual colonoscopy. Patients with intermediate risk factors should have a colonoscopy every two to three years. And for those patients with low risk factors or with no other risk factors, surveillance can be spaced at one colonoscopy every five years^[1,4-6,13,17]. ASGE agrees about which patients require annual monitoring; however, for the rest, it states that colonoscopy should be performed every one to three years^[7]. According to NASPGHAN, ACG, CCFA, Asia-Pacific and AGA, surveillance should be conducted annually or biennially^[9-12,15,23].

The absence of endoscopic activity in two consecutive examinations allows the follow-up to be spaced according to some scientific societies^[3,4,6,7,11,15]; even in the NICE guideline, surveillance could be stopped for those low-risk patients for whom no adenomas are detected^[13].

On the other hand, scientific societies that make recommendations regarding patients with an ileo-anal pouch (ECCO, BSG and ACPGBI, CCA and SVG) are of the opinion that, when risk factors are present, an annual colonoscopy should be performed, and when

there are no risk factors, a colonoscopy should be performed every five years^[1,5,6,18].

WHAT IS THE RECOMMENDED ENDOSCOPIC TECHNIQUE FOR SCREENING AND SURVEILLANCE?

Our recommendation: Chromoendoscopy with endoscopic resection or taking biopsies directed at visible lesions is the technique of choice. If this is not possible, high-definition video-colonoscope should be used and four biopsies taken for every ten cm of the colon.

The consensuses published in recent years coincide in pointing out that chromoendoscopy with endoscopic resection or taking biopsies directed at visible lesions is the preferred surveillance technique, as it increases the number of dysplastic lesions that can be detected^[1,5-7,9,25]. Although it is true that this technique increases the time required for the exploration, the analysed studies conclude that it is more cost-effective than white-light colonoscopy. The principal disadvantages to its performance are that it requires thorough intestinal preparation and more time to complete the exploration, and the endoscopist must be specifically trained^[25]. The guidelines of AGA^[24], BSG^[5], NICE^[13], ECCO^[1] and CCFA^[11] support this technique if done properly by expert endoscopists. This technique may improve the detection of flat dysplasia and help ensure the complete resection of polypoid or minimally elevated lesions. Therefore, it could be of value in the follow-up of high risk patients^[7,9,12,24].

When chromoendoscopy is not available, or a suitable expert is not available, or if its performance is hindered due to significant inflammation, pseudopolyps, poor preparation or poorly visualised mucosal areas, then the taking of random biopsies in addition to biopsies targeting any suspected lesions appears to be a reasonable alternative^[1,3,5-7], but it must be taken into account that the detection of neoplasias is inferior to that of chromoendoscopy^[1]. For cases in which white-light colonoscopy are used, the high-definition colonoscope are preferred to the standard colonoscope, as the visualisation is better. When using a standard endoscope, the use of chromoendoscopy is preferred over white-light^[25]. Although there is no evidence regarding the quantity of biopsies to be taken, some guidelines recommend taking at least four biopsies from each segment of the colon every ten cm^[1,4]. In the recently published SCENIC Consensus (Surveillance for Colorectal Endoscopic Neoplasia Detection and Management in IBD Patients: International Consensus Recommendations)^[25], there is no clear agreement among experts regarding the quantity of biopsies to take or the manner in which they should be taken.

Narrow-band imaging has not been shown to increase the detectability of dysplasia during endoscopy^[1,7,25]. More studies are needed to evaluate the effectiveness of Narrow-band imaging as well as other

techniques such as the use of autofluorescence or microscopic confocal endoscopy^[1,5,8,24,25].

HOW IS CHROMENDOSCOPY PERFORMED?

Our recommendation: Use 0.04% to 0.1% methylene blue or between 0.1% to 0.03% indigo carmine. Perform cecal intubation and apply a dye to the colon mucosa as the endoscope is removed, if possible using a catheter spray. Examine one segment before apply colorant in the next.

Normally 0.1% methylene blue or 0.03% to 0.1% indigo carmine is used. Cecal intubation should be performed using a white-light endoscope. The colonic mucosa should then be stained by spray aspirating the excess fluids and carefully evaluating the mucosa. Once the lesion is localised, chromoendoscopy helps to delimit it, assess its size and borders and perform techniques that help rule out submucosal invasion^[1,7,8,25].

DOES THE OCCURRENCE OF DYSPLASIA REQUIRE CONFIRMATION?

