

Supplementary Material

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General caption for Tables S1-S10

All tables report total costs, total QALYs, ICERs, and NMBs for the evaluated screening strategies. All monetary values are presented in US\$.

General caption for Figures S1-S3

Each tornado diagram shows how variation in individual parameters across their plausible ranges influences the incremental NMB between the compared screening strategies. Wider bars indicate greater impact on cost-effectiveness results.

General caption for Figures S6-S9

All values represent differences compared with no surveillance. Each figure presents results per 10,000 patients for 10-year and lifetime horizons.

List of Abbreviations

AI: Artificial intelligence

BE: Barrett's esophagus

EAC: Esophageal adenocarcinoma

HGD: High-grade dysplasia

ICER: Incremental cost-effectiveness ratio

LGD: Low-grade dysplasia

LSBE: Long-segment Barrett's esophagus

miRNA: MicroRNA

NDBE: Nondysplastic Barrett's esophagus

NMB: Net monetary benefit

QALY: Quality-adjusted life-year

SSBE: Short-segment Barrett's esophagus

USSBE: Ultrashort-segment Barrett's esophagus

Table S1. Base-case results and efficiency frontier (USSBE cohort)

Strategy	Cost (US\$)	Incremental Cost (US\$)	Effectiveness (QALY)	Incremental Effectiveness (QALY)	ICER (US\$/QALY)	NMB (US\$)
No surveillance	28	Ref	17.39255	Ref	Ref	869,600
Endoscopy every 10 years	588	561	17.39258	0.00003	Extendedly dominated	869,041
Endoscopy every 5 years	959	371	17.39261	0.00002	Extendedly dominated	868,671
Breath test every 10 years	1,002	43	17.39259	−0.00002	Absolutely dominated	868,628
Endoscopy every 4 years	1,145	186	17.39262	0.00001	Extendedly dominated	868,486
Endoscopy every 3 years	1,456	310	17.39264	0.00002	Extendedly dominated	868,176
Sponge test every 10 years	1,491	36	17.39258	−0.00006	Absolutely dominated	868,138
Breath test every 5 years	1,646	190	17.39261	−0.00003	Absolutely dominated	867,985
Breath test every 4 years	1,969	514	17.39263	−0.00001	Absolutely dominated	867,662
Endoscopy every 2 years	2,077	621	17.39268	0.00004	Extendedly dominated	867,557
Sponge test every 5 years	2,459	382	17.39259	−0.00008	Absolutely dominated	867,170
Breath test every 3 years	2,509	432	17.39265	−0.00003	Absolutely dominated	867,124
miRNA test every 10 years	2,757	680	17.39259	−0.00009	Absolutely dominated	866,872
Sponge test every 4 years	2,945	868	17.39260	−0.00007	Absolutely dominated	866,685
Breath test every 2 years	3,588	1,511	17.39269	0.00001	Extendedly dominated	866,046
Sponge test every 3 years	3,756	168	17.39262	−0.00007	Absolutely dominated	865,875
Annual endoscopy	3,942	3,915	17.39280	0.00024	16,021,510	865,697
miRNA test every 5 years	4,563	620	17.39262	−0.00018	Absolutely dominated	865,068
Sponge test every 2 years	5,379	1,436	17.39265	−0.00015	Absolutely dominated	864,254
miRNA test every 4 years	5,469	1,527	17.39263	−0.00017	Absolutely dominated	864,162
Annual breath test	6,830	2,887	17.39282	0.00003	109,073,360	862,812
miRNA test every 3 years	6,981	152	17.39265	−0.00017	Absolutely dominated	862,651
miRNA test every 2 years	10,008	3,178	17.39270	−0.00012	Absolutely dominated	859,627
Annual sponge test	10,249	3,420	17.39274	−0.00008	Absolutely dominated	859,388
Annual miRNA test	19,092	12,263	17.39284	0.00001	858,476,343	850,549

Strategy	Cost (US\$)	Incremental Cost (US\$)	Effectiveness (QALY)	Incremental Effectiveness (QALY)	ICER (US\$/QALY)	NMB (US\$)
No surveillance	28	Ref	17.39255	Ref	Ref	869,600
Annual endoscopy	3,942	3,915	17.39280	0.00024	16,021,510	865,697
Annual breath test	6,830	2,887	17.39282	0.00003	109,073,360	862,812
Annual miRNA test	19,092	12,263	17.39284	0.00001	858,476,343	850,549

Dominance: “Absolutely dominated” indicates higher cost and lower effectiveness. “Extendedly dominated” indicates a higher ICER than the next more effective strategy. All costs and benefits are discounted at 3% annually. Willingness-to-pay threshold was set at US\$50,000 per QALY. Ref indicates the reference (baseline) strategy.

Table S2. Base-case results and efficiency frontier (SSBE cohort)

Strategy	Cost (US\$)	Incremental Cost (US\$)	Effectiveness (QALY)	Incremental Effectiveness (QALY)	ICER (US\$/QALY)	NMB (US\$)
No surveillance	225	Ref	19.00488	Ref	Ref	950,019
Endoscopy every 10 years	783	558	19.00516	0.00028	2,004,493	949,475
Endoscopy every 5 years	1,151	368	19.00536	0.00020	1,838,954	949,117
Breath test every 10 years	1,195	44	19.00519	-0.00017	Absolutely dominated	949,064
Endoscopy every 4 years	1,336	185	19.00546	0.00010	Extendedly dominated	948,937
Endoscopy every 3 years	1,645	309	19.00563	0.00017	Extendedly dominated	948,637
Sponge test every 10 years	1,684	39	19.00510	-0.00053	Absolutely dominated	948,571
Breath test every 5 years	1,836	191	19.00541	-0.00022	Absolutely dominated	948,435
Breath test every 4 years	2,158	513	19.00552	-0.00011	Absolutely dominated	948,118
Endoscopy every 2 years	2,262	618	19.00597	0.00034	Extendedly dominated	948,036
Sponge test every 5 years	2,648	386	19.00525	-0.00071	Absolutely dominated	947,615
Breath test every 3 years	2,694	432	19.00571	-0.00026	Absolutely dominated	947,591
miRNA test every 10 years	2,947	684	19.00520	-0.00076	Absolutely dominated	947,313
Sponge test every 4 years	3,132	869	19.00533	-0.00064	Absolutely dominated	947,135
Breath test every 2 years	3,769	1,506	19.00608	0.00012	Extendedly dominated	946,535
Sponge test every 3 years	3,939	171	19.00546	-0.00062	Absolutely dominated	946,334
Annual endoscopy	4,117	3,892	19.00698	0.00210	1,851,435	946,232
miRNA test every 5 years	4,745	628	19.00544	-0.00154	Absolutely dominated	945,527
Sponge test every 2 years	5,555	1,439	19.00572	-0.00126	Absolutely dominated	944,731
miRNA test every 4 years	5,648	1,531	19.00556	-0.00143	Absolutely dominated	944,630
Annual breath test	6,994	2,877	19.00721	0.00023	12,632,720	943,367
miRNA test every 3 years	7,154	160	19.00575	-0.00146	Absolutely dominated	943,134
miRNA test every 2 years	10,168	3,175	19.00615	-0.00106	Absolutely dominated	940,139
Annual sponge test	10,406	3,412	19.00652	-0.00069	Absolutely dominated	939,920
Annual miRNA test	19,217	12,223	19.00733	0.00012	99,460,943	931,150

Strategy	Cost (US\$)	Incremental Cost (US\$)	Effectiveness (QALY)	Incremental Effectiveness (QALY)	ICER (US\$/QALY)	NMB (US\$)
No surveillance	225	Ref	19.00488	Ref	Ref	950,019
Annual endoscopy	4,117	3,892	19.00698	0.00210	1,851,435	946,232
Annual breath test	6,994	2,877	19.00721	0.00023	12,632,720	943,367
Annual miRNA test	19,217	12,223	19.00733	0.00012	99,460,943	931,150

Same definitions as Table S1.

