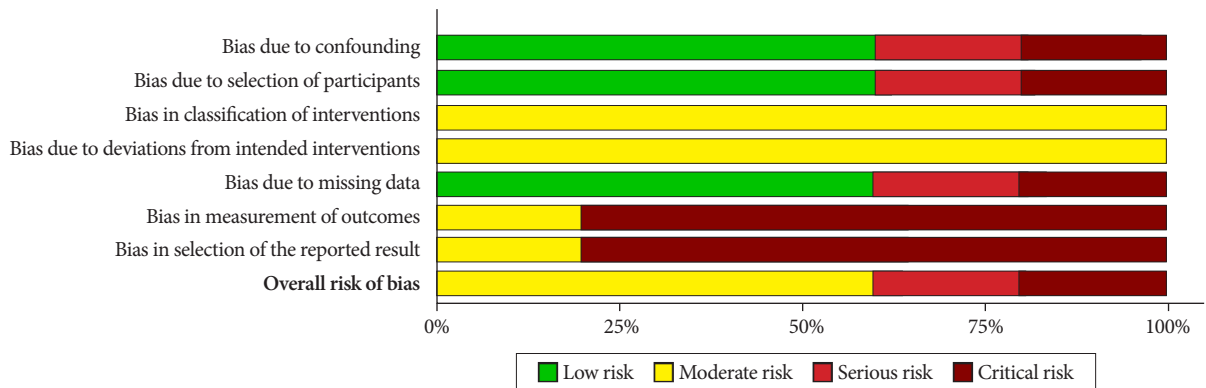


[Guideline 3] BSG 2020

- Reference

	Basic information on the literature	Study design	Number of subjects (control group/comparator group)
1	Erichsen R, Baron JA, Hamilton-Dutoit SJ, et al. Increased Risk of Colorectal Cancer Development Among Patients With Serrated Polyps. <i>Gastroenterology</i> 2016;150:895–902.e5.	case-control study	10 150 (8 105 / 2 045)



		Risk of bias domains							
		D1	D2	D3	D4	D5	D6	D7	Overall
Study	Shahzaib et al. 2020	⊗	⊗	⊖	⊖	⊗	⊕	⊕	⊗
	Daniel Rodriguez et al. 2018	⊕	⊕	⊖	⊖	⊕	⊕	⊕	⊕
	Rune Erichsen et al. 2016	⊕	⊕	⊖	⊖	⊕	⊖	⊖	⊖
	Erin Symonds et al. 2019	⊕	⊕	⊖	⊖	⊕	⊕	⊕	⊖
	Lisandeo Pereyra et al. 2016	⊕	⊕	⊖	⊖	⊕	⊕	⊕	⊖

Domains:

- D1: Bias due to confounding.
- D2: Bias due to selection of participants.
- D3: Bias in classification of interventions.
- D4: Bias due to deviations from intended intercentions.
- D5: Bias due to missing of data.
- D6: Bias in measurement of outcomes.
- D7: Bias in selection of the reported result.

Judgement

- ⊕ Critical
- ⊗ Serious
- ⊖ Moderate
- ⊕ Low

■ KQ07

Is the size of a serrated polyp a risk factor that should be considered when shortening the colonoscopic surveillance interval?

■ PICO

Patients	Intervention	Comparators	Outcomes
Patients with polyps removed at index colonoscopy	Serrated polyp size ≥ 1 cm	Serrated polyp size <1 cm	CRC incidence and mortality

■ Comparison of recommendations between different guidelines

	Guideline 1 (USMSTF)	Guideline 2 (ESGE)	Guideline 3 (BSG)
Year of publication	2020	2020	2020
AGREE appraisal score	100	87.5	87.5
Statement	For patients with SSP \geq 10 mm at a high-quality examination, repeat colonoscopy in 3 years. (Weak recommendation, very low quality of evidence)	ESGE recommends surveillance colonoscopy after 3 years for patients with complete removal of at least 1 adenoma \geq 10 mm or with high grade dysplasia, or \geq 5 adenomas, or any serrated polyp \geq 10 mm or with dysplasia. (Strong recommendation, moderate quality evidence)	There is evidence to suggest that advanced serrated polyps are risk equivalent to AAs for future CRC risk, and surveillance should be as for AAs. (GRADE of evidence: Low)
Level of Evidence, Strength of Recommendation	II / D	I / B	NA / C

■ Outline of evidence

[Guideline 1] USMSTF 2020

- Reference

	Basic information on the literature	Study design	Number of subjects (control group/comparator group)
1	Anderson JC, Butterly LF, Robinson CM, et al. Risk of Metachronous High-Risk Adenomas and Large Serrated Polyps in Individuals With Serrated Polyps on Index Colonoscopy: Data from the New Hampshire Colonoscopy Registry. <i>Gastroenterology</i> 2018;154:117–127.e2. [1]	Cohort study	5 433 (2 396/65)

[Guideline 2] ESGE 2020

- Reference

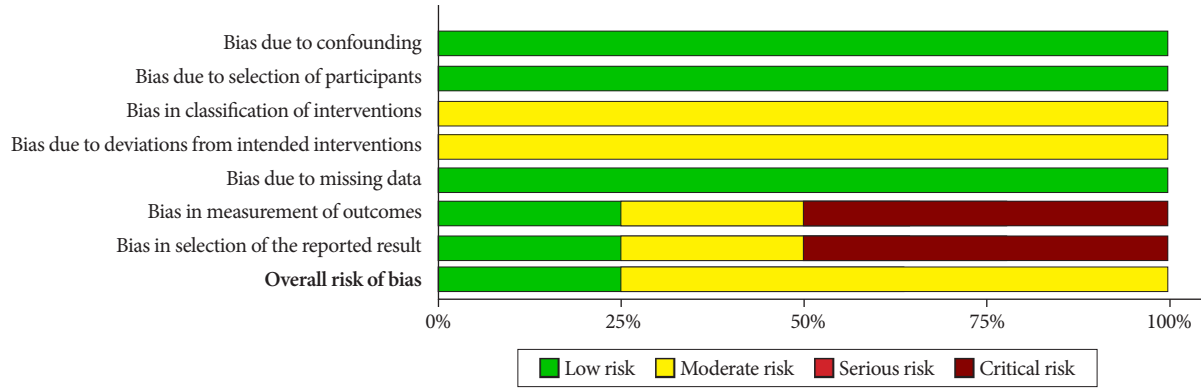
	Basic information on the literature	Study design	Number of subjects (control group/comparator group)
1	Holme Ø, Bretthauer M, Eide TJ, et al. Long-term risk of colorectal cancer in individuals with serrated polyps. <i>Gut</i> 2015;64:929–936. [2]	RCT (population-based randomized trial)	100 210 (78 220/81)
2	He X, Hang D, Wu K, et al. Long-term Risk of Colorectal Cancer After Removal of Conventional Adenomas and Serrated Polyps. <i>Gastroenterology</i> 2020;158:852–861.e4. [3]	Cohort study	122 899 (112 107/566)

