

**Appendix 2 (as submitted by author). Input parameter estimates and standard deviations for model**

Variable	Input parameter estimate	Standard deviation	Source
Prevalence of low risk polyp at 50 years	0.089	0.009	W1-W5
Prevalence of advanced adenoma at 50 years	0.03	0.003	W1-W5
Prevalence of pre-clinical cancer at 50 years	0.003	0.0003	W1-W5
<b>Annual transition probabilities</b>			
Low risk polyp from normal	Age-dependent	± 10% input parameter	W1-W5
Advanced adenoma from low risk polyp	0.036	0.011	W1-W5
Localized cancer from advanced adenoma	0.042	0.013	W1-W5
Regional cancer from localized cancer	0.17	0.052	W1,W5-W7
Distant cancer from regional cancer	0.10	0.029	W1,W3,W5,W7,W8
Diagnosed from pre-clinical localized cancer	0.17	0.050	W1,W5-W7
Diagnosed from pre-clinical regional cancer	0.21	0.064	W1,W5-W7
Diagnosed from pre-clinical distant cancer	1	--	Assumption
<b>Screening test performance</b>			
<b>Low sensitivity guaiac fecal occult blood test</b>			
Sensitivity to detect a low risk polyp	0.05	0.02	W8-W11
Sensitivity to detect an advanced adenoma	0.19	0.05	W8-W11
Sensitivity to detect cancer	0.46	0.31	W8-W11
Specificity	0.94	0.05	W8-W11
<b>High sensitivity guaiac fecal occult blood test</b>			
Sensitivity to detect a low risk polyp	0.03	0.04	W11,W12
Sensitivity to detect an advanced adenoma	0.34	0.17	W11-W13
Sensitivity to detect cancer	0.72	0.32	W11-W13
Specificity	0.91	0.17	W11-W13
<b>Fecal immunochemical test</b>			
Sensitivity to detect a low risk polyp	0.10	0.11	W11,W12,W14
Sensitivity to detect an advanced adenoma	0.46	0.13	W11-W16
Sensitivity to detect cancer	0.85	0.10	W11-W16
Specificity	0.94	0.26	W11-W15
<b>Fecal DNA</b>			
Sensitivity to detect a low risk polyp	0.08	0.008	W10
Sensitivity to detect an advanced adenoma	0.45	0.28	W17-W19
Sensitivity to detect cancer	0.70	0.12	W17-W19
Specificity	0.94	0.06	W10,W18,W19
<b>Double contrast barium enema</b>			
Sensitivity to detect a low risk polyp	0.35	0.07	W20,W21
Sensitivity to detect an advanced adenoma	0.47	0.03	W20,W21
Sensitivity to detect cancer	0.86	0.04	W20,W22
Specificity	0.82	0.082	W20
<b>Colonoscopy and sigmoidoscopy (distal only)</b>			
Probability of a negative sigmoidoscopy and a proximal neoplasm	0.21	0.10	W2
Sensitivity to detect a low risk polyp	0.92	0.09	W22-W28
Sensitivity to detect an advanced adenoma	0.97	0.05	W22-W29
Sensitivity to detect cancer	0.93	0.19	W22-W29
Specificity	1	-	W20, W23,W27

<b>CT colonography</b>			
Sensitivity to detect a low risk polyp	0.50	0.25	W20, W23,W24,W26, W28,W30,W31
Sensitivity to detect an advanced adenoma	0.78	0.19	W20,W23,W24, W26,W30,W31
Sensitivity to detect cancer	0.89	0.12	W20,W23,W24,W 26,W28,W31
Specificity	0.91	0.07	W20,W23,W24, W26,W28,W31
<b>Compliance</b>			
Probability of undergoing each screening round	0.73	0.22	W32-W35
Follow-up colonoscopy for a positive screening test	0.84	0.25	W35-W37
<b>Serious complication</b>			
Sigmoidoscopy	0.0002	0.00006	W38
Colonoscopy diagnostic	0.0008	0.0002	W39
Colonoscopy with polypectomy	0.007	0.0021	W39
Double contrast barium enema	0.0002	0.00006	W40
CT colonography	0.0001	0.00003	W41
Death from complication	0.012	0.0036	W39
<b>Relapse (annual)</b>			
Stage I	0.01	0.003	W42
Stage II/III	0.04	0.012	W43
<b>Medical costs (2007 Canadian dollars)</b>			
Primary Care Physician Visit	58	17	W44
Guaiac-based fecal occult blood test	10	3	W45
Fecal immunochemical test	25	7	W46
Fecal DNA	346	92	W46
Sigmoidoscopy	193	58	W47,W48
Double contrast barium enema	178	53	W47
Colonoscopy	424	128	W47,W48
Polypectomy	185	56	W47
CT colonography	590	177	W47
Complication	31,193	9,358	W49
<b>Cost of colorectal cancer (2007 Canadian dollars)</b>			
Stage I			
Year 1	13,734	4,120	W50
Year 2-5 (annual)	503	151	W51
Stage II			
Year 1	27,095	8,129	W50
Year 2-5 (annual)	857	257	W51
Stage III			
Year 1	35,040	10,512	W50
Year 2-5 (annual)	857	257	W51
Stage IV			
Year 1	72,281	21,684	W50
Year 2-5 (annual)	670	201	W51
Relapse (annual)	11,435	3,431	W50
Terminal Care	17,869	5,361	W50
<b>Utilities</b>			
No colorectal cancer	1.0	0	Assumption
Stage I colorectal cancer	0.74	0.22	W52
Stage II colorectal cancer	0.69	0.21	W52
Stage III colorectal cancer	0.64	0.19	W52
Stage IV colorectal cancer	0.25	0.075	W52
Colorectal cancer relapse	0.69	0.21	Assumption
Death	0.00	0	Assumption

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