

Note: This is Online Appendix 1 of Edoka IP, Drake T, Baker P, et al., A cost-effectiveness analysis of Molnupiravir and Paxlovid for outpatient treatment of COVID-19 in three African countries. J Public Health Africa. 2025;16(1), a805. <https://doi.org/10.4102/jphia.v16i1.805>

Table S1: Test performed per 1000 population, 2022

200-1000	100-200	0-100
Gabon	Zimbabwe	Kenya
Mauritius	Zambia	Uganda
South Africa	Burundi	Togo
Namibia	Cameroon	Ghana
Mauritania		Cote d'Ivoire
Equatorial Guinea		Guinea
Rwanda		Guinea-Bissau
Eswatini		Mali
Lesotho		Nigeria
		South Sudan
		Ethiopia
		Somalia
		Madagascar
		Malawi
		Mozambique
		Central Africa Republic
		Chad

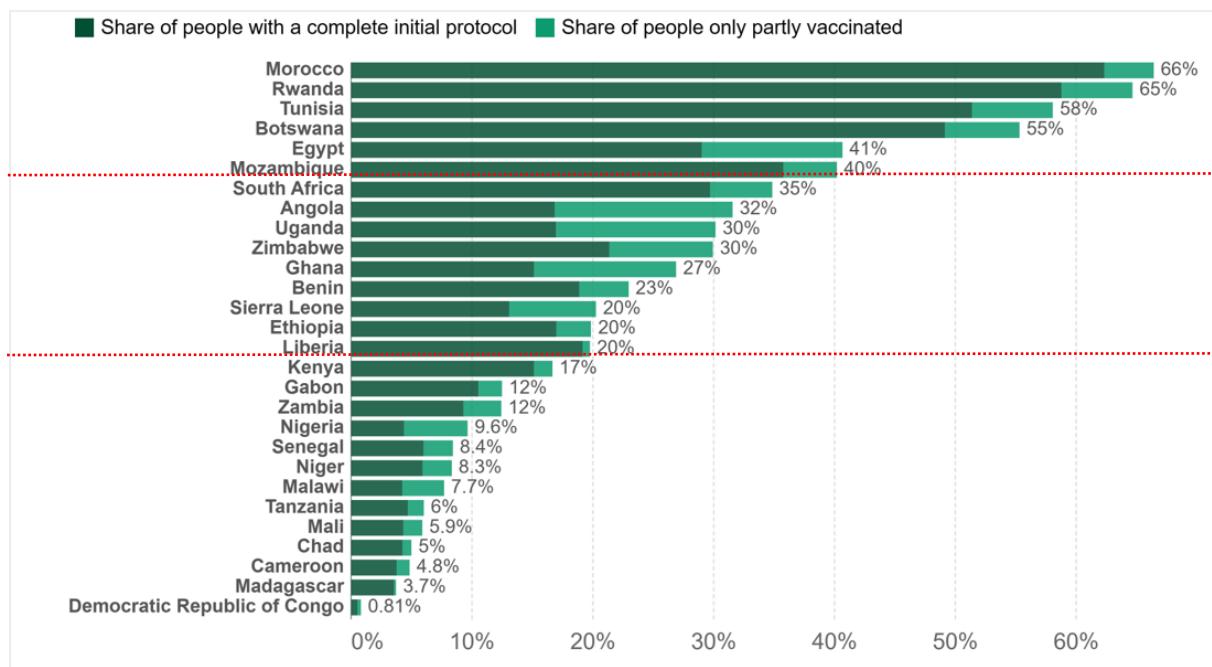


Figure S1: Share of population vaccinated against COVID-19 (March 2022)

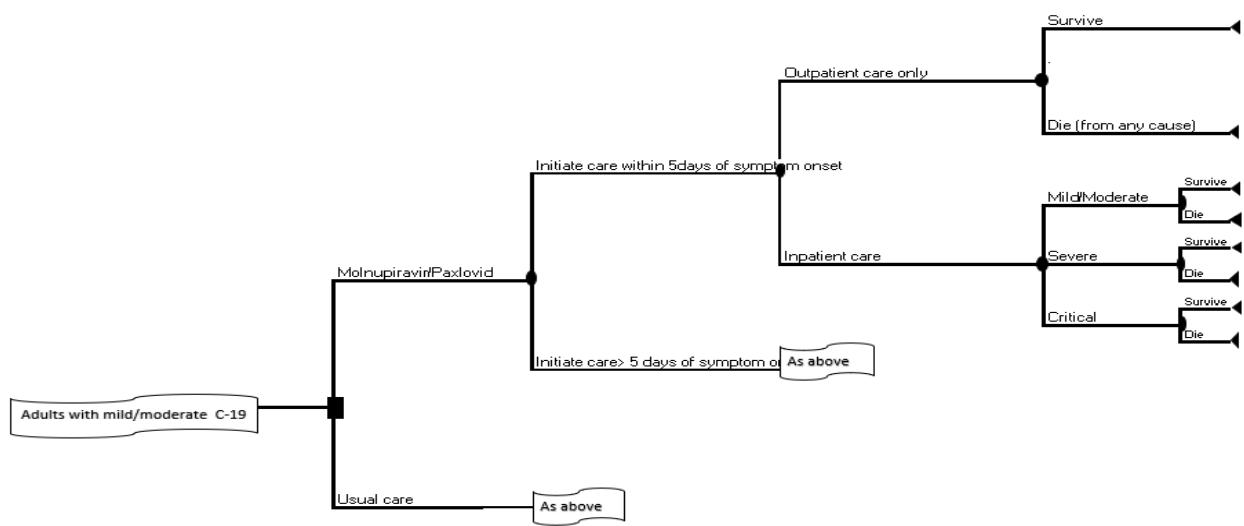


Figure S2: Diagrammatic representation of the model

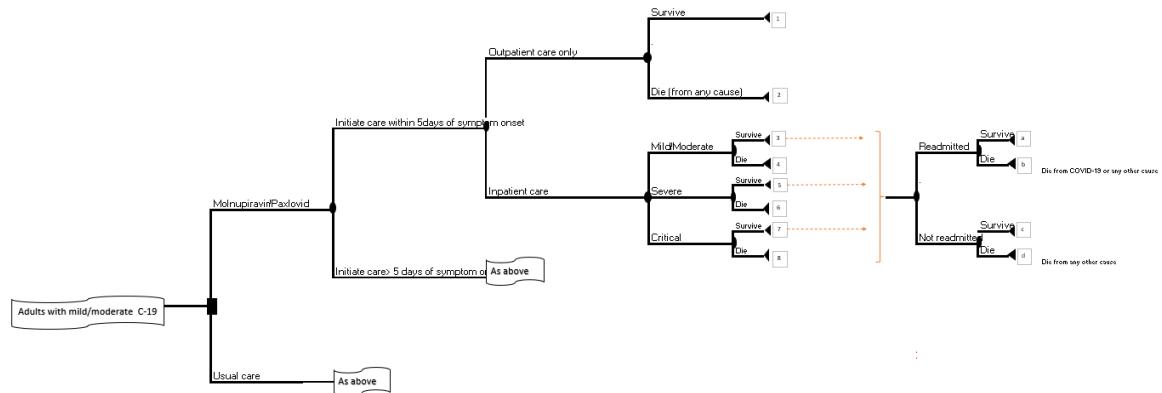


Figure S3: Model structure depicting hospital readmission post-acute COVID-19 phase.

Table S2: One-Way Deterministic Sensitivity Analysis Parameters

Parameters	Ghana			Rwand a			Zambia		
	Base case	Low value†	High value†	Base case	Low value†	High value†	Base case	Low value†	High value†
1 Discount rate (%)	5	0	10	5	0	10	5	0	10
2 Clinical efficacy (Paxlovid)									
RR, hospitalisation	0.15	0.08	0.29	0.15	0.08	0.29	0.15	0.08	0.29
RR, mortality in hospitalised patients	0.12	0.04	0.36	0.12	0.04	0.36	0.12	0.04	0.36
3 Clinical efficacy (Molnupiravir)									
RR, hospitalisation	0.67	0.49	0.92	0.67	0.49	0.92	0.67	0.49	0.92
4 Treatment costs* (full course, US\$)									
Paxlovid	25	5	45	25	5	45	25	5	45
Molnupiravir	20	4	36	20	4	36	20	4	36
5 Disease parameters*									
Care initiated with 5 days of symptom onset (%)	7	5	10	41	25	57	18	11	25
Hospitalisation rates (%)									
All adult population	3	2	4	1	0.8	1.9	2	1	3
Adults ≥ 65 years old	25	15	34	12	7	17	18	11	25
Adults other risk factors	8	5	11	4	2	6	6	4	8
Hospitalisation modifier (Age)	9	2	16	9	2	16	9	2	16
Hospitalisation modifier (Comorbidities)	3	1	5	3	1	5	3	1	5
Mortality rates (%)									
Outpatient	4	2	5	3	2	4	5	3	8
Hospitalised, mild/moderate	4	2	5	3	2	4	5	3	8
Hospitalised, severe	17	10	24	21	13	29	19	12	26
Hospitalised, critical	26	16	36	21	13	29	34	21	47
6 Cost of Illness(US\$), per patient per day*									
Outpatient care only	20.93	12.73	29.14	12.49	7.60	17.39	17.59	10.69	24.48

Parameters	Ghana			Rwanda			Zambia		
Mild/moderate	581.19	353.36	809.01	502.41	305.46	699.35	583.45	354.74	812.16
Severe	1363.70	829.13	1898.28	1178.8 5	716.74	1640.9 7	1369.00	832.35	1905.65
Critical	1570.36	954.78	2185.94	1517.0 6	922.37	2111.7 5	1590.55	967.06	2214.05
7 Length of hospital stay (days)*									
Outpatient care only	5	3	6	5	3	6	5	3	6
Mild/moderate, survived	3	3	3	3	3	3	3	3	3
Mild/moderate, died	5	5	5	5	5	5	5	5	5
Severe, survived	5	4	5	5	4	5	5	4	5
Severe, died	3	2	3	3	2	3	3	2	3
Critical, survived	5	4	5	5	4	5	5	4	5
Critical, died	3	2	3	3	2	3	3	2	3
10 Disability weight									
Outpatient care only	0.051	0.032	0.074	0.051	0.032	0.074	0.051	0.032	0.074
Mild/moderate	0.133	0.088	0.19	0.133	0.088	0.19	0.133	0.088	0.19
Severe	0.655	0.579	0.727	0.655	0.579	0.727	0.655	0.579	0.727
Critical	0.655	0.579	0.727	0.655	0.579	0.727	0.655	0.579	0.727

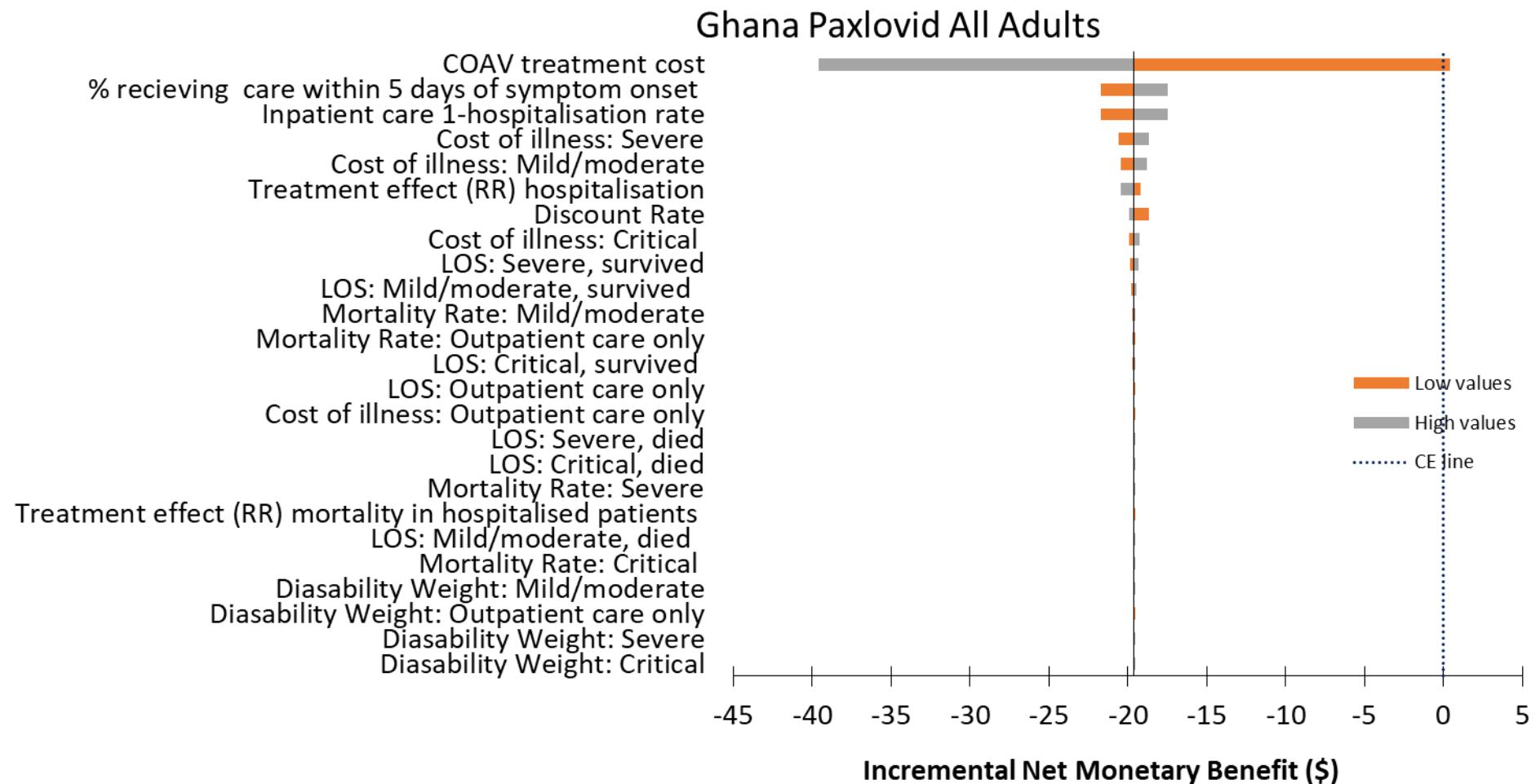
RR- Relative Risk

†High and low values estimated using standard errors reported in data sources. But when not reported standard errors were assumed to be 20% of the mean value