[Guideline 3] BSG 2020

- Reference

	Basic information on the literature	Study design	Number of subjects (control group/comparator group)
1	Holme Ø, Bretthauer M, Eide TJ, et al. Long-term risk of colorectal cancer in individuals with serrated polyps. <i>Gut</i> 2015;64:929–936. [2]	RCT (population-based randomized trial)	100 210 (78 220/81)
2	He X, Hang D, Wu K, et al. Long-term Risk of Colorectal Cancer After Removal of Conventional Adenomas and Serrated Polyps. <i>Gastroenterology</i> 2020;158:852–861.e4 [3]	Cohort study	122 899 (112 107/566)

- Evidence table of the first-round reference articles (Ref. Excel file)



Study	Risk of bias domains							Overall
	D1	D2	D3	D4	D5	D6	D7	
Anderson et al. 2018	+	+	-	-	+	!	!	-
Holme Ø et al. 2015	+	+	-	-	+	+	+	+
He X et al. 2020	+	+	-	-	+	!	!	-
Burmett-Hartman AN et al. 2019	+	+	-	-	+	-	-	-

Domains:
 D1: Bias due to confounding.
 D2: Bias due to selection of participants.
 D3: Bias in classification of interventions.
 D4: Bias due to deviations from intended intercentions.
 D5: Bias due to missing of data.
 D6: Bias in measurement of outcomes.
 D7: Bias in selection of the reported result.

Judgement
 ! Critical
 - Moderate
 + Low

■ KQ 8: Is the number of sessile serrated lesions a risk factor that should be considered when shortening the colonoscopic surveillance interval?

■ PICO

Patients	Intervention	Comparators	Outcomes
Patients with polyps removed at index colonoscopy	1) ≥ 3 serrated polyps 2) ≥ 5 serrated polyps	1-2 serrated polyps	CRC incidence and mortality

■ Comparison of recommendations of selected guidelines

	Guideline 1 (USMSTF)	Guideline 2 (ESGE)	Guideline 3 (BSG)
Year of publication	2020	2020	2020
AGREE appraisal score	100	87.5	87.5
Statement	<p>For patients with ≤20 HPs <10 mm in size in the rectum or sigmoid colon removed at a high quality examination, repeat CRC screening in 10 years (Strong recommendation, moderate quality of evidence)</p> <p>For patients with ≤20 HPs <10 mm in size proximal to the sigmoid colon removed at a high quality examination, repeat colonoscopy in 10 years. (weak recommendation, very low quality of evidence)</p> <p>For patients with 1-2 SSPs<10 mm in size completely removed at high quality examination, repeat colonoscopy in 5-10 years (weak recommendation, very low quality of evidence)</p> <p>For patients with 3-4 SSPs <10 m at high quality examination, repeat colonoscopy in 3-5 years (weak recommendation, very low quality of evidence)</p> <p>For patients with any combinations of 5-10 SSPs<10 mm at high quality examination, repeat colonoscopy in 3 years (weak recommendation, very low quality of evidence)</p>	<p>ESGE recommends surveillance colonoscopy after 3 years for patients with complete removal of at least 1 adenoma ≥ 10 mm or with high grade dysplasia, or ≥ 5 adenomas, or any serrated polyp ≥ 10 mm or with dysplasia</p>	<p>Throughout the guideline development processes, the GDG identified some of the key unanswered research questions and needs, which are listed below: Evidence of the effectiveness of surveillance using a combined serrated plus adenomatous polyp count. More robust evidence of the effectiveness of surveillance in people with serrated polyps</p>
Level of Evidence, Strength of Recommendation		Strong recommendation, moderate quality evidence	

■ Outline of evidence

[Guideline 1] USMSTF 2020

- References

	Basic information on the literature	Study design	Number of subjects (control group/comparator group)
1	Sapienza PE, Levine GM, Pomerantz S, et al. Impact of a quality assurance program on gastrointestinal endoscopy. <i>Gastroenterology</i> . 1992;102:387-393. [1]	Randomized controlled trial (RCT)	477 (318/159)
2	Corley DA, Jensen CD, Marks AR et al. Adenoma detection rate and risk of colorectal cancer and death. <i>N Engl J Med</i> . 2014;370:1298-1306. [2]	Comparative studies	200 (100/100)

[Guideline 2] ESGE 2020

- Reference

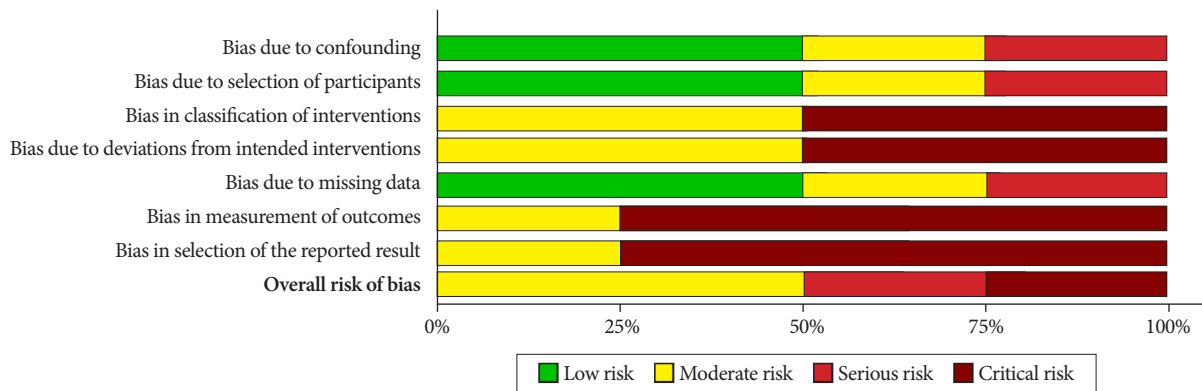
	Basic information on the literature	Study design	Number of subjects (control group/comparator group)
1	Raftopoulos SC, Segarajasingam DS, Burke V, et al. A cohort study of missed and new cancers after esophagogastroduodenoscopy. Am J Gastroenterol. 2010;105:1292–1297. [3]	RCT	477 (318/159)