Table S3. Base-case results and efficiency frontier (LSBE-NDBE cohort)

Strategy	Cost (US\$)	Incremental Cost (US\$)	Effectiveness (QALY)	Incremental Effectiveness (QALY)	ICER (US\$/QALY)	NMB (US\$)
No surveillance	1,770	Ref	18.81182	Ref	Ref	938,821
Endoscopy every 10 years	2,309	539	18.81403	0.00222	Extendedly dominated	938,393
Endoscopy every 5 years	2,659	351	18.81562	0.00158	Extendedly dominated	938,121
Breath test every 10 years	2,713	53	18.81427	-0.00134	Absolutely dominated	938,001
Endoscopy every 4 years	2,836	176	18.81642	0.00080	Extendedly dominated	937,985
Endoscopy every 3 years	3,130	294	18.81775	0.00134	Extendedly dominated	937,758
Sponge test every 10 years	3,197	67	18.81354	-0.00421	Absolutely dominated	937,480
Breath test every 5 years	3,328	198	18.81603	-0.00172	Absolutely dominated	937,473
Breath test every 4 years	3,637	507	18.81691	-0.00084	Absolutely dominated	937,209
Endoscopy every 2 years	3,718	588	18.82043	0.00267	Extendedly dominated	937,303
Sponge test every 5 years	4,129	411	18.81478	-0.00565	Absolutely dominated	936,610
Breath test every 3 years	4,152	434	18.81839	-0.00203	Absolutely dominated	936,768
miRNA test every 10 years	4,434	717	18.81440	-0.00602	Absolutely dominated	936,286
Sponge test every 4 years	4,597	879	18.81540	-0.00503	Absolutely dominated	936,173
Breath test every 2 years	5,184	1,466	18.82136	0.00093	Extendedly dominated	935,884
Sponge test every 3 years	5,378	194	18.81644	-0.00492	Absolutely dominated	935,444
Annual endoscopy	5,484	3,714	18.82846	0.01664	223,133	935,939
miRNA test every 5 years	6,175	691	18.81625	-0.01221	Absolutely dominated	934,637
Sponge test every 2 years	6,941	1,457	18.81852	-0.00994	Absolutely dominated	933,985
miRNA test every 4 years	7,049	1,565	18.81718	-0.01128	Absolutely dominated	933,810
Annual breath test	8,280	2,796	18.83026	0.00180	1,550,676	933,233
miRNA test every 3 years	8,508	228	18.81874	-0.01152	Absolutely dominated	932,429
miRNA test every 2 years	11,427	3,148	18.82186	-0.00840	Absolutely dominated	929,666
Annual sponge test	11,633	3,353	18.82478	-0.00548	Absolutely dominated	929,606
Annual miRNA test	20,191	11,912	18.83123	0.00097	12,242,182	921,370

Strategy	Cost (US\$)	Incremental Cost (US\$)	Effectiveness (QALY)	Incremental Effectiveness (QALY)	ICER (US\$/QALY)	NMB (US\$)
No surveillance	1,770	Ref	18.81182	Ref	Ref	938,821
Annual endoscopy	5,484	3,714	18.82846	0.01664	223,133	935,939
Annual breath test	8,280	2,796	18.83026	0.00180	1,550,676	933,233
Annual miRNA test	20,191	11,912	18.83123	0.00097	12,242,182	921,370

Same definitions as Table S1.

Table S4. Base-case results and efficiency frontier (LSBE-LGD cohort)

Strategy	Cost (US\$)	Incremental Cost (US\$)	Effectiveness (QALY)	Incremental Effectiveness (QALY)	ICER (US\$/QALY)	NMB (US\$)
No surveillance	8,655	Ref	16.99090	Ref	Ref	840,890
Endoscopy every 10 years	9,104	449	17.00190	0.01099	Extendedly dominated	840,991
Endoscopy every 5 years	9,374	271	17.00946	0.00757	Extendedly dominated	841,099
Breath test every 10 years	9,471	96	17.00309	-0.00638	Absolutely dominated	840,684
Endoscopy every 4 years	9,511	136	17.01329	0.00383	Extendedly dominated	841,154
Endoscopy every 3 years	9,738	227	17.01970	0.00640	Extendedly dominated	841,247
Sponge test every 10 years	9,932	194	16.99946	-0.02023	Absolutely dominated	840,041
Breath test every 5 years	9,968	230	17.01148	-0.00822	Absolutely dominated	840,605
Endoscopy every 2 years	10,194	456	17.03253	0.01283	Extendedly dominated	841,433
Breath test every 4 years	10,219	25	17.01572	-0.01681	Absolutely dominated	840,567
Breath test every 3 years	10,637	443	17.02281	-0.00971	Absolutely dominated	840,504
Sponge test every 5 years	10,718	524	17.00536	-0.02717	Absolutely dominated	839,550
miRNA test every 10 years	11,053	860	17.00373	-0.02880	Absolutely dominated	839,133
Sponge test every 4 years	11,113	920	17.00834	-0.02419	Absolutely dominated	839,304
Breath test every 2 years	11,474	1,280	17.03704	0.00451	Extendedly dominated	840,378
Annual endoscopy	11,561	2,907	17.07109	0.08018	36,250	841,993
Sponge test every 3 years	11,774	212	17.01333	-0.05776	Absolutely dominated	838,893
miRNA test every 5 years	12,531	970	17.01256	-0.05853	Absolutely dominated	838,097
Sponge test every 2 years	13,096	1,534	17.02332	-0.04776	Absolutely dominated	838,070
miRNA test every 4 years	13,275	1,714	17.01703	-0.05406	Absolutely dominated	837,576
Annual breath test	13,987	2,426	17.07977	0.00869	279,252	840,002
miRNA test every 3 years	14,517	530	17.02450	-0.05528	Absolutely dominated	836,708
miRNA test every 2 years	17,004	3,017	17.03947	-0.04030	Absolutely dominated	834,970
Annual sponge test	17,066	3,078	17.05335	-0.02642	Absolutely dominated	835,602
Annual miRNA test	24,470	10,483	17.08446	0.00469	2,236,293	829,753

Strategy	Cost (US\$)	Incremental Cost (US\$)	Effectiveness (QALY)	Incremental Effectiveness (QALY)	ICER (US\$/QALY)	NMB (US\$)
No surveillance	8,655	Ref	16.99090	Ref	Ref	840,890
Annual endoscopy	11,561	2,907	17.07109	0.08018	36,250	841,993
Annual breath test	13,987	2,426	17.07977	0.00869	279,252	840,002
Annual miRNA test	24,470	10,483	17.08446	0.00469	2,236,293	829,753

Same definitions as Table S1.

