Supplementary Table 1: A summary of the modelled screening strategies.

Screening Strategy	Screening Start Age			Screening End Age			Number Screening Episodes			FIT Threshold (µg/g)	Discount Rate
	Male	Female	Mean	Male	Female	Mean	Male	Female	Mean		
Primary Analysis											
All 60 (comparator)	60	60	60	74	74	74	8	8	8	120	3.5%
All 58	58	58	58	74	74	74	9	9	9	120	3.5%
M56 F60	56	60	58	74	74	74	10	8	9	120	3.5%
Random 56_60	58*	58*	58	74	74	74	9*	9*	9	120	3.5%
Scenario A: Alternative FIT Thresholds											
FIT80 All 60 (comparator)	60	60	60	74	74	74	8	8	8	80	3.5%
FIT80 All 58	58	58	58	74	74	74	9	9	9	80	3.5%
FIT80 M56 F60	56	60	58	74	74	74	10	8	9	80	3.5%
FIT20 All 60 (comparator)	60	60	60	74	74	74	8	8	8	20	3.5%
FIT20 All 58	58	58	58	74	74	74	9	9	9	20	3.5%
FIT20 M56 F60	56	60	58	74	74	74	10	8	9	20	3.5%
Scenario B: Alternative Mean Screening Start Age											
All 54	54	54	54	74	74	74	11	11	11	120	3.5%
M52 F56	52	56	54	74	74	74	12	10	11	120	3.5%
All 50	50	50	50	74	74	74	13	13	13	120	3.5%
M48 F52	48	52	50	74	74	74	14	12	13	120	3.5%
Scenario C: Alternative FIT Thresholds and Mean Screening Start Age											
FIT 20 All 50	50	50	50	74	74	74	13	13	13	20	3.5%
FIT20 M48 F52	48	52	50	74	74	74	14	12	13	20	3.5%
Scenario D: Alternative Numbers of Years Between Male and Female Screening Start Age											
M54 F62	54	62	58	74	74	74	11	7	9	120	3.5%
M55 F61	55	61	58	73	75	74	10	8	9	120	3.5%
M57 F59	57	59	58	73	75	74	9	9	9	120	3.5%
Scenario E: Alternative Discount Rates											
All 60 DR1.5% (comparator)	60	60	60	74	74	74	8	8	8	120	1.5%
All 58 DR1.5%	58	58	58	74	74	74	9	9	9	120	1.5%

M56 F60 DR1.5%	56	60	58	74	74	74	10	8	9	120	1.5%
All 60 DR5% (comparator)	60	60	60	74	74	74	8	8	8	120	5.0%
All 58 DR5%	58	58	58	74	74	74	9	9	9	120	5.0%
M56 F60 DR5%	56	60	58	74	74	74	10	8	9	120	5.0%
FIT = faecal immunochemical test. *on average.											

Supplementary Table 2: Absolute and incremental average outcomes for cost-effectiveness, health benefits and resource use over the lifetime of each person in the English population at model start (age 30), comparing starting faecal immunochemical test (FIT) screening at a threshold of 120µg/g in all individuals at age 60 (comparator) against starting screening in all individuals at age 58 (no stratification), starting screening in men at age 56 and women at age 60 (sex stratified) or starting screening in half the population at age 56 and half at 60 (randomly stratified).