[Guideline 3] BSG 2020

- Reference

	Basic information on the literature	Study design	Number of subjects (control group/comparator group)
1	Enochsson L, Swahn F, Arnelo U, et al. Nationwide, population-based data from 11,074 ERCP procedures from the Swedish Registry for Gallstone Surgery and ERCP. Gastrointest Endosc. 2010;72:1175–1184. [4]	RCT	477 (318/159)

- Evidence table of the first-round reference articles (Ref. Excel file)



Study	Risk of bias domains							Overall
	D1	D2	D3	D4	D5	D6	D7	
Bumett-Hartman et al. 2019	+	+	!	!	+	-	-	-
Xiaosheng He et al. 2020	+	+	-	-	+	!	!	-
Duochen Jin et al. 2019	-	-	-	-	-	!	!	×
Daniel Rodriguez-Alcalde et al. 2019	×	×	!	!	×	!	!	!

Domains:

- D1: Bias due to confounding.
- D2: Bias due to selection of participants.
- D3: Bias in classification of interventions.
- D4: Bias due to deviations from intended intercentions.
- D5: Bias due to missing of data.
- D6: Bias in measurement of outcomes.
- D7: Bias in selection of the reported result.

Judgement

- ! Critica
- × Serious
- Moderate
- + Low

■ KQ 9: Is piecemeal resection of colorectal polyps ≥ 20 mm in size a more influential risk factor, than en bloc resection of the polyps, that should be considered when shortening the colonoscopic surveillance interval?

■ PICO

Patients	Intervention	Comparators	Outcomes
Patients with polyps removed at index colonoscopy	Piecemeal resection of colorectal polyps ≥ 20 mm in size	En bloc resection of colorectal polyps ≥ 20 mm in size	CRC incidence and mortality

■ Comparison of recommendations of selected guidelines

	Guideline 1 (USMSTF)	Guideline 2 (ESGE)	Guideline 3 (BSG)
Year of publication	2020	2020	2020
AGREE appraisal score	100	87.5	87.5
Statement	For patients with piecemeal resection of adenoma or SSP >20 mm, repeat colonoscopy in 6 months	ESGE recommends a 3–6-month early repeat colonoscopy following piecemeal endoscopic resection of polyps ≥ 20 mm	We recommend a site check is performed 2–6 months after piecemeal EMR or ESD of LNPCPs (at least 20 mm in size), in line with BSG/ACPGBI LNPCP guidelines. A further site check at 18 months from the original resection is recommended to detect late recurrence. Once no recurrence is confirmed patients should undergo post-polypectomy surveillance after an interval of 3 years. The need for further surveillance should then be determined in accordance with the post-polypectomy high-risk criteria
Level of Evidence, Strength of Recommendation	Strong recommendation, moderate quality of evidence	Strong recommendation, moderate quality evidence.	GRADE of evidence: Low Strength of recommendation: Strong

■ Outline of evidence

[Guideline 1] USMSTF 2020

- Reference

	Basic information on the literature	Study design	Number of subjects (control group/comparator group)
1	Pohl H, Srivastava A, Bensen SP, et al. Incomplete polyp resection during colonoscopy-results of the complete adenoma resection (CARE) study. <i>Gastroenterology</i> 2013;144:74–80.e1. [1]	Prospective study	1 427
2	Belderbos TDG, Leenders M, Moons LMG, et al. Local recurrence after endoscopic mucosal resection of nonpedunculated colorectal lesions: systematic review and meta-analysis. <i>Endoscopy</i> 2014;46:388–402. [2]	Systematic review and meta-analysis	
3	Pellise M, Burgess NG, Tutticci N, et al. Endoscopic mucosal resection for large serrated lesions in comparison with adenomas: a prospective multicentre study of 2000 lesions. <i>Gut</i> 2017;66:644–653. [3]	Observational study	1 671
4	Rex KD, Vemulapalli KC, Rex DK. Recurrence rates after EMR of large sessile serrated polyps. <i>Gastrointest Endosc</i> 2015;82:538–541. [4]	Retrospective cohort study	362