Our recommendation: The occurrence of dysplasia must be confirmed by a second pathologist.

Histopathological analysis is qualitative and consequently has a high inter-observer variability, especially in low grade dysplasia and in inflamed mucosa. Therefore, there is a general consensus that the occurrence of dysplasia should be confirmed by an independent expert gastrointestinal pathologist^[1,4-7,9,11,15,18,23,25].

WHAT TERMINOLOGY SHOULD WE USE TO DESCRIBE LESIONS DETECTED WITH ENDOSCOPY?

Our recommendation: The terms "dysplasia-associated lesion or mass" (DALM) and "flat lesions" should be discontinued. We should be using the modified Paris Classification in which lesions are divided into visible dysplasia and invisible dysplasia depending on whether the biopsy has been taken from a lesion visualised in the colonoscopy or not. Visible dysplasia is divided into polypoid and non-polypoid depending on whether or not the lesion protrudes from the lumen ≥ 2.5 mm. The descriptions of visible lesions should also include mention of whether they are ulcerated and whether the borders are easily distinguished from the surrounding mucosa.

The ECCO guideline^[1] insists on discontinuing the terms "DALM" and "flat lesions" and using the Paris Classification^[26]. It also differentiates between endoscopically visible and non-visible lesions. The ASGE^[7] guideline adds to the above the importance of distinguishing whether the lesions are located in an area affected by colitis, whether or not the borders

Table 3 SCENIC international consensus

Term	Definition
1 Visible dysplasia	Dysplasia identified on targeted biopsies from a lesion visualised at colonoscopy
Polypoid	Lesion protruding from the mucosa into the lumen ≥ 2.5 mm
Pedunculated	Lesion attached to the mucosa by a stalk
Sessile	Lesion not attached to the mucosa by a stalk: Entire base is contiguous with the mucosa
Nonpolypoid	Lesion with little (< 2.5 mm) or no protrusion above the mucosa
Superficially elevated	Lesion with protrusion but < 2.5 mm above the lumen (less than the height of the closed cup of a biopsy forceps)
Flat	Lesion without protrusion above the mucosa
Depressed	Lesion with at least a portion depressed below the level of the mucosa
General descriptors	
Ulcerated	Ulceration (fibrinous-appearing base with depth) within the lesion
Border	
Distinct border	Lesion's border is discrete and can be distinguished from surrounding mucosa
Indistinct border	Lesion's border is not discrete and cannot be distinguished from surrounding mucosa
2 Invisible dysplasia	Dysplasia identified on random (non-targeted) biopsies of colon mucosa without a visible lesion

Terminology for reporting findings^[23].

are well delimited, and assessing indirect signs of submucosal invasion. The SCENIC Consensus^[25] agrees with regard to recommending the discontinuation of the terms "DALM" and "flat lesion" as well as separating the dysplasia into visible and non-visible. Among visible lesions, it distinguishes between those that are endoscopically resectable and those that are not. They also recommend a modification of the Paris classification, adding descriptive phrases about the delimitation of the borders of the lesions and whether or not they are ulcerated (Table 3). The detection of non-polypoid lesions is recent, thanks to advances in endoscopic imaging techniques; therefore the risk of developing CRC is still unknown. Likewise, resection of these types of lesions is more complex, and there may be doubts about whether the resection has been complete. However, there are still scientific societies that continue to use the terms "sporadic adenomas" and "DALM"s^[4,6,9,15,18]. The AGA guideline distinguishes between prevalent dysplasia (that which is detected in the first screening colonoscopy), which presents an increased risk of developing CRC, and incident dysplasia (detected during follow-up). In addition, low-grade dysplasia emphasises discernment between unifocal or multifocal dysplasia^[15].

HOW SHOULD A VISIBLE LESION BE MANAGED?

Our recommendation: Visible lesions which are well delimited, with no evidence of dysplasia in the mucosa adjacent to the lesion and without synchronous

dysplasia, should be resected endoscopically regardless of the degree of dysplasia.

Lesions that are endoscopically visible and well-defined, irrespective of their location and degree of dysplasia or whether or not there is involvement by colitis, should be endoscopically resected by an expert endoscopist, and biopsies should be taken of the adjacent mucosa^[1,5,7,11,15,25]. The ASGE guideline also recommends preparing tattoo and photo-documentation of the resected lesions. They also suggest colectomy as a possibility to discuss with the patient, if the completely excised lesion exhibits high-grade dysplasia (HGD)^[7]. If complete resection is anatomopathologically confirmed, and there is no dysplasia in the adjacent mucosa or elsewhere in the colon, the indication is close endoscopic follow-up. If the described conditions are not met, the treatment would be total colectomy.

