2022 exceptional surveillance of colorectal cancer prevention: colonoscopic surveillance in adults with ulcerative colitis, Crohn's disease or adenomas (NICE guideline CG118)

Surveillance proposal

We propose standing down recommendations 1.1.6 to 1.1.13 on colonoscopy for adults with adenomas in the NICE guideline on colorectal cancer prevention. These will be replaced with a cross-reference to the British Society of Gastroenterology (BSG), Association of Coloproctology of Great Britain and Ireland, and Public Health England post-polypectomy and post-colorectal cancer resection surveillance guidelines (Rutter et al. 2020).

Reason for the exceptional review

In 2020, the BSG and partners published their post-polypectomy and post-colorectal cancer resection surveillance guideline (Rutter at al. 2020). The impact of this guideline on current NICE guidance for colorectal cancer prevention was assessed.

Methods

The exceptional surveillance process consisted of:

- Considering the updated BSG guideline that triggered the exceptional review, and the methodology and evidence used during its production.
- Considering the evidence used to develop NICE guideline CG118 in 2011.
- Mapping the updated BSG recommendations to recommendations in NICE guideline CG118.
- Examining related NICE guidance and quality standards.
- Feedback from topic experts.

We decided that full updated literature searches were not needed because the information we had from the original NICE guideline, from the updated BSG

guideline, and from topic experts was enough to establish whether an update to the guideline was needed.

For further details about the process and the possible update decisions that are available, see ensuring that published guidelines are current and accurate in developing NICE guidelines: the manual.

Information considered in this exceptional surveillance review

In 2020, the BSG and partners published updated clinical guidelines for post-polypectomy and post-colorectal cancer resection surveillance. These guidelines were the first from the BSG to be published since the introduction of the national bowel cancer screening programme (NBCSP). This work aimed to set out appropriate screening intervals for the surveillance of individuals based on the number and size of the polyps (also known as adenomas) identified during an index colonoscopy. An index colonoscopy is performed for an individual who has symptoms, such as blood in stools, diarrhoea or constipation that doesn't go away, losing weight or feeling tired for no reason. During this procedure, any identified polyps present in the colon would be removed, and the appropriate risk category decided upon.

The BSG is NICE accredited (see accreditation decisions) and used robust methodology to produce these recommendations. The evidence search was undertaken in accordance with the parameters stipulated within the NICE guidance manual. Full details of the evidence search can be found in appendix 2 of the online supplementary materials. Databases were searched for articles published between 2007 and 2018 and included Medline, Embase and the Cochrane library. Evidence synthesis was done for 7 key clinical questions:

- Who is at increased risk of developing colorectal cancer (CRC) or advanced adenomas post-polypectomy (polyp clearance) at index colonoscopy?
- What is the evidence that 1st surveillance (as opposed to index colonoscopy polyp clearance) reduces future CRC risk?
- At what interval should 1st surveillance be performed?

- Who is at higher risk of developing CRC or advanced adenomas post 1st surveillance (Findings at 1st surveillance alone)?
- Who is at higher risk of developing CRC or advanced adenomas post 1st surveillance (Summative findings of index plus 1st surveillance)?
- What is the evidence that 2nd (and subsequent) surveillance reduces future CRC risk?
- At what interval should 2nd (and subsequent) surveillance be performed?

Following evidence review and synthesis, an expert panel used Delphi consensus to produce recommendations on criteria for each risk category, surveillance interval and clinical considerations for colonoscopic surveillance. The GRADE tool was used to evaluate the guideline. The evidence statements for each recommendation are accompanied by GRADE statements, and strength of recommendation statements derived by consensus from the expert panel. While the strength of a recommendation may often reflect the evidence base, the GRADE system allows for occasions where this is not the case, for example where there is strong clinical consensus in the absence of any high-quality evidence. In contrast, if there is low quality evidence, and weak clinical consensus, the strength of recommendation would be weak. No health economic analysis was conducted during the BSG guideline development.

Within these updated guidelines the BSG defined 2 risk categories:

Low risk:

- No high risk findings (see below).

High risk:

- Two or more premalignant polyps including at least one advanced colorectal polyp (defined as a serrated polyp of at least 10 mm in size or containing any grade of dysplasia).
- Or an adenoma of at least 10 mm in size or containing high-grade dysplasia.
- Or 5 or more premalignant polyps.

The colonoscopic surveillance strategies proposed for these risk categories are:

Low risk:

- No routine surveillance, but strongly encourage participation in the NBCSP.
- If >10 years younger than NBCSP participation age (currently 60 years in England), consider colonoscopy at 5 or 10 years individualised to risk factors (such as family history).

