

SUPPLEMENTARY TABLES

Supplementary Table S1. Attribution of adverse event to colonoscopy according to ASGE lexicon.

	Unlikely	Possible	Probable	Definite	Total	Events per 1000 persons
	N=119	N=19	N=27	N=196	N=361	N=10 244
Cardiovascular					36	3.5
Arrythmia	14	2	0	0		
Arrest	0	0	1	0		
Myocardial infarction	3	0	1	0		
Cerebrovascular event	1	2	1	0		
Congestive heart failure	9	1	1	0		
Pulmonary					7	0.7
Hypoxia	1	0	0	1		
Pneumonia	4	0	0	0		
COPD exacerbation	1	0	0	0		
Thromboembolic					5	0.5
DVT	1	0	0	0		
Pulmonary embolus	3	1	0	0		
Instrumental					8	0.8
Perforation	0	0	0	8		
Bleeding					92	9.0
Lower GI bleeding	2	1	11	76		
Other intraabdominal bleeding	2	0	0	0		
Infection					14	1.4
Urinary tract infection	2	1	0	0		
Fever other known cause	6	2	0	0		
Fever unknown cause	0	1	2	0		
Drug reactions					3	0.3
Side effects	0	0	0	3		
Pain					92	9.0
Postpolypectomy syndrome	0	0	1	19		
Abdominal pain	2	4	6	39		
Kidney stone	3	0	0	0		
Gall stone	2	0	0	0		
Nonabdominal pain	2	0	1	0		
Chest pain	9	1	0	0		
Headache	3	0	0	0		
Integument*					21	
Bone fracture	12	0	0	0		
Other integument	9	0	0	0		
Other					83	8.1
Electrolyte imbalance or dehydration	4	2	1	1		

Syncope	1	0	0	0
Vasovagal reaction	0	0	0	40
Constipation	0	0	1	0
Nausea	0	1	0	6
Preexisting cancer	4	0	0	0
Other not specified	19	0	0	3

COPD: Chronic obstructive pulmonary disease. DVT: Deep venous thrombosis. GI: Gastrointestinal.

* Integument category includes damage to skin, eyes, bones, and muscles.(17)

Supplementary Table S2. Baseline characteristics per colonoscopy and association with the occurrence of adverse events

	Total (col %)	Adverse events (row %)	p-value	Moderate, severe, or fatal adverse events (row %)	p-value
Total	11,206 (100%)	250 (2.2%)		54 (0.5%)	
Age			<0.01 ^c		<0.01 ^c
50-55	924 (8.2%)	8 (0.9%)		0 (0.0%)	
56-60	2,138 (19.1%)	39 (1.8%)		7 (0.3%)	
61-65	2,404 (21.5%)	51 (2.1%)		11 (0.5%)	
66-70	2,906 (25.9%)	63 (2.2%)		13 (0.4%)	
>70	2,834 (25.3%)	89 (3.1%)		23 (0.8%)	
Sex			0.15 ^c		0.46 ^c
Female	4,710 (42.0%)	117 (2.5%)		20 (0.4%)	
Male	6,496 (58.0%)	133 (2.0%)		34 (0.5%)	
Screening group			0.08 ^c		0.65 ^c
FIT	7,564 (67.5%)	156 (2.1%)		38 (0.5%)	
Sigmoidoscopy	3,642 (32.5%)	94 (2.6%)		16 (0.4%)	
Screening centre			<0.01 ^c		0.02 ^c
1	5,996 (53.5%)	110 (1.8%)		20 (0.3%)	
2	5,210 (46.5%)	140 (2.7%)		34 (0.7%)	
Polypectomies per colonoscopy, n			<0.01 ^c		<0.01 ^c
0	3,986 (35.6%)	52 (1.3%)		5 (0.1%)	
1	2,849 (25.4%)	61 (2.1%)		13 (0.5%)	
2	1,729 (15.4%)	38 (2.2%)		8 (0.5%)	
3	984 (8.8%)	23 (2.3%)		7 (0.7%)	
4	582 (5.2%)	20 (3.4%)		6 (1.0%)	
≥5	1,076 (9.6%)	56 (5.2%)		15 (1.4%)	
Max diameter of removed lesion, mm			<0.01 ^c		<0.01 ^c
No lesion removed	2,900 (25.9%)	47 (1.6%)		4 (0.1%)	
1-5 mm	2,709 (24.2%)	24 (0.9%)		5 (0.2%)	
6-10 mm	2,871 (25.6%)	56 (2.0%)		16 (0.6%)	
11-20 mm	2,164 (19.3%)	86 (4.0%)		18 (0.8%)	
>20 mm	562 (5.0%)	37 (6.6%)		11 (2.0%)	
Serrated lesion			<0.01 ^c		0.01 ^c
No	7,314 (65.3%)	139 (1.9%)		26 (0.4%)	
Yes	3,892 (34.7%)	111 (2.9%)		28 (0.7%)	
Adenoma			0.01 ^c		<0.01 ^c
No	4,243 (37.9%)	75 (1.8%)		7 (0.2%)	
Yes	6,963 (62.1%)	175 (2.5%)		47 (0.7%)	
Adenocarcinoma			0.06 ^c		0.28 ^c
No	10,716 (95.6%)	233 (2.2%)		50 (0.5%)	
Yes	490 (4.4%)	17 (3.5%)		4 (0.8%)	
Distal lesion			0.05 ^c		0.31 ^c
No	4,492 (40.1%)	115 (2.6%)		18 (0.4%)	
Yes	6,714 (59.9%)	135 (2.0%)		36 (0.5%)	
Proximal lesion			<0.01 ^c		<0.01 ^c