	Absolute Values				**Incremental vs Comparator**			**Incremental vs No Stratification**	
	Comparator (all start age 60)	**No Stratification** (all start age 58)	**Sex Stratified** (men start age 56, women start age 60)	**Randomly Stratified** (half start age 56, half start age 60)	**No Stratification** (all start age 58)	**Sex Stratified** (men start age 56, women start age 60)	**Randomly Stratified** (half start age 56, half start age 60)	**Sex Stratified** (men start age 56, women start age 60)	**Randomly Stratified** (half start age 56, half start age 60)
Lifetime Costs (£ per person, discounted)	£459.50	£462.78	£463.33	£462.96	£3.28	£3.83	£3.46	£0.55	£0.18
Lifetime QALYs (per person, discounted)	19.8274	19.8286	19.8290	19.8288	0.0012	0.0016	0.0014	0.0004	0.0001
Lifetime NMB (per person, £20,000 per QALY)	£396,088	£396,110	£396,117	£396,113	£22	£29	£24	£7	£3
Lifetime NMB (per person, £30,000 per QALY)	£594,362	£594,396	£594,408	£594,401	£34	£45	£38	£11	£4
ICER (£ per QALY)	NA	NA	NA	NA	£2,634	£2,334	£2,483	£1,392	£1,212
Late Stage CRC (per 100,000 people)	4182	4088	4060	4078	-93	-122	-103	-28	-10
Late Stage CRC Incidence Reduction (%)	NA	NA	NA	NA	2.2%	2.9%	2.5%	0.7%	0.2%
Total CRC (per 100,000 people)	6605	6520	6496	6511	-84	-109	-94	-25	-9
Total CRC Incidence Reduction (%)	NA	NA	NA	NA	1.3%	1.7%	1.4%	0.4%	0.1%
CRC Mortality (per 100,000 people)	3121	3055	3036	3046	-66	-85	-75	-19	-8
CRC Mortality Reduction (%)	NA	NA	NA	NA	2.1%	2.7%	2.4%	0.6%	0.3%
FIT Invites (per person)	6.72	7.64	7.60	7.65	0.92	0.88	0.93	-0.04	0.00
FIT Responses (per person)	4.88	5.45	5.47	5.53	0.57	0.59	0.65	0.02	0.07
Screening Colonoscopies (per 100,000)	6855	7306	7491	7355	451	636	500	185	49
Increase in Colonoscopy Usage (%)	NA	NA	NA	NA	6.6%	9.3%	7.3%	2.5%	0.7%

QALY Quality Adjusted Life Year; NMB Net Monetary Benefit (calculated assuming a willingness to pay threshold of £20,000 or £30,000 per QALY); ICER Incremental Cost-effectiveness Ratio; CRC Colorectal Cancer; FIT Faecal Immunochemical Test; NA Not Applicable.

Supplementary Table 3: Full outcomes for scenario A: Alternative FIT thresholds. Absolute and incremental average outcomes for cost-effectiveness, health benefits and resource use over the lifetime of each person in the English population at model start (age 30).

	Absolute Values						**Incremental vs Comparator**			
	Comparator FIT80 (all start age 60)	**No Stratification FIT80** (all start age 58)	**Sex Stratified FIT80** (men start age 56, women start age 60)	**Comparator FIT20** (all start age 60)	**No Stratification FIT20** (all start age 58)	**Sex Stratified FIT20** (men start age 56, women start age 60)	**No Stratification FIT80** (all start age 58)	**Sex Stratified FIT80** (men start age 56, women start age 60)	**No Stratification FIT20** (all start age 58)	**Sex Stratified FIT20** (men start age 56, women start age 60)
Lifetime Costs (£ per person, discounted)	£457.06	£459.72	£460.30	£453.98	£455.74	£456.16	£2.66	£3.23	£1.76	£2.18
Lifetime QALYs (per person, discounted)	19.8274	19.8287	19.8292	19.8323	19.8341	19.8345	0.0013	0.0018	0.0018	0.0022
Lifetime NMB (per person, £20,000 per QALY)	£396,092	£396,115	£396,123	£396,192	£396,227	£396,234	£24	£32	£34	£42
Lifetime NMB (per person, £30,000 per QALY)	£594,366	£594,403	£594,415	£594,515	£594,568	£594,580	£37	£49	£52	£64
ICER (£ per QALY)	NA	NA	NA	NA	NA	NA	£2,017	£1,840	£974	£984
Late Stage CRC (per 100,000 people)	4027	3928	3896	3392	3265	3233	-99	-131	-126	-159
Late Stage CRC Incidence Reduction (%)	NA	NA	NA	NA	NA	NA	2.4%	3.3%	3.7%	4.7%
Total CRC (per 100,000 people)	6403	6302	6274	5534	5378	5344	-101	-129	-155	-189
Total CRC Incidence Reduction (%)	NA	NA	NA	NA	NA	NA	1.6%	2.0%	2.8%	3.4%
CRC Mortality (per 100,000 people)	3003	2934	2912	2505	2411	2392	-70	-91	-94	-113
CRC Mortality Reduction (%)	NA	NA	NA	NA	NA	NA	2.3%	3.0%	3.7%	4.5%
FIT Invites (per person)	6.70	7.62	7.58	6.63	7.55	7.50	0.92	0.88	0.91	0.87
FIT Responses (per person)	4.87	5.44	5.45	4.80	5.37	5.38	0.57	0.59	0.56	0.58
Screening Colonoscopies (per 100,000)	8459	9001	9225	18864	20002	20363	542	766	1138	1498
Increase in Colonoscopy Usage (%)	NA	NA	NA	NA	NA	NA	6.4%	9.1%	6.0%	7.9%