Table S5. Base-case results and efficiency frontier (LSBE-HGD cohort)

Strategy	Cost (US\$)	Incremental Cost (US\$)	Effectiveness (QALY)	Incremental Effectiveness (QALY)	ICER (US\$/QALY)	NMB (US\$)
Annual endoscopy	35,165	Ref	12.63758	Ref	Ref	596,713
Endoscopy every 2 years	35,522	357	12.47124	-0.16634	Absolutely dominated	588,040
Endoscopy every 3 years	35,640	474	12.41655	-0.22103	Absolutely dominated	585,188
Endoscopy every 4 years	35,697	532	12.38976	-0.24782	Absolutely dominated	583,791
Endoscopy every 5 years	35,731	566	12.37412	-0.26346	Absolutely dominated	582,975
Endoscopy every 10 years	35,793	628	12.34581	-0.29177	Absolutely dominated	581,497
Annual breath test	35,821	655	12.67773	0.04015	16,318	598,066
No surveillance	35,862	41	12.26694	-0.41079	Absolutely dominated	577,485
Breath test every 2 years	35,911	90	12.49337	-0.18436	Absolutely dominated	588,758
Breath test every 3 years	35,940	120	12.43275	-0.24498	Absolutely dominated	585,697
Breath test every 4 years	35,955	134	12.40306	-0.27467	Absolutely dominated	584,198
Breath test every 5 years	35,963	143	12.38573	-0.29200	Absolutely dominated	583,323
Breath test every 10 years	35,979	158	12.35436	-0.32338	Absolutely dominated	581,739
Sponge test every 10 years	36,370	550	12.32837	-0.34936	Absolutely dominated	580,048
Sponge test every 5 years	36,477	657	12.35042	-0.32731	Absolutely dominated	581,044
Sponge test every 4 years	36,535	715	12.36260	-0.31513	Absolutely dominated	581,594
Sponge test every 3 years	36,634	814	12.38346	-0.29427	Absolutely dominated	582,539
Sponge test every 2 years	36,836	1,015	12.42606	-0.25167	Absolutely dominated	584,467
miRNA test every 10 years	36,917	1,097	12.35897	-0.31876	Absolutely dominated	581,031
miRNA test every 5 years	37,159	1,338	12.39200	-0.28573	Absolutely dominated	582,441
miRNA test every 4 years	37,290	1,470	12.41024	-0.26749	Absolutely dominated	583,222
Annual sponge test	37,447	1,627	12.55561	-0.12212	Absolutely dominated	590,333
miRNA test every 3 years	37,514	1,693	12.44150	-0.23623	Absolutely dominated	584,561
miRNA test every 2 years	37,969	2,148	12.50531	-0.17242	Absolutely dominated	587,297
Annual miRNA test	39,350	3,529	12.69940	0.02167	162,872	595,620

Strategy	Cost (US\$)	Incremental Cost (US\$)	Effectiveness (QALY)	Incremental Effectiveness (QALY)	ICER (US\$/QALY)	NMB (US\$)
Annual endoscopy	35,165	Ref	12.63758	Ref	Ref	596,713
Annual breath test	35,821	655	12.67773	0.04015	16,318	598,066
Annual miRNA test	39,350	3,529	12.69940	0.02167	162,872	595,620

Same definitions as Table S1.

Table S6. Scenario results and efficiency frontier (USSBE cohort)

Strategy	Cost (US\$)	Incremental Cost (US\$)	Effectiveness (QALY)	Incremental Effectiveness (QALY)	ICER (US\$/QALY)	NMB (US\$)
No surveillance	28	Ref	19.02934	Ref	Ref	951,439
AI-assisted endoscopy every 10 years	641	613	19.02939	0.00004	Extendedly dominated	950,828
AI-assisted endoscopy every 5 years	1,046	406	19.02942	0.00003	Extendedly dominated	950,424
Breath test every 10 years	1,077	30	19.02939	-0.00003	Absolutely dominated	950,393
AI-assisted endoscopy every 4 years	1,250	204	19.02943	0.00002	Extendedly dominated	950,221
Sponge test every 10 years	1,538	288	19.02938	-0.00006	Absolutely dominated	949,931
AI-assisted endoscopy every 3 years	1,590	340	19.02946	0.00003	Extendedly dominated	949,883
Breath test every 5 years	1,771	181	19.02942	-0.00003	Absolutely dominated	949,701
Breath test every 4 years	2,119	529	19.02944	-0.00002	Absolutely dominated	949,353
AI-assisted endoscopy every 2 years	2,270	680	19.02951	0.00005	Extendedly dominated	949,206
Sponge test every 5 years	2,537	267	19.02940	-0.00011	Absolutely dominated	948,933
Breath test every 3 years	2,700	430	19.02947	-0.00004	Absolutely dominated	948,774
miRNA test every 10 years	2,822	552	19.02939	-0.00012	Absolutely dominated	948,648
Sponge test every 4 years	3,038	769	19.02941	-0.00010	Absolutely dominated	948,432
Breath test every 2 years	3,863	1,593	19.02953	0.00002	Extendedly dominated	947,613
Sponge test every 3 years	3,875	12	19.02943	-0.00010	Absolutely dominated	947,597
Annual AI-assisted endoscopy	4,310	4,283	19.02966	0.00032	13,315,317	947,173
miRNA test every 5 years	4,670	360	19.02943	-0.00024	Absolutely dominated	946,801
Sponge test every 2 years	5,549	1,239	19.02947	-0.00019	Absolutely dominated	945,925
miRNA test every 4 years	5,598	1,288	19.02945	-0.00022	Absolutely dominated	945,874
miRNA test every 3 years	7,146	2,836	19.02948	-0.00019	Absolutely dominated	944,328
Annual breath test	7,354	3,044	19.02970	0.00003	87,353,552	944,131
miRNA test every 2 years	10,244	2,890	19.02954	-0.00016	Absolutely dominated	941,233
Annual sponge test	10,575	3,221	19.02959	-0.00011	Absolutely dominated	940,905
Annual miRNA test	19,543	12,189	19.02972	0.00002	648,276,885	931,943

Strategy	Cost (US\$)	Incremental Cost (US\$)	Effectiveness (QALY)	Incremental Effectiveness (QALY)	ICER (US\$/QALY)	NMB (US\$)
No surveillance	28	Ref	19.02934	Ref	Ref	951,439
Annual AI-assisted endoscopy	4,310	4,283	19.02966	0.00032	13,315,317	947,173
Annual breath test	7,354	3,044	19.02970	0.00003	87,353,552	944,131
Annual miRNA test	19,543	12,189	19.02972	0.00002	648,276,885	931,943

Same definitions as Table S1.

