

**Supplemental Table 1.** Age-adjusted colorectal cancer incidence rates per 100,000 person-years by year since baseline colonoscopy

Years After Baseline Colonoscopy	Person-years	Colorectal Cancer Cases	Crude Rate*	Age-adjusted Incidence Rates* (95% CI)
<b>No Adenoma Group</b>				
Year 1	33856	4	11.8	11.4 (3.1, 19.7)
Year 2	42965	4	9.3	11.8 (3.2, 20.4)
Year 3	40971	13	31.7	28.9 (15.4, 42.4)
Year 4	39265	13	33.1	32.6 (17.3, 47.8)
Year 5	37747	9	23.8	22.0 (10.1, 34.0)
Year 6	36380	11	30.2	27.5 (13.7, 41.3)
Year 7	35048	11	31.4	30.7 (15.3, 46.1)
Year 8	28991	21	72.4	73.6 (45.5, 101.6)
Year 9	19914	12	60.3	58.9 (30.4, 87.4)
Year 10	12697	11	86.6	76.7 (38.3, 115.2)
≥11 years	10926	8	73.2	66.9 (28.9, 105.0)
Overall	338759	117	34.5	31.1 (25.7, 36.5)
<b>Low-Risk Adenoma Group</b>				
Year 1	8095	2	24.7	19.1 (2.3, 35.8)
Year 2	10255	2	19.5	19.3 (2.3, 36.2)
Year 3	9766	3	30.7	28.0 (5.8, 50.2)
Year 4	9351	10	107.0	108.7 (52.1, 165.3)
Year 5	8957	4	44.7	37.5 (10.2, 64.8)
Year 6	8616	5	58.0	50.5 (16.4, 84.6)
Year 7	8277	6	72.5	60.8 (22.3, 99.3)
Year 8	6634	2	30.2	21.8 (2.6, 41.0)
Year 9	4297	1	23.3	19.7 (0.5, 38.9)
Year 10	2563	1	39.0	35.1 (0.9, 69.4)
≥11 years	2010	1	49.7	48.0 (1.2, 94.7)
Overall	78820	37	46.9	38.8 (27.3, 50.2)
<b>High-Risk Adenoma Group</b>				
Year 1	5563	1	18.0	15.0 (0.4, 29.6)
Year 2	7025	11	156.6	122.9 (61.4, 184.5)
Year 3	6654	5	75.1	65.6 (21.3, 109.9)
Year 4	6340	8	126.2	109.5 (47.3, 171.8)
Year 5	6033	3	49.7	38.0 (7.8, 68.1)
Year 6	5770	13	225.3	209.7 (111.7, 307.8)
Year 7	5522	7	126.8	128.4 (51.6, 205.1)
Year 8	4465	3	67.2	106.6 (22.0, 191.3)
Year 9	2900	3	103.4	130.5 (26.9, 234.1)
Year 10	1612	3	186.1	217.7 (44.9, 390.5)
≥11 years	1211	3	247.7	194.7 (40.1, 349.2)
Overall	53095	60	113.0	90.8 (69.3, 112.4)

CI, confidence interval

\*Colorectal cancer cases per 100,000 persons screened

**Supplemental Table 2.** Cumulative colorectal cancer incidence and mortality by adenoma findings at the baseline colonoscopy