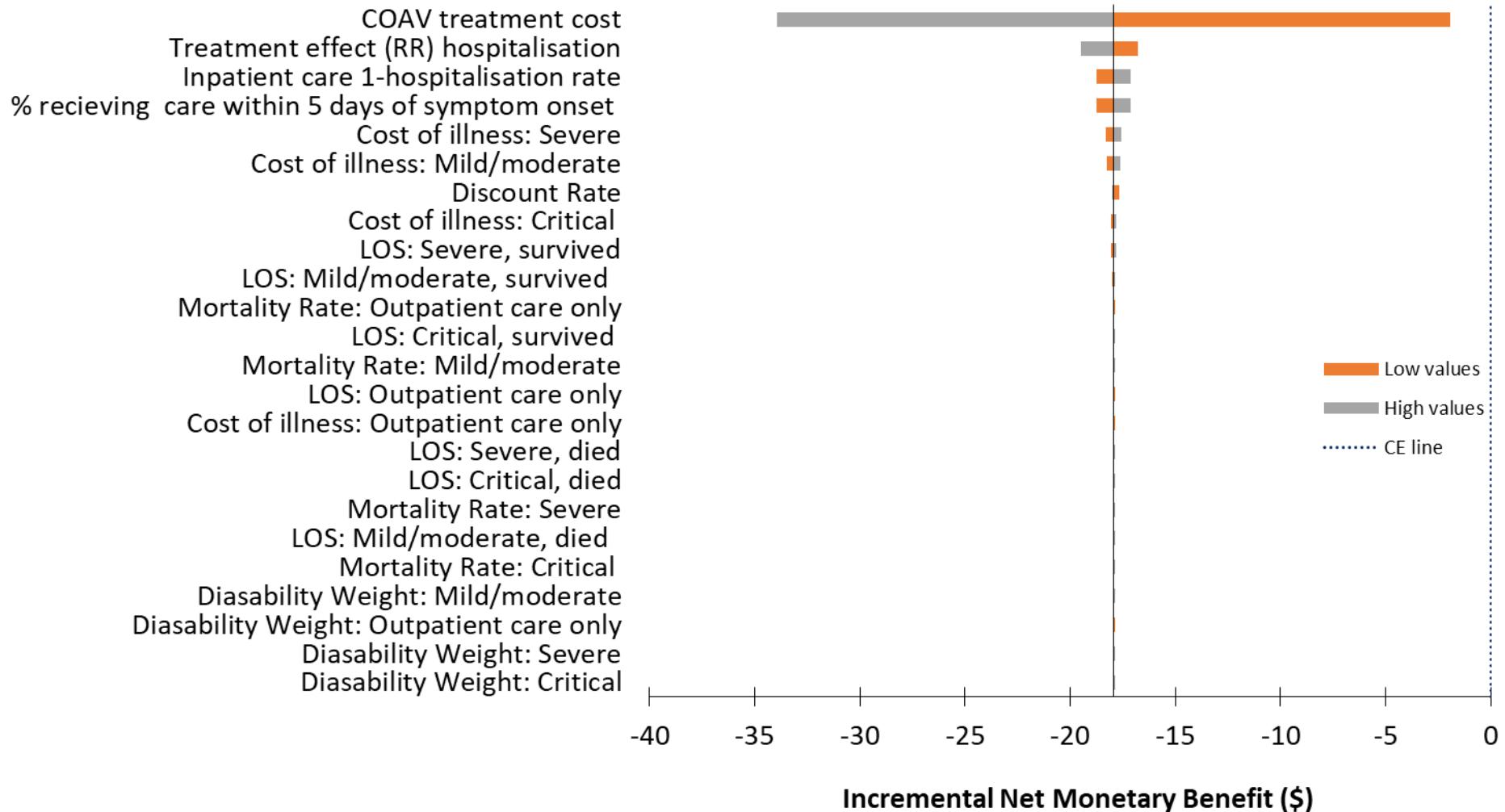
*Standard errors for these parameters were assumed to be 20% of their mean value

Figure S4: One-Way Deterministic Sensitivity Analysis (Base case)

