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Supplementary appendix

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Supplementary materials

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1. Supplementary Methods

1. Tables

Table S1 Overview of model assumptions and characteristics of the simulated screening programs.

	MISCAN-Colon	ASCCA	Policy1-Bowel	OncoSim
General model platform				
Model type	Microsimulation model	Microsimulation model	Microsimulation model	Microsimulation model
Simulation time step	Continuous time	Annual	Annual	Annual
Minimum age of a simulated individual, years	0	20	20	15
Maximum age of a simulated individual, years	100	90	100	100
Natural history assumptions				
CRC development pathway	All CRC develops through the adenoma-carcinoma pathway	Assumes 85% of CRC develops via the adenoma-carcinoma pathway and the remaining 15% develops via the serrated pathway	Assumes 85% of CRC develops via the adenoma-carcinoma pathway and the remaining 15% develops via the serrated pathway	All CRC develops through the adenoma-carcinoma pathway
Screening and diagnostic-follow-up assumptions				
Modelled country/area	The Netherlands	The Netherlands	Australia	Canada
Screening test	FIT (FOB gold, cut-off 47 µg Hb/g feces)	FIT (FOB gold, cut-off 47 µg Hb/g feces)	FIT (Magstream HemSp, cut-off 20 µg Hb/g feces)	FIT (Polymedco and Alfresa Pharma, cut-off 20 µg Hb/g feces)
<i>Screening test characteristics (per person)</i>				
Specificity, %	93.8%; 97.6% ^{a, b}	96.0%; 97.3% ^{a, e}	94.8% ^f	96.0%
Sensitivity for adenoma 1-5 mm, %	0.0%; 0.0% ^{a, b}	0.3%; 0.4% ^{a, e}	15.2%	4.0%
Sensitivity for adenoma 6-9 mm, %	11.7%; 52.0% ^{a, b}	6.1%; 21.3% ^{a, e}	30.2%	10.0%
Sensitivity for adenoma ≥ 10 mm, %	47.5%; 94.6% ^{a, b}	31.7%; 38.9% ^{a, e}	41.5%	30.0%
Sensitivity for CRC, %	30.3%; 30.4% ^{a, b, c, d} 66.6%; 66.2% ^{a, b, c, d}	50% ^{c, d} 85% ^{c, d}	58.6%	75.0%
Screening interval	Biennial	Biennial	Biennial	Biennial
Screening age range, years	55-75 years	55-75 years	50-74 years	50-74 years
Screening program history prior to 2020 included in the simulation	The model incorporates the phased implementation of the Dutch CRC Screening Program in 2014–19 and the fully implemented biennial FIT screening program for 55–75 years from 2020 onwards.	The model incorporates the phased implementation of the Dutch CRC Screening Program in 2014–19 and the fully implemented biennial FIT screening program for 55–75 years from 2020 onwards.	The model incorporates the phased implementation of the Australian NBCSP in 2006–19 and the fully implemented biennial FIT screening program for 50–74 years from 2020 onwards.	Screening programs were introduced at different time points across Canada. The simulated scenario assumed that CRC screening program was introduced in Canada in 2008.

Screening participation rate, %	~73%	~73%	~41%	42.3%
1 st round	~73% participation rate when individuals receive their 1 st screening invitation, with the rate varying by age. Of those who did not take part at prior invitation, the participation rate at the next invitation round was assumed to be ~17%, rate vary by age. The assumptions were based on participation rates observed in the Dutch CRC screening program in 2014-2019. ¹	~73% participation rate when individuals receive their 1 st screening invitation, with the rate varying by age. Of those who did not take part at prior invitation, the participation rate at the next invitation round was assumed to be ~17%, rate vary by age. The assumptions were based on participation rates observed in the Dutch CRC screening program in 2014-2019. ¹	25-49% participation rate when individuals receive their 1 st screening invitation, with variation by sex and age. Of those who did not take part at the 1 st invitation, the participation rate at the 2 nd invitation round was assumed to be ~60% of the participation rate modelled for the 1 st invitation. Of those who did not take part at the 1 st and 2 nd invitation, the participation rate modelled for the subsequent invitation rounds was assumed to be ~60% of the participation rate used for the 2 nd invitation. The assumptions were based on participation rates observed in the NBCSP in 2006-2017.	Participation of 53% to first invitation. 80% adherence to subsequent screening.
Re-screening rate	93.4% ²	93%	~70% (modelled rates vary by age and sex)	80%
Follow-up colonoscopy compliance rate, %	~83%	82%	~71% (modelled rates vary by age and sex)	85%
<i>Colonoscopy test characteristics (per lesion within reach)</i>				
Specificity, %	100% ³	100%	79% ^{3,4}	100%
Sensitivity for adenoma 1-5 mm, %	75% ³	74%	85% ^{3,4}	75%
Sensitivity for adenoma 6-9 mm, %	85% ³	87%	92% ^{3,4}	85%
Sensitivity for adenoma >= 10 mm, %	95% ³	98%	78% ^{3,4}	95%
Sensitivity for CRC, %	95% ³	95%	95% ^{3,4}	95%
Reach, %	96%	100%	100%	100%
Rate of adverse events, %	0.24%	0.29%	0.27%	Perforation = 0.17% Haemorrhage = 0.03%
Colonoscopy surveillance	Colonoscopy surveillance was modelled based on the individual's colonoscopy outcome and the Dutch surveillance guideline recommendations. The compliance to colonoscopy surveillance was assumed to be 80%. Colonoscopy surveillance was assumed to cease at 75 years.	Colonoscopy surveillance was modelled based on the individual's colonoscopy outcome and the Dutch surveillance guideline recommendations. The compliance to colonoscopy surveillance was assumed to be 82%. Colonoscopy surveillance was assumed to cease at 75 years.	Colonoscopy surveillance was modelled based on the individual's colonoscopy outcome and the Australian surveillance guideline recommendations. The compliance to colonoscopy surveillance was assumed to be 80%. Colonoscopy surveillance was assumed to cease at 75 years.	Based on Canadian surveillance guideline recommendations. Compliance to colonoscopy surveillance was assumed to be 80%. Surveillance was assumed to cease at 75 years.

Abbreviations: CRC, Colorectal Cancer; FIT, Faecal Immunochemical Test; NBCSP, National Bowel Cancer Screening Program.

- a. During the first half of 2014, the cut-off value was set at 15 µg/g feces but this was increased to 47 µg/g from the second half of 2014 onwards. (15;47).¹
- b. Test characteristics for FIT used in the MISCAN-Colon model are age-specific.
- c. We assume different sensitivity for CRC; early preclinical CRC/late preclinical CRC.
- d. It was assumed that the probability a CRC bleeds and thus the sensitivity of a FIT for CRC depends on the time until clinical diagnosis.
- e. Test characteristics for FIT used in ASCCA are sex-specific.
- f. Specificity and sensitivity for Policy1-Bowel is for the combined result of the two-sample FIT test.

Table S2 Overview of additional disruption scenarios

Scenario Months disruption, catch-up, recovery period	Disruption period	Catch-up	Participation with primary screening during recovery period	Participation with diagnostic FU during recovery period
<i>Reduced participation during recovery period</i>				
3 months -50% and 3 months -25% in primary screening	6 months pause to screening from April 2020 to September 2020, inclusive	No catch-up screening	Participation reduced relatively by 50% first 3 months and 25% in second 3 months	No changes
12 months -50% in primary screening	6 months pause to screening from April 2020 to September 2020, inclusive	No catch-up screening	Participation reduced relatively by 50% for 12 months from October 2020 to September 2021, inclusive	No changes
<i>Varying length of disruption and reduced participation during recovery period</i>				
No disruption, 6 months -50% in primary screening	No disruption – 0 months pause	No catch-up screening	Participation reduced relatively by 50% for 6 months	No changes
No disruption, 6 months -50%	No disruption – 0 months pause	No catch-up screening	Participation reduced relatively by 50% for 6 months	Participation reduced relatively by 50% for 6 months
3 months disruption, 6 months -50%	3 months pause to screening from April 2020 to June 2020, inclusive	No catch-up screening	Participation reduced relatively by 50% for 6 months	Participation reduced relatively by 50% for 6 months
<i>Reduced participation during recovery period including catch-up screening</i>				
Immediate catch-up and -50%	6 months pause to screening from April 2020 to September 2020, inclusive	Catch-up screening at 50% of usual participation rates over the 6 months following disruption	Participation reduced relatively by 50% for 6 months	Participation reduced relatively by 50% for 6 months

Abbreviations: FU, Follow-up.

2. Supplementary Results

1. Tables

Table S3 Outcomes for disruption scenarios vs the comparator for the MISCAN-Colon model.