Years of Follow-up	No adenoma on baseline exam			Low-risk adenoma on baseline exam			High-risk adenoma on baseline exam		
	No. At Risk	No. of Cumulative Events	Cumulative Event Probability of A or B (%), (95% CI) <sup>a</sup>	No. At Risk	No. of Cumulative Events	Cumulative Event Probability of A or B (%), (95% CI) <sup>a</sup>	No. At Risk	No. of Cumulative Events	Cumulative Event Probability of A or B (%), (95% CI) <sup>a</sup>
<b>A. Colorectal cancer</b>									
0	45881	0	0.00 (0.00, 0.00)	10978	0	0.00 (0.00, 0.00)	7563	0	0.00 (0.00, 0.00)
1	44034	4	0.01 (0.00, 0.03)	10524	2	0.02 (0.00, 0.07)	7224	1	0.03 (0.01, 0.11)
2	41918	8	0.02 (0.01, 0.04)	9986	4	0.05 (0.02, 0.12)	6830	12	0.19 (0.11, 0.32)
3	40115	21	0.05 (0.03, 0.08)	9554	7	0.07 (0.03, 0.14)	6500	17	0.26 (0.16, 0.41)
4	38486	34	0.08 (0.06, 0.12)	9142	17	0.18 (0.11, 0.28)	6177	25	0.37 (0.25, 0.55)
5	37045	43	0.11 (0.08, 0.14)	8784	21	0.23 (0.15, 0.35)	5896	28	0.42 (0.29, 0.61)
6	35688	54	0.14 (0.11, 0.18)	8449	26	0.29 (0.20, 0.42)	5644	41	0.64 (0.47, 0.88)
7	34444	65	0.17 (0.13, 0.22)	8104	32	0.36 (0.26, 0.51)	5414	48	0.77 (0.58, 1.02)
8	23973	86	0.24 (0.20, 0.30)	5324	34	0.40 (0.28, 0.56)	3630	51	0.84 (0.64, 1.10)
9	16168	98	0.31 (0.25, 0.38)	3423	35	0.44 (0.31, 0.62)	2254	54	0.94 (0.71, 1.24)
10	9417	109	0.39 (0.32, 0.49)	1792	36	0.44 (0.31, 0.62)	1049	57	1.24 (0.90, 1.70)
11	4717	116	0.51 (0.40, 0.64)	853	36	0.57 (0.34, 0.97)	493	58	1.56 (0.97, 2.53)
12	1537	117	0.51 (0.40, 0.64)	281	37	0.57 (0.34, 0.97)	189	60	2.03 (1.13, 3.61)
13	341	117	0.51 (0.40, 0.64)	53	37	0.57 (0.34, 0.97)	44	60	2.03 (1.13, 3.61)
14	0	117	0.51 (0.40, 0.64)	0	37	0.57 (0.34, 0.97)	0	60	2.03 (1.13, 3.61)
<b>B. Colorectal cancer mortality</b>									
0	45881	0	0.00 (0.00, 0.00)	10978	0	0.00 (0.00, 0.00)	7563	0	0.00 (0.00, 0.00)
1	44036	2	0.00 (0.00, 0.02)	10525	0	0.00 (0.00, 0.00)	7225	0	0.01 (0.00, 0.10)
2	41924	3	0.01 (0.00, 0.02)	9989	0	0.01 (0.00, 0.07)	6840	2	0.04 (0.01, 0.13)
3	40131	4	0.01 (0.00, 0.03)	9561	0	0.01 (0.00, 0.07)	6514	3	0.06 (0.02, 0.16)
4	38508	10	0.02 (0.01, 0.05)	9156	1	0.01 (0.00, 0.07)	6196	4	0.08 (0.03, 0.18)
5	37072	12	0.03 (0.02, 0.05)	8799	1	0.02 (0.01, 0.09)	5915	6	0.09 (0.04, 0.20)
6	35721	14	0.04 (0.02, 0.06)	8468	2	0.03 (0.01, 0.11)	5674	8	0.13 (0.06, 0.25)
7	34481	19	0.05 (0.03, 0.08)	8127	3	0.03 (0.01, 0.11)	5448	8	0.15 (0.08, 0.28)
8	24010	19	0.05 (0.03, 0.08)	5340	3	0.03 (0.01, 0.11)	3655	10	0.20 (0.11, 0.37)
9	16200	21	0.06 (0.04, 0.09)	3433	3	0.03 (0.01, 0.11)	2273	11	0.25 (0.13, 0.47)
10	9439	21	0.07 (0.04, 0.12)	1799	3	0.03 (0.01, 0.11)	1057	12	0.25 (0.13, 0.47)
11	4729	22	0.07 (0.04, 0.12)	856	3	0.03 (0.01, 0.11)	497	12	0.55 (0.18, 1.69)
12	1540	22	0.07 (0.04, 0.12)	282	3	0.03 (0.01, 0.11)	191	13	0.55 (0.18, 1.69)
13	342	22	0.07 (0.04, 0.12)	54	3	0.03 (0.01, 0.11)	45	13	0.55 (0.18, 1.69)
14	0	22	0.07 (0.04, 0.12)	0	3	0.03 (0.01, 0.11)	0	13	0.55 (0.18, 1.69)

No, Number; CI, confidence interval; <sup>a</sup>Cumulative event probability was calculated using Kaplan-Meier analysis

**Supplemental Table 3.** Risk of colorectal cancer after low- and high-risk adenoma removal compared to no adenoma by age, sex, race/ethnicity, adenoma detection rate, baseline exam indication, and baseline body mass index: stratified analyses