High risk:

- Surveillance colonoscopy performed after an interval of 3 years.
- If >75 years of age, or if life expectancy is <10 years, then do not perform surveillance.

The BSG state that the need for ongoing surveillance should be determined by the colonoscopic findings at each surveillance procedure, using the same risk criteria to stratify risk. The quality of the evidence underlying these recommendations was assessed as low, but the strength of the recommendations was considered strong, as arrived upon using Delphi consensus described above.

The recommended surveillance intervals in the 2020 BSG guideline are longer than those previously recommended by the BSG in 2010 (Cairns et al. 2010), which were in line with NICE guidance on colorectal cancer prevention. In their rationale, the BSG note that not all individuals with polyps are at increased risk of colorectal cancer (CRC) and may even have lower risk than the general population due to polyp clearance during the index colonoscopy. Therefore, the BSG noted the importance of considering this, along with the long clearance time from polyp development to symptomatic cancer, to find the correct timing between surveillance colonoscopies, which are invasive and have their own risks (for example bowel perforation). The primary recommendations on surveillance frequency for high and low risk individuals were made on the bases of low quality evidence, but the strength of the recommendation was strong.

The age-related recommendations for individuals >75 years, or with <10 years life expectancy are due to the long time from a clearance colonoscopy, through the potential development of new polyps, to the possible development of a symptomatic cancer. As the risks associated with colonoscopy also increase with age and comorbidity, the BSG guideline development group considered that this is an important clinical consideration for this group. The evidence for the long clearance time from polyp development to symptomatic CRC underpins the recommendations for individuals who are >10 years younger than the NBCSP age, as this means that polyp development may not be detected early enough during screening. The age-related considerations for surveillance, for those >10 years younger than NBCSP age, >75 years of age, or with <10 years life expectancy, were made on the basis of low quality evidence, and the strength of the recommendation was weak.

Additional recommendations were also made, suggesting that if the removal of any high risk findings (e.g. polyps >10 mm) at an index colonoscopy is incomplete, then a check at the site of the incomplete removal should be considered within 2-6 months. The need for subsequent surveillance should then be determined based on the high risk surveillance criteria. The evidence underlying this recommendation was low quality, and the strength of recommendation was weak.

It also recommends that surveillance colonoscopies should only be performed by colonoscopists who are screening accredited, or whose colonoscopy performance measures exceed the minimum standard as defined in the BSG lower gastrointestinal quality standards publication (Rees et al 2013).

The BSG guidance recommends that computed tomographic colonography (CTC) is an appropriate alternative to colonoscopy, if colonoscopy is not appropriate. The evidence underlying this was of very low quality, but the strength of the recommendation was strong. It recommends that in individuals where surveillance is indicated, the radiation risk of CTC is likely to be outweighed by its benefits. The evidence underlying this recommendation was high-quality, and the strength of the recommendation was strong.

Information considered when developing the guideline

Current NICE guidance for the colonoscopic surveillance of adults with adenomas was published in 2011 and was consistent with the previous 2010 guidance from the BSG. Literature searches during guideline development in 2011 found no relevant direct evidence for the clinical and cost effectiveness of colonoscopic surveillance in people with adenomas. Two articles met the inclusion criteria, but were considered by the NICE guideline committee to not provide relevant evidence of the benefits of colonoscopic surveillance. Therefore, the NICE guideline committee made recommendations based on experience, and the colorectal cancer incidence and overall mortality reported in the 2 identified studies. The data showed that the risk of colorectal cancer in people with adenomas in the low risk group is similar to that of the general population (see recommendations below for risk categorisation).

Health economic modelling was also conducted. Information about the natural history of undetected colorectal cancer, the related probabilities of progression through cancer stages, and the probabilities of clinical presentation by cancer stage were obtained from the literature and a Markov model was created. The NICE guideline committee noted that carrying out colonoscopic surveillance in all risk groups was the most cost effective strategy according to the deterministic and probabilistic sensitivity analysis results. Surveillance of only the intermediate and high risk groups was also found to be cost effective, with lower incremental costs, but also lower potential gains in QALYs (quality adjusted life years). The results of this model were considered to be highly sensitive to the natural history data, which were extrapolated from another model and are highly uncertain. Therefore, the results should be interpreted with caution. Since this model was conducted, the NBCSP has been introduced, which we would expect to change the natural history data, and further increase the uncertainty in our interpretation of this model. There was discussion around the benefits of surveillance in the low risk group. It was concluded that this group should be offered surveillance, but that clinical judgement should be used when considering peoples comorbidities and risks due to colonoscopy.