Disruption length Recovery period participation decrease Catch-up screening	Period	Comparator	6 months	3 months	12 months	6 months	6 months	6 months	6 months
			None	None	None	3 months -50% and 3 months -25%	6 months -50%	None	None
			None	None	None	None	None	None	None
								Immediate	Delayed
Individuals eligible in primary screening	2020	2,216,024	-1,107,932 (-50.0%)	-556,344 (-25.0%)	-1,661,878 (-75.0%)	-1,107,763 (-50.0%)	-1,107,780 (-50.0%)	-557,283 (-25.1%)	-1,046,359 (-47.2%)
	2021	2,322,003	+55 (0.0%)	+15 (0.0%)	-580,428 (-25.0%)	+281 (0.0%)	-138 (0.0%)	+550,827 (+23.7%)	+1,339 (+0.1%)
Individuals participating in primary screening	2020	1,601,057	-800,471 (-50.0%)	-400,220 (-25.0%)	-1,200,692 (-75.0%)	-1,000,526 (-62.5%)	-1,000,535 (-62.5%)	-402,632 (-25.1%)	-755,985 (-47.2%)
	2021	1,677,102	+40 (0.0%)	+11 (0.0%)	-419,223 (-25.0%)	-104,628 (-6.2%)	-209,725 (-12.5%)	+397,843 (+23.7%)	-967 (-0.1%)
Diagnostic colonoscopy follow-up	2020	49,349	-24,688 (-50.0%)	-12,342 (-25.0%)	-37,008 (-75.0%)	-35,471 (-71.9%)	-30,846 (-62.5%)	-12,074 (-24.5%)	-22,863 (-46.3%)
	2021	50,991	+12 (0.0%)	-2 (0.0%)	-12,737 (-25.0%)	-6,157 (-12.1%)	-6,374 (-12.5%)	+12,615 (+24.7%)	+1,685 (+3.3%)
CRC Stage 1 diagnoses	2020	3,402	-765 (-22.5%)	-378 (-11.1%)	-1,167 (-34.4%)	-1,066 (-31.3%)	-1,064 (-31.3%)	-333 (-9.8%)	-700 (-20.6%)
	2021	3,566	+70 (+2.0%)	+38 (+1.1%)	-276 (-7.7%)	-69 (-1.9%)	-190 (-5.3%)	+421 (+11.8%)	+159 (+4.5%)
	2022	3,529	+230 (+6.5%)	+117 (+3.3%)	+386 (+10.9%)	+359 (+10.2%)	+370 (+10.5%)	-44 (-1.2%)	+767 (+21.7%)
	2023	3,663	+1 (+0.0%)	-2 (-0.0%)	+109 (+3.0%)	+57 (+1.6%)	+101 (+2.8%)	-13 (-0.4%)	-106 (-2.9%)
	2024	3,671	+69 (+1.9%)	+32 (+0.9%)	+106 (+2.9%)	+97 (+2.7%)	+101 (+2.7%)	-4 (-0.1%)	-32 (-0.9%)
	2020-2050	119,328	-279 (-0.3%)	-104 (-0.1%)	-569 (-0.5%)	-430 (-0.4%)	-475 (-0.4%)	+20 (+0.0%)	+11 (0.0%)
CRC Stage 2 diagnoses	2020	3,452	-424 (-12.3%)	-207 (-6.0%)	-657 (-19.0%)	-600 (-17.4%)	-601 (-17.4%)	-168 (-4.9%)	-382 (-11.1%)
	2021	3,599	+97 (+2.7%)	+47 (+1.3%)	-45 (-1.3%)	+48 (+1.3%)	-7 (-0.2%)	+243 (+6.8%)	+157 (+4.4%)
	2022	3,588	+220 (+6.1%)	+104 (+2.9%)	+384 (+10.7%)	+347 (+9.7%)	+365 (+10.2%)	-32 (-0.9%)	+448 (+12.5%)
	2023	3,716	+29 (+0.8%)	+13 (+0.3%)	+143 (+3.9%)	+90 (+2.4%)	+127 (+3.4%)	-17 (-0.5%)	-79 (-2.1%)
	2024	3,750	+102 (+2.7%)	+50 (+1.3%)	+168 (+4.5%)	+145 (+3.9%)	+142 (+3.8%)	-8 (-0.2%)	-27 (-0.7%)
	2020-2050	126,478	+235 (+0.2%)	+105 (+0.1%)	+488 (+0.4%)	+335 (+0.2%)	+378 (+0.3%)	-31 (-0.0%)	-29 (0.0%)
CRC Stage 3 diagnoses	2020	3,498	-345 (-9.9%)	-166 (-4.8%)	-535 (-15.3%)	-486 (-13.9%)	-486 (-13.9%)	-130 (-3.7%)	-305 (-8.7%)
	2021	3,588	+123 (+3.4%)	+63 (+1.8%)	+38 (+1.1%)	+110 (+3.1%)	+61 (+1.7%)	+206 (+5.7%)	+172 (+4.8%)
	2022	3,608	+219 (+6.1%)	+109 (+3.0%)	+399 (+11.1%)	+356 (+9.9%)	+365 (+10.1%)	-36 (-1.0%)	+359 (+9.9%)
	2023	3,699	+36 (+1.0%)	+14 (+0.4%)	+162 (+4.4%)	+106 (+2.9%)	+138 (+3.7%)	-15 (-0.4%)	-76 (-2.1%)
	2024	3,746	+109 (+2.9%)	+52 (+1.4%)	+187 (+5.0%)	+155 (+4.1%)	+167 (+4.4%)	-12 (-0.3%)	-35 (-0.9%)
	2020-2050	125,483	+446 (+0.3%)	+238 (+0.2%)	+910 (+0.7%)	+684 (+0.5%)	+725 (+0.6%)	-14 (-0.0%)	-1 (0.0%)
CRC Stage 4 diagnoses	2020	2,160	-24 (-1.1%)	-7 (-0.3%)	-53 (-2.5%)	-46 (-2.1%)	-48 (-2.2%)	+5 (+0.2%)	-21 (-1.0%)
	2021	2,217	+73 (+3.3%)	+34 (+1.5%)	+118 (+5.3%)	+105 (+4.7%)	+105 (+4.7%)	+25 (+1.1%)	+67 (+3.0%)
	2022	2,252	+68 (+3.0%)	+33 (+1.5%)	+144 (+6.4%)	+117 (+5.2%)	+123 (+5.5%)	-13 (-0.6%)	+46 (+2.0%)
	2023	2,322	+36 (+1.6%)	+19 (+0.8%)	+136 (+6.1%)	+81 (+3.5%)	+57 (+2.5%)	-4 (-0.2%)	-25 (-1.1%)
	2024	2,358	+44 (+1.8%)	+20 (+0.8%)	+86 (+3.7%)	+66 (+2.8%)	+71 (+3.0%)	-1 (-0.0%)	-10 (-0.4%)
	2020-2050	80,407	+400 (+0.5%)	+176 (+0.2%)	+790 (+1.0%)	+557 (+0.7%)	+626 (+0.8%)	-11 (0.0%)	-47 (-0.1%)
Total CRC diagnoses	2020	12,512	-1,558 (-12.5%)	-759 (-6.1%)	-2,412 (-19.3%)	-2,198 (-17.6%)	-2,198 (-17.6%)	-626 (-5.0%)	-1,408 (-11.3%)
	2021	12,970	+363 (+2.8%)	+183 (+1.4%)	-166 (-1.3%)	+157 (+1.5%)	-31 (-0.2%)	+895 (+6.9%)	+555 (+4.3%)
	2022	12,977	+737 (+5.7%)	+362 (+2.8%)	+1,312 (+10.1%)	+1,178 (+9.1%)	+1,224 (+9.4%)	-125 (-1.0%)	+1,619 (+12.5%)
	2023	13,400	+103 (+0.8%)	44 (+0.3%)	+496 (+3.7%)	+311 (+2.3%)	+433 (+3.2%)	-50 (-0.4%)	-287 (-2.1%)
	2024	13,526	+323 (+2.4%)	+153 (+1.1%)	+548 (+4.0%)	+463 (+3.4%)	+481 (+3.6%)	-25 (-0.2%)	-104 (-0.8%)
	2020-2050	451,697	+803 (+0.2%)	+414 (+0.1%)	+1,619 (0.4%)	+1,147 (+0.2%)	+1,255 (+0.3%)	-36 (0.0%)	-67 (0.0%)
CRC deaths	2020-2050	169,016	+678 (+0.4%)	+324 (+0.2%)	+1,360 (0.8%)	+975 (+0.6%)	+609 (+0.6%)	-7 (0.0%)	-52 (0.0%)
LYs lost	2020-2050	-	7,894	3,909	15,528	11,531	12,618	377	461

Abbreviations: CRC, Colorectal Cancer; LYs, Life Years

Table S4 Outcomes for disruption scenarios vs the comparator for the ASCCA model.