No	6,038 (53.9%)	91 (1.5%)		13 (0.2%)	
Yes	5,168 (46.1%)	159 (3.1%)		41 (0.8%)	
Bowel cleansing quality ^a			0.74 ^c		0.69 ^c
Good	8,001 (71.4%)	176 (2.2%)		40 (0.5%)	
Acceptable	2,189 (19.5%)	48 (2.2%)		8 (0.4%)	
Partly poor	639 (5.7%)	13 (2.0%)		3 (0.5%)	
Poor	188 (1.7%)	6 (3.2%)		1 (0.5%)	
Coronary heart disease ^b			<0.01 ^c		<0.01 ^c
No	9,506 (84.8%)	191 (2.0%)		38 (0.4%)	
Yes	1,505 (13.4%)	52 (3.5%)		15 (1.0%)	
Cerebrovascular disease ^b			0.26 ^c		0.15 ^c
No	10,455 (93.3%)	227 (2.2%)		48 (0.5%)	
Yes	556 (5.0%)	16 (2.9%)		5 (0.9%)	
Diabetes ^b			0.25 ^c		0.42 ^c
No	10,103 (90.2%)	217 (2.1%)		47 (0.5%)	
Yes	908 (8.1%)	26 (2.9%)		6 (0.7%)	
Antiplatelet ^b			0.06 ^c		0.31 ^c
No	8,726 (77.9%)	181 (2.1%)		39 (0.4%)	
Yes	2,285 (20.4%)	62 (2.7%)		14 (0.6%)	
Anticoagulant ^b			<0.01 ^c		<0.01 ^c
No	9,968 (89.0%)	205 (2.1%)		39 (0.4%)	
Yes	1,043 (9.3%)	38 (3.6%)		14 (1.3%)	

^a Missing value for each variable: 189

^b Missing value for each variable: 195

^c Univariable logistic regression clustered on individual level

Supplementary Table S3. Severity of diagnoses possible, probable, or definite attributed to the colonoscopy.

	Mild	Moderate	Severe	Fatal	Total	Events per person (‰)
	N=188	N=50	N=3	N=1	N=242	N=10 244
Cardiovascular					9	0.9
Arrythmia	2	0	0	0		
Arrest	0	0	0	1		
Myocardial infarction	0	1	0	0		
Cerebrovascular event	1	1	1	0		
Other cardiovascular	2	0	0	0		
Pulmonary					1	0.1
Hypoxia	1	0	0	0		
Thromboembolic					1	0.1
Pulmonary embolus	1	0	0	0		
Instrumental					8	0.8
Perforation	4	3	1	0		
Bleeding					88	8.6
Lower GI bleeding	48	40	0	0		
Infection					6	0.6
Urinary tract infection	0	1	0	0		
Fever other known cause	0	1	1	0		
Fever unknown cause	3	0	0	0		
Drug reactions					3	0.3
Side effects	3	0	0	0		
Pain					71	6.9
Postpolypectomy syndrome	18	2	0	0		
Abdominal pain	49	0	0	0		
Nonabdominal pain	1	0	0	0		
Chest pain	1	0	0	0		
Other					55	5.4
Electrolyte imbalance or dehydration	3	1	0	0		
Vasovagal reaction	40	0	0	0		
Constipation	1	0	0	0		
Nausea	7	0	0	0		
Other not specified	3	0	0	0		

GI: Gastrointestinal.

