

Appendix 2. Methodology

1. Overview of Methodology

The Guidelines were developed based on the Guidance for development of clinical practice guidelines Ver. 1.0 published by the National Evidence-Based Healthcare Collaborating Agency (NECA).

- Procedure for Guideline Development

Stage 1. Planning

- 1) Selection of key themes of the guidelines
- 2) Review of existing guidelines
- 3) Establishment of development plan
- 4) Selection of key questions

Stage 2. Development

- 5) Search of evidence
- 6) Quality assessment of evidence
- 7) Synthesis of evidence
- 8) Writing recommendations, determining strengths of recommendations
- 9) Drawing consensus

Stage 3. Finalization

- 10) External review
- 11) Publication of finalized guidelines

2. Contributors and their Roles in Guideline Development

The Committee of the Korean Guidelines for Post-polypectomy Colonoscopic Surveillance (subsequently referred to as the Guidelines) comprises Guidelines Development Committee and Taskforce Committee. The details of the members of the committees can be found in Appendix 2.

1) Guidelines Development Committee

- Composition: Thirteen specialists recommended by the Korean Society of Gastrointestinal Endoscopy, the Korean Society of Gastroenterology and the Korean Association for the Study of Intestinal Diseases, and one expert on guideline development methodology
- Roles and responsibilities
 - Planning and selection of methodology for development of the Guidelines
 - Development of the entire methodology for the detailed adaptation process such as search, selection, and appraisal of the Guidelines
 - Advisory roles for the Taskforce Committee and review of the development process
 - Strategy development for distribution and implementation of the Guidelines

2) Taskforce Committee

- The Taskforce Committee primarily comprised members of the Korean Society of Gastrointestinal Endoscopy, the Korean Society of Gastroenterology and the Korean Association for the Study of Intestinal Diseases

- Composition of Taskforce Committee responsible for sharing the development plan for the Guidelines, collating opinions and adaptation
- Selection of areas and issues of high priority for inclusion in the Guidelines
- Determination of key questions according to the scope of guideline development
- Determination of key questions according to the selection of priority areas

3. Declaration of Competing Interests

All members who participated in development of the Guidelines disclosed their real and explicit interests associated with development of the Guidelines. All members, including the chairperson of the Guidelines Development Committee, have no experience regarding the development or approval process of guidelines under review before the development of the present Guidelines, and have had no relationship with companies related to the medicines, commodities and services concerning the Guidelines within two years preceding the development of the Guidelines. Those who received research grants did not participate in the discussion and voting process when medications of the applicable company were discussed. The authors received no financial support from institutions or organizations other than the Korean Society of Gastrointestinal Endoscopy, the Korean Society of Gastroenterology, and the Korean Association for the Study of Intestinal Diseases.

4. Purpose of guideline development and target users

The Guidelines were developed to present standardized protocols for the surveillance strategy after treatment, for all clinicians who perform colonoscopy and provide treatment for patients who underwent resection of colorectal polyps in clinical settings in Korea, thereby promoting efficient evidence-based treatment.

The target population of the Guidelines is all patients (both men and women, including those with comorbidities) who have undergone colonoscopy and have had polyps resected.

The target users of the Guidelines are all clinicians who perform colonoscopy or treat patients who had polyps removed by colonoscopy, as well as relevant government officials, patients, and the general public.

5. Development of the Guidelines

(1) Selection of themes and key questions

Three guidelines developed in the United States (USMSTF), Europe (ESGE), and the Commonwealth (BSG) were reviewed and 12 themes were initially selected. The key questions and related search terms were initially drafted by the Taskforce Committee, collected by the Guidelines Development Committee, reviewed, and finally selected. The Key questions were determined by including specific information on the target patient population (P), intervention (I), comparator (C), and outcomes (O).

A) What are the risk factors related to colorectal cancer (CRC) incidence?

- Key Question 1. Is the size of tubular adenoma a risk factor to be considered when shortening the colonoscopic surveillance interval?
- Key Question 2. Is the number of colorectal adenomas a risk factor that should be considered when shortening the colonoscopic surveillance interval?
- Key Question 3. Is a tubulovillous adenoma or a villous adenoma a more influential risk factor that should be considered when shortening the colonoscopic surveillance interval compared to a tubular adenoma?
- Key Question 4. Is a serrated polyp a risk factor that should be considered when shortening the colonoscopic surveillance interval?
- Key Question 5. Is a traditional serrated adenoma a risk factor that should be considered when shortening the colonoscopic surveillance interval?