[Guideline 2] ESGE 2020

- Reference

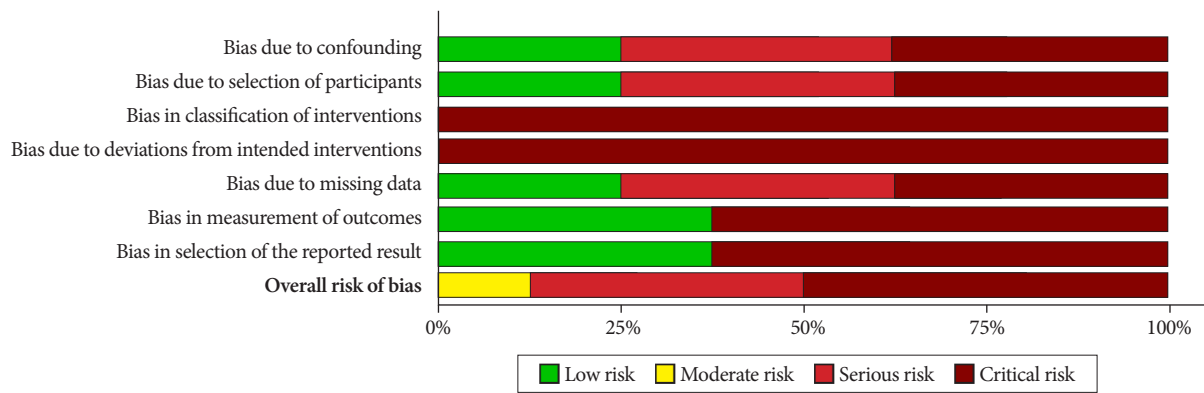
	Basic information on the literature	Study design	Number of subjects (control group/comparator group)
1	Belderbos TDG, Leenders M, Moons LMG, et al. Local recurrence after endoscopic mucosal resection of nonpedunculated colorectal lesions: systematic review and meta-analysis. <i>Endoscopy</i> 2014;46:388–402. [5]	Systematic review and meta-analysis.	
2	Pohl H, Srivastava A, Bensen SP, et al. Incomplete polyp resection during colonoscopy—results of the complete adenoma resection (CARE) study. <i>Gastroenterology</i> 2013;144:74–80.e1. [1]	Prospective study	1 427
3	Moss A, Williams SJ, Hourigan LF, et al. Long-term adenoma recurrence following wide-field endoscopic mucosal resection (WF-EMR) for advanced colonic mucosal neoplasia is infrequent: results and risk factors in 1000 cases from the Australian Colonic EMR (ACE) study. <i>Gut</i> 2015;64:57–65. [6]	Prospective study	1 134
4	Pellise M, Burgess NG, Tutticci N, et al. Endoscopic mucosal resection for large serrated lesions in comparison with adenomas: a prospective multicentre study of 2000 lesions. <i>Gut</i> 2017;66:644–653. [3]	Observational study	1 671
5	Tate DJ, Desomer L, Klein A, et al. Adenoma recurrence after piecemeal colonic EMR is predictable: the Sydney EMR recurrence tool. <i>Gastrointest Endosc</i> 2017;85:647–656.e6. [7]	Prospective study	1 178
6	Komeda Y, Watanabe T, Sakurai T, et al. Risk factors for local recurrence and appropriate surveillance interval after endoscopic resection. <i>World J Gastroenterol</i> 2019;25:1502–1512. [8]	Retrospective study	360

[Guideline 3] BSG 2020

- Reference

	Basic information on the literature	Study design	Number of subjects (control group/comparator group)
1	Belderbos TDG, Leenders M, Moons LMG, et al. Local recurrence after endoscopic mucosal resection of nonpedunculated colorectal lesions: systematic review and meta-analysis. <i>Endoscopy</i> 2014;46:388–402. [2]	Systematic review and meta-analysis	
2	Tate DJ, Desomer L, Klein A, et al. Adenoma recurrence after piecemeal colonic EMR is predictable: the Sydney EMR recurrence tool. <i>Gastrointest Endosc</i> 2017;85:647–656.e6 [7]	Prospective study	1178
3	Oka S, Tanaka S, Saito Y, et al. Local recurrence after endoscopic resection for large colorectal neoplasia: a multicenter prospective study in Japan. <i>Am J Gastroenterol</i> 2015;110:697–707. [8]	Prospective study	1524
4	Akintoye E, Kumar N, Aihara H, et al. Colorectal endoscopic submucosal dissection: a systematic review and meta-analysis. <i>Endosc Int Open</i> 2016;04:E1030–E1044. [9]	Systematic review and meta-analysis	

- Evidence table of the first-round reference articles (Ref. Excel file)



Risk of bias domains

Study	Risk of bias domains							Overall
	D1	D2	D3	D4	D5	D6	D7	
Jeffery Adier et al. 2019	+	+	!	!	+	!	!	×
Alanna Alexandre Silva de Azevedo et al. 2019	!	!	!	!	!	!	!	!
Maria Fragaki et al. 2019	!	!	!	!	!	!	!	!
Yoshiaki kimoto et al. 2021	×	×	!	!	×	+	+	×
Yoriaki Komeda et al. 2019	×	×	!	!		!	!	!
Alan Moss et al. 2015	+	+	!	!	+	+	+	-
David J. Tate et al. 2018	!	!	!	!	!	+	+	×
Park et al. 2020	×	×	!	!	×	!	!	!

Domains:

- D1: Bias due to confounding.
- D2: Bias due to selection of participants.
- D3: Bias in classification of interventions.
- D4: Bias due to deviations from intended intercentions.
- D5: Bias due to missing of data.
- D6: Bias in measurement of outcomes.
- D7: Bias in selection of the reported result.

Judgement

- ! Critical
- × Serious
- Moderate
- + Low

■ KQ10

Is a family history of colorectal cancer a risk factor that should be considered when shortening the colonoscopic surveillance interval?

■ PICO

Patients	Intervention	Comparators	Outcomes
Patients who underwent index colonoscopy	Family history of CRC	No family history of CRC	CRC incidence and mortality

■ Comparison of recommendations of selected guidelines

	Guideline 1 (USMSTF)	Guideline 2 (ESGE)	Guideline 3 (BSG)
Year of publication	2020	2020	2020
AGREE appraisal score	100	87.5	87.5
Statement	N/A	ESGE suggests against shortened surveillance intervals after polypectomy in patients with a family history of CRC.	There is consistent evidence that a family history of CRC (which falls short of warranting family history surveillance in its own right) is not associated with an increased risk of AA, AN or CRC at first surveillance
Level of Evidence, Strength of Recommendation		Weak recommendation, low quality evidence.	GRADE of evidence: Moderate

■ Outline of evidence

[Guideline 1] USMSTF 2020

- Reference

	Basic information on the literature	Study design	Number of subjects (control group/comparator group)