Disruption length		6 months		3 months		12 months		6 months		6 months		6 months		6 months	
Recovery period participation decrease		None		None		None		3 months -50% and 3 months -25%		6 months -50%		None		None	
Catch-up screening		None		None		None		None		None		Immediate		Delayed	
	Period	Comparator													
Individuals eligible in primary screening	2020	2,164,781	-1,082,391 (-50.0%)	-541,195 (-25.0%)	-1,623,586 (-75.0%)	-1,082,409 (-50.0%)	-1,082,409 (-50.0%)	-541,195 (-25.0%)	-1,017,810 (-47.0%)						
	2021	2,149,991	0 (0.0%)	0 (0.0%)	-537,498 (-25.0%)	+373 (0.0%)	-21 (0.0%)	+535,161 (+24.9%)	+57,624 (+2.7%)						
Individuals participating in primary screening	2020	1,522,797	-761,398 (-50.0%)	-380,699 (-25.0%)	-1,142,098 (-75.0%)	-952,001 (-62.5%)	-952,001 (-62.5%)	-380,699 (-25.0%)	-716,071 (-47.0%)						
	2021	1,512,047	0 (0.0%)	0 (0.0%)	-378,012 (-25.0%)	-86,613 (-5.7%)	-189,270 (-12.5%)	+376,601 (+24.9%)	+40,907 (+2.7%)						
Diagnostic colonoscopy follow-up	2020	57,195	-28,597 (-50.0%)	-14,299 (-25.0%)	-42,896 (-75.0%)	-39,323 (-68.8%)	-39,323 (-68.8%)	-14,299 (-25.0%)	-26,980 (-47.2%)						
	2021	57,606	0 (0.0%)	0 (0.0%)	-14,402 (-25.0%)	-6,018 (-10.4%)	-10,804 (-18.8%)	+14,922 (+25.9%)	+2,542 (+4.4%)						
CRC Stage 1 diagnoses	2020	4,610	-1,148 (-24.9%)	-620 (-13.4%)	-1,676 (-36.4%)	-1,542 (-33.4%)	-1,543 (-33.5%)	-620 (-13.4%)	-1,099 (-23.8%)						
	2021	4,508	+79 (+1.8%)	+40 (+0.9%)	-406 (-9.0%)	-105 (-2.3%)	-285 (-6.3%)	+642 (+14.2%)	+273 (+6.1%)						
CRC Stage 2 diagnoses	2022	4,357	+376 (+8.6%)	+188 (4.3%)	+603 (+13.8%)	+543 (+12.5%)	+556 (+12.8%)	-66 (-1.5%)	1038 (23.8%)						
	2023	4,407	+23 (+0.5%)	+11 (0.3%)	+222 (+5.0%)	+117 (+2.6%)	+182 (+4.1%)	-8 (-0.2%)	-142 (-3.2%)						
	2024	4,306	+164 (+3.8%)	+82 (1.9%)	+257 (+6.0%)	+225 (+5.2%)	+228 (+5.3%)	-10 (-0.2%)	-35 (-0.8%)						
	2020-2050	133,611	+30 (+0.0%)	+15 (+0.0%)	+69 (+0.1%)	+84 (+0.1%)	+79 (+0.1%)	+5 (+0.0%)	+28 (+0.0%)						
	2020	3,597	-467 (-13.0%)	-234 (-6.5%)	-702 (-19.5%)	-641 (-17.8%)	-643 (-17.9%)	-232 (-6.5%)	-439 (-12.2%)						
	2021	3,561	+69 (+1.9%)	+35 (+1.0%)	-125 (-3.5%)	+3 (+0.1%)	-77 (-2.2%)	+322 (+9.0%)	+208 (+5.8%)						
	2022	3,475	+321 (+9.2%)	+160 (+4.6%)	+515 (+14.8%)	+462 (+13.3%)	+472 (+13.6%)	-27 (-0.8%)	+517 (+14.9%)						
	2023	3,481	+45 (+1.3%)	+23 (+0.7%)	+230 (+6.6%)	+133 (+3.8%)	+189 (+5.4%)	-6 (-0.2%)	-62 (-1.8%)						
	2024	3,441	+127 (+3.7%)	+63 (+1.8%)	+213 (+6.2%)	+180 (+5.2%)	+186 (+5.4%)	-12 (-0.4%)	-35 (-1.0%)						
	2020-2050	107,162	+520 (+0.5%)	+260 (+0.2%)	+1,045 (+1.0%)	+835 (+0.8%)	+903 (+0.8%)	+27 (0.0%)	+105 (+0.1%)						
CRC Stage 3 diagnoses	2020	3,001	-270 (-9.0%)	-135 (-4.5%)	-404 (-13.5%)	-369 (-12.3%)	-371 (-12.4%)	-135 (-4.5%)	-248 (-8.3%)						
	2021	2,973	+90 (+3.0%)	+45 (+1.5%)	+4 (+0.1%)	+73 (+2.4%)	+26 (+0.9%)	+216 (+7.3%)	+182 (+6.1%)						
CRC Stage 4 diagnoses	2022	2,910	+264 (+9.1%)	+132 (+4.5%)	+440 (+15.1%)	+388 (+13.3%)	+402 (+13.8%)	-28 (-0.9%)	+315 (+10.8%)						
	2023	2,921	+28 (+1.0%)	+14 (+0.5%)	+174 (+6.0%)	+96 (+3.3%)	+141 (+4.8%)	-1 (-0.1%)	-52 (-1.8%)						
	2024	2,899	+109 (+3.8%)	+54 (+1.9%)	+176 (+6.1%)	+150 (+5.2%)	+152 (+5.2%)	-11 (-0.4%)	-24 (-0.8%)						
	2020-2050	89,863	+644 (+0.7%)	+322 (+0.4%)	+1,287 (+1.4%)	+1,010 (+1.1%)	+1,094 (+1.2%)	+24 (0.0%)	+75 (+0.1%)						
	2020	2,446	-72 (-3.0%)	-36 (-1.5%)	-109 (-4.4%)	-99 (-4.0%)	-100 (-4.1%)	-36 (-1.5%)	-66 (-2.7%)						
	2021	2,431	+70 (+2.9%)	+35 (+1.4%)	+71 (+2.9%)	+84 (+3.5%)	+70 (+2.9%)	+81 (+3.3%)	+93 (+3.8%)						
Total CRC diagnoses	2022	2,404	+143 (+6.0%)	+72 (+3.0%)	+249 (+10.4%)	+217 (+9.0%)	+228 (+9.5%)	-11 (-0.5%)	+112 (+4.7%)						
	2023	2,403	+29 (+1.2%)	+14 (+0.6%)	+113 (+4.7%)	+113 (+4.7%)	+93 (+3.9%)	-4 (-0.1%)	-26 (-1.1%)						
	2024	2,397	+51 (+2.1%)	+26 (+1.1%)	+90 (+3.8%)	+72 (+3.0%)	+73 (+3.1%)	-3 (-0.1%)	-13 (-0.6%)						
	2020-2050	74,389	+609 (+0.8%)	+305 (+0.4%)	+1,214 (+1.6%)	+954 (+1.3%)	+1,015 (+1.4%)	+18 (0.0%)	+59 (+0.1%)						
	2020	13,562	-1,866 (-13.8%)	-933 (-6.9%)	-2,799 (-20.6%)	-2,559 (-18.9%)	-2,566 (-18.9%)	-932 (-6.9%)	-1,760 (-13.0%)						
	2021	13,473	+309 (+2.3%)	+154 (+1.1%)	-457 (-3.4%)	+54 (+0.4%)	-266 (-2.0%)	+1261 (+9.4%)	+757 (+5.6%)						
CRC deaths	2022	13,146	+1,104 (+8.4%)	+552 (+4.2%)	+1,807 (+13.7%)	+1,610 (+12.2%)	+1,657 (+12.6%)	-131 (-1.0%)	+1,982 (+15.1%)						
	2023	13,213	+125 (+0.9%)	+63 (+0.5%)	+739 (+5.6%)	+416 (+3.1%)	+606 (+4.6%)	-19 (-0.1%)	-282 (-2.1%)						
	2024	13,043	+451 (+3.5%)	+226 (+1.7%)	+737 (+5.7%)	+627 (+4.8%)	+640 (+4.9%)	-37 (-0.3%)	-107 (-0.8%)						
	2020-2050	405,025	+1,803 (+0.4%)	+902 (+0.2%)	+3,615 (+0.9%)	+2,883 (+0.7%)	+3,091 (+0.8%)	+74 (0.0%)	+267 (+0.1%)						
	2020-2050	142,621	+881 (+0.6%)	+440 (+0.3%)	+1,762 (+1.2%)	+1,395 (+1.0%)	+1,500 (+1.1%)	+38 (0.0%)	+131 (+0.1%)						
LYs lost	2020-2050		4,978	2,489	10,028	8,065	8,828	405	1,212						

Abbreviations: CRC, Colorectal Cancer; LYs, Life Years.

Table S5 Outcomes for disruption scenarios vs the comparator for the Policy1-Bowel model.