Table S7. Scenario results and efficiency frontier (SSBE cohort)

Strategy	Cost (US\$)	Incremental Cost (US\$)	Effectiveness (QALY)	Incremental Effectiveness (QALY)	ICER (US\$/QALY)	NMB (US\$)
No surveillance	225	Ref	19.00488	Ref	Ref	950,019
AI-assisted endoscopy every 10 years	835	610	19.00522	0.00035	Extendedly dominated	949,426
AI-assisted endoscopy every 5 years	1,238	403	19.00547	0.00025	Extendedly dominated	949,036
Breath test every 10 years	1,270	32	19.00526	-0.00021	Absolutely dominated	948,993
AI-assisted endoscopy every 4 years	1,440	202	19.00560	0.00013	Extendedly dominated	948,840
Sponge test every 10 years	1,730	290	19.00515	-0.00045	Absolutely dominated	948,527
AI-assisted endoscopy every 3 years	1,778	337	19.00581	0.00021	Extendedly dominated	948,513
Breath test every 5 years	1,960	182	19.00554	-0.00027	Absolutely dominated	948,317
Breath test every 4 years	2,306	528	19.00568	-0.00013	Absolutely dominated	947,978
AI-assisted endoscopy every 2 years	2,453	676	19.00623	0.00042	Extendedly dominated	947,858
Sponge test every 5 years	2,725	272	19.00534	-0.00089	Absolutely dominated	947,542
Breath test every 3 years	2,884	431	19.00591	-0.00032	Absolutely dominated	947,411
miRNA test every 10 years	3,011	558	19.00528	-0.00094	Absolutely dominated	947,253
Sponge test every 4 years	3,224	771	19.00544	-0.00079	Absolutely dominated	947,048
Breath test every 2 years	4,041	1,588	19.00637	0.00015	Extendedly dominated	946,278
Sponge test every 3 years	4,057	16	19.00560	-0.00077	Absolutely dominated	946,223
Annual AI-assisted endoscopy	4,481	4,256	19.00749	0.00261	1,632,816	945,893
miRNA test every 5 years	4,851	371	19.00557	-0.00191	Absolutely dominated	945,427
Sponge test every 2 years	5,724	1,243	19.00593	-0.00156	Absolutely dominated	944,572
miRNA test every 4 years	5,775	1,295	19.00572	-0.00177	Absolutely dominated	944,510
miRNA test every 3 years	7,317	2,836	19.00596	-0.00152	Absolutely dominated	942,981
Annual breath test	7,513	3,033	19.00777	0.00028	10,738,961	942,875
miRNA test every 2 years	10,402	2,889	19.00645	-0.00132	Absolutely dominated	939,920
Annual sponge test	10,728	3,215	19.00691	-0.00086	Absolutely dominated	939,617
Annual miRNA test	19,663	12,150	19.00792	0.00015	79,728,307	930,733

Strategy	Cost (US\$)	Incremental Cost (US\$)	Effectiveness (QALY)	Incremental Effectiveness (QALY)	ICER (US\$/QALY)	NMB (US\$)
No surveillance	225	Ref	19.00488	Ref	Ref	950,019
Annual AI-assisted endoscopy	4,481	4,256	19.00749	0.00261	1,632,816	945,893
Annual breath test	7,513	3,033	19.00777	0.00028	10,738,961	942,875
Annual miRNA test	19,663	12,150	19.00792	0.00015	79,728,307	930,733

Same definitions as Table S1.

Table S8. Scenario results and efficiency frontier (LSBE-NDBE cohort)

Strategy	Cost (US\$)	Incremental Cost (US\$)	Effectiveness (QALY)	Incremental Effectiveness (QALY)	ICER (US\$/QALY)	NMB (US\$)
No surveillance	1,770	Ref	18.81182	Ref	Ref	938,821
AI-assisted endoscopy every 10 years	2,358	587	18.81456	0.00275	Extendedly dominated	938,371
AI-assisted endoscopy every 5 years	2,740	382	18.81653	0.00196	Extendedly dominated	938,086
Breath test every 10 years	2,784	43	18.81486	-0.00167	Absolutely dominated	937,960
AI-assisted endoscopy every 4 years	2,932	192	18.81752	0.00099	Extendedly dominated	937,944
Sponge test every 10 years	3,240	308	18.81396	-0.00356	Absolutely dominated	937,457
AI-assisted endoscopy every 3 years	3,253	320	18.81917	0.00166	Extendedly dominated	937,706
Breath test every 5 years	3,444	192	18.81704	-0.00214	Absolutely dominated	937,408
Breath test every 4 years	3,776	524	18.81814	-0.00104	Absolutely dominated	937,131
AI-assisted endoscopy every 2 years	3,894	641	18.82249	0.00332	Extendedly dominated	937,230
Sponge test every 5 years	4,201	307	18.81549	-0.00701	Absolutely dominated	936,574
Breath test every 3 years	4,330	436	18.81997	-0.00252	Absolutely dominated	936,669
miRNA test every 10 years	4,495	600	18.81502	-0.00747	Absolutely dominated	936,257
Sponge test every 4 years	4,683	789	18.81626	-0.00623	Absolutely dominated	936,130
Breath test every 2 years	5,438	1,544	18.82365	0.00116	Extendedly dominated	935,744
Sponge test every 3 years	5,487	49	18.81755	-0.00610	Absolutely dominated	935,390
Annual AI-assisted endoscopy	5,820	4,049	18.83245	0.02064	196,213	935,803
miRNA test every 5 years	6,274	455	18.81731	-0.01514	Absolutely dominated	934,592
Sponge test every 2 years	7,098	1,278	18.82013	-0.01232	Absolutely dominated	933,909
miRNA test every 4 years	7,168	1,348	18.81847	-0.01398	Absolutely dominated	933,756
miRNA test every 3 years	8,659	2,840	18.82040	-0.01205	Absolutely dominated	932,361
Annual breath test	8,765	2,946	18.83469	0.00224	1,317,489	932,969
miRNA test every 2 years	11,644	2,879	18.82427	-0.01042	Absolutely dominated	929,570
Annual sponge test	11,932	3,167	18.82789	-0.00680	Absolutely dominated	929,462
Annual miRNA test	20,604	11,839	18.83590	0.00121	9,812,423	921,191

Strategy	Cost (US\$)	Incremental Cost (US\$)	Effectiveness (QALY)	Incremental Effectiveness (QALY)	ICER (US\$/QALY)	NMB (US\$)
No surveillance	1,770	Ref	18.81182	Ref	Ref	938,821
Annual AI-assisted endoscopy	5,820	4,049	18.83245	0.02064	196,213	935,803
Annual breath test	8,765	2,946	18.83469	0.00224	1,317,489	932,969
Annual miRNA test	20,604	11,839	18.83590	0.00121	9,812,423	921,191

Same definitions as Table S1.