- References

	Basic information on the literature	Study design	Number of subjects (control group/comparator group)
1	Lee JY, Park HW, Kim M-J, et al. Prediction of the Risk of a Metachronous Advanced Colorectal Neoplasm Using a Novel Scoring System. <i>Dig Dis Sci</i> 2016;61:3016–3025.	Comparative studies	11 042 (7 730/3 312)
2	Gupta S, Jacobs ET, Baron JA, et al. Risk stratification of individuals with low-risk colorectal adenomas using clinical characteristics: a pooled analysis. <i>Gut</i> 2017;66:446–453.	Meta-analysis	
3...	Moon CM, Jung SA, Eun CS, et al. The effect of small or diminutive adenomas at baseline colonoscopy on the risk of developing metachronous advanced colorectal neoplasia: KASID multicenter study. <i>Dig Liver Dis</i> 2018;50:847–852.	Multicenter retrospective cohort study	2 252 (5 groups)
4	Baik SJ, Park H, Park JJ, et al. Advanced Colonic Neoplasia at Follow-up Colonoscopy According to Risk Components and Adenoma Location at Index Colonoscopy: A Retrospective Study of 1,974 Asymptomatic Koreans. <i>Gut Liver</i> 2017;11:667–673.	Multicenter retrospective cohort study	1 974
5	Kim HG, Cho YS, Cha JM, et al. Risk of metachronous neoplasia on surveillance colonoscopy in young patients with colorectal neoplasia. <i>Gastrointest Endosc</i> 2018;87:666–673	Multicenter retrospective cohort study	9 722
6	Park SK, Yang HJ, Jung YS, et al. Number of advanced adenomas on index colonoscopy: Important risk factor for metachronous advanced colorectal neoplasia. <i>Dig Liver Dis</i> 2018; 50:568–572.	Comparative studies	2 250 (1 371/879)
7	Kim NH, Jung YS, Lee MY, et al. Risk of Developing Metachronous Advanced Colorectal Neoplasia After Polypectomy in Patients With Multiple Diminutive or Small Adenomas. <i>Am J Gastroenterol</i> 2019;114:1657–1664.	Comparative studies	9 733 (8 051/293/258/1 131)
9	Kim NH, Jung YS, Park JH, et al. Association between family history of colorectal cancer and the risk of metachronous colorectal neoplasia following polypectomy in patients aged < 50 years. <i>J Gastroenterol Hepatol</i> 2019;34:383–389.	Comparative studies	9 866(7 787/2 097)
10	Jacobs ET, Gupta S, Baron JA, et al. Family history of colorectal cancer in first-degree relatives and metachronous colorectal adenoma. <i>Am J Gastroenterol</i> 2018;113:899–905.	Meta-analysis	

[Guideline 3] BSG 2020

- Reference

	Basic information on the literature	Study design	Number of subjects (control group/comparator group)
1	Martínez ME, Baron JA, Lieberman DA, et al. A pooled analysis of advanced colorectal neoplasia diagnoses after colonoscopic polypectomy. <i>Gastroenterology</i> 2009;136:832–841.	Meta-analysis	
2	Park SK, Kim NH, Jung YS, et al. Risk of developing advanced colorectal neoplasia after removing high-risk adenoma detected at index colonoscopy in young patients: A KASID study. <i>J Gastroenterol Hepatol</i> 2016;31:138–144.	Multicenter retrospective cohort study	1 479 (233/1 000/246)
...	Laiyemo AO, Murphy G, Albert PS, et al. Postpolypectomy colonoscopy surveillance guidelines: predictive accuracy for advanced adenoma at 4 years. <i>Ann Intern Med</i> 2008;148:419–426.	RCT	2 079 (1 037/1 042)
	Jang HW, Park SJ, Hong SP, et al. Risk Factors for Recurrent High-Risk Polyps after the Removal of High-Risk Polyps at Initial Colonoscopy. <i>Yonsei Med J</i> 2015;56:1559–1565.	Retrospective cohort study	434 (383/51)
	Jung YS, Park DL, Kim WH, et al. Risk of Advanced Colorectal Neoplasia According to the Number of High-Risk Findings at Index Colonoscopy: a Korean Association for the Study of Intestinal Disease (KASID) Study. <i>Dig Dis Sci</i> 2016;61:1661–1668.	Retrospective cohort study	1 646 (463/1 183)
	Tae CH, Moon CM, Jung SA, et al. Higher body mass index is associated with an increased risk of multiplicity in surveillance colonoscopy within 5 years. <i>Sci Rep</i> 2017;7:14239.	Retrospective cohort study	2 904 (1 769/1 040/95)

- Evidence table of the first-round reference articles (Ref. Excel 1)

■ KQ12

:For patients with colorectal cancer-related high-risk findings after resection of polyps, what is the appropriate timing and interval for colonoscopic surveillance?

■ PICO

Patients	Intervention	Comparators	Outcomes
Patients with polyps removed at index colonoscopy	CRC-related high-risk findings	No CRC-related high-risk findings	CRC incidence and mortality

■ Comparison of recommendations of selected guidelines

	Guideline 1 (USMSTF)	Guideline 2 (ESGE)	Guideline 3 (BSG)
Year of publication	2020	2020	2020
AGREE appraisal score	100	87.5	87.5
Statement	<p>1. For patients with 3–4 tubular adenomas <10 mm in size completely removed at a high-quality examination, repeat colonoscopy in 3–5 years. (IV/B)</p> <p>2. For patients with 5–10 tubular adenomas <10 mm in size completely removed at a high-quality examination, repeat colonoscopy in 3 years. (I/A)</p> <p>3. For patients with 1 or more adenomas ≥10 mm in size completely removed at high-quality examination, repeat colonoscopy in 3 years. (I/A)</p> <p>4. For patients with adenoma containing villous histology completely removed at high-quality examination, repeat colonoscopy in 3 years. (II/A)</p> <p>5. For patients with adenoma containing high-grade dysplasia completely removed at high-quality examination, repeat colonoscopy in 3 years. (II/A)</p> <p>6. For patients with >10 adenomas completely removed at high-quality examination, repeat colonoscopy in 1 year. (IV/B) [Addition – information organized according to BSG Guidelines]</p> <p>7. For patients with TSA completely removed at a high-quality examination, repeat colonoscopy in 3 years. (IV/B)</p> <p>8. For patients with SSP ≥10 mm at a high-quality examination, repeat colonoscopy in 3 years. (IV/B)</p> <p>9. For patients with HP ≥10 mm, repeat colonoscopy in 3–5 years. A 3-year follow-up interval is favored if concern about pathologist consistency in distinguishing SSPs from HPs, quality of bowel preparation, or complete polyp excision, whereas a 5-year interval is favored if low concerns for consistency in distinguishing between SSP and HP by the pathologist, adequate bowel preparation, and confident complete polyp excision. (IV/B)</p>	<p>1. ESGE recommends surveillance colonoscopy after 3 years for patients with complete removal of at least 1 adenoma ≥ 10 mm or with high grade dysplasia, or ≥ 5 adenomas, or any serrated polyp ≥10 mm or with dysplasia. (II/A)</p>	<p>1. We recommend that people with high-risk findings on index colonoscopy who are under the age of 75 years should have a surveillance colonoscopy performed after an interval of 3 years (note the one exception in the next statement). (III/A)</p> <p>2. We suggest that due to the long timeline from a clearance colonoscopy through the potential development of new polyps to the possible development of a symptomatic cancer, surveillance should only be performed in people whose life-expectancy is greater than 10 years, and in general not in people older than about 75 years. (III/B)</p> <p>3. We recommend that people with high-risk findings on a surveillance colonoscopy should undergo a further surveillance colonoscopy at an interval of 3 years (with the same age-related caveats applied again). (III/A)</p>
Level of Evidence, Strength of Recommendation			