QALY Quality Adjusted Life Year; NMB Net Monetary Benefit (calculated assuming a willingness to pay threshold of £20,000 or £30,000 per QALY); ICER Incremental Cost-effectiveness Ratio; CRC Colorectal Cancer; FIT Faecal Immunochemical Test; NA Not Applicable.

Supplementary Table 4: Full outcomes for scenario B: Alternative mean screening start age. Absolute and incremental average outcomes for cost-effectiveness, health benefits and resource use over the lifetime of each person in the English population at model start (age 30).

	Absolute Values					**Incremental vs Comparator**			
	Comparator (all start age 60)	**No Stratification** (all start age 54)	**Sex Stratified** (men start age 52, women start age 56)	**No Stratification** (all start age 50)	**Sex Stratified** (men start age 48, women start age 52)	**No Stratification** (all start age 54)	**Sex Stratified** (men start age 52, women start age 56)	**No Stratification** (all start age 50)	**Sex Stratified** (men start age 48, women start age 52)
Lifetime Costs (£ per person, discounted)	£459.50	£468.86	£469.77	£476.72	£477.36	£9.87	£9.49	£17.72	£18.36
Lifetime QALYs (per person, discounted)	19.8274	19.8293	19.8296	19.8319	19.8321	0.0039	0.0040	0.0066	0.0067
Lifetime NMB (per person, £20,000 per QALY)	£396,088	£396,117	£396,122	£396,162	£396,164	£69	£71	£113	£116
Lifetime NMB (per person, £30,000 per QALY)	£594,302	£594,410	£594,418	£594,481	£594,485	£108	£112	£179	£183
ICER (£ per QALY)	NA	NA	NA	NA	NA	£2,508	£2,352	£2,702	£2,733
Late Stage CRC (per 100,000 people)	4182	3901	3883	3743	3735	-282	-301	-440	-449
Late Stage CRC Incidence Reduction (%)	NA	NA	NA	NA	NA	6.8%	7.2%	10.5%	10.7%
Total CRC (per 100,000 people)	6605	6336	6321	6186	6182	-264	-279	-414	-418
Total CRC Incidence Reduction (%)	NA	NA	NA	NA	NA	4.0%	4.2%	6.3%	6.3%
CRC Mortality (per 100,000 people)	3121	2924	2911	2813	2809	-200	-213	-311	-314
CRC Mortality Reduction (%)	NA	NA	NA	NA	NA	6.4%	6.8%	10.0%	10.1%
FIT Invites (per person)	6.72	9.52	9.47	11.43	11.39	2.80	2.76	4.71	4.67
FIT Responses (per person)	4.88	6.81	6.80	8.28	8.23	1.93	1.92	3.40	3.35
Screening Colonoscopies (per 100,000)	6855	8239	8370	9047	9125	1391	1522	2199	2277
Increase in Colonoscopy Usage (%)	NA	NA	NA	NA	NA	20.3%	22.2%	32.1%	33.2%
QALY Quality Adjusted Life Year; NMB Net Monetary Benefit (calculated assuming a willingness to pay threshold of £20,000 or £30,000 per QALY); ICER Incremental Cost-effectiveness Ratio; CRC Colorectal Cancer; FIT Faecal Immunochemical Test; NA Not Applicable.									

Supplementary Table 5: Full outcomes for scenario C: Alternative FIT threshold and mean screening start age. Absolute and incremental average outcomes for cost-effectiveness, health benefits and resource use over the lifetime of each person in the English population at model start (age 30).