Disruption length		6 months	3 months	12 months	6 months	6 months	6 months	6 months	
Recovery period participation decrease		None	None	None	3 months -50% and 3 months -25%	6 months -50%	None	None	
Catch-up screening		None	None	None	None	None	Immediate	Delayed	
Period	Comparator								
Individuals eligible in primary screening	2020	3,588,703	-1,794,352 (-50.0%)	-897,176 (-25.0%)	-2,691,527 (-75.0%)	-1,794,352 (-50.0%)	-1,794,352 (-50.0%)	-897,176 (-25.0%)	-1,826,650 (-50.9%)
	2021	3,692,353	0 (0.0%)	0 (0.0%)	-923,088 (-25.0%)	0 (0.0%)	0 (0.0%)	+897,176 (+24.3%)	-177,233 (-4.8%)
Individuals participating in primary screening	2020	1,322,389	-673,616 (-50.9%)	-336,961 (-25.5%)	-1,010,422 (-76.4%)	-842,291 (-63.7%)	-842,291 (-63.7%)	-337,849 (-25.5%)	-673,704 (-50.9%)
	2021	1,377,194	0 (0.0%)	0 (0.0%)	-343,453 (-24.9%)	-85,575 (-6.2%)	-171,651 (-12.5%)	+313,812 (+22.8%)	-65,440 (-4.8%)
Diagnostic colonoscopy follow-up	2020	78,031	-37,220 (-47.7%)	-18,647 (-23.9%)	-55,730 (-71.4%)	-51,104 (-65.5%)	-51,104 (-65.5%)	-18,697 (-24.0%)	-37,187 (-47.7%)
	2021	80,343	0 (0.0%)	0 (0.0%)	-18,694 (-23.3%)	-8,246 (-10.3%)	-14,052 (-17.5%)	+18,470 (+23.0%)	+736 (+0.9%)
CRC Stage 1 diagnoses	2020	4,650	-884 (-19.0%)	-441 (-9.5%)	-1,318 (-28.3%)	-1,218 (-26.2%)	-1,215 (-26.1%)	-447 (-9.6%)	-879 (-18.9%)
	2021	4,774	+47 (+1.0%)	+29 (+0.6%)	-366 (-7.7%)	-128 (-2.7%)	-278 (-5.8%)	+458 (+9.6%)	+174 (+3.6%)
	2022	4,352	+117 (+2.7%)	+63 (+1.4%)	+80 (+1.8%)	+177 (+4.1%)	+180 (+4.1%)	-3 (-0.1%)	+175 (+4.0%)
	2023	4,380	+13 (+0.3%)	+7 (+0.2%)	+42 (+1.0%)	+60 (+1.4%)	+70 (+1.6%)	-13 (-0.3%)	+99 (+2.3%)
	2024	4,395	+57 (+1.3%)	+7 (+0.2%)	+66 (+1.5%)	+67 (+1.5%)	+68 (+1.5%)	-9 (-0.2%)	+121 (+2.7%)
	2020-2050	198,089	-314 (-0.2%)	-206 (-0.1%)	-616 (-0.3%)	-439 (-0.2%)	-517 (-0.3%)	-25 (0.0%)	+921 (+0.5%)
CRC Stage 2 diagnoses	2020	7,131	-336 (-4.7%)	-164 (-2.3%)	-476 (-6.7%)	-440 (-6.2%)	-434 (-6.1%)	-166 (-2.3%)	-324 (-4.5%)
	2021	7,099	+100 (+1.4%)	+54 (+0.8%)	-015 (-0.2%)	+88 (+1.2%)	+48 (+0.7%)	+197 (+2.8%)	+164 (+2.3%)
	2022	6,261	+129 (+2.1%)	+60 (+1.0%)	+171 (+2.7%)	+218 (+3.5%)	+237 (+3.8%)	-3 (-0.0%)	+132 (+2.1%)
	2023	6,287	+78 (+1.2%)	+30 (+0.5%)	+157 (+2.5%)	+125 (+2.0%)	+126 (+2.0%)	+16 (+0.3%)	+86 (+1.4%)
	2024	6,321	+79 (+1.2%)	+34 (+0.5%)	+153 (+2.4%)	+156 (+2.5%)	+185 (+2.9%)	0 (0.0%)	+80 (+1.3%)
	2020-2050	243,506	+1,355 (+0.6%)	+580 (+0.2%)	+2,716 (+1.1%)	+1,978 (+0.8%)	+2,181 (+0.9%)	+96 (0.0%)	+167 (+0.1%)
CRC Stage 3 diagnoses	2020	4,319	-310 (-7.2%)	-153 (-3.5%)	-465 (-10.8%)	-426 (-9.9%)	-427 (-9.9%)	-161 (-3.7%)	-320 (-7.4%)
	2021	4,270	+108 (+2.5%)	+65 (+1.5%)	+7 (+0.2%)	+68 (+1.6%)	+23 (+0.5%)	+202 (+4.7%)	+147 (+3.4%)
	2022	5,059	+173 (+3.4%)	+85 (+1.7%)	+189 (+3.7%)	+266 (+5.2%)	+288 (+5.7%)	+10 (+0.2%)	+160 (3.2%)
	2023	5,076	+68 (+1.3%)	+24 (+0.5%)	+152 (+3.0%)	+137 (+2.7%)	+168 (+3.3%)	+12 (+0.2%)	+88 (1.7%)
	2024	5,088	+123 (+2.4%)	+71 (+1.4%)	+152 (+3.0%)	+151 (+3.0%)	+165 (+3.2%)	+16 (+0.3%)	+84 (1.6%)
	2020-2050	138,697	+1,430 (+1.0%)	+733 (+0.5%)	+2,778 (+2.0%)	+2,103 (+1.5%)	+2,283 (+1.6%)	+86 (+0.1%)	+175 (+0.1%)
CRC Stage 4 diagnoses	2020	1,291	-7 (-0.6%)	-2 (-0.1%)	-5 (-0.4%)	-8 (-0.6%)	+1 (0.0%)	+2 (+0.1%)	+7 (+0.6%)
	2021	1,253	+58 (+4.6%)	+28 (+2.2%)	+88 (+7.1%)	+83 (+6.6%)	+78 (+6.2%)	+36 (+2.8%)	+67 (+5.3%)
	2022	2,786	+74 (+2.7%)	+35 (+1.3%)	+108 (+3.9%)	+107 (+3.8%)	+111 (+4.0%)	15 (+0.6%)	+68 (+2.4%)
	2023	2,805	+43 (+1.5%)	+17 (+0.6%)	+106 (+3.8%)	+88 (+3.1%)	+93 (+3.3%)	-7 (-0.3%)	+33 (+1.2%)
	2024	2,814	+50 (+1.8%)	+25 (+0.9%)	+83 (+2.9%)	+78 (+2.8%)	+74 (+2.6%)	0 (0.0%)	+21 (+0.7%)
	2020-2050	38,273	+1,082 (+2.8%)	+566 (+1.5%)	+2,262 (+5.9%)	+1,724 (+4.5%)	+1,883 (+4.9%)	+48 (+0.1%)	-86 (-0.2%)
Total CRC diagnoses	2020	17,391	-1,537 (-8.8%)	-759 (-4.4%)	-2,264 (-13.0%)	-2,092 (-12.0%)	-2,075 (-11.9%)	-773 (-4.4%)	-1,516 (-8.7%)
	2021	17,397	+313 (+1.8%)	+176 (+1.0%)	-286 (-1.6%)	+111 (+0.6%)	-129 (-0.7%)	+892 (+5.1%)	+551 (+3.2%)
	2022	18,458	+492 (+2.7%)	+243 (+1.3%)	+548 (+3.0%)	+767 (+4.2%)	+816 (+4.4%)	+20 (+0.1%)	+534 (+2.9%)
	2023	18,548	+202 (+1.1%)	+78 (+0.4%)	+456 (+2.5%)	+409 (+2.2%)	+456 (+2.5%)	+8 (+0.0%)	+307 (+1.7%)
	2024	18,618	+308 (+1.7%)	+138 (+0.7%)	+454 (+2.4%)	+452 (+2.4%)	+492 (+2.6%)	+7 (+0.0%)	+305 (+1.6%)
	2020-2050	618,564	+3,552 (+0.6%)	+1,672 (+0.3%)	+7,140 (+1.2%)	+5,365 (+0.9%)	+5,831 (+0.9%)	+205 (0.0%)	+1,177 (+0.2%)
CRC deaths	2020-2050	196,336	+1,961 (+1.0%)	+979 (+0.5%)	+3,968 (+2.0%)	+2,897 (+1.5%)	+3,233 (+1.6%)	+126 (+0.1%)	+423 (+0.2%)
LYs lost	2020-2050	-	19,675	9,995	38,872	28,452	31,092	1,516	4,504

Abbreviations: CRC, Colorectal Cancer; LYs, Life Years.

Table S6 Outcomes for disruption scenarios vs the comparator for the OncoSim model.