■ Outline of evidence

[Guideline 1] USMSTF 2020

- References

	Basic information on the literature	Study design	Number of subjects (control group/comparator group)
1	Bjerrum A, Milter MC, Andersen O, et al. Risk stratification and detection of new colorectal neoplasms after colorectal cancer screening with faecal occult blood test: experiences from a Danish screening cohort. <i>Eur J Gastroenterol Hepatol</i> 2015;27:1433–1437. [1]	Population-based cohort study	709 (507/202)
2	Fairley KJ, Li J, Komar M, et al. Predicting the risk of recurrent adenoma and incident colorectal cancer based on findings of the baseline colonoscopy. <i>Clin Transl Gastroenterol</i> 2014;5:e64. [2]	Prospective analyses of retrospectively collected clinical data from electronic health records.	905 (368/537)
3	Good NM, Macrae FA, Young GP, et al. Ideal colonoscopic surveillance intervals to reduce incidence of advanced adenoma and colorectal cancer. <i>J Gastroenterol Hepatol</i> 2015;30:1147–1154. [3]	Two centers, prospective(not comparative study (no arms))	5141
4	Jang HW, Park SJ, Hong SP, et al. Risk Factors for Recurrent High-Risk Polyps after the Removal of High-Risk Polyps at Initial Colonoscopy. <i>Yonsei Med J</i> 2015;56:1559–1565. [4]	Single center, retrospective (non comparative study (no arms))	434
5	Park SK, Song YS, Jung YS, et al. Do surveillance intervals in patients with more than five adenomas at index colonoscopy be shorter than those in patients with three to four adenomas? A Korean Association for the Study of Intestinal Disease study. <i>J Gastroenterol Hepatol</i> 2017;32:1026–1031. [5]	Multicenter, retrospective	1 394 (high risk group, ≥ 5 small adenomas or ≥ 3 at least one ≥ 10 mm = 626 / intermediate risk group, 3–4 small adenomas or at least one ≥ 10 mm, and high risk group = 768)
6	van Heijningen EM, Lansdorp-Vogelaar I, Kuipers EJ, et al. Features of adenoma and colonoscopy associated with recurrent colorectal neoplasia based on a large community-based study. <i>Gastroenterology</i> 2013;144:1410–1418. [6]	Multicenter, retrospective	2 990(1 304/1 686)
7	Brenner H, Chang-Claude J, Jansen L, et al. Role of colonoscopy and polyp characteristics in colorectal cancer after colonoscopic polyp detection: a population-based case-control study. <i>Ann Intern Med</i> 2012;157:225–232. [7]	Population-based case-control study	415 (155/260)
8	Pérez-Cuadrado-Robles E, Torrella-Cortés E, Bebia-Conesa P, et al. Intermediate-risk patients with three to four small adenomas should be considered low risk for colorectal cancer screening. <i>Dig Endosc</i> 2016;28:450–455. [8]	Single center, retrospective (non-comparative study (no arms))	561
9	Sneh Arbib O, Zemser V, Leibovici Weissman Y, et al. Risk of advanced lesions at the first follow-up colonoscopy after polypectomy of diminutive versus small adenomatous polyps of low-grade dysplasia. <i>Gastrointest Endosc</i> 2017;86:713–721.e2. [9]	Single center, retrospective	443 (130/313)
10	Vemulapalli KC, Rex DK. Risk of advanced lesions at first follow-up colonoscopy in high-risk groups as defined by the United Kingdom postpolypectomy surveillance guideline: data from a single U.S. center. <i>Gastrointest Endosc</i> 2014;80:299–306. [10]	Single center, retrospective	1 414 (652/762)
11	van Enckevort CC, de Graaf AP, Hollema H, et al. Predictors of colorectal neoplasia after polypectomy: based on initial and consecutive findings. <i>Neth J Med</i> 2014;72:139–145. [11]	Observational cohort study (no arms)	433
12	Park SK, Hwang SW, Kim KO, et al. Risk of advanced colorectal neoplasm in patients with more than 10 adenomas on index colonoscopy: A Korean Association for the Study of Intestinal Diseases (KASID) study. <i>J Gastroenterol Hepatol</i> 2017;32:803–808. [12]	multicenter, retrospective	1 189 (Adenoma > 10 (n=214) / Adenoma 3–10 (n=975))

13	Click B, Pinsky PF, Hickey T, et al. Association of Colonoscopy Adenoma Findings With Long-term Colorectal Cancer. <i>JAMA</i> 2018;319:2021–2031. [13]	Multicenter, prospective	15935 (2882/13053)
14	Cottet V, Jooste V, Fournel I, et al. Long-term risk of colorectal cancer after adenoma removal: a population-based cohort study. <i>Gut</i> 2012;61:1180–1186. [14]	Cohort study based on detailed data from a population-based registry	5 135 (1 899 / 3 236)
15	Atkin W, Wooldrage K, Brenner A, et al. Adenoma surveillance and colorectal cancer incidence: a retrospective, multicentre, cohort study. <i>Lancet Oncol</i> 2017;18:823–834. [15]	Multicenter, retrospective cohort	15 935 (2 882 / 13 053)
16	Holme Ø, Bretthauer M, Eide TJ, et al. Long-term risk of colorectal cancer in individuals with serrated polyps. <i>Gut</i> 2015;64:929–936. [16]	Population-based randomized trial	12 955 (782 / 12 173)
17	Anderson JC, Butterly LF, Robinson CM, et al. Risk of Metachronous High-Risk Adenomas and Large Serrated Polyps in Individuals With Serrated Polyps on Index Colonoscopy: Data from the New Hampshire Colonoscopy Registry. <i>Gastroenterology</i> 2018;154:117–127. e2. [17]	Retrospective cohort	5 433 (817 / 4 616)

