

The Budget Impact Analysis of Acute Stroke Centre Expansion in Ministry of Health Malaysia

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- **Introduction:** Stroke is the third leading cause of mortality in Malaysia. Acute stroke center is a specialized, multi-disciplinary and coordinated stroke care that improves stroke care by reducing patients with poor outcomes, death at discharge and functional dependence. This study aimed to assess the budget impact analysis of expanding acute stroke services/ centers in the public healthcare setting in Malaysia^{1,2}.

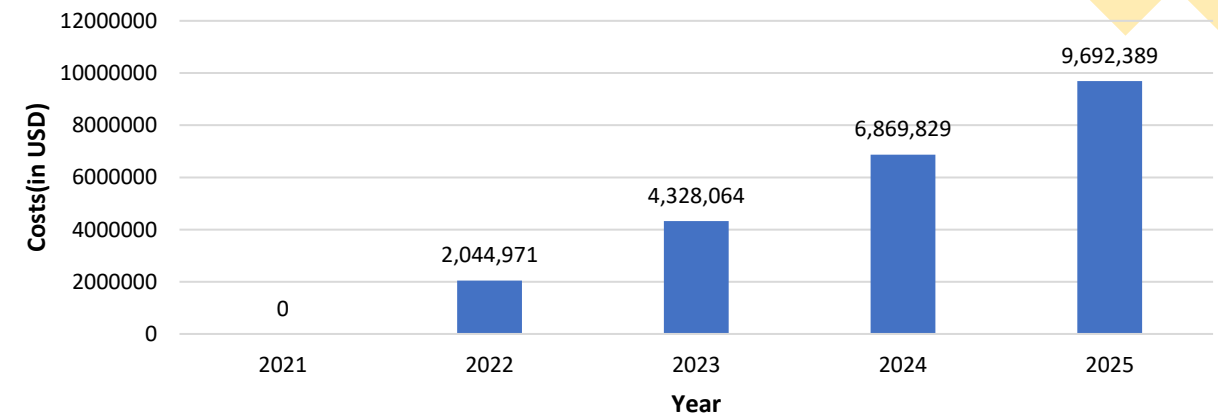
• Method:

- The number of hospitalized stroke cases in the next five years was projected from the latest national stroke registry data.
- Mixed costing methodology was used for the estimation of treatment cost. A bottom-up method was used, where admissions of patients were recorded in 2 healthcare facilities (Seberang Jaya Hospital & Sarawak General Hospital) for a period of 2 weeks in November 2019. Patients were followed-up from admission to discharge using a time motion-study.
- A combination of actual costs and fee tariffs were used for the estimation of treatment cost. Facilities with or without acute stroke units were assumed to have similar cost of thrombolysis
- Based on the National Stroke Registry data:
 - Severity- based thrombolysis rate of 4%(Mild), 18%(Moderate), 29% Moderate to Severe), 29%(Severe) were used.
 - The severity-based length of stay (LOS) of 5 days (Mild), 9 (Moderate), 12 (Moderate to severe) and 10 days (Severe) was used.
- The acute stroke center was expected to reduce the hospital length-of-stay by 23%, according to a published meta-analysis³.
- The cost of setting up a stroke center including staff training is based on a latest local center. The setup cost was averaged over 5 years.
- All costs were expressed in US dollars 2020 (1 USD = 4.05 MYR)
- There are currently three stroke centres (11%) among all MOH hospitals, and it was assumed that this would increase by three new centers annually.

Results

The per day treatment cost was estimated to be USD 207.48 for non-thrombolysed patients, while the cost of thrombolysed patients were estimated to be USD 258.55 (not inclusive of the thrombolysis cost).

Cost savings per year from the introduction of acute stroke centers in Ministry of Health, Malaysia (in USD)



Conclusion: The baseline cost of acute stroke management in the public healthcare setting in Malaysia was estimated to be USD 74.5 million in 2021. Based on the forecast, addition of three centers starting from subsequent year, the total 5-year net budget impact was estimated to be a cost savings of USD 22.9 million.

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