Table S9. Scenario results and efficiency frontier (LSBE-LGD cohort)

Strategy	Cost (US\$)	Incremental Cost (US\$)	Effectiveness (QALY)	Incremental Effectiveness (QALY)	ICER (US\$/QALY)	NMB (US\$)
No surveillance	8,655	Ref	16.99090	Ref	Ref	840,890
AI-assisted endoscopy every 10 years	9,137	483	17.00453	0.01363	Extendedly dominated	841,089
AI-assisted endoscopy every 5 years	9,427	290	17.01392	0.00939	Extendedly dominated	841,269
Breath test every 10 years	9,523	96	17.00601	-0.00791	Absolutely dominated	840,777
AI-assisted endoscopy every 4 years	9,573	146	17.01867	0.00475	Extendedly dominated	841,360
AI-assisted endoscopy every 3 years	9,817	244	17.02661	0.00794	Extendedly dominated	841,513
Sponge test every 10 years	9,963	146	17.00152	-0.02509	Absolutely dominated	840,113
Breath test every 5 years	10,051	235	17.01641	-0.01019	Absolutely dominated	840,769
AI-assisted endoscopy every 2 years	10,305	488	17.04252	0.01591	Extendedly dominated	841,821
Breath test every 4 years	10,317	13	17.02167	-0.02084	Absolutely dominated	840,767
Breath test every 3 years	10,761	456	17.03047	-0.01205	Absolutely dominated	840,763
Sponge test every 5 years	10,767	463	17.00883	-0.03369	Absolutely dominated	839,674
miRNA test every 10 years	11,095	791	17.00681	-0.03571	Absolutely dominated	839,245
Sponge test every 4 years	11,172	867	17.01253	-0.02999	Absolutely dominated	839,455
Breath test every 2 years	11,649	1,345	17.04811	0.00559	Extendedly dominated	840,756
Annual AI-assisted endoscopy	11,769	3,114	17.09033	0.09943	31,323	842,747
Sponge test every 3 years	11,847	78	17.01871	-0.07162	Absolutely dominated	839,088
miRNA test every 5 years	12,598	829	17.01776	-0.07257	Absolutely dominated	838,290
Sponge test every 2 years	13,200	1,431	17.03110	-0.05923	Absolutely dominated	838,355
miRNA test every 4 years	13,354	1,585	17.02330	-0.06703	Absolutely dominated	837,811
Annual breath test	14,317	2,548	17.10110	0.01077	236,568	840,738
miRNA test every 3 years	14,616	299	17.03256	-0.06854	Absolutely dominated	837,012
miRNA test every 2 years	17,143	2,826	17.05113	-0.04997	Absolutely dominated	835,413
Annual sponge test	17,261	2,943	17.06834	-0.03276	Absolutely dominated	836,156
Annual miRNA test	24,731	10,414	17.10691	0.00581	1,791,535	830,615

Strategy	Cost (US\$)	Incremental Cost (US\$)	Effectiveness (QALY)	Incremental Effectiveness (QALY)	ICER (US\$/QALY)	NMB (US\$)
No surveillance	8,655	Ref	16.99090	Ref	Ref	840,890
Annual AI-assisted endoscopy	11,769	3,114	17.09033	0.09943	31,323	842,747
Annual breath test	14,317	2,548	17.10110	0.01077	236,568	840,738
Annual miRNA test	24,731	10,414	17.10691	0.00581	1,791,535	830,615

Same definitions as Table S1.

Table S10. Scenario results and efficiency frontier (LSBE-HGD cohort)

Strategy	Cost (US\$)	Incremental Cost (US\$)	Effectiveness (QALY)	Incremental Effectiveness (QALY)	ICER (US\$/QALY)	NMB (US\$)
Annual AI-assisted endoscopy	34,829	Ref	12.72653	Ref	Ref	601,498
AI-assisted endoscopy every 2 years	35,342	513	12.52027	-0.20627	Absolutely dominated	590,672
Annual breath test	35,482	653	12.77632	0.04979	13,122	603,334
AI-assisted endoscopy every 3 years	35,511	29	12.45245	-0.32387	Absolutely dominated	587,112
AI-assisted endoscopy every 4 years	35,594	112	12.41923	-0.35708	Absolutely dominated	585,368
AI-assisted endoscopy every 5 years	35,642	160	12.39984	-0.37648	Absolutely dominated	584,350
Breath test every 2 years	35,731	249	12.54771	-0.22861	Absolutely dominated	591,655
AI-assisted endoscopy every 10 years	35,732	250	12.36474	-0.41158	Absolutely dominated	582,505
Breath test every 3 years	35,813	331	12.47255	-0.30377	Absolutely dominated	587,814
Breath test every 4 years	35,853	371	12.43573	-0.34059	Absolutely dominated	585,934
No surveillance	35,862	380	12.26694	-0.50938	Absolutely dominated	577,485
Breath test every 5 years	35,877	395	12.41424	-0.36208	Absolutely dominated	584,835
Breath test every 10 years	35,920	438	12.37533	-0.40099	Absolutely dominated	582,847
Sponge test every 10 years	36,326	844	12.34311	-0.43321	Absolutely dominated	580,830
Sponge test every 5 years	36,412	930	12.37045	-0.40587	Absolutely dominated	582,110
Sponge test every 4 years	36,459	977	12.38556	-0.39076	Absolutely dominated	582,819
Sponge test every 3 years	36,539	1,057	12.41143	-0.36489	Absolutely dominated	584,032
Sponge test every 2 years	36,702	1,220	12.46424	-0.31208	Absolutely dominated	586,510
miRNA test every 10 years	36,848	1,366	12.38105	-0.39527	Absolutely dominated	582,205
miRNA test every 5 years	37,058	1,576	12.42201	-0.35431	Absolutely dominated	584,043
miRNA test every 4 years	37,172	1,690	12.44464	-0.33168	Absolutely dominated	585,060
Annual sponge test	37,197	1,714	12.62489	-0.15143	Absolutely dominated	594,048
miRNA test every 3 years	37,367	1,885	12.48339	-0.29293	Absolutely dominated	586,803
miRNA test every 2 years	37,762	2,280	12.56252	-0.21380	Absolutely dominated	590,364
Annual miRNA test	38,963	3,481	12.80319	0.02687	129,566	601,196

Strategy	Cost (US\$)	Incremental Cost (US\$)	Effectiveness (QALY)	Incremental Effectiveness (QALY)	ICER (US\$/QALY)	NMB (US\$)
Annual AI-assisted endoscopy	34,829	Ref	12.72653	Ref	Ref	601,498
Annual breath test	35,482	653	12.77632	0.04979	13,122	603,334
Annual miRNA test	38,963	3,481	12.80319	0.02687	129,566	601,196

Same definitions as Table S1.