[Guideline 2] ESGE 2020

- Reference

	Basic information on the literature	Study design	Number of subjects (control group/comparator group)
1	Atkin W, Wooldrage K, Brenner A et al. Adenoma surveillance and colorectal cancer incidence: a retrospective, multicentre, cohort study. <i>Lancet Oncol</i> 2017;18:823–834. [18]	Retrospective, multicentre, cohort study	11 944
2	Click B, Pinsky PF, Hickey T, et al. Association of Colonoscopy Adenoma Findings With Long-term Colorectal Cancer. <i>JAMA</i> 2018;319:2021–2031. [19]	Multicenter, prospective cohort	15 935 (2 882 / 13 053)
3	Wieszczy P, Kaminski MF, Franczyk R et al. Colorectal Cancer Incidence and Mortality After Removal of Adenomas During Screening Colonoscopies. <i>Gastroenterology</i> 2020;158:875–883.e5. [20]	Multicenter, population-based cohort	41 778 (3 908 / 37 798)
4	He X, Hang D, Wu K et al. Long-term Risk of Colorectal Cancer after Removal of Conventional Adenomas and Serrated Polyps. <i>Gastroenterology</i> 2020;158:852–861.e4 [21]	Prospective cohort	124 186 (6 161 / 5 918)
5	Cross AJ, Robbins EC, Pack K et al. Long-term colorectal cancer incidence after adenoma removal and the effects of surveillance on incidence: a multicentre, retrospective, cohort study. <i>Gut</i> 2020;69:1645–1658. [22]	Multicenter, retrospective cohort	28 972 (14 571 / 14 401)
6	Erichsen R, Baron JA, Hamilton-Dutoit SJ, et al. Increased Risk of Colorectal Cancer Development Among Patients With Serrated Polyps. <i>Gastroenterology</i> 2016;150:895–902.e5. [23]	Population-based case-control study	10 246 (2 045 / 8 201)
7	Lee JY, Park HW, Kim M-J et al. Prediction of the Risk of a Metachronous Advanced Colorectal Neoplasm Using a Novel Scoring System. <i>Dig Dis Sci</i> 2016;61:3016–3025. [24]	Single center, retrospective cohort	7 730 (521 / 7 290)
8	Pereyra L, Zamora R, Gómez EJ et al. Risk of Metachronous Advanced Neoplastic Lesions in Patients with Sporadic Sessile Serrated Adenomas Undergoing Colonoscopic Surveillance. <i>Am J Gastroenterol</i> 2016; 111: 871–878 [25]	Single center, prospective cohort	639 (162 / 477)
9	Anderson JC, Butterly LF, Robinson CM, et al. Risk of Metachronous High-Risk Adenomas and Large Serrated Polyps in Individuals With Serrated Polyps on Index Colonoscopy: Data from the New Hampshire Colonoscopy Registry. <i>Gastroenterology</i> 2018;154:117–127.e2. [26]	Retrospective cohort	5 433 (817 / 4 616)
10	Holme Ø, Bretthauer M, Eide TJ, et al. Long-term risk of colorectal cancer in individuals with serrated polyps. <i>Gut</i> 2015;64:929–936. [27]	population-based randomized trial	12 955 (782 / 12 173)

