

BUDGET IMPACT ANALYSIS OF THE ANTICOAGULANT EDOXABAN (LIXIANA®)

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INTRODUCTION

- Stroke is on the ten diseases that causes death in many parts of the world, including Malaysia and it is a medical emergency
- There are many anticoagulants in the market with their own advantages.
- There is growing recognition of the need to do a comprehensive economic assessment, cost-effectiveness analysis (CEA), and budget impact analysis (BIA) for new treatments or interventions in healthcare.
- The objective of this study is to analyze the budget impact of introducing a novel coagulant Edoxaban (Lixiana®) for management of stroke cases from the healthcare payer's perspective

METHODOLOGY

Retrospective cross sectional of Casemix records	
Population	Patient admitted with primary diagnosis of Stroke Population characterised by using ICD-10 - Stroke (I60 – I69)
Sampling	Universal sampling cases from Casemix database
Data source	HCTM Casemix report review and references
Steps developed	7-steps prevalence-based budget impact model
Time Harizon	5 years
Cost calculated	Intervention & disease-related costs
Treatment	Current and new treatment mix
Outcome	Health related outcome

ESTIMATION :

- 2021 (Base case)
- Projection of data to next 5 years (2022, 2023, 2024,2025,2026)
- Future scenario market share estimated from 1% in 2022 to 25% in 2026
- Annual population growth rate used = 1.3% (The World Bank)
- Annual increase in GDP= 5%, increase in MOH budget=10% (estimated figures)

RESULTS

TARGET POPULATION						
	2021 (Base case)	2022	2023	2024	2025	2026
Total Population of Malaysia	32,700,000	33,027,000	33,357,270	33,690,843	34,027,751	34,368,029
Number of adult population	22,321,020	22,544,230	22,769,673	22,997,369	23,227,343	23,459,616
Number of Stroke cases	443,995	448,630	453,116	457,648	462,224	466,846
Number of stroke patients treated in public sectors	310,797	314,041	317,182	320,353	323,557	326,792
No. of stroke patients on anticoagulants	248,637	251,233	253,745	256,283	258,846	261,434

CURRENT SCENARIO (LIXIANA® NOT LISTED)

Treatment mix/market share						
Warfarin	40%	40%	40%	40%	40%	40%
DOACs	60%	60%	60%	60%	60%	60%
Other 3 DOACs	99%	99%	99%	99%	99%	99%
Lixiana®	1%	1%	1%	1%	1%	1%
Number of eligible population treated						
Warfarin	99,455	100,493	101,498	102,513	103,538	104,574
DOACs	149,182	150,740	152,247	153,770	155,307	156,860
Other 3 DOACs	147,690	149,232	150,725	152,232	153,754	155,292
Lixiana®	1,492	1,507	1,522	1,538	1,553	1,569

FUTURE SCENARIO (LIXIANA® LISTED)

Treatment mix/market share						
Warfarin	40%	38%	36%	34%	32%	30%
DOACs	60%	62%	64%	66%	68%	70%
Other 3 DOACs	99%	95%	90%	85%	80%	75%
Lixiana®	1%	5%	10%	15%	20%	25%
Number of eligible population treated						
Warfarin	99,455	95,469	91,348	87,136	82,831	78,430
DOACs	149,182	155,764	162,397	169,147	176,015	183,004
Other 3 DOACs	147,690	147,976	146,157	143,775	140,812	137,253
Lixiana®	1,492	7,788	16,240	25,372	35,203	45,751

RESULTS

DRUG-RELATED COST (RM)						
	2021 (Base case)	2022	2023	2024	2025	2026
CURRENT SCENARIO						
Warfarin	47,872,457.31	48,372,232.09	48,855,954.41	49,344,513.95	49,837,959.09	50,336,338.68
DOACs	191,489,829.22	193,488,928.34	195,423,817.63	197,378,055.80	199,351,836.36	201,345,354.73
Other 3 DOACs	187,679,181.62	189,638,498.67	191,534,883.66	193,450,232.49	195,384,734.82	197,338,582.17
Lixiana®	19,148.98	19,348.89	19,542.38	19,737.81	19,935.18	20,134.54
Total Drug Cost	235,570,787.91	238,030,079.65	240,410,380.45	242,814,484.25	245,242,629.09	247,695,055.38
FUTURE SCENARIO						
Warfarin	47,872,457.31	45,953,620.48	43,970,358.97	41,942,836.86	39,870,367.27	37,752,254.01
DOACs	191,489,829.22	199,938,559.29	208,452,072.14	217,115,861.38	225,932,081.21	234,902,913.85
Other 3 DOACs	187,679,181.62	188,042,215.01	185,730,796.27	182,702,997.35	178,938,208.32	174,415,413.53
Lixiana®	19,148.98	99,969.28	208,452.07	325,673.79	451,864.16	587,257.28
Total Drug Cost	235,570,787.91	234,095,804.77	229,909,607.31	224,971,508.00	219,260,439.75	212,754,924.83
Budget Impact						
Annual budget impact (Cost Saving)	0.00	3,934,274.88	10,500,773.13	17,842,976.24	25,982,189.34	34,940,130.56
Total 5-year budget impact						93,200,344.15

SENSITIVITY ANALYSIS

	2022	2023	2024	2025	2026
MOH budget	32,400,000.00	35,640,000.00	39,204,000.00	43,124,400.00	47,436,840.00
Cost saving out of total MOH budget					
Base Case	-0.01%	-0.03%	-0.05%	-0.06%	-0.07%
Best Case	-0.003%	-0.007%	-0.010%	-0.014%	-0.017%
Worst Case	-0.03%	-0.06%	-0.10%	-0.13%	-0.16%
GDP Malaysia	366,180,000.00	384,489,000.00	403,713,450.00	423,899,122,500.00	445,094,078,625.00
Cost saving out of GDP Malaysia					
Base Case	-0.001%	-0.003%	-0.004%	-0.006%	-0.008%
Best Case	-0.0002%	-0.001%	-0.001%	-0.001%	-0.002%
Worst Case	-0.002%	-0.006%	-0.010%	-0.013%	-0.017%
Cost saving out of total drug cost for stroke					
Total drug cost in Base Case	238,030,079.65	240,410,380.45	242,814,484.25	245,242,629.09	247,695,055.38
Cost Saving in Base-Case	-3,934,274.88	-10,500,773.13	-17,842,976.24	-25,982,189.34	-34,940,130.56
Total drug cost in Best Case	53,396,267.59	53,930,230.27	54,469,532.57	55,014,227.90	55,564,370.18
Cost Saving in Best-Case	-882,559.02	-2,355,593.43	-4,002,638.39	-5,828,473.18	-7,837,969.74
Total drug cost in Worst Case	512,604,168.90	517,730,210.59	522,907,512.70	528,136,587.82	533,417,953.70
Cost Saving in Worst-Case	-8,472,566.60	-22,613,696.95	-38,425,328.52	-55,953,342.50	-75,244,509.48
Percentage of Cost saving out of total drug cost	-1.65%	-4.37%	-7.35%	-10.59%	-14.11%

CONCLUSION

This study supported the cost-saving profile of Lixiana® as a treatment alternative for stroke patients in Malaysia. Hence, the Ministry of Health of Malaysia is likely to make significant budget savings by using Lixiana® for the management of stroke patients.