Disruption length		6 months	3 months	12 months	6 months	6 months	6 months	6 months	
Recovery period participation decrease		None	None	None	3 months -50% and 3 months -25%	6 months -50%	None	None	
Catch-up screening		None	None	None	None	None	Immediate	Delayed	
Period	Comparator								
Individuals eligible in primary screening	2020	4,802,414	-2,401,207 (-50.0%)	-1,200,604 (-25.0%)	-3,601,811 (-75.0%)	-2,401,207 (-50.0%)	-2,401,207 (-50.0%)	-1,200,604 (-25.0%)	+2,257,135 (+47.0%)
	2021	5,030,086	0 (0.0%)	0 (0.0%)	+1,257,521 (+25.0%)	0 (0.0%)	0 (0.0%)	+1,257,521 (+25.0%)	0 (0.0%)
Individuals participating in primary screening	2020	2,017,014	-1,008,418 (-50.0%)	-564,466 (-28.0%)	-1,576,236 (-78.1%)	-1,231,159 (-61.0%)	-1,231,159 (-61.0%)	-600,894 (-29.8%)	-1,040,954 (-51.6%)
	2021	2,112,636	+126,860 (+6.0%)	+125,884 (+6.0%)	-216,625 (-10.3%)	+10,464 (+0.5%)	-106,174 (-5.0%)	+595,739 (+28.2%)	+103,105 (+4.9%)
Diagnostic colonoscopy follow-up	2020	88,193	-56,717 (-64.3%)	-36,055 (-40.9%)	-66,470 (-75.4%)	-60,105 (-68.2%)	-63,140 (-71.6%)	-36,990 (-41.9%)	-43,689 (-49.5%)
	2021	89,557	-652 (-0.7%)	+2,061 (+2.3%)	-32,058 (-35.8%)	-12,065 (-13.5%)	-22,403 (-25.0%)	+35,503 (+39.6%)	+3,067 (+3.4%)
CRC Stage 1 diagnoses	2020	5,919	-818 (-13.8%)	-482 (-8.2%)	-979 (-16.5%)	-892 (-15.1%)	-932 (-15.7%)	-506 (-8.6%)	-643 (-10.9%)
	2021	6,050	+72 (+1.2%)	+69 (+1.1%)	-356 (-5.9%)	-82 (-1.4%)	-218 (-3.6%)	+594 (+9.8%)	+229 (+3.8%)
	2022	6,153	+194 (+3.1%)	+240 (+3.9%)	+228 (+3.7%)	+208 (+3.4%)	+243 (+4.0%)	-259 (-4.2%)	+175 (+2.8%)
	2023	6,087	+214 (+3.5%)	+307 (+5.0%)	+295 (+4.8%)	+252 (+4.1%)	+287 (+4.7%)	+141 (+2.3%)	+128 (+2.1%)
	2024	5,908	+254 (+4.3%)	+321 (+5.4%)	+333 (+5.6%)	+291 (+4.9%)	+325 (+5.5%)	-147 (-2.5%)	+170 (+2.9%)
	2020-2050	223,131	+92 (+0.0%)	+31 (+0.0%)	+237 (+0.1%)	+150 (+0.1%)	+215 (+0.1%)	-89 (-0.0%)	+309 (+0.1%)
CRC Stage 2 diagnoses	2020	6,391	-300 (-4.7%)	-168 (-2.6%)	-380 (-5.9%)	-332 (-5.2%)	-350 (-5.5%)	-157 (-2.5%)	-221 (-3.5%)
	2021	6,470	+128 (+2.0%)	+86 (+1.3%)	+12 (+0.2%)	+78 (+1.2%)	+37 (+0.6%)	+255 (+3.9%)	+146 (+2.3%)
	2022	6,510	+206 (+3.2%)	+305 (+4.7%)	+292 (+4.5%)	+246 (+3.8%)	+283 (+4.4%)	+29 (+0.4%)	+114 (+1.8%)
	2023	6,555	+208 (+3.2%)	+284 (+4.3%)	+294 (+4.5%)	+248 (+3.8%)	+285 (+4.4%)	-82 (-1.3%)	+161 (+2.5%)
	2024	6,599	+186 (+2.8%)	+286 (+4.3%)	+273 (+4.1%)	+227 (+3.4%)	+264 (+4.0%)	-16 (-0.2%)	+116 (+1.8%)
	2020-2050	248,068	+897 (+0.4%)	+534 (+0.2%)	+1,656 (+0.7%)	+1,162 (+0.5%)	+1,387 (+0.6%)	+121 (0.0%)	+110 (+0.0%)
CRC Stage 3 diagnoses	2020	5,401	-243 (-4.5%)	-151 (-2.8%)	-302 (-5.6%)	-263 (-4.9%)	-276 (-5.1%)	-139 (-2.6%)	-182 (-3.4%)
	2021	5,402	+115 (+2.1%)	+83 (+1.5%)	+12 (+0.2%)	+79 (+1.5%)	+48 (+0.9%)	+235 (+4.4%)	+152 (+2.8%)
	2022	5,596	+243 (+4.3%)	+352 (+6.3%)	+341 (+6.1%)	+301 (+5.4%)	+334 (+6.0%)	+76 (+1.4%)	+95 (+1.7%)
	2023	5,618	+198 (+3.5%)	+307 (+5.5%)	+296 (+5.3%)	+256 (+4.6%)	+288 (+5.1%)	-13 (-0.2%)	+118 (+2.1%)
	2024	5,663	+199 (+3.5%)	+285 (+5.0%)	+274 (+4.8%)	+234 (+4.1%)	+267 (+4.7%)	+31 (+0.5%)	+119 (+2.1%)
	2020-2050	212,240	+994 (+0.5%)	+594 (+0.3%)	+1,739 (+0.8%)	+1,319 (+0.6%)	+1,517 (+0.7%)	+20 (0.0%)	-29 (0.0%)
CRC Stage 4 diagnoses	2020	4,010	-56 (-1.4%)	-31 (-0.8%)	-76 (-1.9%)	-65 (-1.6%)	-70 (-1.7%)	-24 (-0.6%)	-39 (-1.0%)
	2021	4,047	+91 (+2.3%)	+64 (+1.6%)	+93 (+2.3%)	+95 (+2.3%)	+91 (+2.3%)	+85 (+2.1%)	+96 (+2.4%)
	2022	4,035	+142 (+3.5%)	+227 (+5.6%)	+219 (+5.4%)	+167 (+4.1%)	+190 (+4.7%)	+102 (+2.5%)	+85 (+2.1%)
	2023	4,035	+142 (+3.5%)	+203 (+5.0%)	+195 (+4.8%)	+167 (+4.1%)	+190 (+4.7%)	-99 (-2.4%)	+62 (+1.5%)
	2024	4,125	+145 (+3.5%)	+231 (+5.6%)	+200 (+4.8%)	+171 (+4.1%)	+194 (+4.7%)	+79 (+1.9%)	+87 (+2.1%)
	2020-2050	158,094	+861 (+0.5%)	+512 (+0.3%)	+1,574 (+1.0%)	+1,101 (+0.7%)	+1,270 (+0.8%)	+82 (+0.1%)	-164 (-0.1%)
Total CRC diagnoses	2020	21,721	-1,417 (-6.5%)	-832 (-3.8%)	-1,737 (-8.0%)	-1,551 (-7.1%)	-1,628 (-7.5%)	-827 (-3.8%)	-1,084 (-5.0%)
	2021	21,970	+406 (+1.8%)	+302 (+1.4%)	-238 (-1.1%)	+170 (+0.8%)	-41 (-0.2%)	+1,169 (+5.3%)	+622 (+2.8%)
	2022	22,295	+785 (+3.5%)	+1,124 (+5.0%)	+1,080 (+4.8%)	+923 (+4.1%)	+1,050 (+4.7%)	-53 (-0.2%)	+470 (+2.1%)
	2023	22,295	+762 (+3.4%)	+1,101 (+4.9%)	+1,080 (+4.8%)	+923 (+4.1%)	+1,050 (+4.7%)	-53 (-0.2%)	+470 (+2.1%)
	2024	22,295	+785 (+3.5%)	+1,124 (+5.0%)	+1,080 (+4.8%)	+923 (+4.1%)	+1,050 (+4.7%)	-53 (-0.2%)	+493 (+2.2%)
	2020-2050	841,511	+2,844 (+0.3%)	+1,671 (+0.2%)	+5,212 (+0.6%)	+3,733 (+0.4%)	+4,393 (+0.5%)	+142 (0.0%)	+229 (+0.0%)
CRC deaths	2020-2050	311,133	+1,319 (+0.4%)	+799 (+0.3%)	+2,366 (+0.8%)	+1,707 (+0.5%)	+2,002 (+0.6%)	+65 (0.0%)	-66 (0.0%)
LYs lost	2020-2050	-	14,562	26,136	24,949	18,834	22,106	17,757	3,312

Abbreviations: CRC, Colorectal Cancer; LYs, Life Years.

Table S7 Outcomes for additional disruption scenarios vs the comparator for the MISCAN-Colon model.