[Guideline 3] BSG 2020

- Reference

	Basic information on the literature	Study design	Number of subjects (control group/comparator group)
1	Martinez ME, Baron JA, Lieberman DA, et al. A pooled analysis of advanced colorectal neoplasia diagnoses after colonoscopic polypectomy. <i>Gastroenterology</i> 2009;136:832–841. [28]	Pooled analyses	9 167 (4 523 / 4 644)
2	Atkin W, Brenner A, Martin J, et al. The clinical effectiveness of different surveillance strategies to prevent colorectal cancer in people with intermediate-grade colorectal adenomas: a retrospective cohort analysis, and psychological and economic evaluations. <i>Health Technol Assess</i> 2017;21:1–536. [29]	Retrospective multicentre cohort study.	4 608 (850 / 3 758)
3	Atkin W, Wooldrage K, Brenner A, et al. Adenoma surveillance and colorectal cancer incidence: a retrospective, multicentre, cohort study. <i>Lancet Oncol</i> 2017;18:823–834. [30]	Multicenter, retrospective cohort	15 935 (2 882 / 13 053)
4	van Enckevort CC, de Graaf AP, Hollema H, et al. Predictors of colorectal neoplasia after polypectomy: based on initial and consecutive findings. <i>Netherlands J Med</i> 2014;72:139–145. [31]	Observational cohort study	433 (156 / 277)
5	Fairley KJ, Li J, Komar M, et al. Predicting the risk of recurrent adenoma and incident colorectal cancer based on findings of the baseline colonoscopy. <i>Clin Transl Gastroenterol</i> 2014;5:e64. [32]	Retrospective cohort	3 300
6	Huang Y, Gong W, Su B, et al. Recurrence and surveillance of colorectal adenoma after polypectomy in a southern Chinese population. <i>J Gastroenterol</i> 2010;45:838–845. [33]	Single center, retrospective cohort	1 356 (206 / 1 150)
7	Facciorusso A, Di Maso M, Serviddio G, et al. Factors Associated With Recurrence of Advanced Colorectal Adenoma After Endoscopic Resection. <i>Clin Gastroenterol Hepatol</i> 2016;14:1148–1154. [34]	Single center, retrospective cohort	1 017 (244 / 773)
8	Park SK, Kim NH, Jung YS, et al. Risk of developing advanced colorectal neoplasia after removing high-risk adenoma detected at index colonoscopy in young patients: a KASID study. <i>J Gastroenterol Hepatol</i> 2016;31:138–144. [35]	Multicenter, retrospective cohort	1 479
9	Lee TJW, Nickerson C, Goddard AF, et al. Outcome of 12-month surveillance colonoscopy in high-risk patients in the National Health Service Bowel Cancer Screening Programme. <i>Colorectal Dis</i> 2013;15:e435–442. [36]	Retrospective cohort	1 760 (474 / 1 286)
10	Cubiella J, Carballo F, Portillo I, et al. Incidence of advanced neoplasia during surveillance in high- and intermediate-risk groups of the European colorectal cancer screening guidelines. <i>Endoscopy</i> 2016;48:995–1002. [37]	Retrospective cohort	5 401 (2 022 / 3 379)
11	van Heijningen EM, Lansdorp-Vogelaar I, Kuipers EJ, et al. Features of adenoma and colonoscopy associated with recurrent colorectal neoplasia based on a large community-based study. <i>Gastroenterology</i> 2013;144:1410–1418. [38]	Multicenter, retrospective cohort	2 990 (1 304 / 1 686)
12	Huang Y, Gong W, Su B, et al. Risk and cause of interval colorectal cancer after colonoscopic polypectomy. <i>Digestion</i> 2012;86:148–154. [39]	Multicenter, retrospective cohort	1 794 (288 / 1 506)
13	Laiyemo AO, Murphy G, Albert PS, et al. Postpolypectomy colonoscopy surveillance guidelines: predictive accuracy for advanced adenoma at 4 years. <i>Ann Intern Med</i> 2008;148:419–426. [40]	Analysis of prospective data from the Polyp Prevention Trial	1 905 (855 / 1 050)
14	Nusko G, Hahn EG, Mansmann U. Risk of advanced metachronous colorectal adenoma during long-term follow-up. <i>Int J Colorectal Dis</i> 2008;23:1065–1071. [41]	Prospective, registry of colorectal polyps based	1 091 (81 / 1 010)
15	Laish I, Seregeev I, Naftali T, et al. Surveillance after positive colonoscopy based on adenoma characteristics. <i>Dig Liver Dis</i> 2017;49:1115–1120. [42]	Multicenter, retrospective cohort study	1 165 (695 / 470)
16	Solakoglu T, Koseoglu H, Ozer Sari S, et al. Role of baseline adenoma characteristics for adenoma recurrence in patients with high-risk adenoma. <i>Turk J Med Sci</i> 2017;47:1416–1424. [43]	Prospective observational study(no arms)	47

17	Coleman HG, Loughrey MB, Murray LJ, et al. Colorectal Cancer Risk Following Adenoma Removal: A Large Prospective Population-Based Cohort Study. <i>Cancer Epidemiol Biomarkers Prev</i> 2015;24:1373–1380. [44]	Prospective population-based cohort study	6 972 (3 819 / 3 153)
18	Emilsson L, Loberg M, Bretthauer M, et al. Colorectal cancer death after adenoma removal in Scandinavia. <i>Scand J Gastroenterol</i> 2017;52:1377–1384. [45]	prospectively collected data from population-based cohorts.	40 660 (20 135 / 20 525)
19	Loberg M, Kalager M, Holme Ø, et al. Long-term colorectal-cancer mortality after adenoma removal. <i>N Engl J Med</i> 2014;371:799–807. [46]	Cancer Registry based cohort	40 826 (22 306 / 23 449)
20	Huang Y, Li X, Wang Z, et al. Five-year risk of colorectal neoplasia after normal baseline colonoscopy in asymptomatic Chinese Mongolian over 50 years of age. <i>Int J Colorectal Dis</i> 2012;27:1651–1656. [47]	single center, prospective	480 (89 / 391)
21	Jang HW, Park SJ, Hong SP, et al. Risk Factors for Recurrent High-Risk Polyps after the Removal of High-Risk Polyps at Initial Colonoscopy. <i>Yonsei Med J</i> 2015;56:1559–1565. [48]	Single center, retrospective	434 (51 / 383)
22	Lee JL, Cha JM, Lee HM, et al. Determining the optimal surveillance interval after a colonoscopic polypectomy for the Korean population? <i>Intest Res</i> 2017;15:109–117. [49]	Retrospective cohort study	895 (178 / 221)
23	Vemulapalli KC, Rex DK. Risk of advanced lesions at first follow-up colonoscopy in high-risk groups as defined by the United Kingdom post-polypectomy surveillance guideline: data from a single U.S. center. <i>Gastrointest Endosc</i> 2014;80:299–306. [50]	Single center, retrospective	1 414 (652 / 762)
24	Jung YS, Park DI, Kim WH, et al. Risk of Advanced Colorectal Neoplasia According to the Number of High-Risk Findings at Index Colonoscopy: A Korean Association for the Study of Intestinal Disease (KASID) study. <i>Dig Dis Sci</i> 2016;61:1661–1668. [51]	Multicenter, retrospective	1 646 (463 / 1183)
25	Cottet V, Jooste V, Fournel I, et al. Long-term risk of colorectal cancer after adenoma removal: a population-based cohort study. <i>Gut</i> 2012;61:1180–1186. [52]	Population-based registry cohort study	5 779 (1 899 / 3 880)
26	Holme Ø, Bretthauer M, Eide T], et al. Long-term risk of colorectal cancer in individuals with serrated polyps. <i>Gut</i> 2015;64:929–936. [53]	Population-based randomized trial	12 955 (782 / 12 173)
27	He X, Hang D, Wu K et al. Long-term Risk of Colorectal Cancer After Removal of Conventional Adenomas and Serrated Polyps. <i>Gastroenterology</i> 2020;158:852–861.e4 [54]	Prospective cohort	124 186 (6 161 / 5 918)
28	Erichsen R, Baron JA, Hamilton-Dutoit SJ, et al. Increased Risk of Colorectal Cancer Development Among Patients With Serrated Polyps. <i>Gastroenterology</i> 2016;150:895–902.e5. [55]	Population-based case-control study	10 246 (2 045 / 8 201)

- Evidence table of the first-round reference articles (Ref. Excel 1)