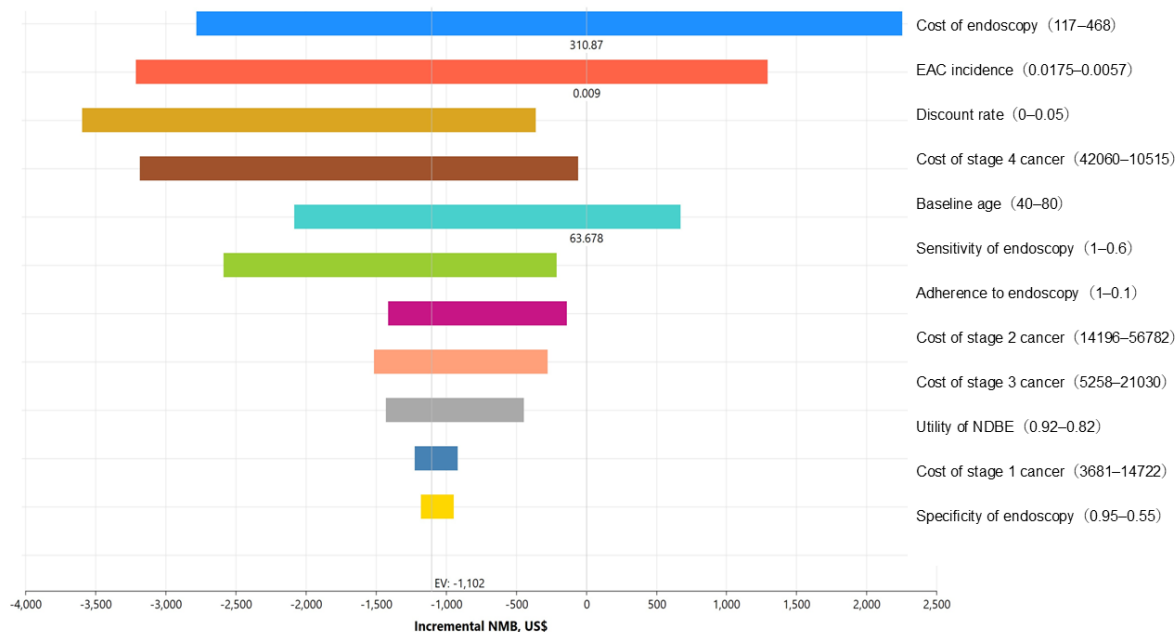


Figure S1. Tornado diagram of incremental NMB for LSBE-LGD: No surveillance vs annual endoscopy

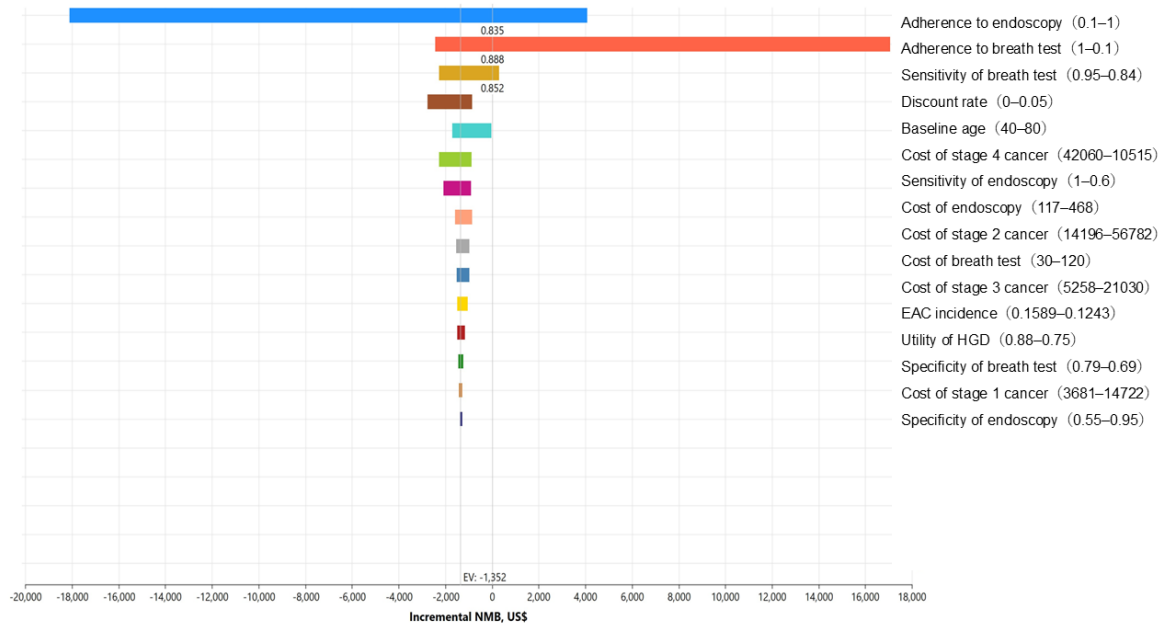


Figure S2. Tornado diagram of incremental NMB for LSBE-HGD: Annual endoscopy vs annual breath test

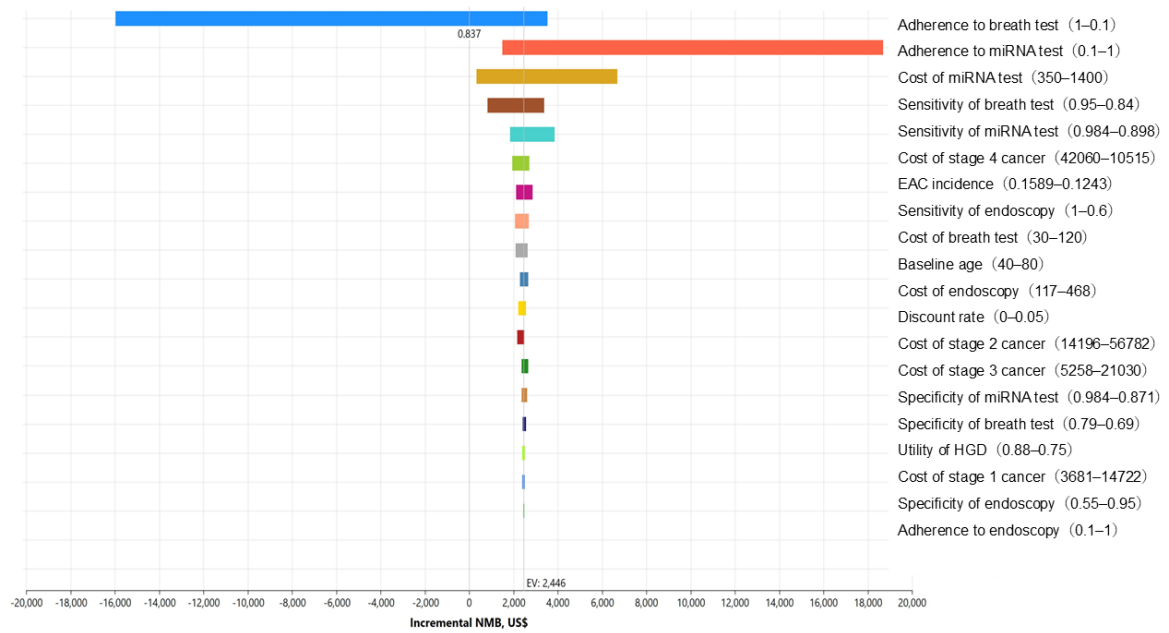


Figure S3. Tornado diagram of incremental NMB for LSBE-HGD: Annual breath test vs annual miRNA test