- Key Question 6. Is histology of sessile serrated lesion with dysplasia a risk factor that should be considered when shortening the colonoscopic surveillance interval?
 - Key Question 7. Is the size of a serrated polyp a risk factor that should be considered when shortening the colonoscopic surveillance interval?
 - Key Question 8. Is the number of sessile serrated lesions a risk factor that should be considered when shortening the colonoscopic surveillance interval?
 - Key Question 9. Is piecemeal resection of colorectal polyps ≥ 20 mm in size a more influential risk factor that should be considered when shortening the colonoscopic surveillance interval than en bloc resection of the polyps?
 - Key Question 10. Is a family history of colorectal cancer a risk factor that should be considered when shortening the colonoscopic surveillance interval?
- B) What is the optimal timing and interval for colonoscopic surveillance?
- Key Question 11. For patients without colorectal cancer-related high-risk findings after resecting the polyps, what is the appropriate timing and interval for colonoscopic surveillance?
 - Key Question 12. For patients with colorectal cancer-related high-risk findings after resection of polyps, what is the appropriate timing and interval for colonoscopic surveillance?

(2) Search of existing guidelines

The Guidelines Development Committee conducted a systematic search related to the key questions. International sources of information (MEDLINE, EMBASE, Cochrane Library) were used, and manual searches of guidelines were performed in relevant fields, such as colorectal polyp resection.

(3) Selection of guidelines

The Taskforce Committee selected guidelines from the searched results that matched the key questions. The procedure for selecting guidelines involved first and second rounds of screening, and appraisal of the selected guidelines to determine the final guidelines. The inclusion and exclusion criteria for the first and second rounds of screening are outlined as follows:

- Inclusion criteria
 - 1) Guidelines fulfilling patient or population/intervention/comparator/outcomes (PICO) criteria that match the key questions
 - 2) Evidence-based guidelines (those including reports of systematic literature searches, and exhibiting a clear connection between the recommendations and the supporting evidence)
 - 3) Peer-reviewed guidelines
 - 4) Guidelines published in Korean or English
 - 5) Guidelines published since 2015
- Exclusion criteria for the first screening
 - Articles not including research on patients with colorectal polyp resection
 - Simple reviews, articles on individual clinical studies or critical pathways
 - Duplicate publications
- Exclusion criteria for the second screening
 - Articles not including research on surveillance guidelines for patients with colorectal polyp resection
 - Articles that are not recommendations or guidelines
 - Guidelines written by a single, non-representative author, etc.
 - Guidelines not developed using an evidence-based method
 - Guidelines developed by consensus only without systematic search
 - Guidelines not published in Korean or English

- Guidelines developed without peer review
- Articles with the same content published in different journals or that differ only regarding the type of publication
- The original full text of the article was unavailable

The first round of literature screening was performed by reviewing the titles and abstracts of the searched literature based on the predefined exclusion criteria for the first round of screening. The second round of literature screening was performed by reviewing the original text of the guidelines selected from the first round based on the predefined exclusion criteria for the second round of screening. Two researchers conducted the screening process, and in cases of disagreement, discussion was held until consensus. Three guidelines were selected, and in cases of exclusion, the reasons for exclusion were documented. A detailed selection guide for searching guidelines can be found in Appendix 3, and the selection process of the guidelines is presented in Appendix 4. The three guidelines selected following the second round of screening were presented to the Guidelines Development Committee. The three guidelines were as follows:

- 2020 Recommendations for Follow-Up After Colonoscopy and Polypectomy: A Consensus Update by the US Multi-Society Task Force on Colorectal Cancer (US).
- 2020 British Society of Gastroenterology/Association of Coloproctology of Great Britain and Ireland/Public Health England post-polypectomy and post-colorectal cancer resection surveillance guidelines (BCG-ACGBI)
- 2020 Post-polypectomy colonoscopy surveillance: European Society of Gastrointestinal Endoscopy (ESGE) Guideline - Update 2020 (EU)

(4) Appraisal of guidelines

The Guidelines Development Committee performed the first appraisal of the three guidelines selected after the second screening process was completed by the Taskforce Committee. For appraisal of the guidelines, three members were assigned per guideline. The Korean Appraisal of Guidelines for Research & Evaluation (K-AGREE) was used. The appraisal results were shared, and if there were a difference exceeding 4 points in the scores between the appraisers, re-review was conducted following which the results could be modified. K-AGREE is categorized into 6 domains: Scope and Purpose, Stakeholder Involvement, Rigor of Development, Clarity of Presentation, Applicability, and Editorial Independence. Guidelines with a standardized score $\geq 50\%$ in the Rigor of Development domain were finally selected. There were cases in which guidelines were selected even if the appraisal score was low, because the Taskforce Committee deemed that there were exceptional matters for consideration. The final three guidelines were selected after undergoing the first appraisal process. A detailed description of the appraisal process and results can be found in Appendix 5, and a summary of the final selected guidelines can be found in Appendix 6. The Taskforce Committee evaluated the update/revision status of the three finally selected guidelines, and the acceptability, and applicability of the recommendations. This information is presented in Appendix 7.