Disruption length		0 months	0 months	6 months	3 months	6 months	6 months	
Recovery period participation decrease		6 months -50%	6 months -50%	6 months -50%	6 months -50%	12 months -50% in	6 months	
		in primary	None	Immediate	None	primary screening	3 months -50% and 3	
Catch-up screening		screening	None	None	None	None	months -25% in	
		None	None	None	None	None	primary screening	
		None	None	None	None	None	None	
Period	Comparator							
Individuals eligible in primary screening	2020	2,216,024	-125 (0.0%)	-132 (0.0%)	-556,344 (-25.1%)	-553,827 (-25.0%)	-1,107,746 (-50.0%)	-1,107,725 (-50.0%)
	2021	2,322,003	+41 (0.0%)	+43 (0.0%)	+561,721 (+24.2%)	+26 (0.0%)	-368 (0.0%)	+255 (0.0%)
Individuals participating in primary screening	2020	1,601,057	-400,332 (-25.0%)	-400,336 (-25.0%)	-801,655 (-50.1%)	-800,442 (-50.0%)	-1,000,517 (-62.5%)	-1,000,505 (-62.5%)
	2021	1,677,102	+30 (0.0%)	+31 (0.0%)	-10,851 (-0.6%)	+19 (0.0%)	-629,079 (-37.5%)	-104,646 (-6.2%)
Diagnostic colonoscopy follow-up	2020	49,349	-12,346 (-25.0%)	-21,598 (-43.8%)	-32,813 (-66.5%)	-30,836 (-62.5%)	-30,845 (-62.5%)	-30,836 (-62.5%)
	2021	50,991	+3 (0.0%)	-6,366 (-12.5%)	-3,467 (-6.8%)	+14 (0.0%)	-19,118 (-37.5%)	-3,167 (-6.2%)
CRC Stage 1 diagnoses	2020	3,402	-382 (-11.2%)	-575 (-16.9%)	-959 (-28.2%)	-778 (-22.9%)	-969 (-28.5%)	-965 (-28.4%)
	2021	3,566	+34 (+1.0%)	+50 (+1.4%)	-105 (-2.9%)	+72 (+2.0%)	-508 (-14.2%)	-5 (-0.2%)
	2022	3,529	+152 (+4.3%)	+217 (+6.2%)	+337 (+9.5%)	+270 (+7.6%)	+375 (+10.6%)	+316 (+9.0%)
	2023	3,663	-4 (-0.1%)	-10 (-0.3%)	+89 (+2.4%)	-3 (-0.1%)	+221 (+6.0%)	+38 (+1.1%)
	2024	3,671	+36 (+1.0%)	+52 (+1.4%)	+74 (+2.0%)	+72 (+2.0%)	+81 (+2.2%)	+90 (+2.5%)
	2020-2050	119,328	-125 (-0.1%)	-207 (-0.2%)	-389 (-0.3%)	-290 (-0.2%)	-541 (-0.5%)	-391 (-0.3%)
CRC Stage 2 diagnoses	2020	3,452	-211 (-6.1%)	-317 (-9.2%)	-536 (-15.5%)	-430 (-12.4%)	-541 (-15.7%)	-543 (-15.7%)
	2021	3,599	+48 (+1.3%)	+69 (+1.9%)	+29 (+0.8%)	+101 (+2.8%)	-193 (-5.4%)	+78 (+2.2%)
	2022	3,588	+136 (+3.8%)	+200 (+5.6%)	+333 (+9.3%)	+253 (+7.0%)	+375 (+10.4%)	+304 (+8.5%)
	2023	3,716	+9 (+0.2%)	+13 (+0.3%)	+108 (+2.9%)	+18 (+0.5%)	+236 (+6.4%)	+68 (+1.8%)
	2024	3,750	+53 (+1.4%)	+78 (+2.1%)	+119 (+3.2%)	+106 (+2.8%)	+138 (+3.7%)	+127 (+3.4%)
	2020-2050	126,478	+76 (+0.1%)	+155 (+0.1%)	+301 (+0.2%)	+224 (+0.2%)	+418 (+0.3%)	+306 (+0.2%)
CRC Stage 3 diagnoses	2020	3,498	-169 (-4.8%)	-255 (-7.3%)	-430 (-12.3%)	-351 (-10.0%)	-439 (-12.6%)	-436 (-12.5%)
	2021	3,588	+65 (+1.8%)	+94 (+2.6%)	+87 (+2.4%)	+126 (+3.5%)	-90 (-2.5%)	+116 (+3.2%)
	2022	3,608	+133 (+3.7%)	+198 (+5.5%)	+334 (+9.3%)	+254 (+7.0%)	+388 (+10.7%)	+310 (+8.6%)
	2023	3,699	+4 (+0.1%)	+24 (+0.6%)	+114 (+3.1%)	+33 (+0.9%)	+247 (+6.7%)	+84 (+2.3%)
	2024	3,746	+49 (+1.3%)	+80 (+2.1%)	+129 (+3.4%)	+102 (+2.7%)	+160 (+4.3%)	+139 (+3.7%)
	2020-2050	125,483	+177 (+0.1%)	+318 (+0.3%)	+604 (+0.5%)	+422 (+0.3%)	+818 (+0.7%)	+592 (+0.5%)
CRC Stage 4 diagnoses	2020	2,160	-14 (-0.6%)	-19 (-0.9%)	-39 (-1.8%)	-30 (-1.4%)	-41 (-1.9%)	-41 (-1.9%)
	2021	2,217	+36 (+1.6%)	+55 (+2.5%)	+93 (+4.2%)	+73 (+3.3%)	+83 (+3.7%)	+93 (+4.2%)
	2022	2,252	+34 (+1.5%)	+48 (+2.1%)	+110 (+4.9%)	+74 (+3.3%)	+144 (+6.4%)	+97 (+4.3%)
	2023	2,322	+14 (+0.6%)	+21 (+0.9%)	+55 (+2.4%)	+29 (+1.3%)	+94 (+4.0%)	+47 (+2.0%)
	2024	2,358	+19 (+0.8%)	+30 (+1.3%)	+56 (+2.4%)	+39 (+1.7%)	+75 (+3.2%)	+52 (+2.2%)
	2020-2050	80,407	+150 (+0.2%)	+239 (+0.3%)	+478 (+0.6%)	+341 (+0.4%)	+699 (+0.9%)	+489 (+0.6%)
Total CRC diagnoses	2020	12,512	-776 (-6.2%)	-1,166 (-9.3%)	-1,964 (-15.7%)	-1,588 (-12.7%)	-1,991 (-15.9%)	-1,985 (-15.9%)
	2021	12,970	+184 (+1.4%)	+268 (+2.1%)	+104 (+0.8%)	+373 (+2.9%)	-708 (-5.5%)	+282 (+2.2%)
	2022	12,977	+455 (+3.5%)	+663 (+5.1%)	+1,115 (+8.6%)	+850 (+6.6%)	+1,281 (+9.9%)	+1,027 (+7.9%)
	2023	13,400	+23 (+0.2%)	+48 (+0.4%)	+365 (+2.7%)	+78 (+0.6%)	+799 (+6.0%)	+238 (+1.8%)
	2024	13,526	+157 (+1.2%)	+240 (+1.8%)	+378 (+2.8%)	+320 (+2.4%)	+453 (+3.4%)	+409 (+3.0%)
	2020-2050	451,697	+278 (+0.1%)	+506 (+0.1%)	+994 (+0.2%)	+698 (+0.2%)	+1,394 (+0.3%)	+996 (+0.2%)
CRC deaths	2020-2050	169,016	+234 (+0.1%)	+426 (+0.3%)	+804 (+0.5%)	+609 (+0.4%)	+1,172 (+0.7%)	+837 (+0.5%)
LYs lost	2020-2050	-	3,181	5,407	10,027	7,311	13,908	9,913

Abbreviations: CRC, Colorectal Cancer; LYs, Life Years.

Table S8 Outcomes for additional disruption scenarios vs the comparator for the ASCCA model.

Disruption length				0 months	0 months	6 months	3 months	6 months	6 months
Recovery period participation decrease				6 months -50% in primary screening	6 months -50%	6 months -50%	6 months -50%	12 months -50% in primary screening	3 months -50% and 3 months -25% in primary screening
Catch-up screening				None	None	Immediate	None	None	None
Period	Comparator								
Individuals eligible in primary screening	2020	2,164,781	-6 (0.0%)	-37 (0.0%)	-541,232 (-25.0%)	-541,232 (-25.0%)	-1,082,394 (-50.0%)	-1,082,394 (-50.0%)	
	2021	2,149,991	0 (0.0%)	0 (0.0%)	535,173 (24.9%)	0 (0.0%)	-40 (0.0%)	-12 (0.0%)	
Individuals participating in primary screening	2020	1,522,797	-381,181 (-25.0%)	-381,204 (-25.0%)	-761,904 (-50.0%)	-761,904 (-50.0%)	-951,989 (-62.5%)	-951,989 (-62.5%)	
	2021	1,512,047	0 (0.0%)	0 (0.0%)	-1,196 (-0.1%)	0 (0.0%)	-567,791 (-37.6%)	-94,985 (-6.3%)	
Diagnostic colonoscopy follow-up	2020	57,195	-14,310 (-25.0%)	-21,450 (-37.5%)	-35,749 (-62.5%)	-35,749 (-62.5%)	-35,752 (-62.5%)	-35,752 (-62.5%)	
	2021	57,606	0 (0.0%)	0 (0.0%)	-7,076 (-12.3%)	0 (0.0%)	-21,624 (-37.5%)	-3,623 (-6.3%)	
CRC Stage 1 diagnoses	2020	4,610	-620 (-13.4%)	-883 (-19.2%)	-1,412 (-30.6%)	-1,412 (-30.6%)	-1,412 (-30.6%)	-1,412 (-30.6%)	
	2021	4,508	+38 (+0.8%)	+58 (+1.3%)	-145 (-3.2%)	+98 (+2.2%)	-688 (-15.3%)	-34 (-0.8%)	
CRC Stage 2 diagnoses	2022	4,357	293 (6.7%)	303 (6.9%)	454 (10.4%)	490 (11.3%)	578 (13.3%)	531 (12.2%)	
	2023	4,407	5 (0.1%)	16 (0.4%)	174 (4.0%)	28 (0.6%)	463 (10.5%)	111 (2.5%)	
	2024	4,306	102 (2.4%)	112 (2.6%)	172 (4.0%)	194 (4.5%)	221 (5.1%)	215 (5.0%)	
	2020-2050	133,611	+52 (0.0%)	+38 (0.0%)	+75 (+0.1%)	+53 (0.0%)	+156 (+0.1%)	+76 (+0.1%)	
	2020	3,597	-234 (-6.5%)	-350 (-9.7%)	-584 (-16.2%)	-584 (-16.2%)	-587 (-16.3%)	-585 (-16.3%)	
	2021	3,561	+33 (+0.9%)	+51 (+1.4%)	-14 (-0.4%)	+85 (+2.4%)	-258 (-7.3%)	+28 (+0.8%)	
	2022	3,475	233 (6.7%)	252 (7.2%)	390 (11.2%)	412 (11.9%)	488 (14.0%)	446 (12.8%)	
	2023	3,481	13 (0.4%)	33 (1.0%)	176 (5.1%)	56 (1.6%)	406 (11.7%)	117 (3.4%)	
	2024	3,441	68 (2.0%)	86 (2.5%)	140 (4.1%)	150 (4.4%)	180 (5.2%)	162 (4.7%)	
	2020-2050	107,162	+209 (+0.2%)	+378 (+0.4%)	+774 (+0.7%)	+637 (+0.6%)	+959 (+0.9%)	+669 (+0.6%)	
CRC Stage 3 diagnoses	2020	3,001	-135 (-4.5%)	-202 (-6.7%)	-337 (-11.2%)	-337 (-11.2%)	-336 (-11.2%)	-337 (-11.2%)	
	2021	2,973	+45 (+1.5%)	+67 (+2.3%)	+57 (+1.9%)	+112 (+3.8%)	-84 (-2.8%)	+80 (+2.7%)	
CRC Stage 4 diagnoses	2022	2,910	191 (6.6%)	210 (7.2%)	338 (11.6%)	342 (11.8%)	424 (14.6%)	371 (12.7%)	
	2023	2,921	-4 (-0.1%)	17 (0.6%)	131 (4.5%)	31 (1.1%)	312 (10.7%)	80 (2.7%)	
	2024	2,899	49 (1.7%)	71 (2.4%)	109 (3.8%)	125 (4.3%)	126 (4.3%)	129 (4.5%)	
	2020-2050	89,863	+215 (+0.2%)	+456 (+0.5%)	+928 (+1.0%)	+778 (+0.9%)	+1,070 (+1.2%)	+785 (+0.9%)	
	2020	2,446	-36 (-1.5%)	-55 (-2.2%)	-91 (-3.7%)	-91 (-3.7%)	-92 (-3.8%)	-91 (-3.7%)	
	2021	2,431	+35 (+1.4%)	+52 (+2.2%)	+72 (+3.0%)	+87 (+3.6%)	+36 (+1.5%)	+79 (+3.2%)	
Total CRC diagnoses	2022	2,404	94 (3.9%)	116 (4.8%)	195 (8.1%)	188 (7.8%)	245 (10.2%)	199 (8.3%)	
	2023	2,403	-6 (-0.3%)	15 (0.6%)	81 (3.4%)	30 (1.2%)	165 (6.9%)	51 (2.1%)	
	2024	2,397	7 (0.3%)	31 (1.3%)	53 (2.2%)	57 (2.4%)	43 (1.8%)	52 (2.2%)	
	2020-2050	74,389	+126 (+0.2%)	+412 (+0.6%)	+851 (+1.1%)	+717 (+1.0%)	+849 (+1.1%)	+683 (+0.9%)	
	2020	13,562	-934 (-6.9%)	-1,399 (-10.3%)	-2,332 (-17.2%)	-2,332 (-17.2%)	-2,335 (-17.2%)	-2,333 (-17.2%)	
	2021	13,473	+151 (+1.1%)	+229 (+1.7%)	-30 (-0.2%)	+383 (+2.8%)	-994 (-7.4%)	+153 (+1.1%)	
CRC deaths LYs lost	2022	13,146	810 (6.2%)	880 (6.7%)	1,376 (10.5%)	1,432 (10.9%)	1,734 (13.2%)	1,547 (11.8%)	
	2023	13,213	9 (0.1%)	82 (0.6%)	562 (4.3%)	144 (1.1%)	1346 (10.2%)	359 (2.7%)	
LYs lost	2024	13,043	226 (1.7%)	300 (2.3%)	474 (3.6%)	526 (4.0%)	569 (4.4%)	559 (4.3%)	
	2020-2050	405,025	+601 (+0.1%)	+1,284 (+0.3%)	+2,628 (+0.6%)	+2,185 (+0.5%)	+3,034 (+0.7%)	+2,214 (+0.5%)	
LYs lost	2020-2050	142,621	+251 (+0.2%)	+622 (+0.4%)	+1,287 (+0.9%)	+1,062 (+0.7%)	+1,395 (+1.0%)	+1,048 (+0.7%)	
	2020-2050	-	1,718	3,811	8,007	6,300	8,450	6,164	