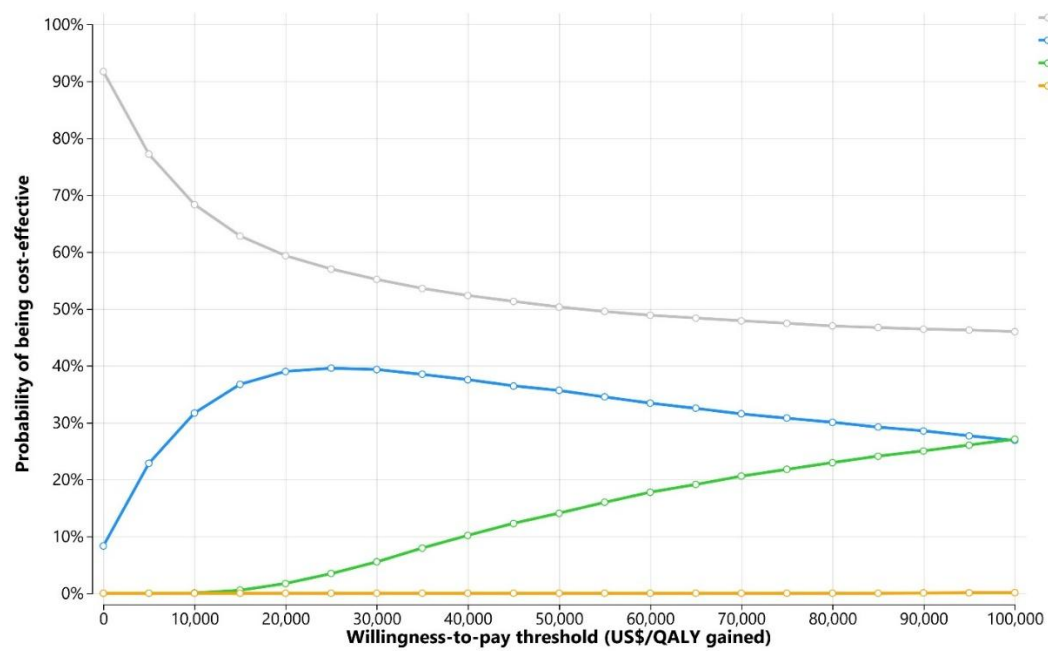


Figure S4. Cost-effectiveness acceptability curve for LSBE-LGD including no surveillance

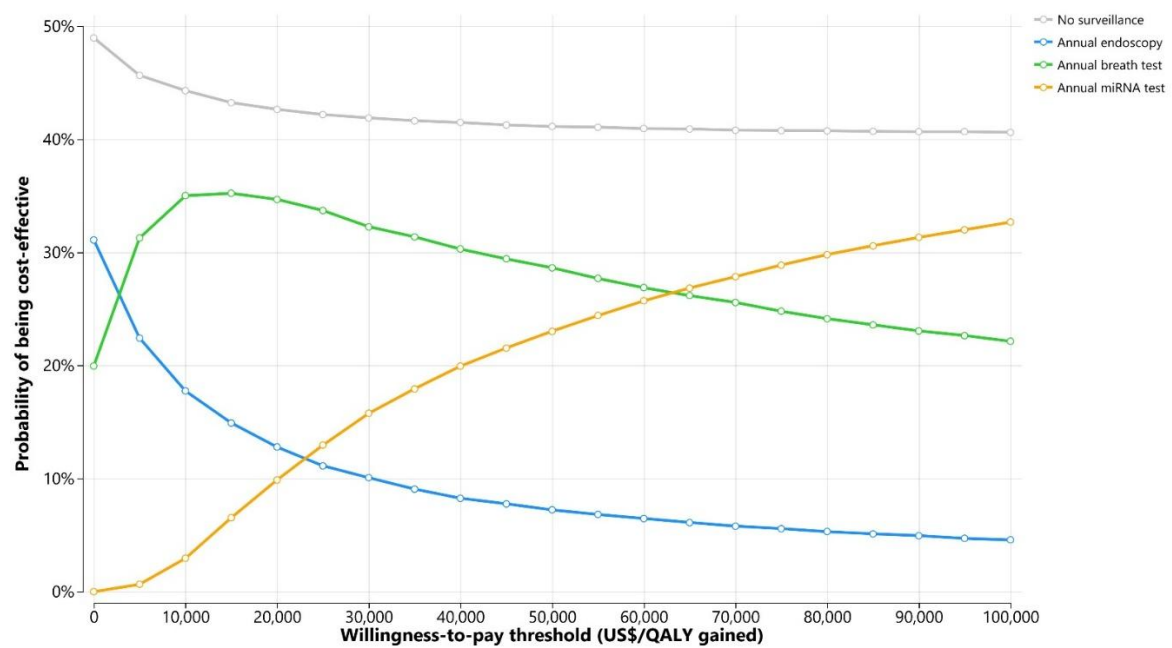


Figure S5. Cost-effectiveness acceptability curve for LSBE-HGD including no surveillance

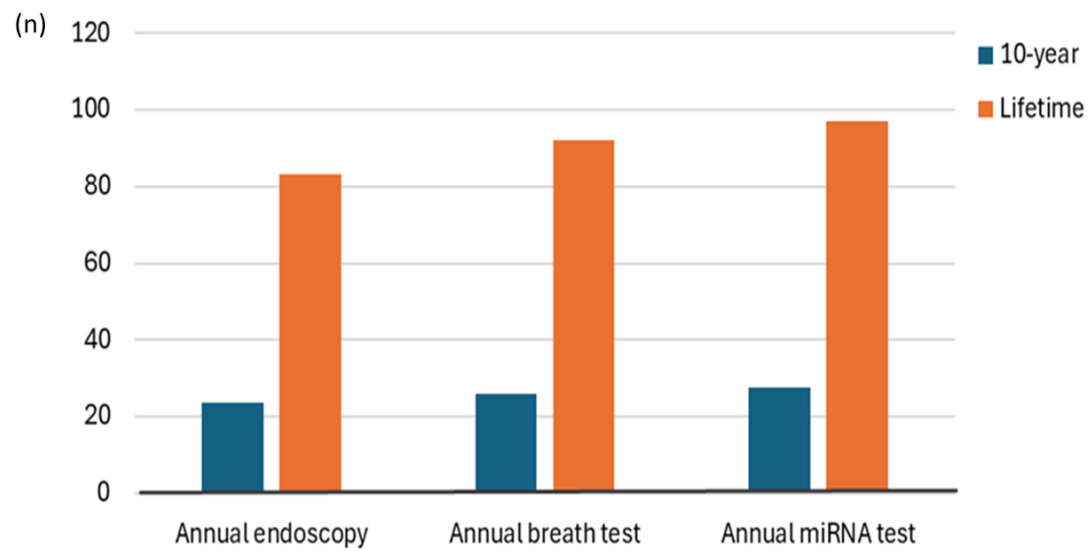


Figure S6. EAC deaths averted per 10,000 LSBE-LGD patients over 10 years and over a lifetime