Strata	Colorectal Cancer Incidence			
	Low-Risk Adenoma		High-Risk Adenoma	
	Hazard Ratio (95% CI)	P-value*	Hazard Ratio (95% CI)	P-value*
Age, years		0.46		0.97
50-64	1.28 (0.72, 2.28)		3.13 (1.92, 5.11)	
65-75	1.30 (0.79, 2.14)		2.27 (1.45, 3.56)	
Sex		0.52		0.91
Male	1.15 (0.66, 1.98)		2.71 (1.73, 4.26)	
Female	1.46 (0.87, 2.45)		2.47 (1.51, 4.02)	
Race		0.38		0.94
Black	2.08 (0.61, 7.12)		2.46 (0.75, 8.03)	
Non-Black	1.24 (0.83, 1.84)		2.65 (1.88, 3.75)	
Body mass index, kg/m <sup>2</sup>		0.39		0.31
<25	1.79 (0.92, 3.48)		3.61 (1.97, 6.62)	
≥25	1.13 (0.72, 1.79)		2.29 (1.54, 3.39)	
Examination indication		0.62		0.84
Screening	1.10 (0.45, 2.66)		2.86 (1.23, 6.66)	
FIT-positive	1.68 (1.00, 2.84)		1.99 (1.22, 3.23)	
Non-screening	0.81 (0.38, 1.72)		3.82 (2.30, 6.36)	
Adenoma detection rate, %		0.47		0.37
<25	1.15 (0.71, 1.87)		2.23 (1.47, 3.39)	
≥25	1.71 (0.93, 3.15)		3.85 (2.21, 6.72)	

CI, confidence Interval; FIT, fecal immunochemical test

\*P-value for interaction

**Supplemental Table 4.** Subsequent colonoscopy utilization and yield by baseline colonoscopy findings

Years of Follow-up	No adenoma on baseline exam			Low-risk adenoma on baseline exam			High-risk adenoma on baseline exam		
	No. At Risk	No. of Cumulative Events	Cumulative Event Probability of A, B, or C (%), (95% CI) <sup>b</sup>	No. At Risk	No. of Cumulative Events	Cumulative Event Probability of A, B, or C (%), (95% CI) <sup>b</sup>	No. At Risk	No. of Cumulative Events	Cumulative Event Probability of A, B, or C (%), (95% CI) <sup>b</sup>
A. Subsequent colonoscopy by years of follow-up (among individuals who had a baseline exam finding of high-risk adenoma, low-risk adenoma, no adenoma)									
2	41102	1	0.00 (0.00 - 0.02 )	9710	1	0.01 (0.00 - 0.07 )	5897	4	0.07 (0.03 - 0.18 )
3	38801	563	1.40 (1.29 - 1.52 )	9129	183	1.93 (1.68 - 2.23 )	5151	470	8.25 (7.56 - 8.99 )
4	36563	1258	3.21 (3.04 - 3.39 )	8328	597	6.47 (5.98 - 6.99 )	3621	1772	31.90 (30.69 - 33.15)
5	34325	2175	5.69 (5.46 - 5.92 )	7329	1298	14.54 (13.82 - 15.29)	2899	2329	42.68 (41.37 - 44.01)
6	31864	3443	9.23 (8.94 - 9.53 )	4909	3485	40.46 (39.43 - 41.51)	1929	3185	59.99 (58.65 - 61.33)
7	29924	4334	11.81 (11.48 - 12.15)	3978	4225	49.62 (48.55 - 50.69)	1486	3539	67.51 (66.21 - 68.80)
8	19972	4956	14.00 (13.64 - 14.37)	2287	4483	53.60 (52.51 - 54.70)	941	3642	70.18 (68.88 - 71.46)
9	12798	5383	16.25 (15.84 - 16.67)	1368	4590	56.27 (55.13 - 57.42)	544	3682	71.76 (70.44 - 73.07)
10	6870	5777	19.77 (19.25 - 20.31)	654	4644	58.78 (57.52 - 60.05)	261	3694	72.67 (71.29 - 74.03)
B. Any adenoma removal by years of follow-up (among those who underwent a subsequent colonoscopy)									
2	6152	1	0.02 (0.00 - 0.12 )	4670	1	0.02 (0.00 - 0.15 )	3698	2	0.05 (0.01 - 0.22 )
3	6038	104	1.69 (1.40 - 2.05 )	4589	82	1.76 (1.42 - 2.18 )	3462	234	6.33 (5.59 - 7.17 )
4	5845	258	4.21 (3.73 - 4.74 )	4398	262	5.62 (4.99 - 6.31 )	2699	961	26.09 (24.70 - 27.54)
5	5556	496	8.13 (7.47 - 8.84 )	4061	584	12.54 (11.62 - 13.53)	2337	1295	35.30 (33.78 - 36.87)
6	5046	905	14.95 (14.08 - 15.87)	2875	1728	37.30 (35.92 - 38.71)	1767	1816	49.86 (48.24 - 51.50)
7	4653	1172	19.51 (18.53 - 20.54)	2398	2132	46.21 (44.78 - 47.67)	1496	2040	56.29 (54.67 - 57.92)
8	3768	1386	23.49 (22.43 - 24.60)	1665	2276	49.84 (48.39 - 51.31)	1010	2104	58.50 (56.87 - 60.13)
9	2976	1535	26.78 (25.64 - 27.96)	1112	2333	51.88 (50.39 - 53.39)	676	2129	59.75 (58.10 - 61.40)
10	2046	1691	31.33 (30.06 - 32.65)	638	2370	53.93 (52.36 - 55.52)	328	2136	60.39 (58.70 - 62.09)
C. Advanced adenoma <sup>a</sup> removal by years of follow-up (among those who underwent a subsequent colonoscopy)									
2	6152	1	0.02 (0.00 - 0.12 )	4670	1	0.02 (0.00 - 0.15 )	3698	1	0.03 (0.00 - 0.19 )
3	6122	16	0.26 (0.16 - 0.42 )	4657	12	0.26 (0.15 - 0.45 )	3639	53	1.43 (1.10 - 1.87 )
4	6050	43	0.70 (0.52 - 0.94 )	4618	35	0.75 (0.54 - 1.04 )	3439	202	5.49 (4.80 - 6.27 )
5	5961	64	1.05 (0.82 - 1.34 )	4539	76	1.64 (1.31 - 2.04 )	3301	275	7.52 (6.71 - 8.42 )
6	5796	105	1.74 (1.44 - 2.10 )	4345	187	4.06 (3.53 - 4.67 )	3104	379	10.46 (9.51 - 11.50)
7	5598	137	2.29 (1.94 - 2.70 )	4167	231	5.04 (4.45 - 5.72 )	2946	443	12.33 (11.30 - 13.45)
8	4629	161	2.75 (2.36 - 3.20 )	2944	245	5.44 (4.81 - 6.15 )	1911	458	12.88 (11.81 - 14.03)
9	3674	187	3.35 (2.90 - 3.86 )	1936	254	5.80 (5.13 - 6.54 )	1288	463	13.16 (12.08 - 14.34)
10	2643	205	3.94 (3.43 - 4.52 )	1065	263	6.42 (5.66 - 7.29 )	642	464	13.30 (12.19 - 14.51)