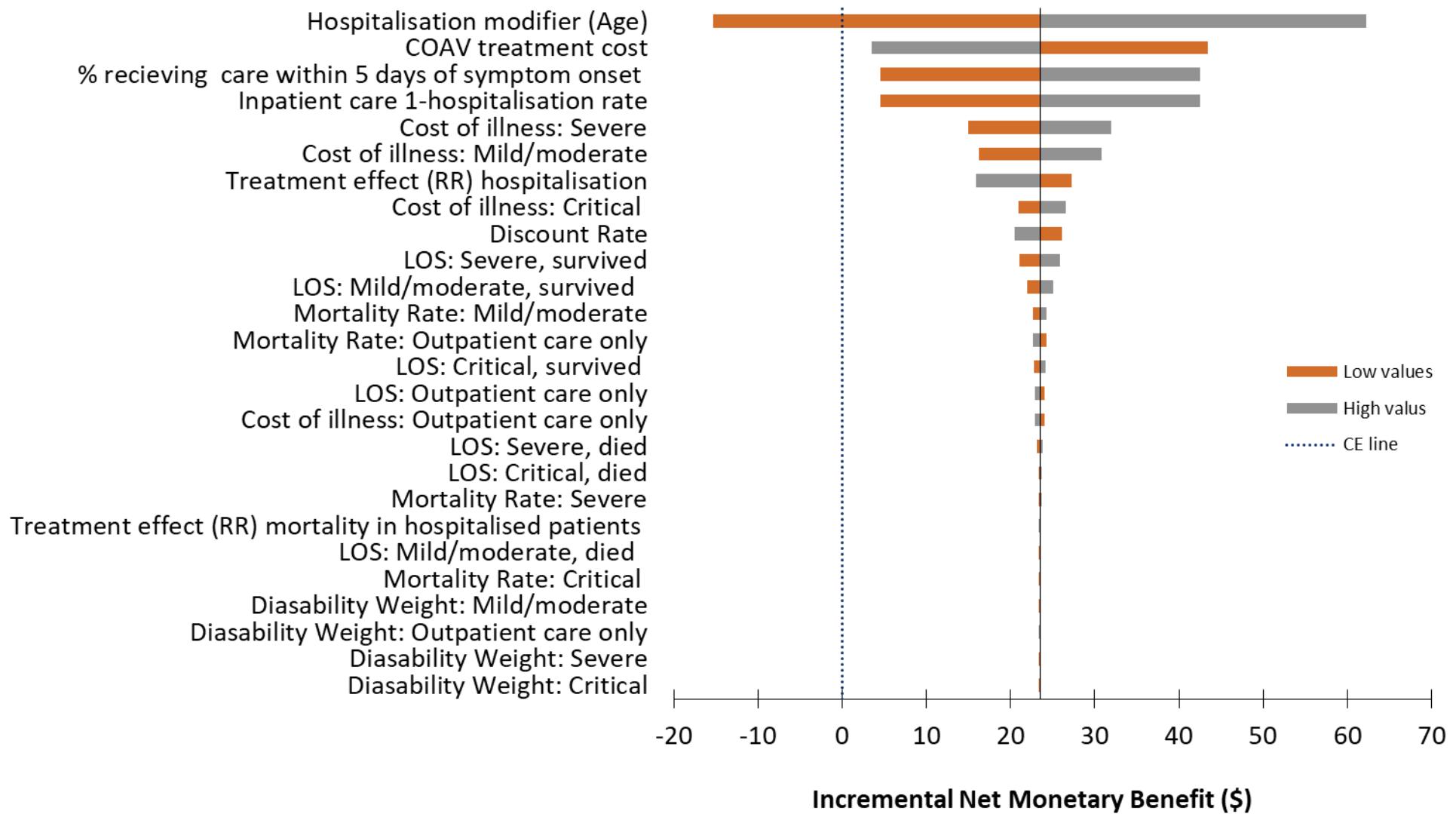
1. GHANA



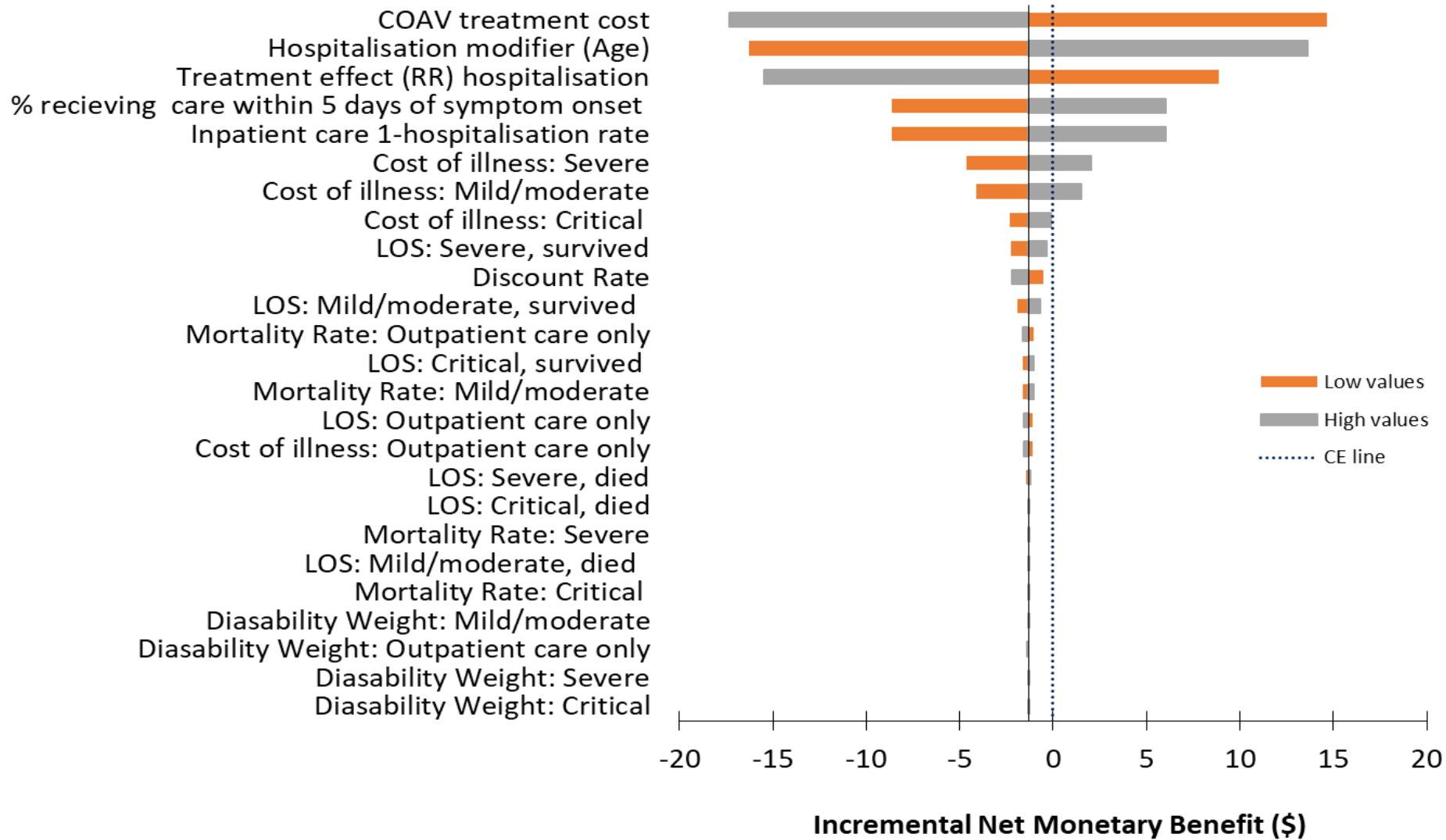
Ghana Molnupiravir All Adults



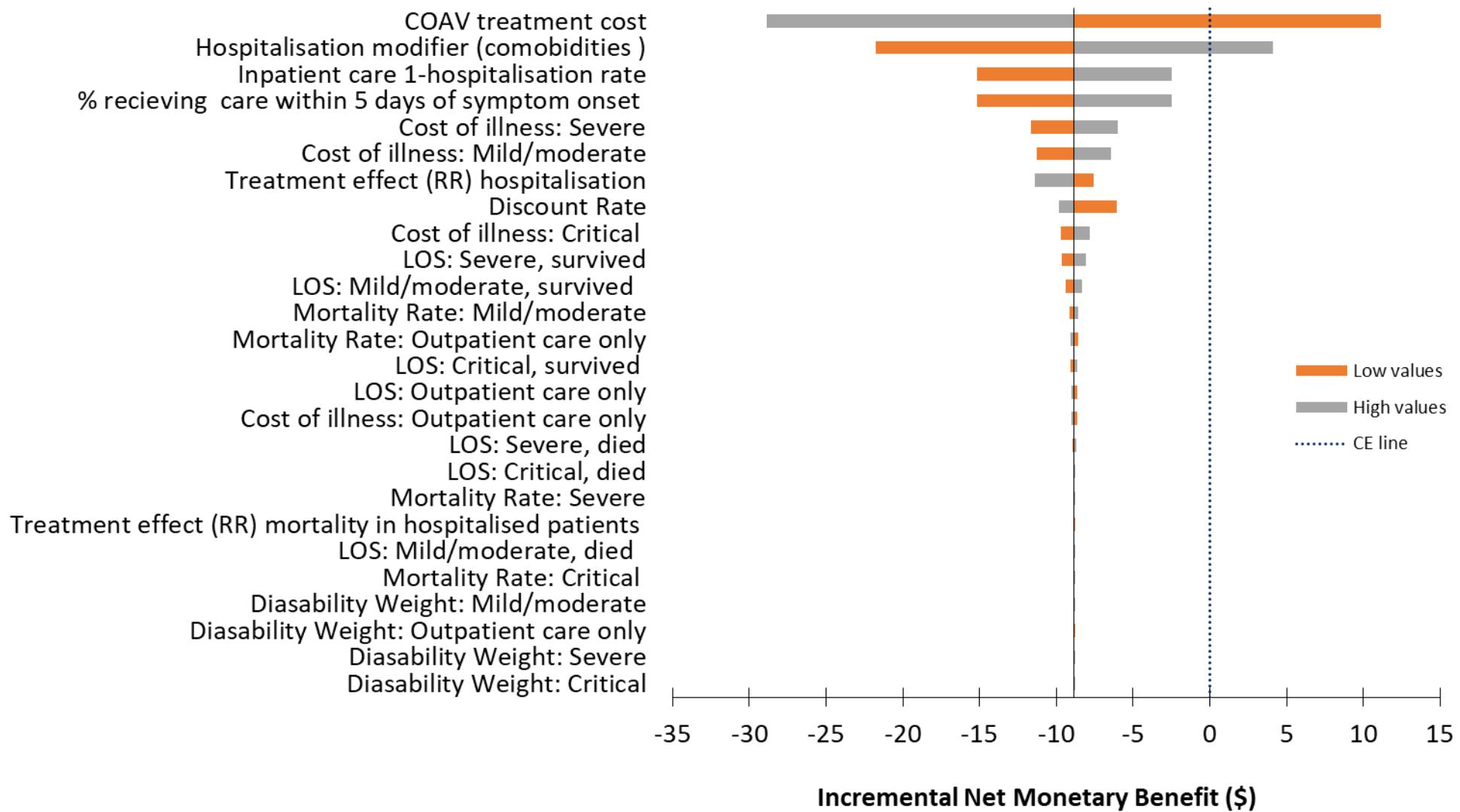
Ghana Paxlovid Elderly



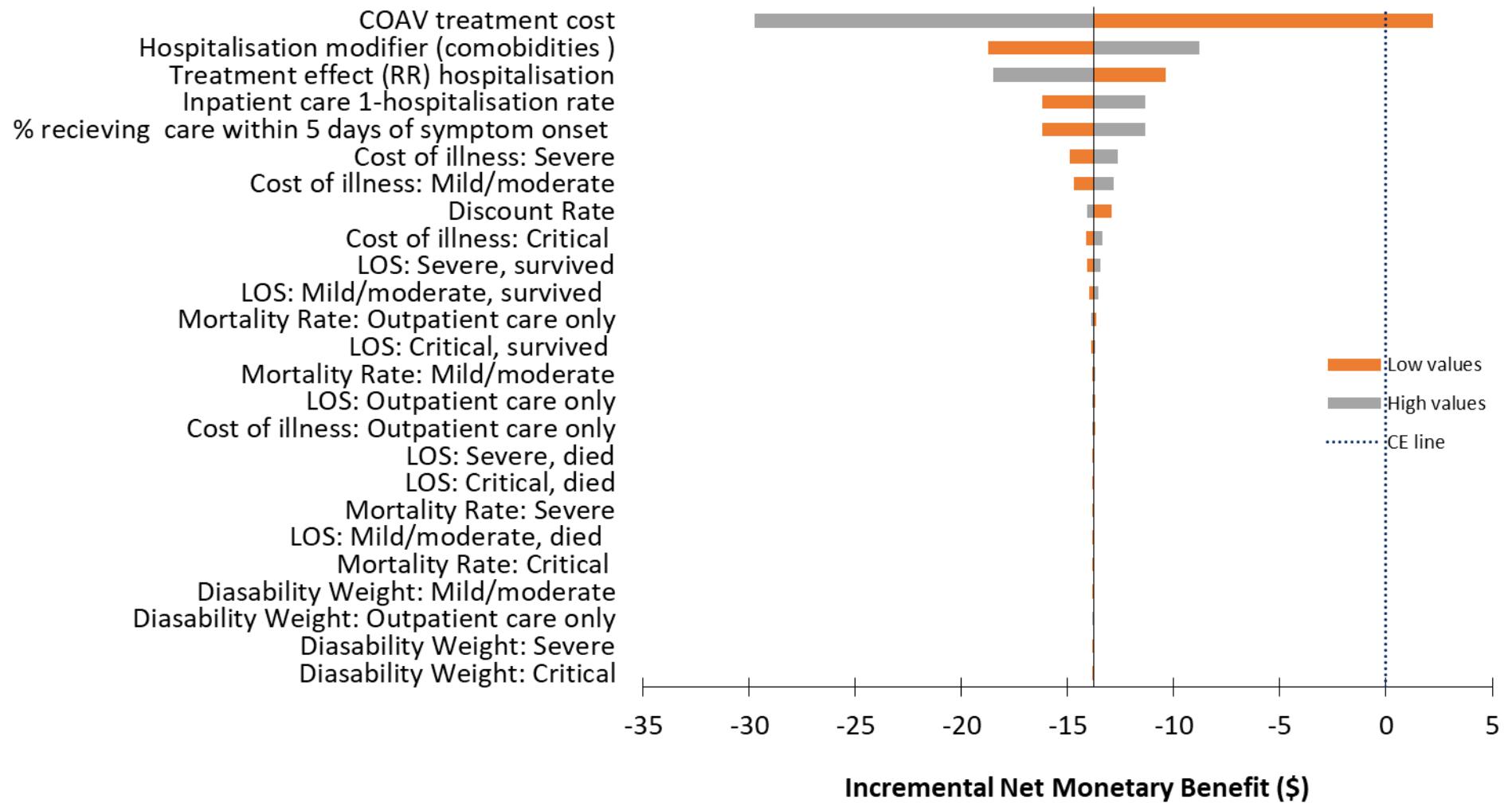
Ghana Molnupiravir Elderly



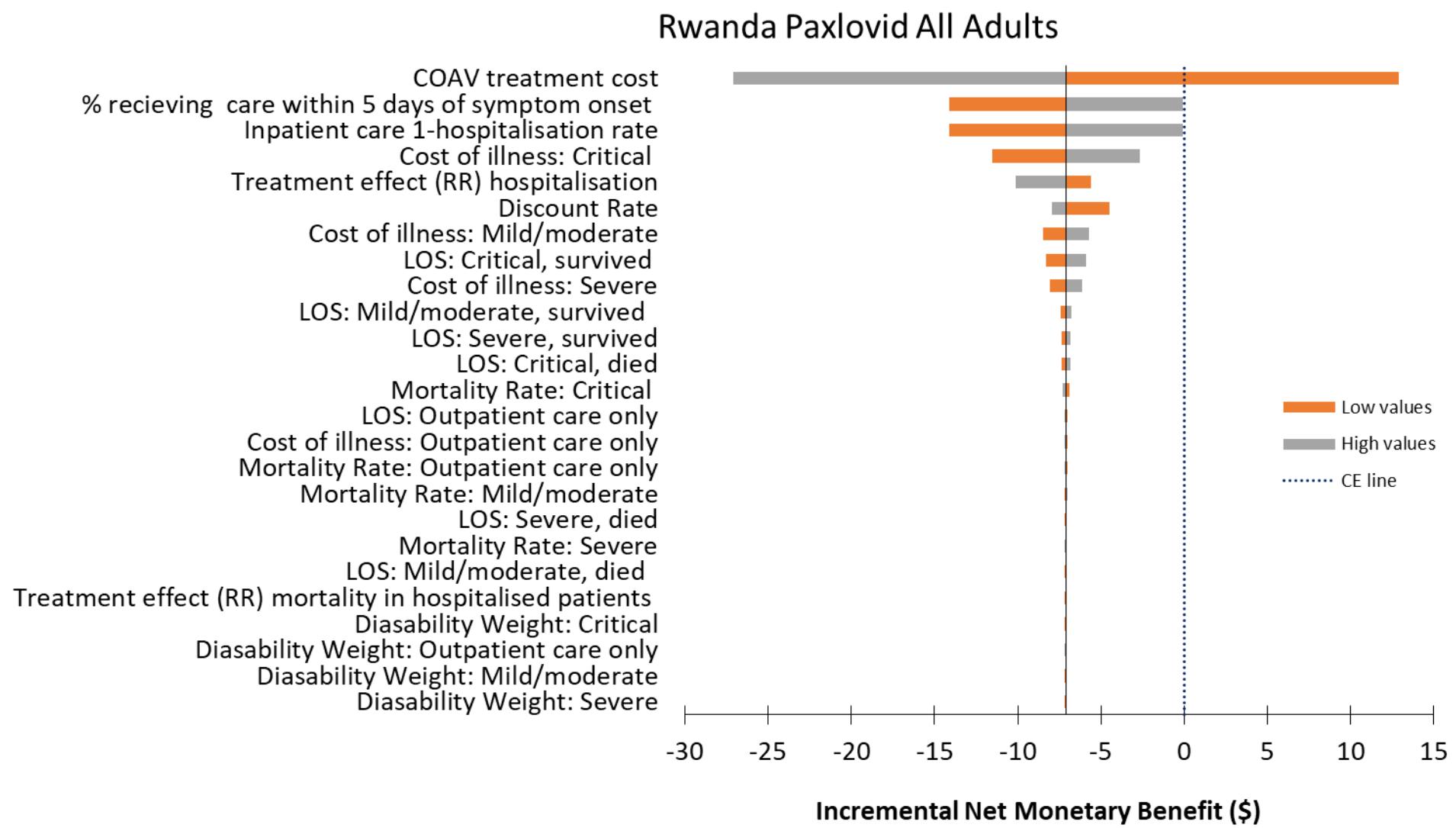
Ghana Paxlovid Other risk factors



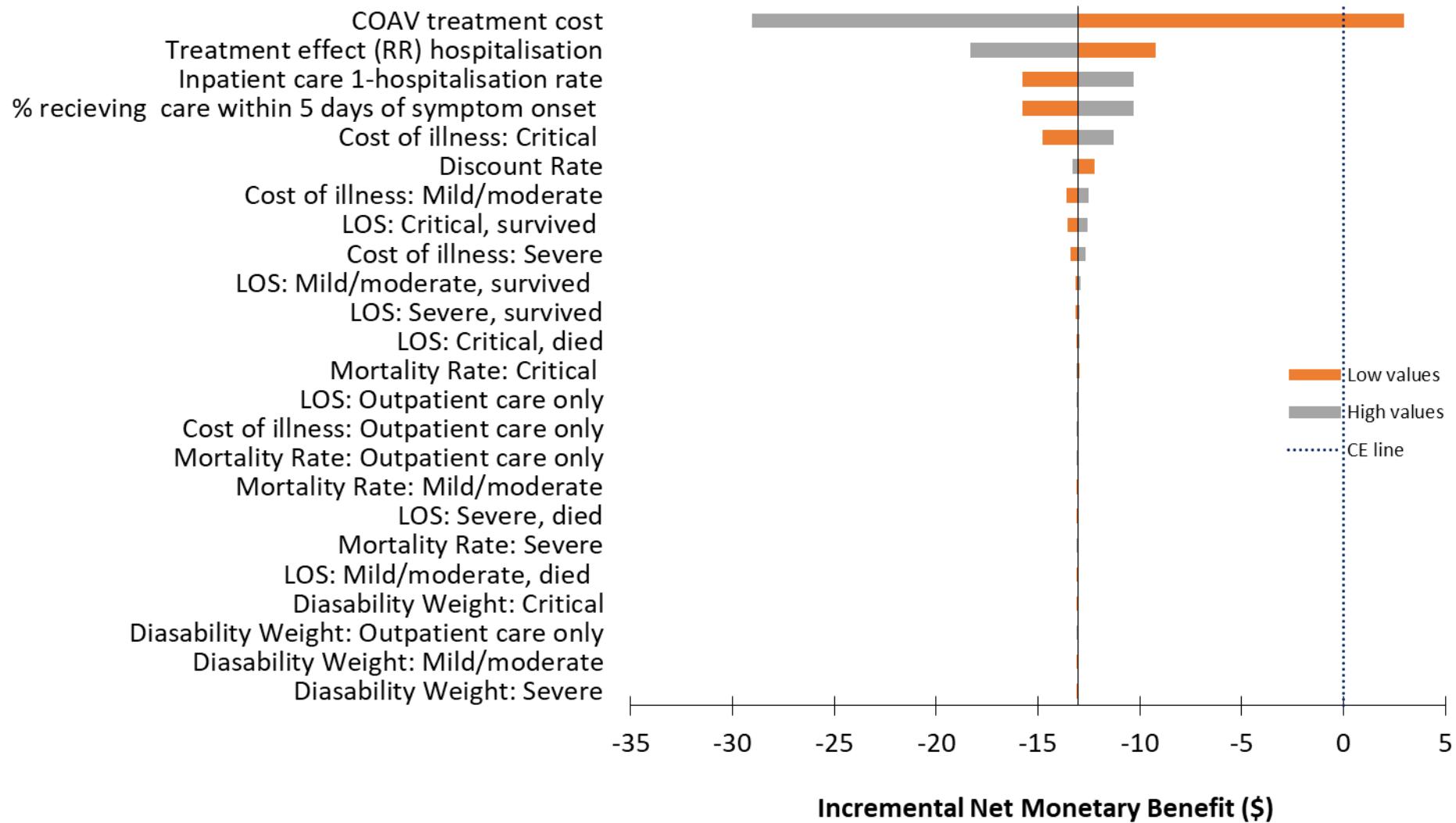
Ghana Molnupiravir Other risk factors



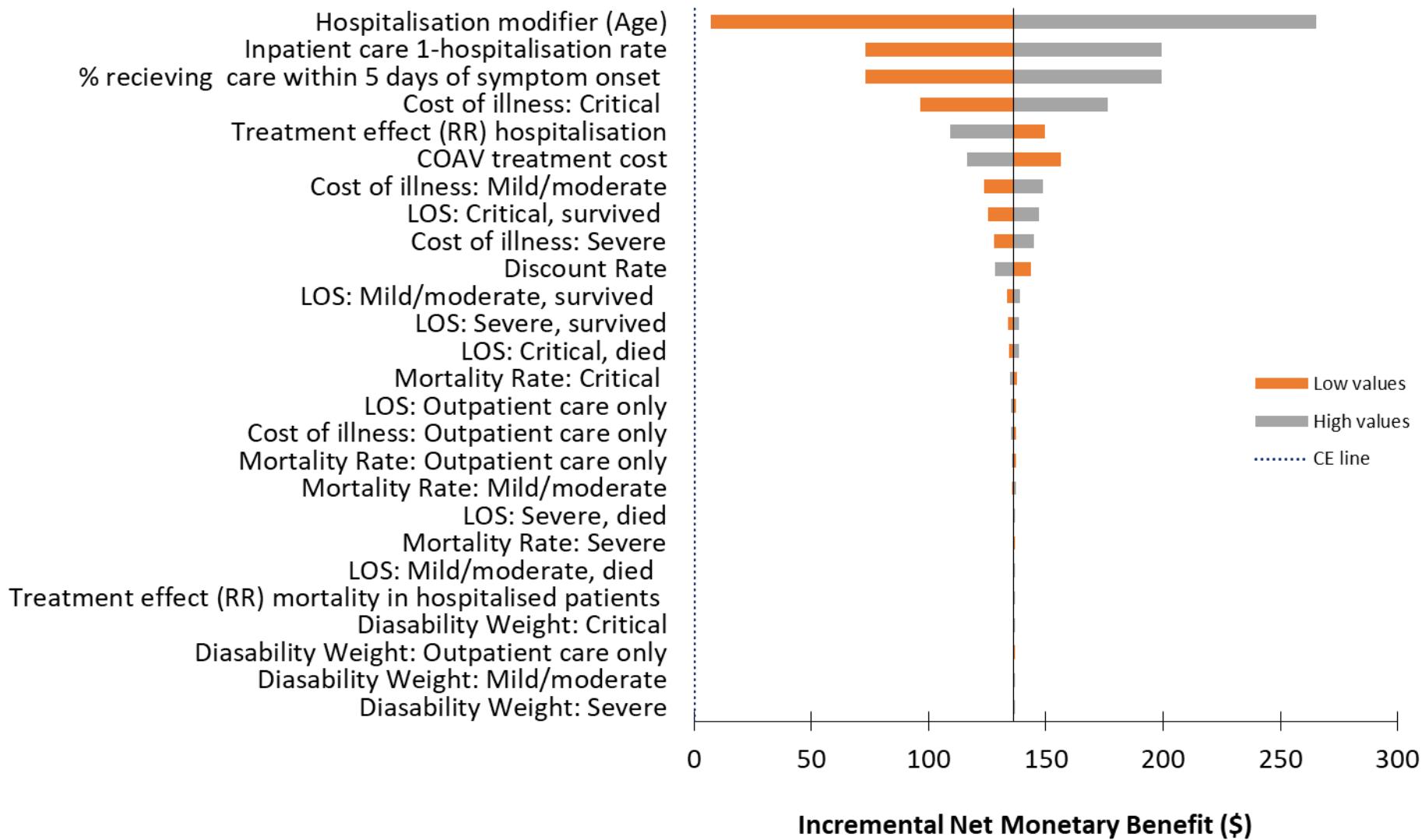
2. **RWANDA**

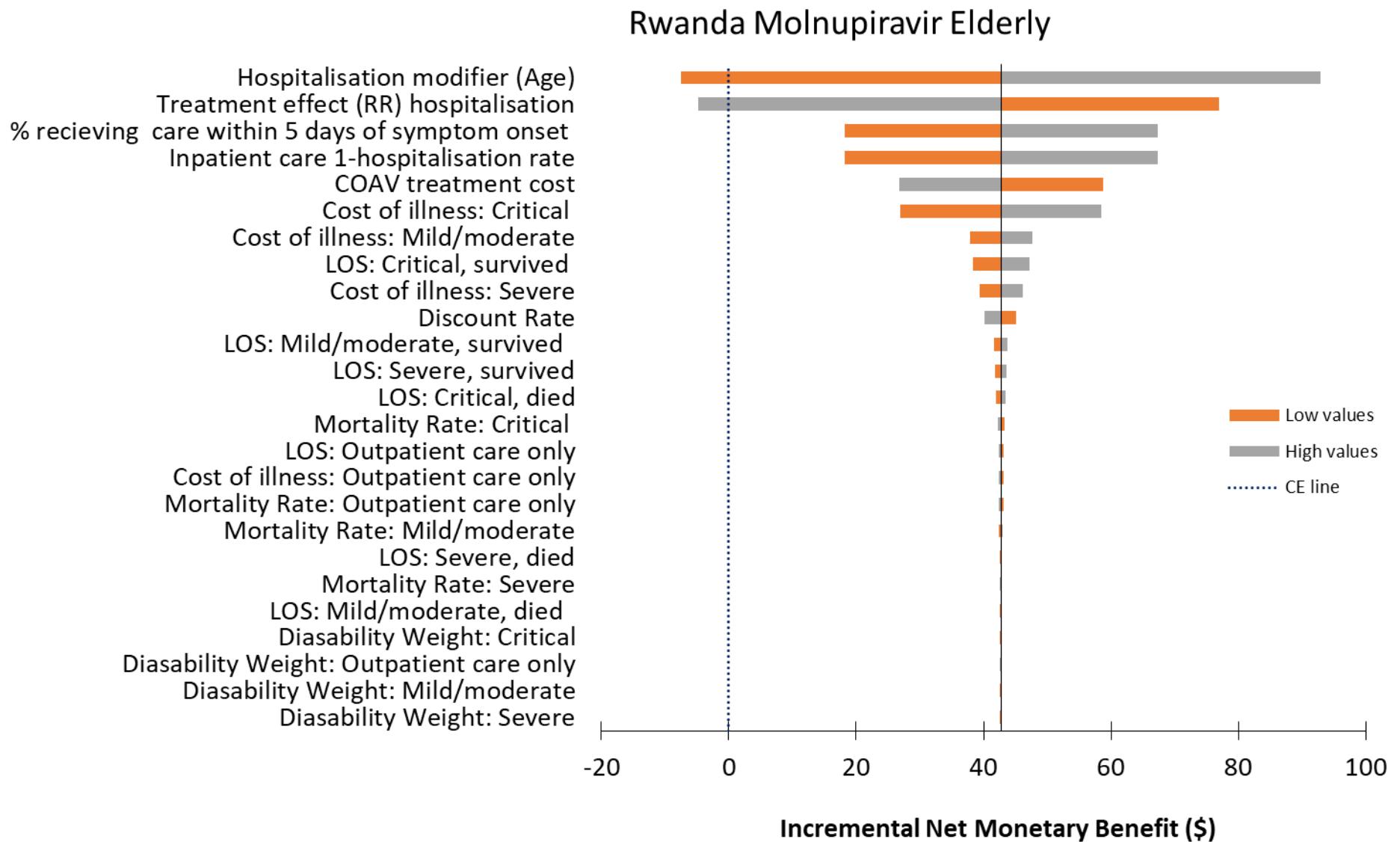