	Absolute Values			**Incremental vs Comparator**	
	Comparator FIT20 (all start age 60)	**No Stratification FIT20** (all start age 50)	**Sex Stratified FIT20** (men start age 48, women start age 52)	**No Stratification FIT20** (all start age 50)	**Sex Stratified FIT20** (men start age 48, women start age 52)
Lifetime Costs (£ per person, discounted)	£454.26	£465.73	£466.65	£11.47	£12.38
Lifetime QALYs (per person, discounted)	19.8317	19.8414	19.8415	0.0097	0.0098
Lifetime NMB (per person)	£396,179	£396,362	£396,364	£183	£185
Lifetime NMB (per person, £20,000 per QALY)	£594,496	£594,776	£594,779	£280	£283
Lifetime NMB (per person, £30,000 per QALY)	NA	NA	NA	£1,180	£1,257
Late Stage CRC (per 100,000 people)	3405	2777	2773	-628	-632
Late Stage CRC Incidence Reduction (%)	NA	NA	NA	18.4%	18.6%
Total CRC (per 100,000 people)	5548	4800	4798	-747	-750
Total CRC Incidence Reduction (%)	NA	NA	NA	13.5%	13.5%
CRC Mortality (per 100,000 people)	2513	2067	2064	-446	-448
CRC Mortality Reduction (%)	NA	NA	NA	17.8%	17.8%
FIT Invites (per person)	6.63	11.29	11.25	4.66	4.62
FIT Responses (per person)	4.80	8.15	8.11	3.35	3.31
Screening Colonoscopies (per 100,000)	18791	24572	24696	5781	5905
Increase in Colonoscopy Usage (%)	NA	NA	NA	30.8%	31.4%
QALY Quality Adjusted Life Year; NMB Net Monetary Benefit (calculated assuming a willingness to pay threshold of £20,000 or £30,000 per QALY); ICER Incremental Cost-effectiveness Ratio; CRC Colorectal Cancer; FIT Faecal Immunochemical Test; NA Not Applicable.					

Supplementary Table 6: Full outcomes for scenario D: Alternative numbers of years between male and female screening start age. Absolute and incremental average outcomes for cost-effectiveness, health benefits and resource use over the lifetime of each person in the English population at model start (age 30).

	Absolute Values					**Incremental vs Comparator**			
	Comparator (all start age 60)	**No Stratification** (all start age 58)	**Sex Stratified** (men start age 54, women start age 62)	**Sex Stratified** (men start age 55, women start age 61)	**Sex Stratified** (men start age 57, women start age 59)	**No Stratification** (all start age 58)	**Sex Stratified** (men start age 54, women start age 62)	**Sex Stratified** (men start age 55, women start age 61)	**Sex Stratified** (men start age 57, women start age 59)
Lifetime Costs (£ per person, discounted)	£459.50	£462.78	£463.47	£462.51	£461.87	£3.28	£3.97	£3.01	£2.38
Lifetime QALYs (per person, discounted)	19.8274	19.8286	19.8290	19.8289	19.8285	0.0012	0.0016	0.0015	0.0011
Lifetime NMB (per person, £20,000 per QALY)	£396,088	£396,110	£396,116	£396,115	£396,108	£22	£28	£26	£20
Lifetime NMB (per person, £30,000 per QALY)	£594,362	£594,396	£594,406	£594,403	£594,393	£34	£44	£41	£31
ICER (£ per QALY)	NA	NA	NA	NA	NA	£2,634	£2,490	£2,041	£2,120
Late Stage CRC (per 100,000 people)	4182	4088	4065	4080	4103	-93	-116	-101	-79
Late Stage CRC Incidence Reduction (%)	NA	NA	NA	NA	NA	2.2%	2.8%	2.4%	1.9%
Total CRC (per 100,000 people)	6605	6520	6504	6507	6524	-84	-101	-98	-81
Total CRC Incidence Reduction (%)	NA	NA	NA	NA	NA	1.3%	1.5%	1.5%	1.2%
CRC Mortality (per 100,000 people)	3121	3055	3047	3055	3068	-66	-74	-66	-53
CRC Mortality Reduction (%)	NA	NA	NA	NA	NA	2.1%	2.4%	2.1%	1.7%
FIT Invites (per person)	6.72	7.64	7.57	7.61	7.65	0.92	0.85	0.90	0.93
FIT Responses (per person)	4.88	5.45	5.36	5.45	5.42	0.57	0.48	0.57	0.54
Screening Colonoscopies (per 100,000)	6855	7306	7497	7379	7218	451	641	523	363
Increase in Colonoscopy Usage (%)	NA	NA	NA	NA	NA	6.6%	9.4%	7.6%	5.3%