HOW SHOULD NON-VISIBLE DYSPLASIA BE INITIALLY MANAGED?

Our recommendation: Dysplasia which is not endoscopically visible but found in serial biopsies of the colon must be confirmed by an independent pathologist after the performance of a chromoendoscopy by an expert endoscopist. If confirmed, management will depend on the degree of dysplasia.

As for the management of invisible dysplasia, that which is detected in random colon biopsies, the quality of the evidence in the recommendations is very low^[27]. The ECCO^[1] and ASGE guidelines^[7] and the SCENIC Consensus^[25] indicate repeating colonoscopy with chromoendoscopy, regardless of the degree of dysplasia, by an expert endoscopist to confirm that there is no endoscopically visible lesion, and taking random biopsies to rule out the occurrence of synchronous dysplasia. If an endoscopically visible lesion is detected after this examination, and there is no more dysplasia elsewhere, they recommend endoscopic resection.

HOW SHOULD NON-VISIBLE DYSPLASIA BE MANAGED IN RELATION TO THE DEGREE OF DYSPLASIA?

Our recommendation: Endoscopically non-visible HGD is an indication for colectomy. The management of low-grade, invisible dysplasia should be agreed upon in a multidisciplinary committee and with the patient, with colectomy or endoscopic follow-up being the two possible options.

In the event that HGD or adenocarcinoma is detected without a visible lesion, surgery is the recommended option^[1,5,7,15]. If low-grade dysplasia without a visible lesion is detected in the second chromoendoscopy performed by an expert, the degree of agreement among the guidelines is lower. It must be a multidisciplinary decision and discussed with the

patient^[1,4,5,7,11,15,25]. Colectomy is recommended if low-grade dysplasia is multifocal, but the recommendations are more conservative for low-grade, unifocal dysplasia, and a closer annual endoscopic follow-up may be offered^[1,5,7,11,15,25].

The New Zealand Guidelines Group^[4] advocates offering colectomy to all patients who are found to have dysplasia, and performing close endoscopic follow-up only in those who refuse or are unfit for surgical treatment.

HOW SHOULD ENDOSCOPICALLY RESECTED LESIONS BE FOLLOWED?

Our recommendation: The follow-up for resected lesions in healthy mucosa which is not affected by colitis should be the same as that for sporadic adenomas. Lesions which are endoscopically resected in areas affected by colitis should be examined endoscopically at three months, and annually thereafter.

There is a strong consensus that the management of lesions detected in mucosal areas not affected by colitis should be the same as that of sporadic adenomas^[1,3,7,11,15,25]. As for lesions located in areas where there is or has been active inflammation, which have been endoscopically resected and in which there is no dysplasia of the surrounding mucosa, the follow up should be close. The ECCO guideline^[1] recommends performing an endoscopy at three months, and if there is no dysplasia, to change to annual endoscopic follow-up, preferably with chromoendoscopy. ASGE^[7] recommends an initial examination at between one to six months and then changing to annual monitoring. The SCENIC Consensus^[25] distinguishes between polypoid and non-polypoid lesions. For polypoid lesions, it advises follow up at three to six months and then annually if they are sessile, large and excised in a fragmented manner. However, for those smaller polyps excised en bloc, it advises immediate annual follow-up. As for non-polypoid dysplastic lesions, they recommend monitoring at three to six months (the risk of CRC is greater, and it is more difficult to ensure that the polypectomy has been complete).

SUMMARY OF OUR RECOMMENDATIONS

CRC screening should be offered to patients with IBD (UC, IC, CD affecting at least 1/3 of the colon or with complex perianal disease and to patients with an ileo-anal pouch). The first screening colonoscopy should be offered eight years after a diagnosis of CD or UC; at one year after the surgical construction of an ileo-anal pouch, or at the time of the diagnosis of PSC. It should be kept in mind that subsequent endoscopic surveillance should be performed on all patients except for those with ulcerative proctitis, CD with involvement of less than 1/3 of the colon and those for which the risks far