Rwanda Molnupiravir All Adults

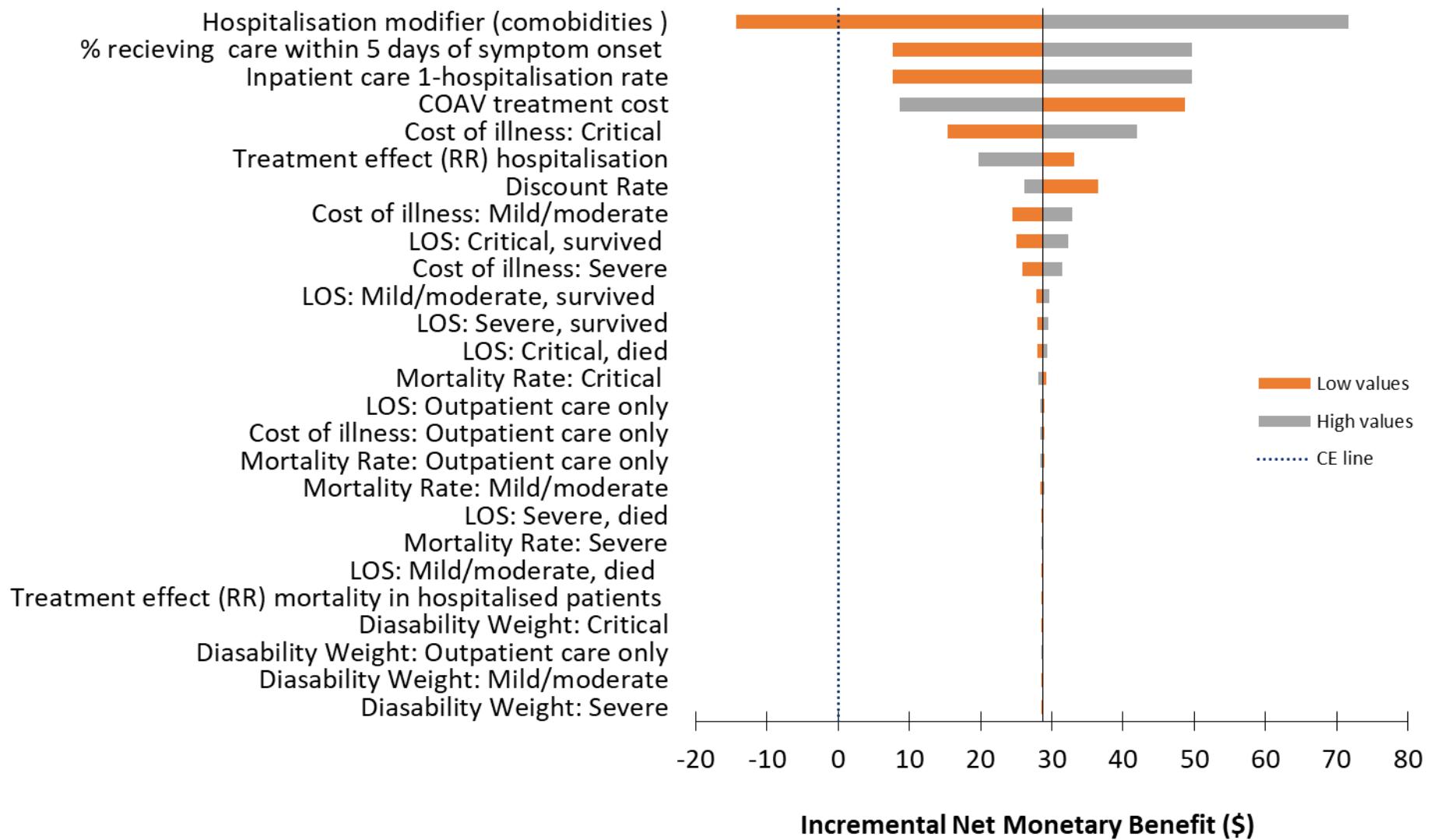


Rwanda Paxlovid Elderly

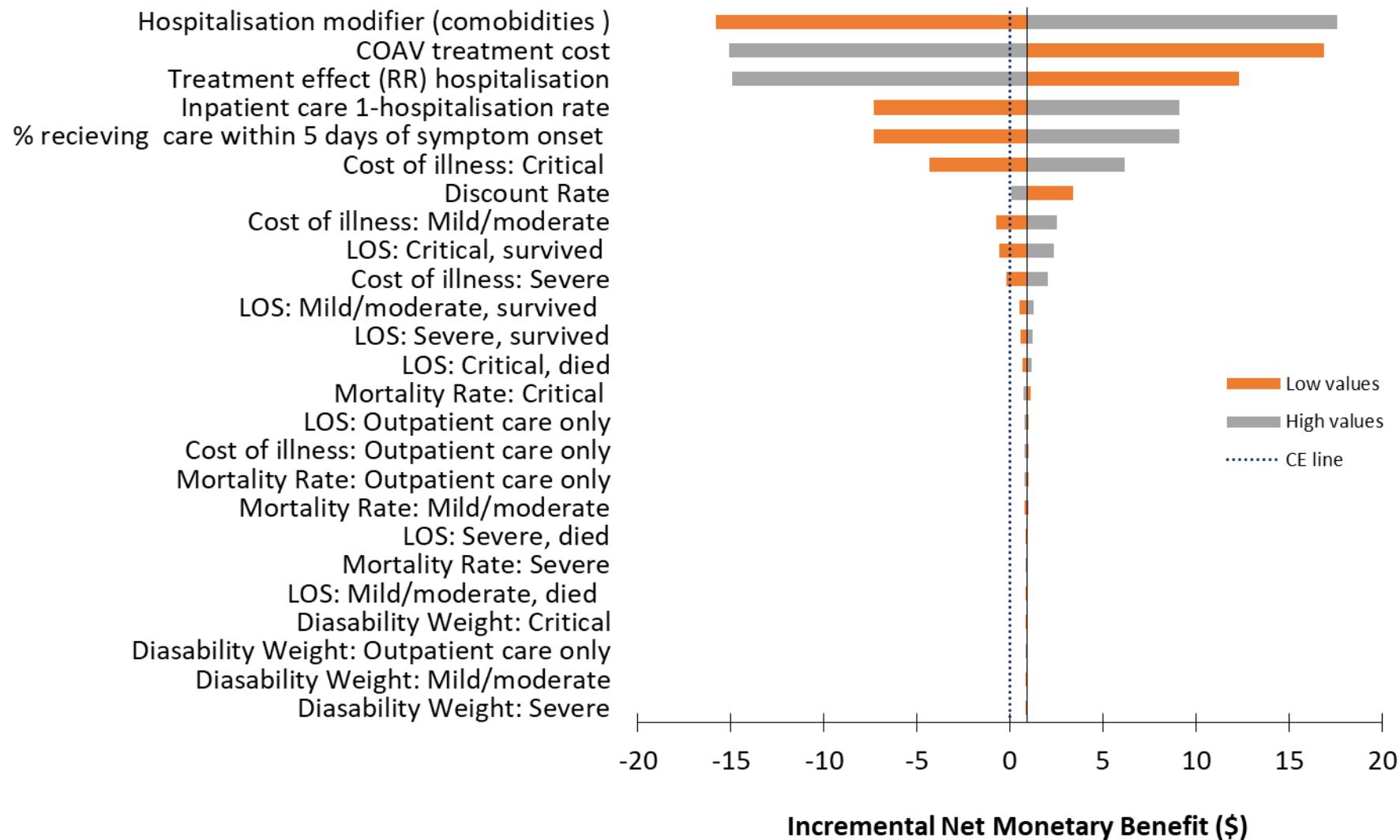




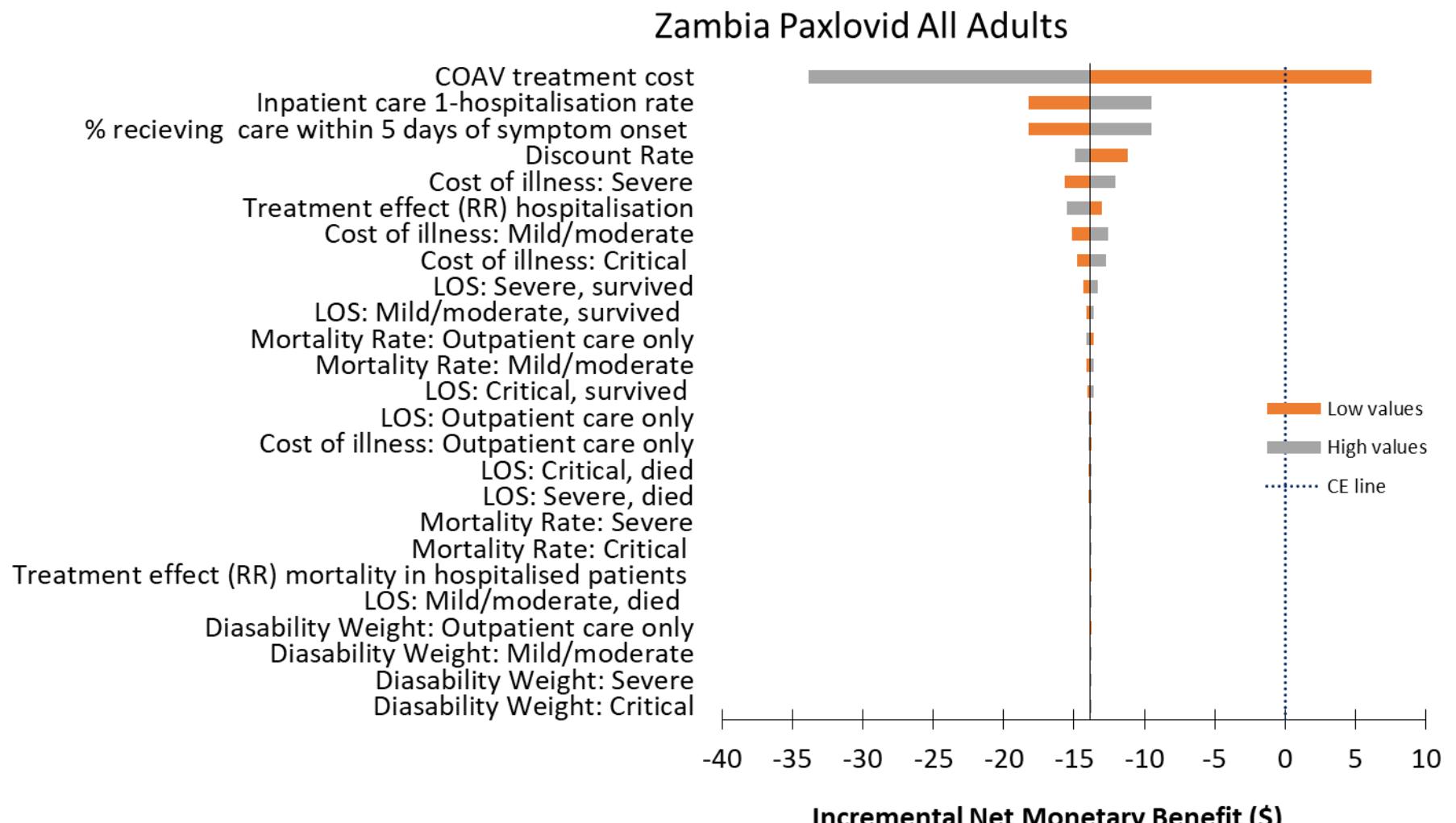
Rwanda Paxlovid Other risk factors



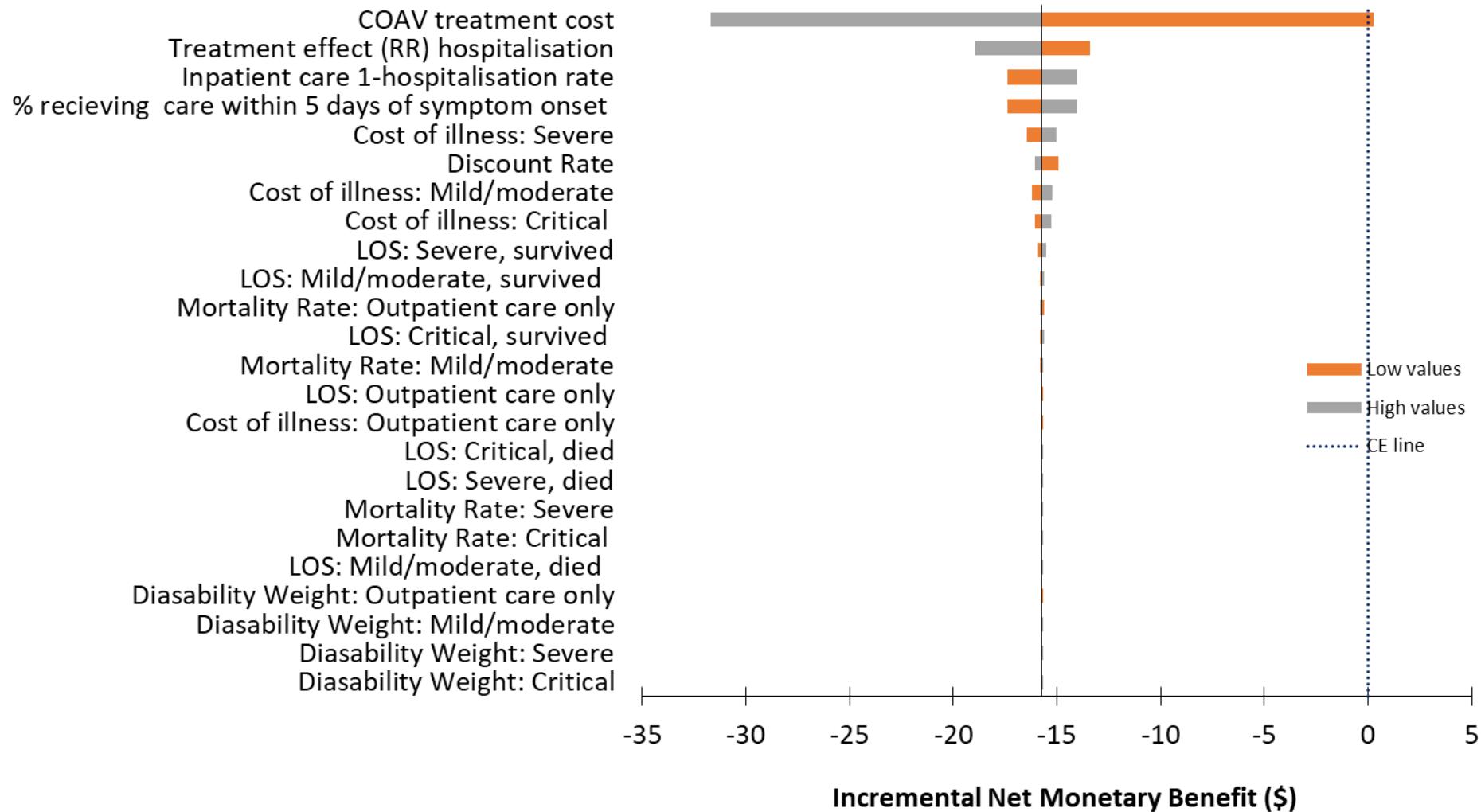
Rwanda Molnupiravir Other risk factors



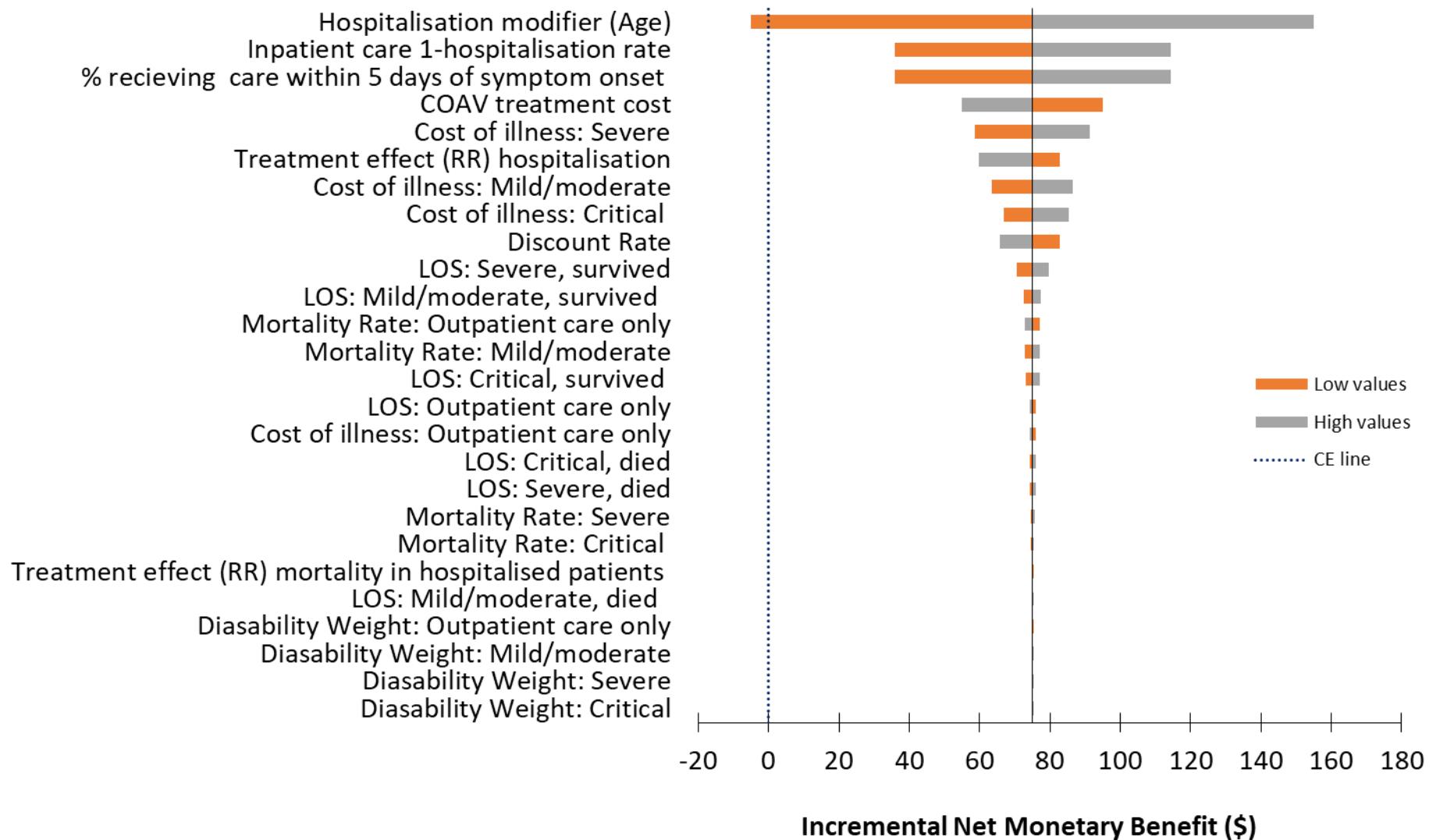
3. ZAMBIA



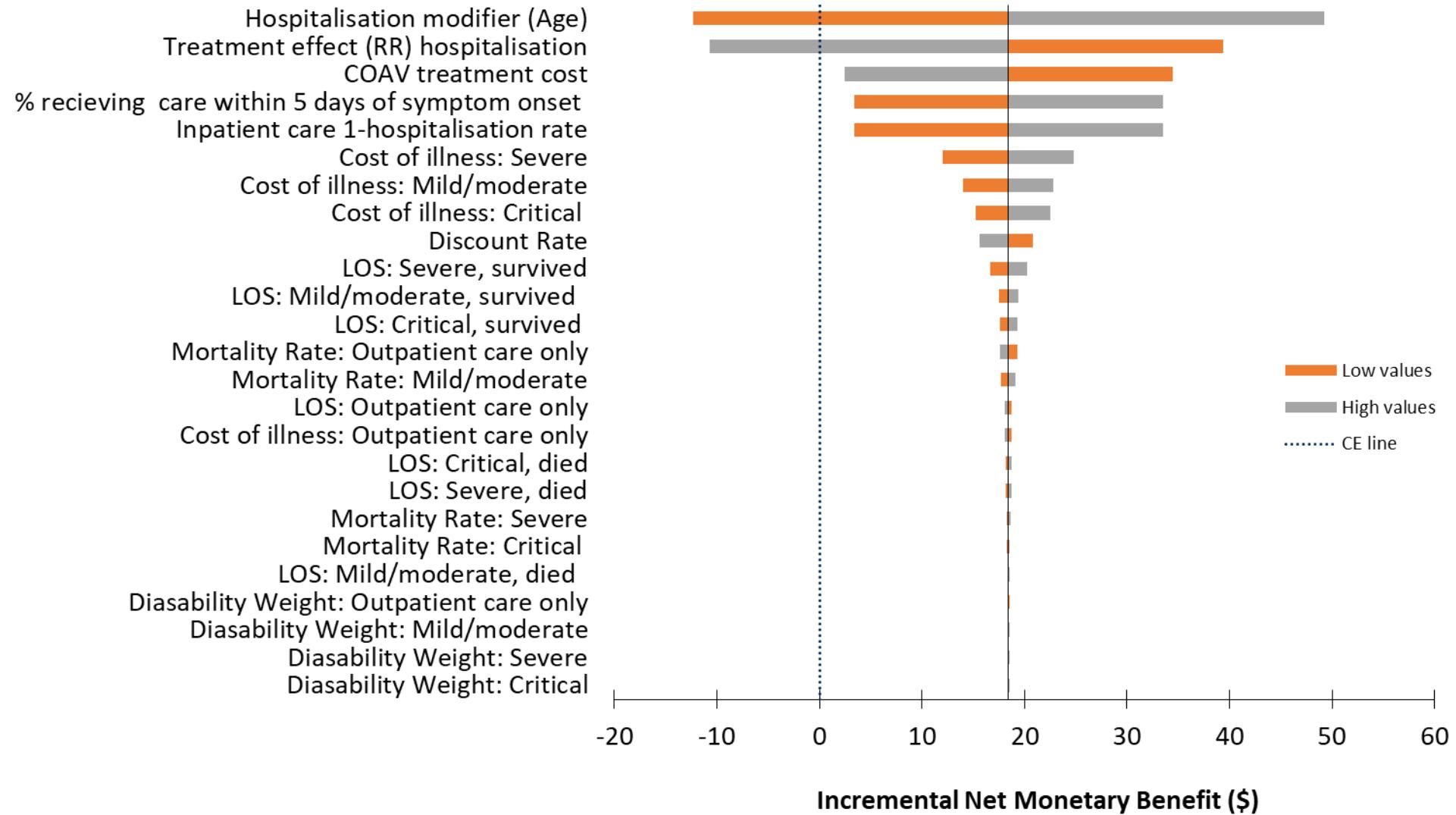
Zambia Molnupiravir All Adults



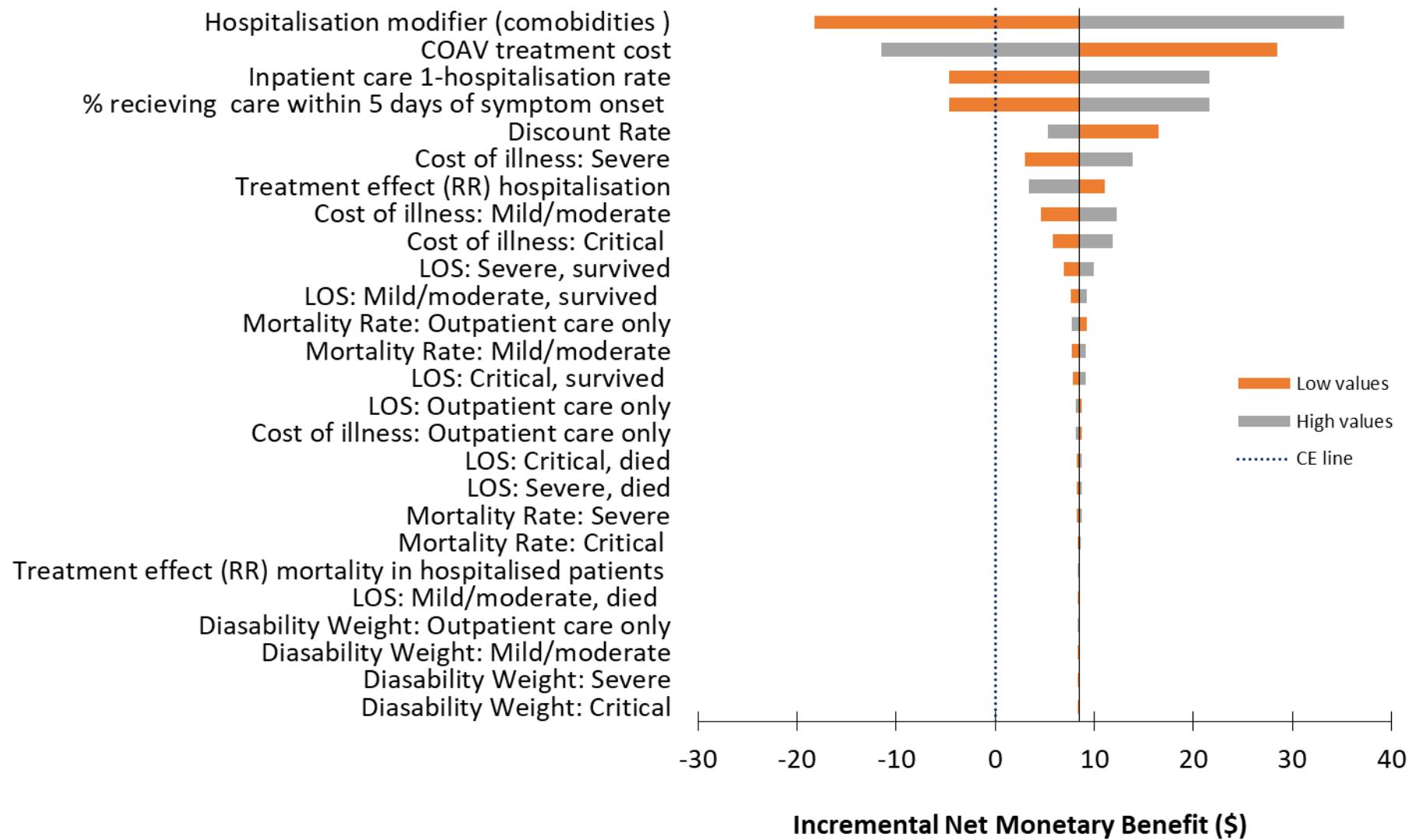