(5) Summary of recommendations and evidence by key questions

The Taskforce Committee organized and summarized the recommendations and evidence for the guidelines that underwent the appraisal process using the Key questions. In the summary of recommendations, the content and strengths of the recommendations were summarized, and the contents of the recommendations of the three guidelines were compared. Regarding the summary of evidence, the evidence related to the recommendation was outlined for each key question. Further details can be found in Appendix 8.

(6) Writing of the statement draft

The draft for the statements was written upon determining the comprehensive level of evidence for each Key question.

1) Level of Evidence

Level of Evidence	Definition
High	<ul style="list-style-type: none"> • Study Design: (Intervention) The results are derived from randomized clinical trials or observational studies with control groups (Diagnosis) Diagnostic accuracy studies in the form of randomized clinical trials or cross-sectional cohort studies • Considerations: There are no methodological concerns in terms of quality assessment of the evidence, and the evidence displays consistency with sufficient level of precision, and the reliability of the synthesized results is considered high
Moderate	<ul style="list-style-type: none"> • Study Design: (Intervention) The results are derived from randomized clinical trials or observational studies with control groups (Diagnosis) Diagnostic accuracy studies in the form of randomized clinical trials or cross-sectional cohort studies • Considerations: There are slight concerns regarding the quality assessment, consistency or precision of the evidence, and the reliability of the synthesized results is considered moderate
Low	<ul style="list-style-type: none"> • Study Design: (Intervention) Results are derived from observational studies with or without controls/comparators. (Diagnosis) Diagnostic accuracy studies with case-control design • Considerations: There are serious concerns regarding the quality assessment, consistency or precision of the evidence, and the reliability of the synthesized result is considered low
Very low	<ul style="list-style-type: none"> • Study Design: (Intervention) Observational studies without controls/comparators or studies involving evidence based on expert opinions or reviews (Diagnosis) Diagnostic accuracy studies with case-control design • Considerations: There are critical concerns regarding the quality assessment, consistency or precision of the evidence, and the reliability of the synthesized result is considered very low

2) Strengths of Recommendations

Symbol	Strength of Recommendation	Definition
A	Strong recommendation	Considering the benefits and risks, level of evidence, values and preferences, and resources of the intervention/examination, it is strongly recommended in most clinical situations
B	Conditional recommendation	Considering use of the intervention/examination may vary depending on the clinical situations or values of patients/society, selective use or conditional selection of the intervention/examination is recommended
C	Not recommended	The risks associated with the intervention/examination may outweigh the benefits, and considering the clinical situations or values of patients/society, the use of the intervention/examination is not recommended
I	Inconclusive	Considering the benefits and risks, level of evidence, values, preferences, and resources of the intervention/examination, the level of evidence is too low, or the risk/benefit analysis is seriously indecisive, or the variability is large, and therefore, the use of the intervention/examination is not determined

(7) Consensus process and determination of the strengths of recommendations

The Taskforce Committee organized and summarized the recommendations and evidence for the guidelines that underwent the appraisal process by application of the Key questions. In the summary of recommendations, the contents and strengths of the recommendations were summarized, and the contents of the recommendations of the three guidelines were compared. For the summary of evidence, the evidence related to the recommendation was outlined for each Key question. For the consensus process, the modified Delphi technique was employed with invited experts. The present and former presidents, the present secretary general,

the director and members of the scientific committee, the board members of the Korean Society of Gastroenterology, Korean Association for the Study of Intestinal Diseases, and the Korean Physician's Association participated as panelists. Prior to voting, the drafted recommendation statements and supporting evidence were sent by e-mail to the panel members so that they could read the content in advance and conduct independent assessment. The level of consensus was classified using a 5-point Likert scale as follows: 1) Strongly Agree, 2) Agree, 3) Partially Agree, 4) Disagree, 5) Strongly Disagree, 6) Not certain. The results of 1) and 2) were summed. When the number of panelists who agreed was at least two-thirds of the total number of voters, the recommendation was considered as agreed upon. Immediately after voting for each recommendation, a review of the evidence supporting the recommendations, and discussions among the panelists on benefits and common understandings were conducted. As a result of the first vote, the panelists agreed to adopt 11 recommendations, and one recommendation that failed to reach consensus was modified before the second voting was conducted online. As a result of the second vote, at least two-thirds of the total number of voters agreed on the revised recommendation, and hence final consensus was achieved on 12 recommendations.

(8) Derivation of final statements and external review

For statements, a designated individual was assigned responsibility for each recommendation, and the responsible individual for each theme drafted the manuscript, considering the detailed content of the statement, by referring to the process of deriving key questions and recommendations, literature evidence and the minutes. For objective verification of the prepared draft, an external review was conducted by eight colonoscopy specialists and experts from the Korean Society of Coloproctology, who did not directly participate in development of the Guidelines. Following the review, the final statements were prepared and compiled by the Taskforce Committee, and documented after final review by the Guidelines Development Committee. The final version of the Guidelines was confirmed subsequent to the final review.