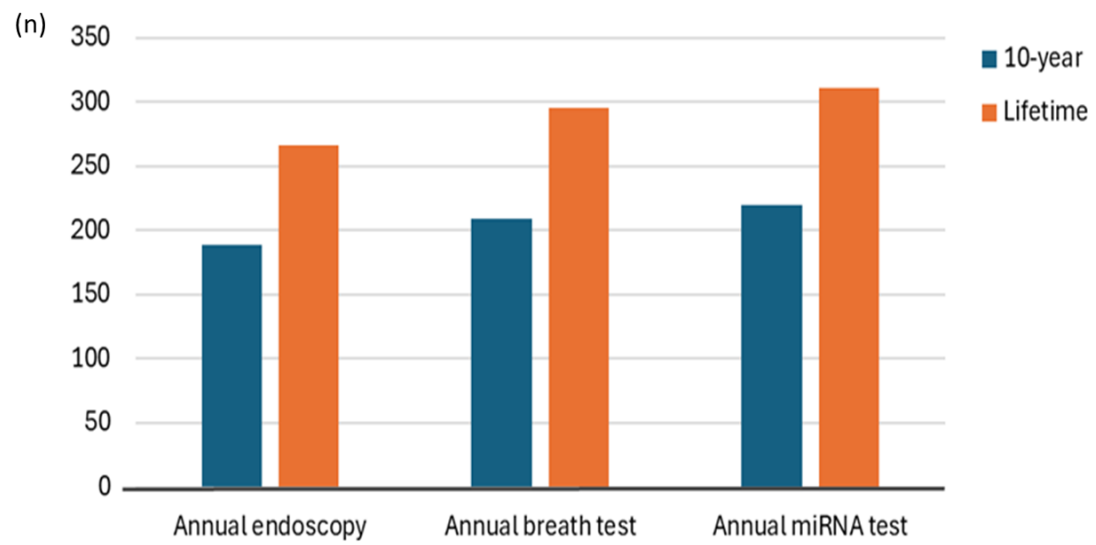


Figure S7. EAC deaths averted per 10,000 LSBE-HGD patients over 10 years and over a lifetime

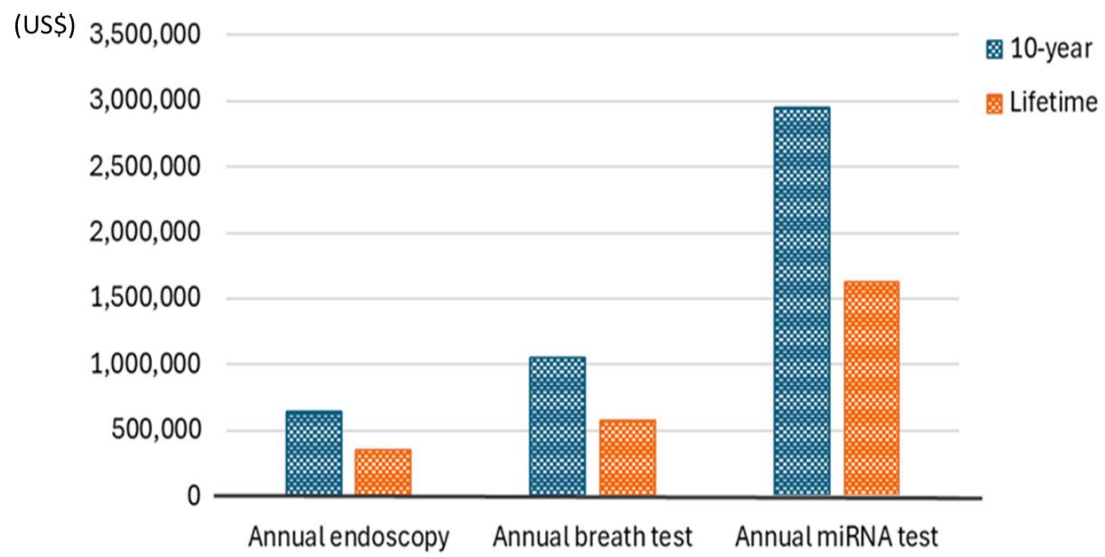


Figure S8. Additional costs per EAC death averted among 10,000 LSBE-LGD patients over 10 years and over a lifetime

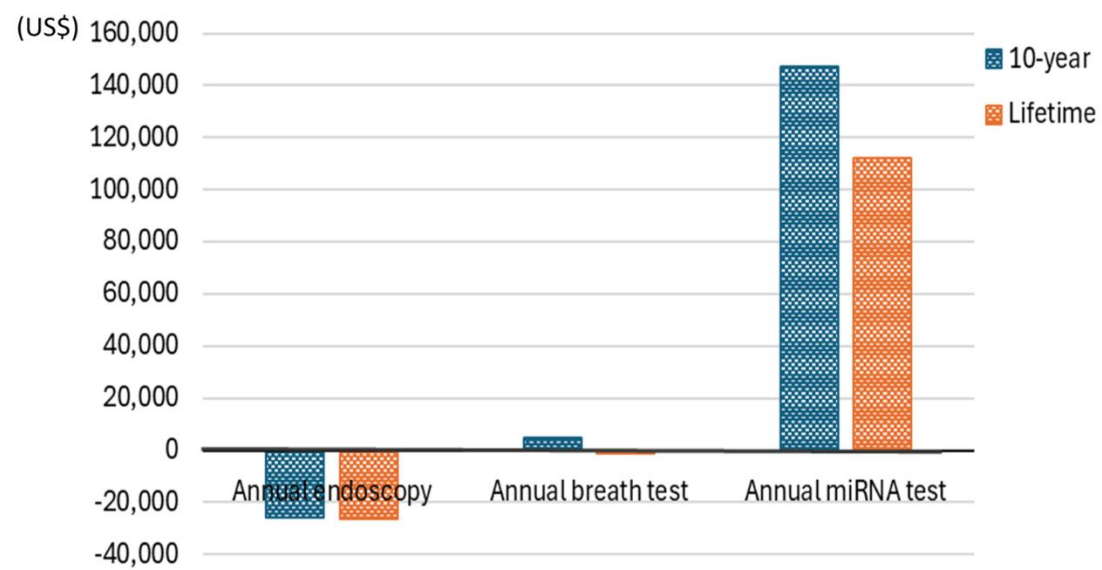


Figure S9. Additional costs per EAC death averted among 10,000 LSBE-HGD patients over 10 years and over a lifetime