outweigh the possible benefits. We recommend patient stratification according to the individual risk of each patient in order to determine more individualised follow-up intervals. The technique of choice for endoscopic surveillance is chromoendoscopy with endoscopic resection or biopsy of visible lesions. Regarding the terminology to be used, we should use the modified Paris Classification and abandon terms such as "DALM" and "flat lesions". Regarding the management of lesions, we should differentiate between visible and invisible lesions. Visible lesions which are well delimited, with no evidence of dysplasia in the mucosa adjacent to the lesion and without synchronous dysplasia, should be resected endoscopically regardless of the degree of dysplasia. Dysplasia which is not endoscopically visible but found in serial biopsies of the colon must be confirmed by an independent anatomical pathologist after the performance of a chromoendoscopy by an expert endoscopist. If this is confirmed, management will depend on the degree of dysplasia. Endoscopically non-visible HGD is an indication for colectomy. The management of low-grade invisible dysplasia should be agreed upon in a multidisciplinary committee and with the patient, with colectomy or endoscopic follow-up being the two possible options. The follow-up for resected lesions in healthy mucosa which is not affected by colitis should be the same as that for sporadic adenomas. However, lesions which are endoscopically resected in areas affected by colitis should be examined endoscopically at three months, and annually thereafter.

REFERENCES

- Annesse V, Daperno M, Rutter MD, Amiot A, Bossuyt P, East J, Ferrante M, Götz M, Katsanos KH, Kießlich R, Ordás I, Repici A, Rosa B, Sebastian S, Kucharzik T, Eliakim R. European evidence based consensus for endoscopy in inflammatory bowel disease. *J Crohns Colitis* 2013; 7: 982-1018 [PMID: 24184171 DOI: 10.1016/j.crohns.2013.09.016]
- Annesse V, Beaugerie L, Egan L, Biancone L, Bolling C, Brandts C, Dierickx D, Dummer R, Fiorino G, Gornet JM, Higgins P, Katsanos KH, Nissen L, Pellino G, Rogler G, Scaldaferri F, Szymanska E, Eliakim R. European Evidence-based Consensus: Inflammatory Bowel Disease and Malignancies. *J Crohns Colitis* 2015; 9: 945-965 [PMID: 26294789 DOI: 10.1093/ecco-jcc/jjv141]
- Van Assche G, Dignass A, Bokemeyer B, Danese S, Gionchetti P, Moser G, Beaugerie L, Gomollón F, Häuser W, Herrlinger K, Oldenburg B, Panes J, Portela F, Rogler G, Stein J, Tilg H, Travis S, Lindsay JO. Second European evidence-based consensus on the diagnosis and management of ulcerative colitis part 3: special situations. *J Crohns Colitis* 2013; 7: 1-33 [PMID: 23040453 DOI: 10.1016/j.crohns.2012.09.005]
- New Zealand Guidelines Group. Guidance on surveillance for people at increased risk of colorectal cancer 2011. Published by the New Zealand Guidelines Group for the Ministry of Health PO Box 10 665, Wellington 6143, New Zealand [published 2012 Feb 28; accessed 2017 Jan 23]. Available from: URL: <http://www.health.govt.nz/publication/guidance-surveillance-people-increased-risk-colorectal-cancer>
- Cairns SR, Scholefield JH, Steele RJ, Dunlop MG, Thomas HJ, Evans GD, Eaden JA, Rutter MD, Atkin WP, Saunders BP, Lucassen A, Jenkins P, Fairclough PD, Woodhouse CR. Guidelines for colorectal cancer screening and surveillance in moderate and high risk groups (update from 2002). *Gut* 2010; 59: 666-689 [PMID: 20434111 DOI: 10.1136/gut.2009.209311]