Zambia Paxlovid Elderly



Zambia Molnupiravir Elderly



Zambia Paxlovid Other risk factors



Zambia Molnupiravir Other risk factors

COAV treatment cost
 Hospitalisation modifier (comobidities)
 Treatment effect (RR) hospitalisation
 % recieving care within 5 days of symptom onset
 Inpatient care 1-hospitalisation rate
 Cost of illness: Severe
 Discount Rate
 Cost of illness: Mild/moderate
 Cost of illness: Critical
 LOS: Severe, survived
 LOS: Mild/moderate, survived
 Mortality Rate: Outpatient care only
 LOS: Critical, survived
 Mortality Rate: Mild/moderate
 LOS: Outpatient care only
 Cost of illness: Outpatient care only
 LOS: Critical, died
 LOS: Severe, died
 Mortality Rate: Severe
 Mortality Rate: Critical
 LOS: Mild/moderate, died
 Diasability Weight: Outpatient care only
 Diasability Weight: Mild/moderate
 Diasability Weight: Severe
 Diasability Weight: Critical

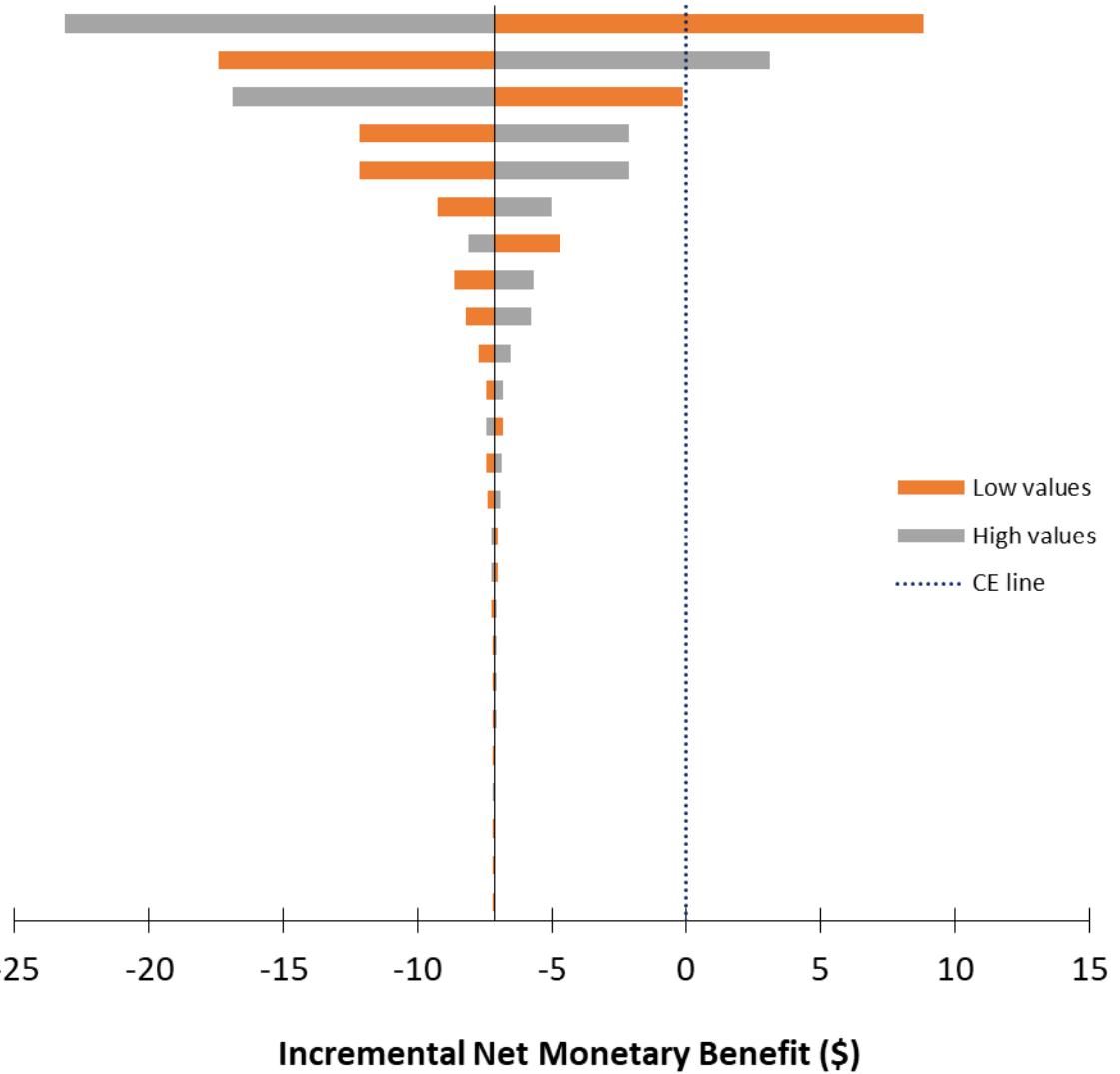


Figure S5: Cost-effectiveness acceptability curves (general adult population)