Six studies were identified looking at when and at what frequency colonoscopic surveillance should be offered to people with adenomas. The NICE guideline committee felt that there was enough evidence to stratify people who had previously had adenomas removed according to their risk of developing advanced neoplasia (advanced adenoma severity and colorectal cancer). The evidence showed that only the number and size of the adenomas removed at baseline colonoscopy were consistent significant predictors for neoplasia and therefore should determine the risk state.

There was very limited direct evidence on frequency of surveillance for different risk groups and so the timing of surveillance was based on evidence relating to the incidence of advanced adenomas and colorectal cancer and risk for the disease as described above, as well as using data from randomised control trials with different surveillance frequencies without risk stratification.

Current recommendations state that the findings at the time of adenoma removal, should be used to stratify individuals into 3 risk categories. These are set out in recommendation 1.1.6 – 1.1.8 and Box 2, and are:

- Low risk: 1 or 2 adenomas smaller than 10 mm.
- Intermediate risk: 3 or 4 adenomas smaller than 10 mm, or 1 or 2 adenomas if one is 10 mm or larger.
- High risk: 5 or more adenomas smaller than 10 mm, or 1 or 2 adenomas if 1 is 10 mm or larger.

The colonoscopic surveillance strategies for these risk categories are set out in recommendation 1.1.9 and are:

Low risk:

- Consider colonoscopy at 5 years.
- If the colonoscopy is negative (that is, no adenomas are found) stop surveillance.
- If low risk, consider the next colonoscopy at 5 years (with follow-up surveillance as for low risk).

- If intermediate risk, offer the next colonoscopy at 3 years (with follow-up surveillance as for intermediate risk).
- If high risk, offer the next colonoscopy at 1 year (with follow-up surveillance as for high risk).

Intermediate risk:

- Offer colonoscopy at 3 years.
- If the colonoscopy is negative, offer the next colonoscopy at 3 years.
- Stop surveillance if there is a further negative result.
- If low or intermediate risk, offer the next colonoscopy at 3 years (with follow-up surveillance as for intermediate risk).
- If high risk, offer the next colonoscopy at 1 year (with follow-up surveillance as for high risk).

High risk:

- Offer colonoscopy at 1 year.
- If the colonoscopy is negative, low or intermediate risk, offer the next colonoscopy at 3 years (with follow-up surveillance as for intermediate risk).
- If high risk, offer the next colonoscopy at 1 year (with follow-up surveillance as for high risk).

The high risk category proposed by the 2020 BSG guidance covers both the intermediate and high risk groups as described in NICE guideline CG118.

Recommendation 1.1.10 in NICE guideline CG118 states that a repeat colonoscopy should be offered if any colonoscopy is incomplete, and to consider whether a more experienced colonoscopist is needed. While this aligns with the 2020 recommendation from the BSG to conduct a follow-up colonoscopy if excision is incomplete at an index colonoscopy, it does not recommend that all colonoscopists are screening accredited or meet key performance indicators.

The current NICE guideline on colorectal cancer prevention is in line with the 2020 BSG guidelines for CTC, recommendations 1.1.11-13 state that CTC or double contrast barium enema are suitable for ongoing surveillance if

colonoscopy remains clinically inappropriate. The BSG do not mention double contrast barium enemas.

Other relevant NICE guidance

No other relevant NICE guidance was identified.

Topic expert feedback

We considered the views of topic experts who were recruited to the NICE Centre for Guidelines Expert Advisers Panel to represent their specialty. One topic expert was a member of the guideline committee for NICE guideline CG118. We contacted 6 topic experts and received 4 responses. Three of the topic experts were consultant gastroenterologists, and 1 a consultant colorectal surgeon.

We wanted to know if the BSG guidance was being used in practice instead of the current NICE guideline on colorectal cancer prevention for individuals with adenomas. All 4 topic experts responded that they were aware of the BSG guidelines being instead of the current NICE guideline on colorectal cancer prevention. Two individuals expanded their responses to this question, 1 individual reported that the BSG guidance is in use in their practice, and 1 individual reported that the BSG guidance has been widely circulated and that individual trusts are using it to review current surveillance colonoscopy waiting lists.