Abbreviations: CRC, Colorectal Cancer; LYs, Life Years.

Table S9 Outcomes for additional disruption scenarios vs the comparator for the Policy1-Bowel model.

Disruption length		0 month	0 month	6 month	3 month	6 month	6 month	
Recovery period participation decrease		6 months -50% in primary screening	6 months -50%	6 months -50%	6 months -50%	12 months -50% in primary screening	3 months -50% and 3 months -25% in primary screening	
Catch-up screening		None	None	Immediate	None	None	None	
Period	Comparator							
Individuals eligible in primary screening	2020	3,588,703	0 (0.0%)	0 (0.0%)	-897,176 (-25.0%)	-897,176 (-25.0%)	-1,794,352 (-50.0%)	-1,794,352 (-50.0%)
	2021	3,692,353	0 (0.0%)	0 (0.0%)	+897,176 (+24.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Individuals participating in primary screening	2020	1,322,389	-336,961 (-25.5%)	-336,785 (-25.5%)	-674,104 (-51.0%)	-673,610 (-50.9%)	-842,122 (-63.7%)	-842,122 (-63.7%)
	2021	1,377,194	0 (0.0%)	0 (0.0%)	-15,864 (-1.2%)	0 (0.0%)	-515,187 (-37.4%)	-88,288 (-6.4%)
Diagnostic colonoscopy follow-up	2020	78,031	-18,647 (-23.9%)	-27,981 (-35.9%)	-46,478 (-59.6%)	-46,523 (-59.6%)	-46,454 (-59.5%)	-46,454 (-59.5%)
	2021	80,343	0 (0.0%)	0 (0.0%)	-9,372 (-11.7%)	0 (0.0%)	-28,041 (-34.9%)	-4,831 (-6.0%)
CRC Stage 1 diagnoses	2020	4,650	-441 (-9.5%)	-657 (-14.1%)	-1,097 (-23.6%)	-1,103 (-23.7%)	-1,105 (-23.8%)	-1,110 (-23.9%)
	2021	4,774	+29 (+0.6%)	+34 (+0.7%)	-165 (-3.4%)	+61 (+1.3%)	-595 (-12.5%)	-69 (-1.4%)
	2022	4,352	+117 (+2.7%)	+118 (+2.7%)	+162 (+3.7%)	+174 (+4.0%)	+44 (+1.0%)	+141 (+3.3%)
	2023	4,380	+13 (+0.3%)	-1 (+0.0%)	+75 (+1.7%)	+8 (+0.2%)	+16 (+0.4%)	+37 (+0.8%)
	2024	4,395	+57 (+1.3%)	+67 (+1.5%)	+92 (+2.1%)	+99 (+2.3%)	+9 (+0.2%)	+65 (+1.5%)
	2020-2050	198,089	-206 (-0.1%)	-157 (-0.1%)	-356 (-0.2%)	-376 (-0.2%)	-595 (-0.3%)	-404 (-0.2%)
CRC Stage 2 diagnoses	2020	7,131	-164 (-2.3%)	-238 (-3.3%)	-391 (-5.5%)	-415 (-5.8%)	-381 (-5.3%)	-390 (-5.5%)
	2021	7,099	+54 (+0.8%)	+85 (+1.2%)	+75 (+1.1%)	+126 (+1.8%)	-124 (-1.7%)	+85 (+1.2%)
	2022	6,261	+129 (+2.1%)	+122 (+1.9%)	+206 (+3.3%)	+170 (+2.7%)	+136 (+2.2%)	+176 (+2.8%)
	2023	6,287	+78 (+1.2%)	+61 (+1.0%)	+115 (+1.8%)	+91 (+1.4%)	+99 (+1.6%)	+92 (+1.5%)
	2024	6,321	+79 (+1.2%)	+65 (+1.0%)	+155 (+2.5%)	+115 (+1.8%)	+119 (+1.9%)	+147 (+2.3%)
	2020-2050	243,506	+580 (+0.2%)	+778 (+0.3%)	+1,739 (+0.7%)	+1,502 (+0.6%)	+2,694 (+1.1%)	+1,773 (+0.7%)
CRC Stage 3 diagnoses	2020	4,319	-153 (-3.5%)	-239 (-5.5%)	-391 (-9.1%)	-384 (-8.9%)	-398 (-9.2%)	-401 (-9.3%)
	2021	4,270	+65 (+1.5%)	+95 (+2.2%)	+58 (+1.4%)	+133 (+3.1%)	-86 (-2.0%)	+87 (+2.0%)
	2022	5,059	+173 (+3.4%)	+146 (+2.9%)	+259 (+5.1%)	+220 (+4.3%)	+126 (+2.5%)	+210 (+4.2%)
	2023	5,076	+68 (+1.3%)	+50 (+1.0%)	+138 (+2.7%)	+86 (+1.7%)	+106 (+2.1%)	+104 (+2.0%)
	2024	5,088	+123 (+2.4%)	+100 (+2.0%)	+153 (+3.0%)	+146 (+2.9%)	+113 (+2.2%)	+131 (+2.6%)
	2020-2050	138,697	+733 (+0.5%)	+840 (+0.6%)	+1,809 (+1.3%)	+1,598 (+1.2%)	+2,722 (+2.0%)	+1,828 (+1.3%)
CRC Stage 4 diagnoses	2020	1,291	-2 (-0.1%)	-2 (-0.2%)	+7 (+0.5%)	-11 (-0.9%)	+6 (+0.5%)	+11 (+0.8%)
	2021	1,253	+28 (+2.2%)	+46 (+3.7%)	+77 (+6.1%)	+68 (+5.4%)	+78 (+6.2%)	+76 (+6.1%)
	2022	2,786	+74 (+2.7%)	+52 (+1.9%)	+98 (+3.5%)	+88 (+3.2%)	+95 (+3.4%)	+106 (+3.8%)
	2023	2,805	+43 (+1.5%)	+30 (+1.1%)	+70 (+2.5%)	+58 (+2.1%)	+87 (+3.1%)	+72 (+2.6%)
	2024	2,814	+50 (+1.8%)	+32 (+1.1%)	+63 (+2.2%)	+57 (+2.0%)	+88 (+3.1%)	+72 (+2.6%)
	2020-2050	38,273	+566 (+1.5%)	+646 (+1.7%)	+1,454 (+3.8%)	+1,234 (+3.2%)	+2,209 (+5.8%)	+1,604 (+4.2%)
Total CRC diagnoses	2020	17,391	-759 (-4.4%)	-1,136 (-6.5%)	-1,872 (-10.8%)	-1,913 (-11.0%)	-1,878 (-10.8%)	-1,891 (-10.9%)
	2021	17,397	+176 (+1.0%)	+260 (+1.5%)	+46 (+0.3%)	+388 (+2.2%)	-727 (-4.2%)	+179 (+1.0%)
	2022	18,458	+492 (+2.7%)	+439 (+2.4%)	+725 (+3.9%)	+652 (+3.5%)	+401 (+2.2%)	+633 (+3.4%)
	2023	18,548	+202 (+1.1%)	+141 (+0.8%)	+399 (+2.2%)	+243 (+1.3%)	+309 (+1.7%)	+305 (+1.6%)
	2024	18,618	+308 (+1.7%)	+263 (+1.4%)	+463 (+2.5%)	+417 (+2.2%)	+330 (+1.8%)	+415 (+2.2%)
	2020-2050	618,564	+1,672 (+0.3%)	+2,107 (+0.3%)	+4,647 (+0.8%)	+3,958 (+0.6%)	+7,030 (+1.1%)	+4,801 (+0.8%)
CRC deaths	2020-2050	196,336	+979 (+0.5%)	+1,250 (+0.6%)	+2,625 (+1.3%)	+2,218 (+1.1%)	+3,949 (+2.0%)	+2,722 (+1.4%)
LYs lost	2020-2050	-	9,995	12,706	26,399	22,080	38,560	26,980