Supplementary Table S4. Multivariable logistic regression models of risk factors for adverse events.

One model for any adverse event and one model for moderate, severe, or fatal adverse event.

Complete-case analysis (n = 10,071).

Outcome	Any adverse event	Moderate, severe, or fatal adverse event
Variable Category	Odds ratio (95% CI)	Odds ratio (95% CI)
Age		
50-55 years	Reference	Reference
Every five-year increase	1.15 (1.03 - 1.29)	1.31 (1.03 - 1.67)
Sex		
Male	Reference	
Female	1.60 (1.22 - 2.11)	
Screening centre		
1	Reference	Reference
2	1.34 (1.03 - 1.76)	1.76 (0.99 - 3.11)
Number of polypectomies		
No polypectomy	Reference	Reference
Every additional polypectomy	1.06 (1.03 - 1.09)	1.04 (1.01 - 1.07)
Maximum diameter of removed lesion		
No lesion removed	Reference	Reference
Every five mm increase	1.29 (1.22 - 1.38)	1.35 (1.23 - 1.49)
Serrated lesion		
No	Reference	
Yes	1.22 (0.91 - 1.63)	
Adenocarcinoma		
No	Reference	
Yes	1.59 (0.98 - 2.58)	
Proximal lesion		
No	Reference	Reference
Yes	1.68 (1.21 - 2.32)	2.35 (1.17 - 4.70)
Coronary heart disease		
No	Reference	
Yes	1.43 (0.96 - 2.11)	
Antiplatelet therapy		
No	Reference	Reference
Yes	1.38 (0.99 - 1.94)	1.52 (0.80 - 2.87)
Anticoagulant therapy		
No	Reference	Reference
Yes	1.87 (1.21 - 2.88)	3.73 (1.92 - 7.22)

Covariates selected after backward stepwise selection approach for any adverse event and Moderate, severe, or fatal adverse event.

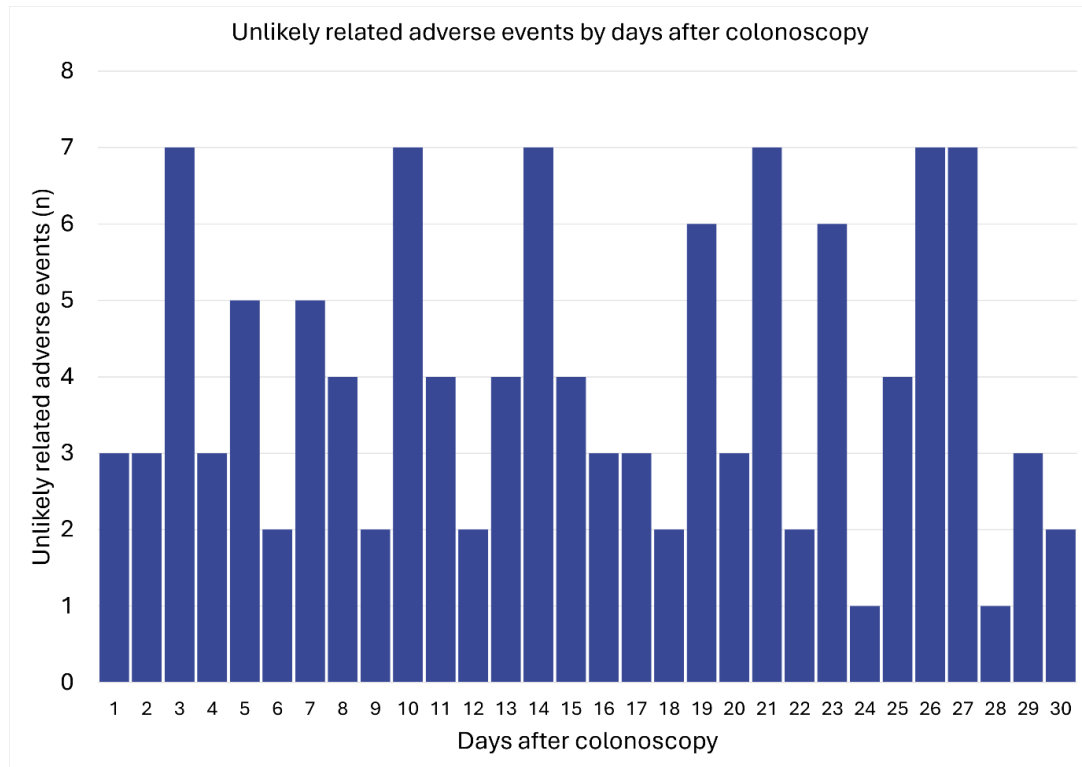
Supplementary Table S5. Baseline characteristics by centre per colonoscopy.