No, Number; CI, confidence interval; <sup>a</sup>Advanced adenoma defined as any conventional adenoma with high-grade dysplasia or villous component; or any conventional adenoma  $\geq 10$  mm in size; <sup>b</sup>Cumulative event probability was calculated using Kaplan-Meier analysis

Supplemental Figure 1. Algorithm to classify high- and low-risk adenomas using a combination of natural language processing and SNOMED pathology codes

Supplemental Figure 2. Cumulative mortality from colorectal cancer by adenoma findings at the baseline colonoscopy

Supplemental Table 1. Age-adjusted colorectal cancer incidence rates per 100,000 by year since colonoscopy

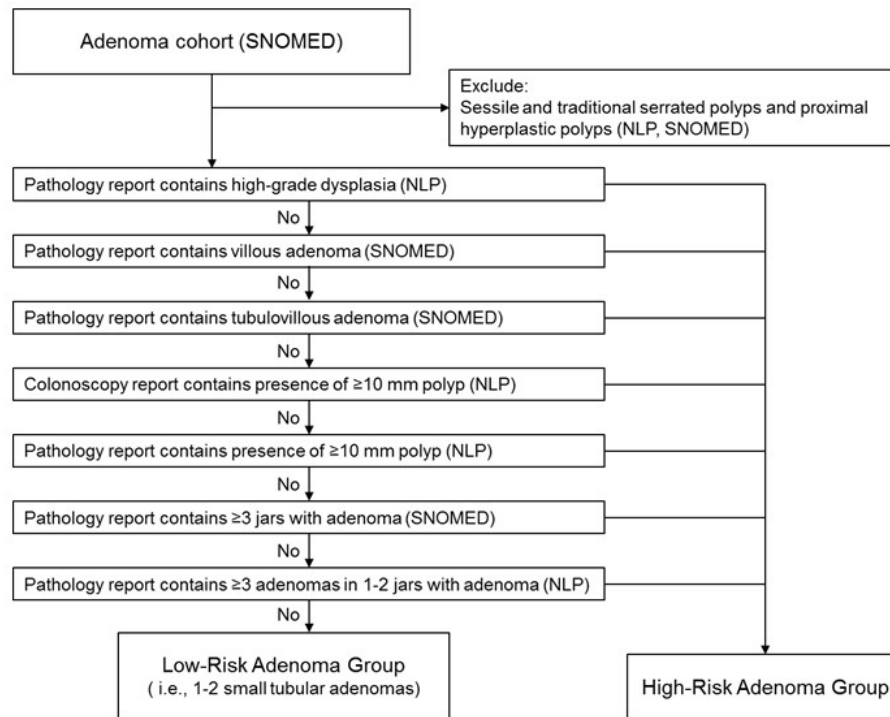
Supplemental Table 2. Cumulative colorectal cancer incidence and mortality by adenoma findings at the baseline colonoscopy