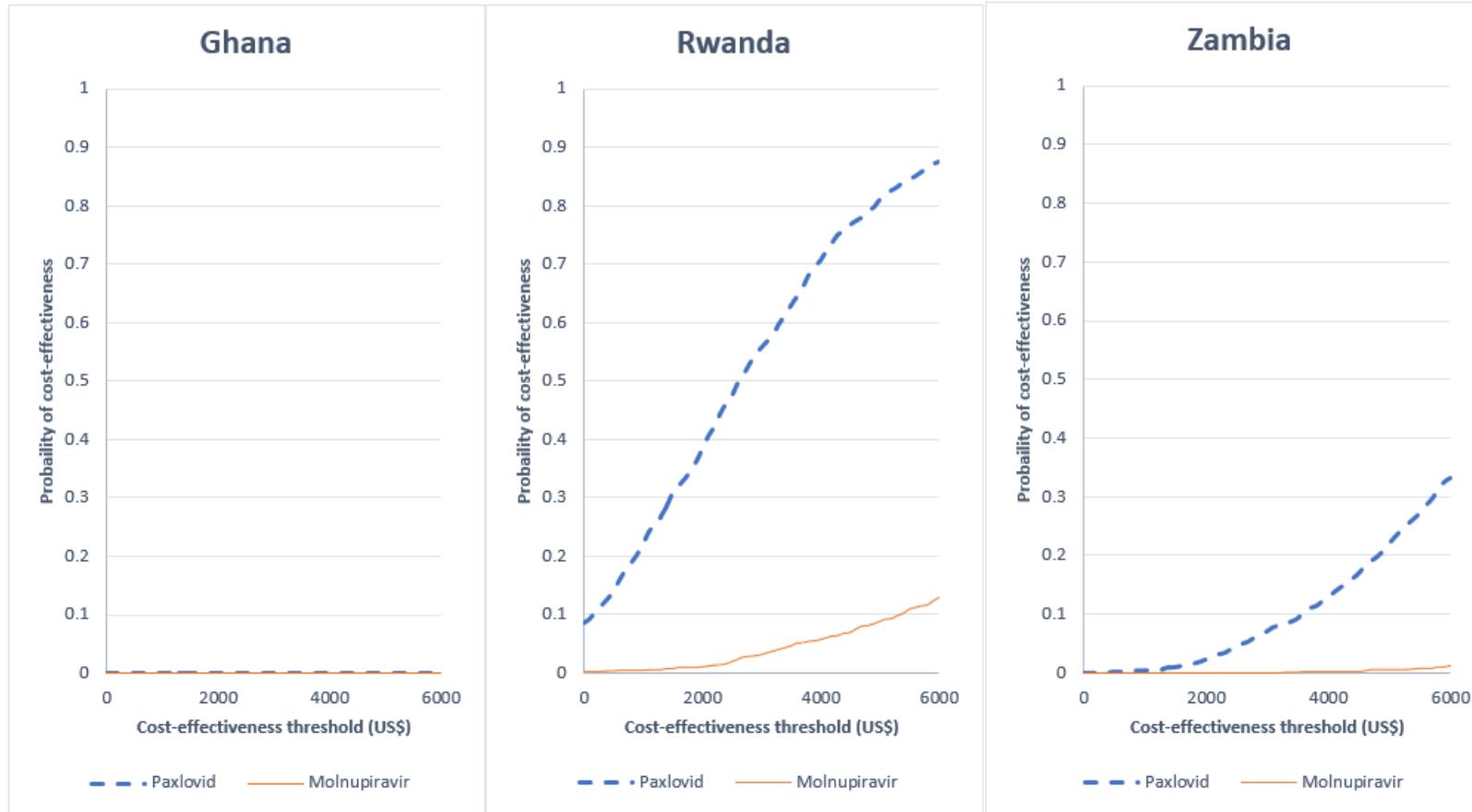


Figure S6: Cost-effectiveness acceptability curves (elderly population)

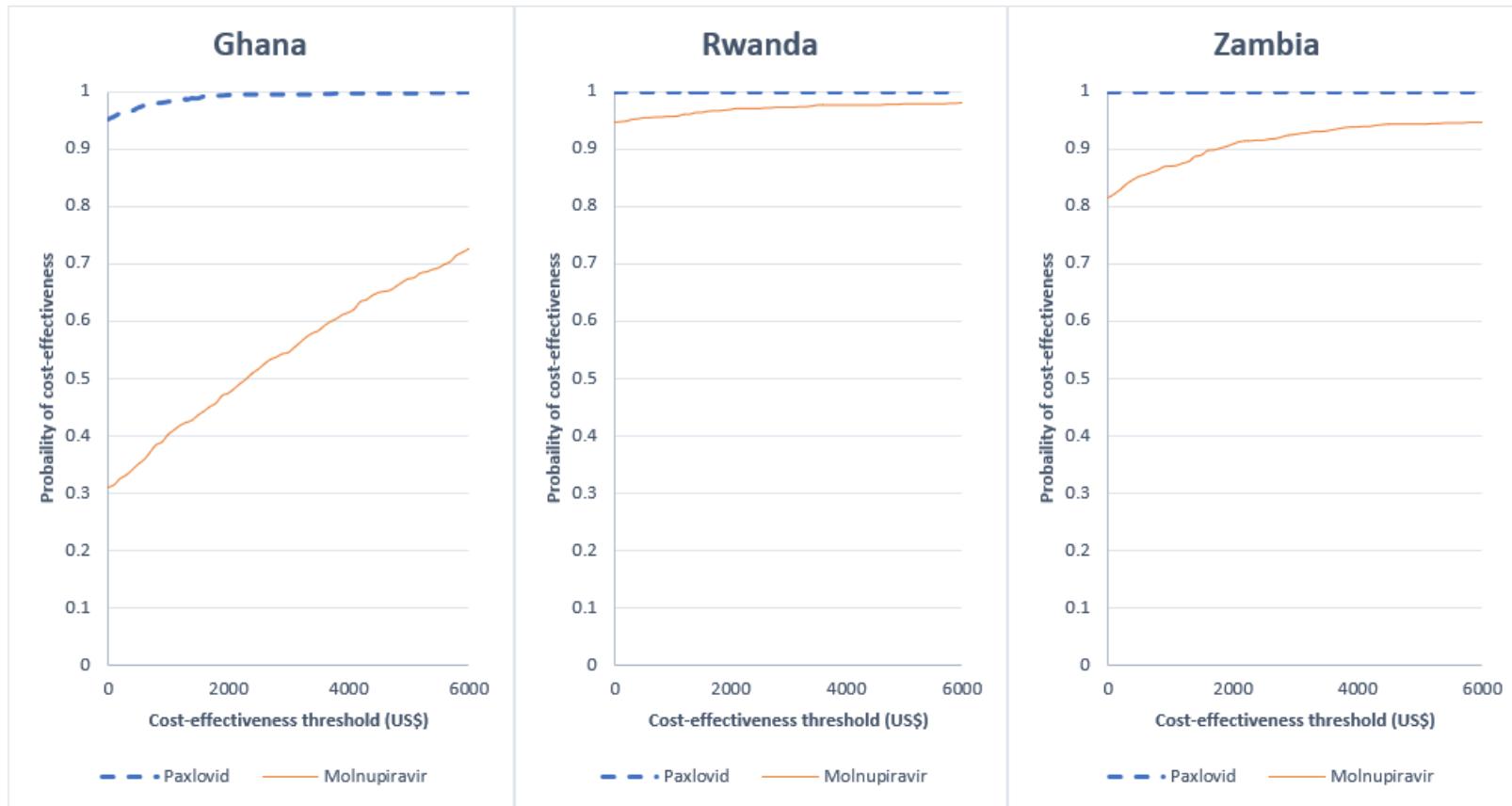


Figure S7: Cost-effectiveness acceptability curves (other risk groups)

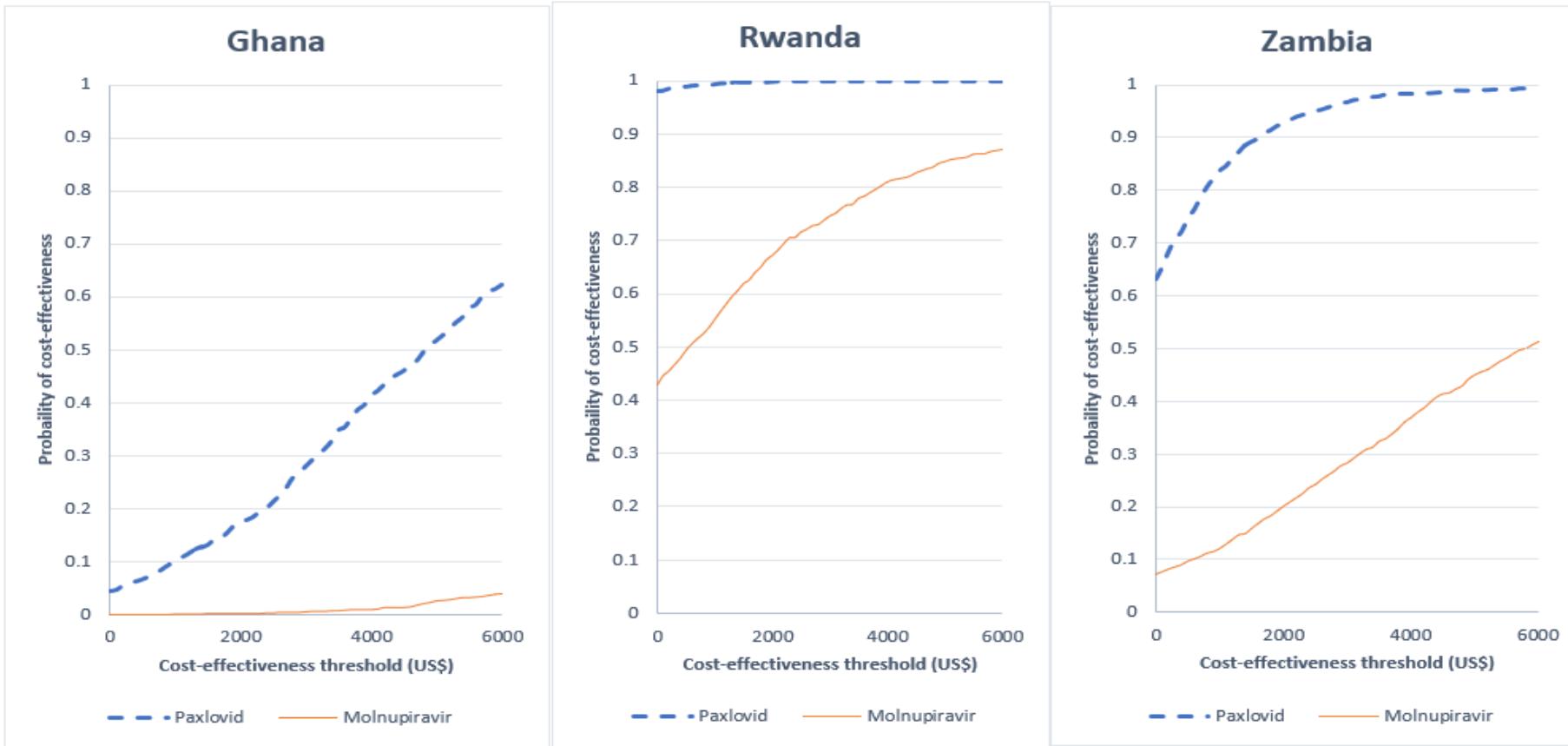


Table S4: Incremental outcomes, incremental cost-effectiveness ratios and incremental net monetary benefit (Scenario Analysis)