	Total N=11,206	Centre 1 N=5,996	Centre 2 N=5,210	p-value^a
Age				<0.01
50-55	924 (8.2%)	436 (7.3%)	488 (9.4%)	
56-60	2,138 (19.1%)	1,096 (18.3%)	1,042 (20.0%)	
61-65	2,404 (21.5%)	1,309 (21.8%)	1,095 (21.0%)	
66-70	2,906 (25.9%)	1,672 (27.9%)	1,234 (23.7%)	
>70	2,834 (25.3%)	1,483 (24.7%)	1,351 (25.9%)	
Sex				0.03
Female	4,710 (42.0%)	2,577 (43.0%)	2,133 (40.9%)	
Male	6,496 (58.0%)	3,419 (57.0%)	3,077 (59.1%)	
Screening group				<0.01
FIT	7,564 (67.5%)	4,179 (69.7%)	3,385 (65.0%)	
Sigmoidoscopy	3,642 (32.5%)	1,817 (30.3%)	1,825 (35.0%)	
Polypectomies per colonoscopy, n				<0.01
0	3,986 (35.6%)	2,233 (37.2%)	1,753 (33.6%)	
1	2,849 (25.4%)	1,526 (25.5%)	1,323 (25.4%)	
2	1,729 (15.4%)	885 (14.8%)	844 (16.2%)	
3	984 (8.8%)	496 (8.3%)	488 (9.4%)	
4	582 (5.2%)	285 (4.8%)	297 (5.7%)	
≥5	1,076 (9.6%)	571 (9.5%)	505 (9.7%)	
Max diameter of removed lesion, mm				<0.01
No lesion removed	2,900 (25.9%)	1,667 (27.8%)	1,233 (23.7%)	
1-5 mm	2,709 (24.2%)	1,435 (23.9%)	1,274 (24.5%)	
6-10 mm	2,871 (25.6%)	1,557 (26.0%)	1,314 (25.2%)	
11-20 mm	2,164 (19.3%)	1,084 (18.1%)	1,080 (20.7%)	
>20 mm	562 (5.0%)	253 (4.2%)	309 (5.9%)	
Clip for periprocedural bleeding				0.33
No	10,666 (95.2%)	5,696 (95.0%)	4,970 (95.4%)	
Yes	540 (4.8%)	300 (5.0%)	240 (4.6%)	
Serrated lesion				<0.01
No	7,314 (65.3%)	4,108 (68.5%)	3,206 (61.5%)	
Yes	3,892 (34.7%)	1,888 (31.5%)	2,004 (38.5%)	
Adenoma				<0.01
No	4,243 (37.9%)	2,345 (39.1%)	1,898 (36.4%)	
Yes	6,963 (62.1%)	3,651 (60.9%)	3,312 (63.6%)	
Adenocarcinoma				0.24
No	10,716 (95.6%)	5,721 (95.4%)	4,995 (95.9%)	
Yes	490 (4.4%)	275 (4.6%)	215 (4.1%)	
Distal lesion				<0.01
No	4,492 (40.1%)	2,499 (41.7%)	1,993 (38.3%)	
Yes	6,714 (59.9%)	3,497 (58.3%)	3,217 (61.7%)	
Proximal lesion				<0.01
No	6,038 (53.9%)	3,365 (56.1%)	2,673 (51.3%)	
Yes	5,168 (46.1%)	2,631 (43.9%)	2,537 (48.7%)	
Bowel cleansing quality				<0.01
Good	8,001 (71.4%)	4,121 (68.7%)	3,880 (74.5%)	
Acceptable	2,189 (19.5%)	1,225 (20.4%)	964 (18.5%)	
Partly poor	639 (5.7%)	422 (7.0%)	217 (4.2%)	
Poor	188 (1.7%)	101 (1.7%)	87 (1.7%)	