We also wanted topic experts to advise on whether or not they considered the BSG guidelines are sufficient to ensure patient safety. All 4 topic experts responded that they thought the BSG guidance ensured patient safety. Three of the experts expanded their responses to this question. One expert highlighted that the evidence-based nature of the BSG guidelines means they are appropriate. One individual mentioned that while they did consider the guidelines sufficient to ensure patient safety, they would like to highlight the need for the index colonoscopy to have caecal intubation and adequate bowel preparation. These clinical factors are highlighted in the BSG lower gastrointestinal quality standards publication (Rees et al. 2013). The BSG guidelines recommend that surveillance colonoscopies should only be

performed by colonoscopists who are screening accredited, or whose colonoscopy performance measures exceed the minimum standard as defined in this quality standard. Another expert mentioned that the BSG guidelines have additional complexity compared to the current NICE guideline on colorectal cancer prevention, specifically around offering a surveillance colonoscopy to low risk individuals who are >10 years younger than the NBCSP age, and mentioned concerns that this may result in the BSG guidelines not being followed exactly. The BSG guideline wording of the recommendation was specifically done to state 10 years younger than the NBCSP age, as the age for entry into this programme may change in the future, and they intended for these recommendations to remain accurate.

Finally, we wanted topic experts' views on whether they thought there was value in NICE doing a full evidence review to update the recommendations on colonoscopic surveillance for people with adenomas, or whether NICE should cross-reference the BSG guidance. All 4 topic experts responded that they thought that NICE should cross-refer to BSG guidance instead of conducting a full evidence review. Three of the topic experts expanded their responses to this question. One said that the BSG guidance has the support of the specialist societies, 1 stated that the methods used by the BSG are NICE accredited and therefore the results of NICE conducting a full evidence review would likely be in line with that of the BSG. Finally, 1 topic expert mentioned that it is a huge challenge for NICE to keep up with all the guidelines from various specialisms and that cross-referring to other guidelines is an appropriate way for NICE ensure they are always up to date.

Additional feedback

One topic expert highlighted that the BSG also has guidance for the management of IBD, and suggested that as NICE guideline CG118 contains 2 patient cohorts, those with polyps, and those with inflammatory bowel disorders (IBD) – Crohn's disease and ulcerative colitis - recommendations on colonoscopy for adults with inflammatory bowel disease could be considered for withdrawal and cross-reference to the BSG IBD guidance.

We have checked the BSG guidance for individuals with IBD and it is broadly in line with NICE guideline CG118 for risk stratification and surveillance frequency following index colonoscopy. The BSG guidance for individuals with IBD recommends that surveillance starts 8 years after IBD symptoms begin, whereas NICE guideline CG118 recommends that surveillance starts 10 years after IBD symptoms begin. The 8-year interval was decided upon using Delphi consensus methods, it was the mid-point between the UK, EU and USA surveillance intervals, which range between 6-10 years. This was a strong recommendation, underpinned by very low quality evidence.

The BSG IBD guidelines are also currently undergoing an update. Therefore, we plan to regularly check whether the BSG IBD guideline update has published and evaluate the impact of its guidance on current recommendations as quickly as possible.

Equalities

No equalities issues were identified during the surveillance process.

Overall proposal

The BSG and partners published their updated guidelines on post-polypectomy and post-colorectal cancer resection surveillance guidelines in 2020, with new recommendations that are no longer aligned with NICE guideline CG118 on colorectal cancer prevention for adults with adenomas.

The BSG is NICE accredited and the updated BSG guideline was developed in line with NICE methods manual. While the BSG guidelines did not conduct any health economic analysis, Delphi consensus methods were used to assess evidence statements and to write the recommendations, and GRADE statements were reported for all recommendations. Health economic analysis was conducted in NICE guideline CG118, and found that while surveillance for all risk categories was the most cost effective, surveillance of the intermediate and high risk groups alone (which correspond to the high risk group in the updated BSG guidelines) remains cost effective. The cost effectiveness analysis in NICE guideline CG118 was based on natural history data which

was highly uncertain, and came from another model published in 2004. Therefore the results should be interpreted with caution.

Topic experts who were contacted about the use in practice of the updated BSG guidance and the current NICE guideline, all reported that they were aware of the colonoscopic surveillance strategy for adults with adenomas recommended in the updated BSG guidelines being used instead of that recommended in NICE guideline CG118. They were unanimous that the BSG guidance ensures patient safety and they were in favour of NICE directing users to the BSG guidance instead of NICE conducting its own evidence review and update in this area.

The evidence from the updated BSG guidance and topic expert feedback indicates that recommendations 1.1.6 to 1.1.13 in NICE guideline CG118 are out of date and so should be withdrawn, with users directed instead to the guidance from the BSG on colonoscopic surveillance of adults with adenomas.