Abbreviations: CRC, Colorectal Cancer; LYs, Life Years.

Table S10 Outcomes for additional disruption scenarios vs the comparator for the OncoSim model.

Disruption length		0 month	0 month	6 months	3 months	6 months	6 months	
Recovery period participation decrease		6 months -50%	6 months -50%	6 months -50%	6 months -50%	12 months -50% in primary screening	3 months -50% and 3 months -25% in primary screening	
Catch-up screening		None	None	Immediate	None	None	None	
Period	Comparator							
Individuals eligible in primary screening	2020	4,802,414	0 (0.0%)	0 (0.0%)	-1,200,604 (-25.0%)	-1,200,604 (-25.0%)	-2,401,207 (-50.0%)	-2,401,207 (-50.0%)
	2021	5,030,086	0 (0.0%)	0 (0.0%)	+1,257,521 (+25.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Individuals participating in primary screening	2020	2,017,014	-565,216 (-28.0%)	-565,216 (-28.0%)	-1,041,975 (-51.7%)	-1,008,946 (-50.0%)	-1,231,159 (-61.0%)	-1,231,159 (-61.0%)
	2021	2,112,636	+123,447 (+5.8%)	+125,169 (+5.9%)	+143,792 (+6.8%)	+126,536 (+6.0%)	-573,822 (-27.2%)	+10,619 (+0.5%)
Diagnostic colonoscopy follow-up	2020	88,193	-21,360 (-24.2%)	-36,297 (-41.2%)	-55,025 (-62.4%)	-56,925 (-64.5%)	-60,105 (-68.2%)	-63,140 (-71.6%)
	2021	89,557	+1,085 (+1.2%)	+1,157 (+1.3%)	-8,045 (-9.0%)	-5,669 (-6.3%)	-35,014 (-39.1%)	-15,191 (-17.0%)
CRC Stage 1 diagnoses	2020	5,919	-313 (-5.3%)	-502 (-8.5%)	-800 (-13.5%)	-834 (-14.1%)	-892 (-15.1%)	-932 (-15.7%)
	2021	6,050	+52 (+0.5%)	+52 (+0.9%)	+1 (0.0%)	-3 (-0.1%)	-457 (-7.5%)	-115 (-1.9%)
	2022	6,153	+51 (+0.8%)	+125 (+2.0%)	-379 (-6.2%)	+177 (+2.9%)	+95 (+1.5%)	+228 (+3.7%)
	2023	6,087	+72 (+1.2%)	+123 (+2.0%)	-9 (-0.1%)	+197 (+3.2%)	+116 (+1.9%)	+271 (+4.5%)
	2024	5,908	+93 (+1.6%)	+165 (+2.8%)	-328 (-5.6%)	+260 (+4.4%)	+136 (+2.3%)	+310 (+5.2%)
	2020-2050	223,131	+31 (0.0%)	+69 (0.0%)	+162 (+0.1%)	+85 (+0.0%)	+259 (+0.1%)	+159 (+0.1%)
CRC Stage 2 diagnoses	2020	6,391	-112 (-1.7%)	-178 (-2.8%)	-282 (-4.4%)	-303 (-4.7%)	-332 (-5.2%)	-350 (-5.5%)
	2021	6,470	+56 (+0.9%)	+84 (+1.3%)	+82 (+1.3%)	+92 (+1.4%)	-56 (-0.9%)	+71 (+1.1%)
	2022	6,510	+55 (+0.8%)	+109 (+1.7%)	-152 (-2.3%)	+213 (+3.3%)	+102 (+1.6%)	+267 (+4.1%)
	2023	6,555	+55 (+0.8%)	+133 (+2.0%)	-239 (-3.7%)	+214 (+3.3%)	+103 (+1.6%)	+269 (+4.1%)
	2024	6,599	+56 (+0.8%)	+111 (+1.7%)	-176 (-2.7%)	+193 (+2.9%)	+103 (+1.6%)	+248 (+3.8%)
	2020-2050	248,068	+271 (+0.1%)	+496 (+0.2%)	+1,054 (+0.4%)	+989 (+0.4%)	+1,667 (+0.7%)	+1,246 (+0.5%)
CRC Stage 3 diagnoses	2020	5,401	-107 (-2.0%)	-155 (-2.9%)	-233 (-4.3%)	-251 (-4.7%)	-263 (-4.9%)	-276 (-5.1%)
	2021	5,402	+51 (+0.9%)	+74 (+1.4%)	+95 (+1.8%)	+93 (+1.7%)	-33 (-0.6%)	+73 (+1.4%)
	2022	5,596	+112 (+2.0%)	+159 (+2.8%)	-124 (-2.2%)	+272 (+4.9%)	+152 (+2.7%)	+319 (+5.7%)
	2023	5,618	+67 (+1.2%)	+114 (+2.0%)	-233 (-4.1%)	+227 (+4.0%)	+107 (+1.9%)	+274 (+4.9%)
	2024	5,663	+45 (+0.8%)	+92 (+1.6%)	-148 (-2.6%)	+205 (+3.6%)	+108 (+1.9%)	+252 (+4.5%)
	2020-2050	212,240	+372 (+0.2%)	+586 (+0.3%)	+1,102 (+0.5%)	+1,119 (+0.5%)	+1,718 (+0.8%)	+1,422 (+0.7%)
CRC Stage 4 diagnoses	2020	4,010	-22 (-0.6%)	-30 (-0.7%)	-53 (-1.3%)	-59 (-1.5%)	-65 (-1.6%)	-70 (-1.7%)
	2021	4,047	+41 (+1.0%)	+59 (+1.4%)	+90 (+2.2%)	+93 (+2.3%)	+74 (+1.8%)	+96 (+2.4%)
	2022	4,035	+48 (+1.2%)	+82 (+2.0%)	-13 (-0.3%)	+146 (+3.6%)	+77 (+1.9%)	+180 (+4.5%)
	2023	4,035	+48 (+1.2%)	+82 (+2.0%)	-207 (-5.1%)	+146 (+3.6%)	+77 (+1.9%)	+180 (+4.5%)
	2024	4,125	+49 (+1.2%)	+84 (+2.0%)	-37 (-0.9%)	+149 (+3.6%)	+79 (+1.9%)	+184 (+4.5%)
	2020-2050	158,094	+351 (+0.2%)	+531 (+0.3%)	+977 (+0.6%)	+948 (+0.6%)	+1,487 (+0.9%)	+1,169 (+0.7%)
Total CRC diagnoses	2020	21,721	-554 (-2.6%)	-865 (-4.0%)	-1,368 (-6.3%)	-1,447 (-6.7%)	-1,551 (-7.1%)	-1,628 (-7.5%)
	2021	21,970	+180 (+0.8%)	+269 (+1.2%)	+268 (+1.2%)	+275 (+1.3%)	-471 (-2.1%)	+124 (+0.6%)
	2022	22,295	+265 (+1.2%)	+475 (+2.1%)	-667 (-3.0%)	+808 (+3.6%)	+426 (+1.9%)	+994 (+4.5%)
	2023	22,295	+242 (+1.1%)	+452 (+2.0%)	-689 (-3.1%)	+785 (+3.5%)	+403 (+1.8%)	+994 (+4.5%)
	2024	22,295	+242 (+1.1%)	+452 (+2.0%)	-689 (-3.1%)	+808 (+3.6%)	+426 (+1.9%)	+994 (+4.5%)
	2020-2050	841,511	+1,023 (+0.1%)	+1,682 (+0.2%)	+3,306 (+0.4%)	+3,144 (+0.4%)	+5,140 (+0.6%)	+3,999 (+0.5%)
CRC deaths	2020-2050	311,133	+491 (+0.2%)	+789 (+0.3%)	+1,502 (+0.5%)	+1,465 (+0.5%)	+2,295 (+0.7%)	+1,833 (+0.6%)
LYs lost	2020-2050	-	5,247	8,629	1,940	16,238	8,866	20,273

Abbreviations: CRC, Colorectal Cancer; LYs, Life Years.

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