- 20427401 DOI: 10.1136/gut.2009.179804]
- 6 **Cancer Council Australia Surveillance Colonoscopy Guidelines Working Party.** Clinical practice guidelines for Surveillance Colonoscopy. Sydney: Cancer Council Australia [published 2011 Dec 08; accessed 2017 Jan 23]. Available from: URL: http://wiki.cancer.org.au/australia/Guidelines: Colorectal_cancer/Colonoscopy_surveillance
- 7 **Shergill AK**, Lightdale JR, Bruining DH, Acosta RD, Chandrasekhara V, Chathadi KV, Decker GA, Early DS, Evans JA, Fanelli RD, Fisher DA, Fonkalsrud L, Foley K, Hwang JH, Jue TL, Khashab MA, Muthusamy VR, Pasha SF, Saltzman JR, Sharaf R, Cash BD, DeWitt JM. The role of endoscopy in inflammatory bowel disease. *Gastrointest Endosc* 2015; **81**: 1101-21.e1-13 [PMID: 25800660 DOI: 10.1016/j.gie.2014.10.030]
- 8 **Kamiński MF**, Hassan C, Bisschops R, Pohl J, Pellisé M, Dekker E, Ignjatovic-Wilson A, Hoffman A, Longcroft-Wheaton G, Heresbach D, Dumonceau JM, East JE. Advanced imaging for detection and differentiation of colorectal neoplasia: European Society of Gastrointestinal Endoscopy (ESGE) Guideline. *Endoscopy* 2014; **46**: 435-449 [PMID: 24639382 DOI: 10.1055/s-0034-1365348]
- 9 **Kornbluth A**, Sachar DB. Ulcerative colitis practice guidelines in adults: American College Of Gastroenterology, Practice Parameters Committee. *Am J Gastroenterol* 2010; **105**: 501-523; quiz 524 [PMID: 20068560 DOI: 10.1038/ajg.2009.727]
- 10 **Rufo PA**, Denson LA, Sylvester FA, Szigethy E, Sathyia P, Lu Y, Wahbeh GT, Sena LM, Faubion WA. Health supervision in the management of children and adolescents with IBD: NASPGHAN recommendations. *J Pediatr Gastroenterol Nutr* 2012; **55**: 93-108 [PMID: 22516861 DOI: 10.1097/MPG.0b013e31825959b8]
- 11 **Itzkowitz SH**, Present DH. Consensus conference: Colorectal cancer screening and surveillance in inflammatory bowel disease. *Inflamm Bowel Dis* 2005; **11**: 314-321 [PMID: 15735438]
- 12 **Ooi CJ**, Fock KM, Makharla GK, Goh KL, Ling KL, Hilmi I, Lim WC, Kelvin T, Gibson PR, Gearry RB, Ouyang Q, Sollano J, Manatsathit S, Recknimitr R, Wei SC, Leung WK, de Silva HJ, Leong RW. The Asia-Pacific consensus on ulcerative colitis. *J Gastroenterol Hepatol* 2010; **25**: 453-468 [PMID: 20370724 DOI: 10.1111/j.1440-1746.2010.06241.x]
- 13 **National Institute for Health and Clinical Excellence.** Colonoscopic for Prevention of Colorectal Cancer in People with Colitis, Crohn's Disease or Adenomas. London: National Institute for Health and Clinical Excellence (UK), 2011
- 14 **Winawer S**, Classen M, Lambert R, Fried M, Dite P, Goh KL. World Gastroenterology Organisation. Practice Guidelines: Colorectal cancer screening. World Gastroenterology Organisation, 2007. Available from: URL: <http://www.worldgastroenterology.org/guidelines/global-guidelines/colorectal-cancer-screening>
- 15 **Farraye FA**, Odze RD, Eaden J, Itzkowitz SH, McCabe RP, Dassopoulos T, Lewis JD, Ullman TA, James T, McLeod R, Burgart LJ, Allen J, Brill JV. AGA medical position statement on the diagnosis and management of colorectal neoplasia in inflammatory bowel disease. *Gastroenterology* 2010; **138**: 738-745 [PMID: 20141808 DOI: 10.1053/j.gastro.2009.12.037]
- 16 **Leddin D**, Hunt R, Champion M, Cockeram A, Flook N, Gould M, Kim YI, Love J, Morgan D, Natsheh S, Sadowski D. Canadian Association of Gastroenterology and the Canadian Digestive Health Foundation: Guidelines on colon cancer screening. *Can J Gastroenterol* 2004; **18**: 93-99 [PMID: 14997217]