1. GHANA

All adults	Base case		Scenario 1		Scenario 2		Scenario 3		Scenario 4		Scenario 5	
Treatment options	DALYs	Costs (US\$)										
Usual care	0.2981	178.11	0.2949	150.46	0.298	178.11	0.2981	784.61	0.313	202.33	0.298	901.65
Paxlovid	0.2973	198.02	0.2945	173.69	0.288	135.21	0.2973	803.07	0.311	220.72	0.297	921.64
Molnupiravir	0.2978	196.12			0.295	171.57	0.2978	802.18	0.312	219.74	0.298	919.68
Difference	DALYs averted	Incr. cost (US\$)										
Paxlovid vs Usual care	0.001	19.92	0.0004	23.22	0.010	-42.90	0.0008	18.46	0.002	18.40	0.001	19.99
Molnupiravir vs Usual care	0.0002	18.01			0.003	-6.54	0.0002	17.57	0.001	17.41	0.000	18.04
ICER		ICER		ICER		ICER		ICER		ICER		ICER
Paxlovid vs Usual care		26107.26		55015.17		-4210.33		24193.04		10907.56		26207.82
Molnupiravir vs Usual care		78165.74				-2124.29		76259.90		29304.05		78266.13
INMB		INMB		INMB		INMB		INMB		INMB		INMB
Paxlovid vs Usual care		-19.59		-23.04		47.31		-18.13		-17.67		-19.66
Molnupiravir vs Usual care		-17.91				7.87		-17.47		-17.16		-17.94
Elderly >=65years	Base case		Scenario 1		Scenario 2		Scenario 3		Scenario 4		Scenario 5	
Treatment options	DALYs	Costs (US\$)										
Usual care	0.37	821.46	0.343	572.68	0.372	821.46	0.3717	848.26	0.504	1039.43	0.372	1535.70
Paxlovid	0.36	800.71	0.339	581.70	0.280	235.37	0.3649	827.64	0.489	1005.00	0.365	1515.63
Molnupiravir	0.37	823.58			0.344	602.62	0.3697	850.43	0.499	1036.16	0.370	1538.02

All adults	Base case		Scenario 1		Scenario 2		Scenario 3		Scenario 4		Scenario 5	
Difference	DALYs averted	Incr. cost (US\$)										
Paxlovid vs Usual care	0.01	-20.75	0.004	9.02	0.091	-586.10	0.007	-20.63	0.015	-34.43	0.007	-20.06
Molnupiravir vs Usual care	0.00	2.12			0.028	-218.85	0.002	2.17	0.005	-3.27	0.002	2.33
ICER	ICER											
Paxlovid vs Usual care		-3030.31		2379.56		-6407.45		-3011.64		-2273.58		-2929.75
Molnupiravir vs Usual care		1023.58				-7920.07		1047.41		-612.48		1123.97
INMB	INMB											
Paxlovid vs Usual care		23.72		-7.38		625.73		23.59		40.99		23.03
Molnupiravir vs Usual care		-1.22				230.82		-1.27		5.58		-1.43
Adults with other risk factors	Base case		Scenario 1		Scenario 2		Scenario 3		Scenario 4		Scenario 5	
Treatment options	DALYs	Costs (US\$)										
Usual care	0.32	338.95	0.307	256.02	0.317	338.95	0.317	981.00	0.361	411.60	0.317	1060.61
Paxlovid	0.31	348.70	0.306	275.69	0.286	160.25	0.314	986.37	0.356	416.79	0.314	1070.59
Molnupiravir	0.32	352.99			0.307	279.33	0.316	993.72	0.359	423.84	0.316	1074.72
Difference	DALYs averted	Incr. cost (US\$)										
Paxlovid vs Usual care	0.00	9.75	0.001	19.67	0.031	-178.70	0.002	5.37	0.005	5.19	0.002	9.98
Molnupiravir vs Usual care	0.00	14.04			0.009	-59.62	0.001	12.72	0.002	12.24	0.001	14.11
ICER	ICER											
Paxlovid vs Usual care		4259.82		15533.95		-5846.04		2345.60		1025.96		4360.38

All adults	Base case		Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
				-6456.16	18401.35	6867.80	20407.57
Molnupiravir vs Usual care		20307.18					
INMB		INMB	INMB	INMB	INMB	INMB	INMB
Paxlovid vs Usual care		-8.76	-19.12	191.94	-4.38	-3.00	-8.99
Molnupiravir vs Usual care		-13.74		63.62	-12.42	-11.47	-13.81

2. Rwanda

All adults	Base case		Scenario 1		Scenario 2		Scenario 3		Scenario 4		Scenario 5		
Treatment options	DALYs	Costs (US\$)	DALYs	Costs (US\$)									
Usual care	0.23	107.61	0.222	75.02	0.227	107.61	0.227	264.54	0.234	118.02	0.227	554.45	
Paxlovid	0.22	115.57	0.221	96.98	0.219	91.16	0.224	270.25	0.228	122.41	0.224	562.62	
Molnupiravir	0.23	120.92			0.225	111.34	0.226	277.13	0.232	129.92	0.226	567.83	
Difference	DALYs averted	Incr. cost (US\$)	DALYs	Costs (US\$)									
Paxlovid vs Usual care	0.003	7.96	0.001	21.96	0.008	-16.45	0.003	5.71	0.006	4.39	0.003	8.17	
Molnupiravir vs Usual care	0.001	13.31			0.003	3.73	0.001	12.59	0.002	11.90	0.001	13.38	
ICER	ICER		ICER										
Paxlovid vs Usual care		2302.22		24223.69		-	1957.04		1652.78		793.32		2364.96
Molnupiravir vs Usual care		11999.66				1382.80		11351.42		6154.86		12062.32	
INMB	INMB		INMB										
Paxlovid vs Usual care		-7.11		-21.73		18.52		-4.86		-3.03		-7.32	
Molnupiravir vs Usual care		-13.04				-3.07		-12.32		-11.42		-13.11	
Elderly >=65years	Base case		Scenario 1		Scenario 2		Scenario 3		Scenario 4		Scenario 5		
Treatment options	DALYs	Costs (US\$)	DALYs	Costs (US\$)									
Usual care	0.301	502.02	0.251	208.74	0.301	502.02	0.301	510.15	0.358	595.68	0.301	957.63	
Paxlovid	0.269	373.63	0.243	206.36	0.224	153.95	0.269	381.84	0.306	435.21	0.269	831.25	
Molnupiravir	0.291	461.81			0.276	375.59	0.291	469.98	0.340	542.77	0.291	918.07	
Difference	DALYs averted	Incr. cost (US\$)	DALYs	Costs (US\$)									
Paxlovid vs Usual care	0.032	-128.39	0.008	-2.38	0.078	-348.06	0.032	-128.30	0.051	-160.47	0.032	-126.38	
Molnupiravir vs Usual care	0.010	-40.20			0.025	-126.42	0.010	-40.17	0.018	-52.91	0.010	-39.56	
ICER	ICER		ICER										
Paxlovid vs Usual care		-4011.16		-283.47		-	4471.10		-4008.59		3130.55		-3948.42

Molnupiravir vs Usual care		-3913.69		-	5060.19	-	-3910.64	-	2956.25	-	-3851.01
INMB		INMB		INMB		INMB		INMB		INMB	
Paxlovid vs Usual care		136.28		4.45		367.25		136.19		173.11	
Molnupiravir vs Usual care		42.73				132.58		42.70		57.32	
Adults with other risk factors	Base case		Scenario 1		Scenario 2		Scenario 3		Scenario 4		Scenario 5
Treatment options	DALYs	Costs (US\$)	DALYs	Costs (US\$)	DALYs	Costs (US\$)	DALYs	Costs (US\$)	DALYs	Costs (US\$)	DALYs Costs (US\$)
Usual care	0.244	206.21	0.228	108.45	0.244	206.21	0.244	373.74	0.262	237.43	0.244 652.02
Paxlovid	0.233	180.08	0.225	124.33	0.219	106.86	0.233	340.88	0.245	200.61	0.233 626.55
Molnupiravir	0.241	206.14			0.236	177.40	0.241	371.52	0.256	233.13	0.241 652.17
Difference	DALYs averted	Incr. cost (US\$)	DALYs averted	Incr. cost (US\$)	DALYs averted	Incr. cost (US\$)	DALYs averted	Incr. cost (US\$)	DALYs averted	Incr. cost (US\$)	DALYs Costs (US\$)
Paxlovid vs Usual care	0.010	-26.13	0.003	15.87	0.025	-99.35	0.010	-32.86	0.017	-36.82	0.010 -25.48
Molnupiravir vs Usual care	0.003	-0.07			0.008	-28.81	0.003	-2.22	0.006	-4.30	0.003 0.14
ICER (US\$)		ICER		ICER		ICER		ICER		ICER	ICER
Paxlovid vs Usual care		-2519.90		5837.15		-	3939.65	-	-3169.34		2216.97 -2457.16
Molnupiravir vs Usual care		-20.22				-	3559.18	-	-668.47		-741.99 42.44
INMB (US\$)		INMB		INMB		INMB		INMB		INMB	INMB
Paxlovid vs Usual care		28.68		-15.20		105.57		35.42		40.92	
Molnupiravir vs Usual care						30.80		3.04		5.73	

3. Zambia

All adults	Base case		Scenario 1		Scenario 2		Scenario 3		Scenario 4		Scenario 5	
Treatment options	DALYs	Costs (US\$)	Expected DALYs	Expected costs (US\$)								
Usual care	0.429	149.38	0.428	140.82	0.429	149.38	0.429	519.51	0.442	166.42	0.429	893.37
Paxlovid	0.427	164.17	0.426	161.12	0.417	117.76	0.427	532.54	0.437	178.67	0.427	908.39
Molnupiravir	0.428	165.37			0.425	147.17	0.428	534.97	0.440	181.40	0.428	909.44
Difference	DALYs averted	Incr. cost (US\$)	DALYs averted	Incr. cost (US\$)								
Paxlovid vs Usual care	0.002	14.80	0.002	20.30	0.012	-31.61	0.002	13.04	0.004	12.25	0.002	15.02
Molnupiravir vs Usual care	0.001	16.00			0.004	-2.21	0.001	15.46	0.001	14.98	0.001	16.06
ICER		ICER (US\$)	ICER		ICER (US\$)		ICER (US\$)		ICER (US\$)		ICER (US\$)	
Paxlovid vs Usual care		6944.05	13016.21		-2673.42		6117.25		3042.43		7047.05	
Molnupiravir vs Usual care		24614.18			-612.95		23789.62		10686.89		24717.06	
INMB (US\$)		INMB	INMB		INMB		INMB		INMB		INMB	
Paxlovid vs Usual care		-13.72	-19.52		37.57		-11.96		-10.22		-13.94	
Molnupiravir vs Usual care		-15.67			4.03		-15.13		-14.28		-15.74	
Elderly >=65years	Base case		Scenario 1		Scenario 2		Scenario 3		Scenario 4		Scenario 5	
Treatment options	DALYs	Costs (US\$)	Expected DALYs	Expected costs (US\$)								
Usual care	0.50	687.82	0.487	610.79	0.498	687.82	0.498	699.88	0.608	841.20	0.498	1396.85
Paxlovid	0.48	621.00	0.473	593.53	0.395	203.30	0.480	633.15	0.573	751.41	0.480	1331.93
Molnupiravir	0.49	671.79			0.467	507.92	0.492	683.89	0.596	816.05	0.492	1381.40
Difference	DALYs averted	Incr. cost (US\$)	DALYs averted	Incr. cost (US\$)								

Paxlovid vs Usual care	0.02	-66.82	0.014	-17.27	0.103	-484.52	0.019	-66.73	0.035	-89.79	0.019	-64.91
Molnupiravir vs Usual care	0.01	-16.02			0.031	-179.90	0.006	-15.99	0.012	-25.14	0.006	-15.44
ICER		ICER (US\$)	ICER		ICER (US\$)	ICER (US\$)		ICER (US\$)	ICER (US\$)		ICER (US\$)	
Paxlovid vs Usual care		-3611.13	-1274.98		-4718.71	-3606.21		-2568.40	-3508.14			
Molnupiravir vs Usual care		-2839.08			-5744.19	-2832.91		-2064.66	-2736.22			
INMB (US\$)		INMB	INMB		INMB	INMB		INMB	INMB		INMB	
Paxlovid vs Usual care		76.14	24.09		536.22	76.05		107.39	74.23			
Molnupiravir vs Usual care		18.86			195.66	18.83		31.28	18.28			
Adults with comorbidities	Base case		Scenario 1		Scenario 2		Scenario 3		Scenario 4		Scenario 5	
Treatment options	DALYs	Costs (US\$)	Expected DALYs	Expected costs (US\$)								
Usual care	0.451	283.99	0.447	258.31	0.451	283.99	0.451	672.14	0.489	335.11	0.451	1025.73
Paxlovid	0.444	278.38	0.442	269.22	0.415	139.15	0.444	661.25	0.477	321.85	0.444	1020.79
Molnupiravir	0.449	291.98			0.440	237.36	0.449	678.52	0.484	340.07	0.449	1033.93
Difference	DALYs averted	Incr. cost (US\$)	DALYs averted	Incr. cost (US\$)								
Paxlovid vs Usual care	0.006	-5.61	0.005	10.91	0.035	-144.84	0.006	-10.89	0.012	-13.26	0.006	-4.95
Molnupiravir vs Usual care	0.002	7.99			0.011	-46.63	0.002	6.38	0.004	4.95	0.002	8.19
ICER		ICER (US\$)	ICER		ICER (US\$)	ICER (US\$)		ICER (US\$)	ICER (US\$)		ICER (US\$)	
Paxlovid vs Usual care		-877.04	2331.52		-4082.86	-1703.84		-1098.39	-774.03			
Molnupiravir vs Usual care		4099.06			-4309.98	3274.51		1177.25	4201.94			
INMB (US\$)		INMB	INMB		INMB	INMB		INMB	INMB		INMB	

Paxlovid vs Usual care		8.83	-8.55	162.70	14.11	19.34		8.17
Molnupiravir vs Usual care		-7.01		52.08	-5.40	-2.83		-7.21