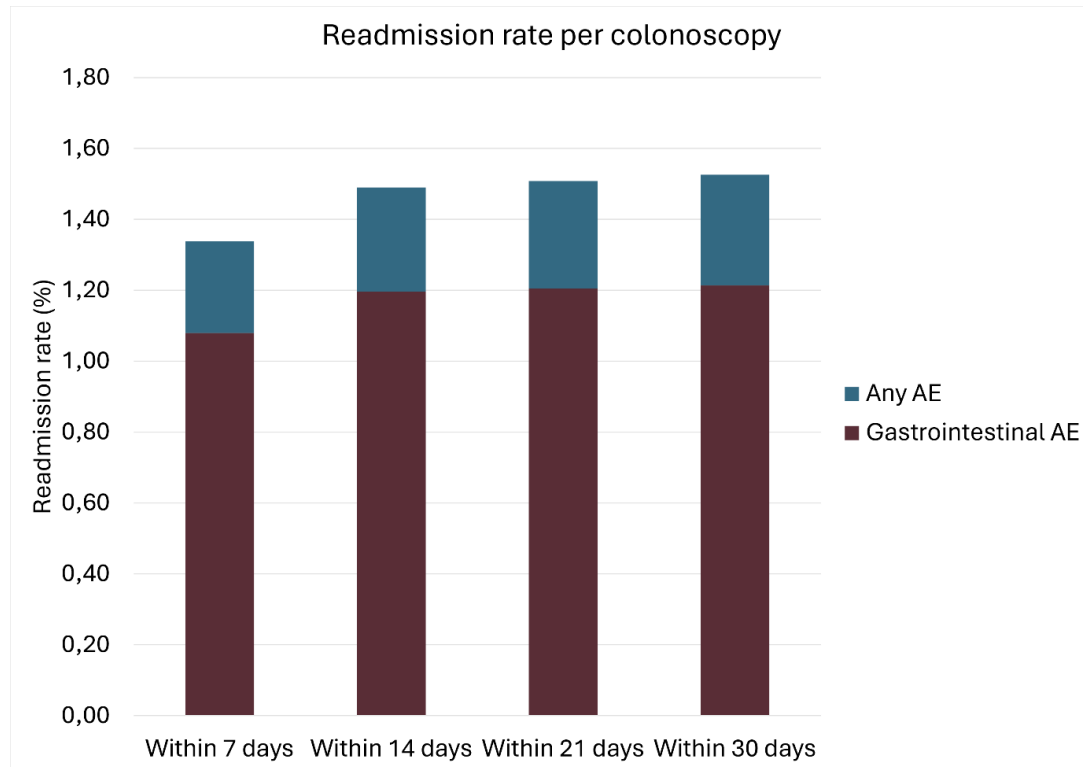
Missing	189 (1.7%)	127 (2.1%)	62 (1.2%)	
Coronary heart disease				0.35
No	9,506 (84.8%)	5,106 (85.2%)	4,400 (84.5%)	
Yes	1,505 (13.4%)	789 (13.2%)	716 (13.7%)	
Missing	195 (1.7%)	101 (1.7%)	94 (1.8%)	
Cerebrovascular disease				<0.01
No	10,455 (93.3%)	5,525 (92.1%)	4,930 (94.6%)	
Yes	556 (5.0%)	370 (6.2%)	186 (3.6%)	
Missing	195 (1.7%)	101 (1.7%)	94 (1.8%)	
Diabetes				<0.01
No	10,103 (90.2%)	5,302 (88.4%)	4,801 (92.1%)	
Yes	908 (8.1%)	593 (9.9%)	315 (6.0%)	
Missing	195 (1.7%)	101 (1.7%)	94 (1.8%)	
Antiplatelet				<0.01
No	8,726 (77.9%)	4,546 (75.8%)	4,180 (80.2%)	
Yes	2,285 (20.4%)	1,349 (22.5%)	936 (18.0%)	
Missing	195 (1.7%)	101 (1.7%)	94 (1.8%)	
Anticoagulant				0.88
No	9,968 (89.0%)	5,339 (89.0%)	4,629 (88.8%)	
Yes	1,043 (9.3%)	556 (9.3%)	487 (9.3%)	
Missing	195 (1.7%)	101 (1.7%)	94 (1.8%)	

^a Chi-square test.

Supplementary Figure S1: Adverse events unlikely attributed to the colonoscopy by days after colonoscopy.



Supplementary Figure S2: Admission rate 7, 14, 21, and 30 days after colonoscopy. AE: Adverse event.



Supplementary Figure S3: Adverse event rates by year of colonoscopy and screening centre.