QALY Quality Adjusted Life Year; NMB Net Monetary Benefit (calculated assuming a willingness to pay threshold of £20,000 or £30,000 per QALY); ICER Incremental Cost-effectiveness Ratio; CRC Colorectal Cancer; FIT Faecal Immunochemical Test; NA Not Applicable.

Supplementary Table 7: Full outcomes for scenario E: Alternative discount rates. Absolute and incremental average outcomes for cost-effectiveness, health benefits and resource use over the lifetime of each person in the English population at model start (age 30).

	Absolute Values						**Incremental vs Comparator**			
	Comparator DR 1.5% (all start age 60)	**No Stratification DR 1.5%** (all start age 58)	**Sex Stratified DR 1.5%** (men start age 56, women start age 60)	**Comparator DR 5%** (all start age 60)	**No Stratification DR 5%** (all start age 58)	**Sex Stratified DR 5%** (men start age 56, women start age 60)	**No Stratification DR 1.5%** (all start age 58)	**Sex Stratified DR 1.5%** (men start age 56, women start age 60)	**No Stratification DR 5%** (all start age 58)	**Sex Stratified DR 5%** (men start age 56, women start age 60)
Lifetime Costs (£ per person, discounted)	£973.01	£975.86	£976.50	£273.40	£275.96	£276.75	£2.85	£3.48	£2.55	£3.34
Lifetime QALYs (per person, discounted)	29.5707	29.5740	29.5749	15.5224	15.5230	15.5232	0.0033	0.0042	0.0006	0.0008
Lifetime NMB (per person, £20,000 per QALY)	£590,440	£590,503	£590,522	£310,174	£310,184	£310,188	£63	£81	£10	£13
Lifetime NMB (per person, £30,000 per QALY)	£886,147	£886,243	£886,271	£465,398	£465,415	£465,420	£96	£124	£16	£22
ICER (£ per QALY)	NA	NA	NA	NA	NA	NA	£865	£822	£4,056	£3,972
Late Stage CRC (per 100,000 people)	4182	4088	4060	4182	4088	4060	-93	-122	-93	-122
Late Stage CRC Incidence Reduction (%)	NA	NA	NA	NA	NA	NA	2.2%	2.9%	2.2%	2.9%
Total CRC (per 100,000 people)	6605	6520	6496	6605	6520	6496	-84	-109	-84	-109
Total CRC Incidence Reduction (%)	NA	NA	NA	NA	NA	NA	1.3%	1.7%	1.3%	1.7%
CRC Mortality (per 100,000 people)	3121	3055	3036	3121	3055	3036	-66	-85	-66	-85
CRC Mortality Reduction (%)	NA	NA	NA	NA	NA	NA	2.1%	2.7%	2.1%	2.7%
FIT Invites (per person)	6.72	7.64	7.60	6.72	7.64	7.60	0.92	0.88	0.92	0.88
FIT Responses (per person)	4.88	5.45	5.47	4.88	5.45	5.47	0.57	0.59	0.57	0.59
Screening Colonoscopies (per 100,000)	6855	7306	7491	6855	7306	7491	451	636	451	636
Increase in Colonoscopy Usage (%)	NA	NA	NA	NA	NA	NA	6.6%	9.3%	6.6%	9.3%

QALY Quality Adjusted Life Year; NMB Net Monetary Benefit (calculated assuming a willingness to pay threshold of £20,000 or £30,000 per QALY); ICER Incremental Cost-effectiveness Ratio; CRC Colorectal Cancer; FIT Faecal Immunochemical Test; DR Discount Rate; NA Not Applicable.