Supplemental Table 3. Risk of colorectal cancer after low- and high-risk adenoma removal compared to no adenoma by age, sex, race/ethnicity, adenoma detection rate, exam indication, and body mass index: stratified analyses

Supplemental Table 4. Subsequent colonoscopy utilization and yield by baseline colonoscopy findings

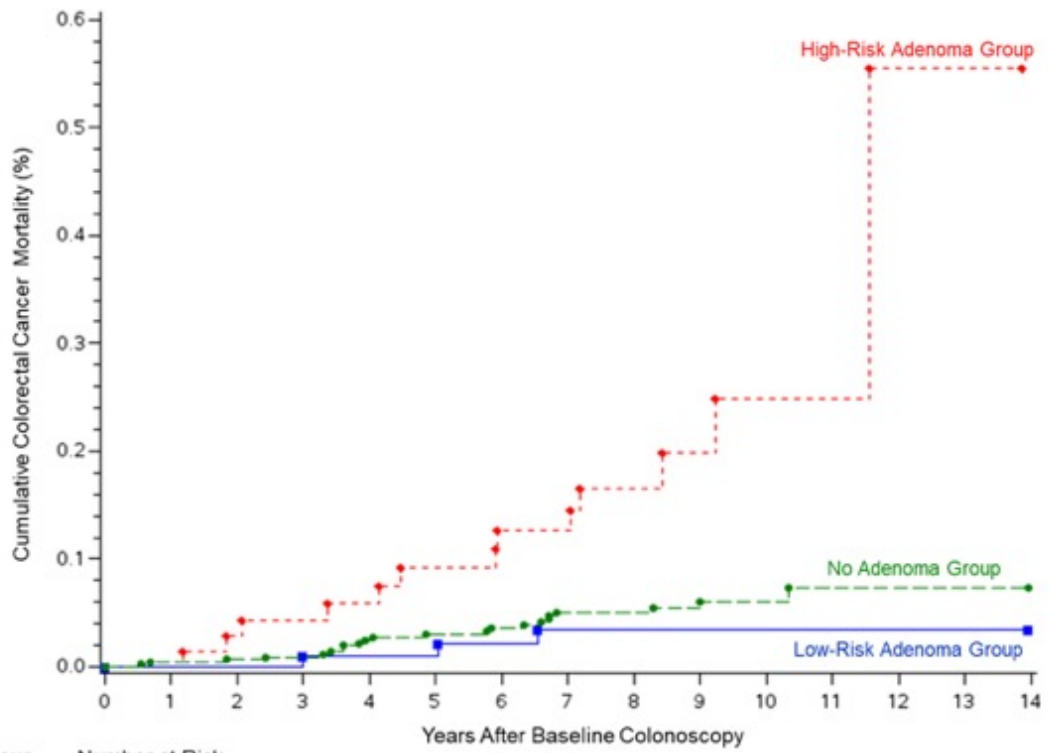
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**Supplemental Figure 1.** Algorithm to classify low- and high-risk adenomas using a combination of natural language processing (NLP) and SNOMED pathology codes



SNOMED: Systematized Nomenclature of Medicine codes; NLP: natural language processing

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Group	Number at Risk							
No Adenoma	45881	41924	38508	35721	24010	9439	1540	0
Low-Risk Adenoma	10978	9989	9156	8468	5340	1799	282	0
High-Risk Adenoma	7563	6840	6196	5674	3655	1057	191	0

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