- 17 **Juliao-Baños F**, Fernando-Grillo C, Galiano-de-Sánchez MT, García-Duperly R, Bonilla DA, Guerrero DM, Angel DM, Lopez RP, Angarita LA, Pardo R, Otero W, Sabbagh L. Guía de práctica clínica para el diagnóstico y tratamiento de la colitis ulcerativa en población adulta. *Rev Colomb Gastroenterol* 2015; **30** Suppl 1: 75-88
- 18 **Veita G**, Pernalete B, Salazar S, Machado I, Soto J, Añez M, Arocha R, Forte M.P, Ruiz ME, González F, Caamaño J, Gutierrez L, Pérez R, Villasmil E, Rodríguez M, La Cruz M, García JG, Malchiodi I, Villasmil F, Velasco V, Soto N, González C, Ortega L, Yasín G, Yaraure M, Carreiro M, Vidal A, Giannopoulos I, Armanie E, Díaz A, Bethelmi A, Díaz S, Meléndez R, Romero G, Roo L, Linares B, Guzmán F, Hernández Y, Aparcero M, Barroso E, Guevara N, Guillén Z, Quintero Z, Recio G, Ortiz M, Silva O, Mendoza L, Anderson H. Guía Práctica Clínica Venezolana sobre Enfermedad Inflamatoria Intestinal. Caracas. Venezuela: International Medical Publishing solutions, 2013: 1-91. Available from: URL: <http://www.sovegastro.org/contenido.php?art=MTAw>
- 19 **Guidelines for the Management of Ulcerative Colitis in Japan.** Developed through integration of evidence and consensus among experts. [accessed 2017 Jan 22]. Available from: URL: http://minds4.jcqhc.or.jp/minds/kaiyouseida/ucgl_201102.pdf
- 20 **Lotus EV.** Epidemiology and risk factors for colorectal dysplasia and cancer in ulcerative colitis. *Gastroenterol Clin North Am* 2006; **35**: 517-531 [PMID: 16952738 DOI: 10.1016/j.gtc.2006.07.005]
- 21 **Shinozaki M**, Kobayashi K, Kunisaki R, Hisamatsu T, Naganuma M, Takahashi KI, Iwao Y, Suzuki Y, Watanabe M, Itabashi M, Torii A, Takazoe M, Sugita A. Surveillance for dysplasia in patients with ulcerative colitis: Discrepancy between guidelines and practice. *Dig Endosc* 2017 Jan 9; Epub ahead of print [PMID: 28066941 DOI: 10.1111/den.12803]
- 22 **Sturm A**, Maaser C, Mendall M, Karagiannis D, Karatzas P, Ipenburg N, Sebastian S, Rizzello F, Limdi J, Katsanos K, Schmidt C, Jeuring S, Colombo F, Gionchetti P. European Crohn's and Colitis Organisation Topical Review on IBD in the Elderly. *J Crohns Colitis* 2016; **pii: jjw188** [PMID: 27797918 DOI: 10.1093/ecco-jcc/jjw188]
- 23 **Ooi CJ**, Makharla GK, Hilmi I, Gibson PR, Fock KM, Ahuja V, Ling KL, Lim WC, Thia KT, Wei SC, Leung WK, Koh PK, Gearry RB, Goh KL, Ouyang Q, Sollano J, Manatsathit S, de Silva HJ, Recknimitr R, Pisepongsap P, Abu Hassan MR, Sung J, Hibi T, Boey CC, Moran N, Leong RW. Asia-Pacific consensus statements on Crohn's disease. Part 2: Management. *J Gastroenterol Hepatol* 2016; **31**: 56-68 [PMID: 25819311 DOI: 10.1111/jgh.12958]
- 24 **Farraye FA**, Odze RD, Eaden J, Itzkowitz SH. AGA technical review on the diagnosis and management of colorectal neoplasia in inflammatory bowel disease. *Gastroenterology* 2010; **138**: 746-774, 774.e1-e4; quiz e12-e13 [PMID: 20141809 DOI: 10.1053/j.gastro.2009.12.035]
- 25 **Laine L**, Kaltenbach T, Barkun A, McQuaid KR, Subramanian V, Soetikno R. SCENIC international consensus statement on surveillance and management of dysplasia in inflammatory bowel disease. *Gastroenterology* 2015; **148**: 639-651.e28 [PMID: 25702852 DOI: 10.1053/j.gastro.2015.01.031]
- 26 The Paris endoscopic classification of superficial neoplastic lesions: esophagus, stomach, and colon: November 30 to December 1, 2002. *Gastrointest Endosc* 2003; **58**: S3-43 [PMID: 14652541]
- 27 **Velayos F**, Kathpalia P, Finlayson E. Changing Paradigms in Detection of Dysplasia and Management of Patients With Inflammatory Bowel Disease: Is Colectomy Still Necessary? *Gastroenterology* 2017; **152**: 440-450.e1 [PMID: 27765687 DOI: 10.1053/j.gastro.2016.10.006]

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