



Value Driven Care in Ischaemic Stroke in an acute tertiary institution in Singapore: A 5-year Experience

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Introduction

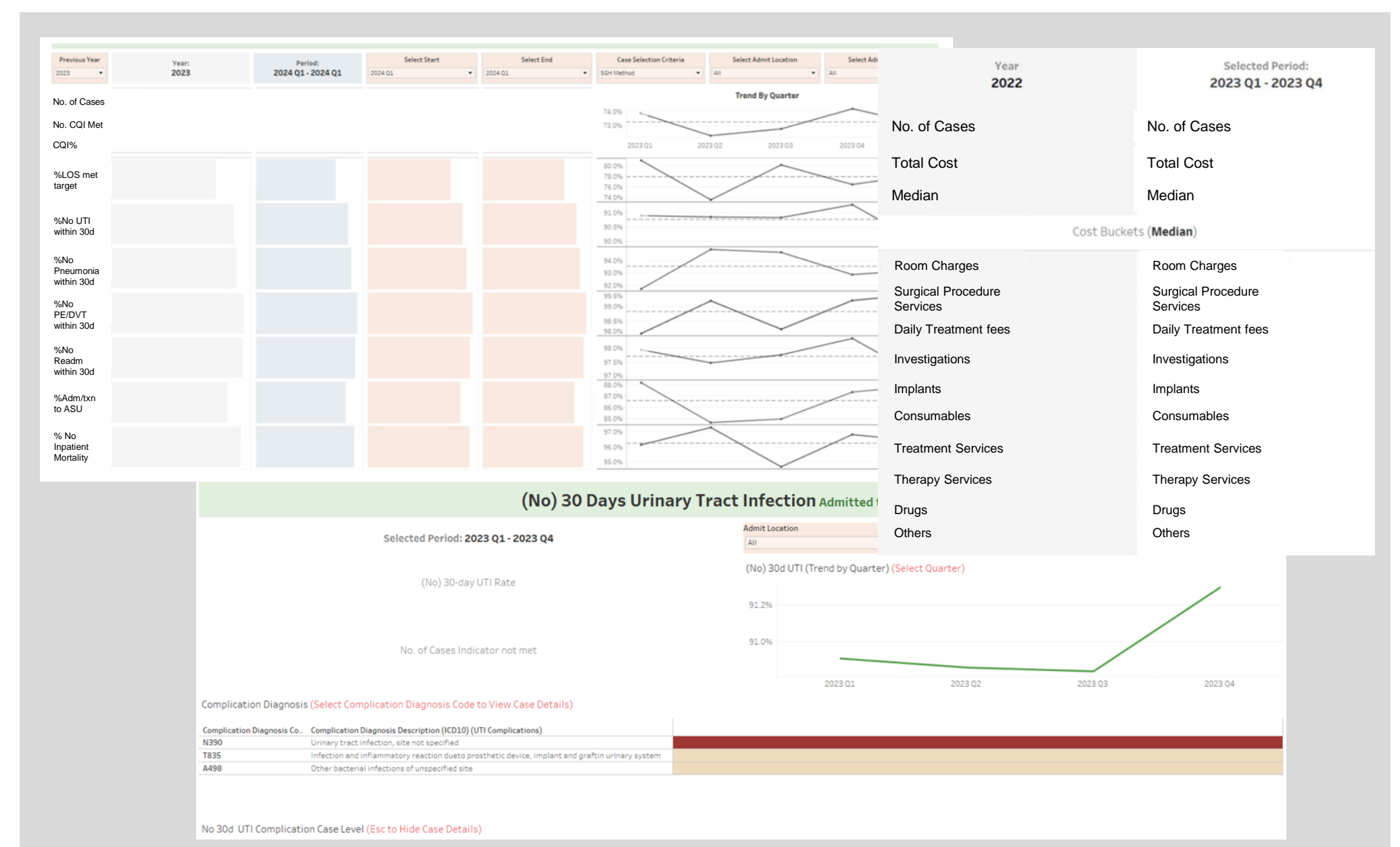
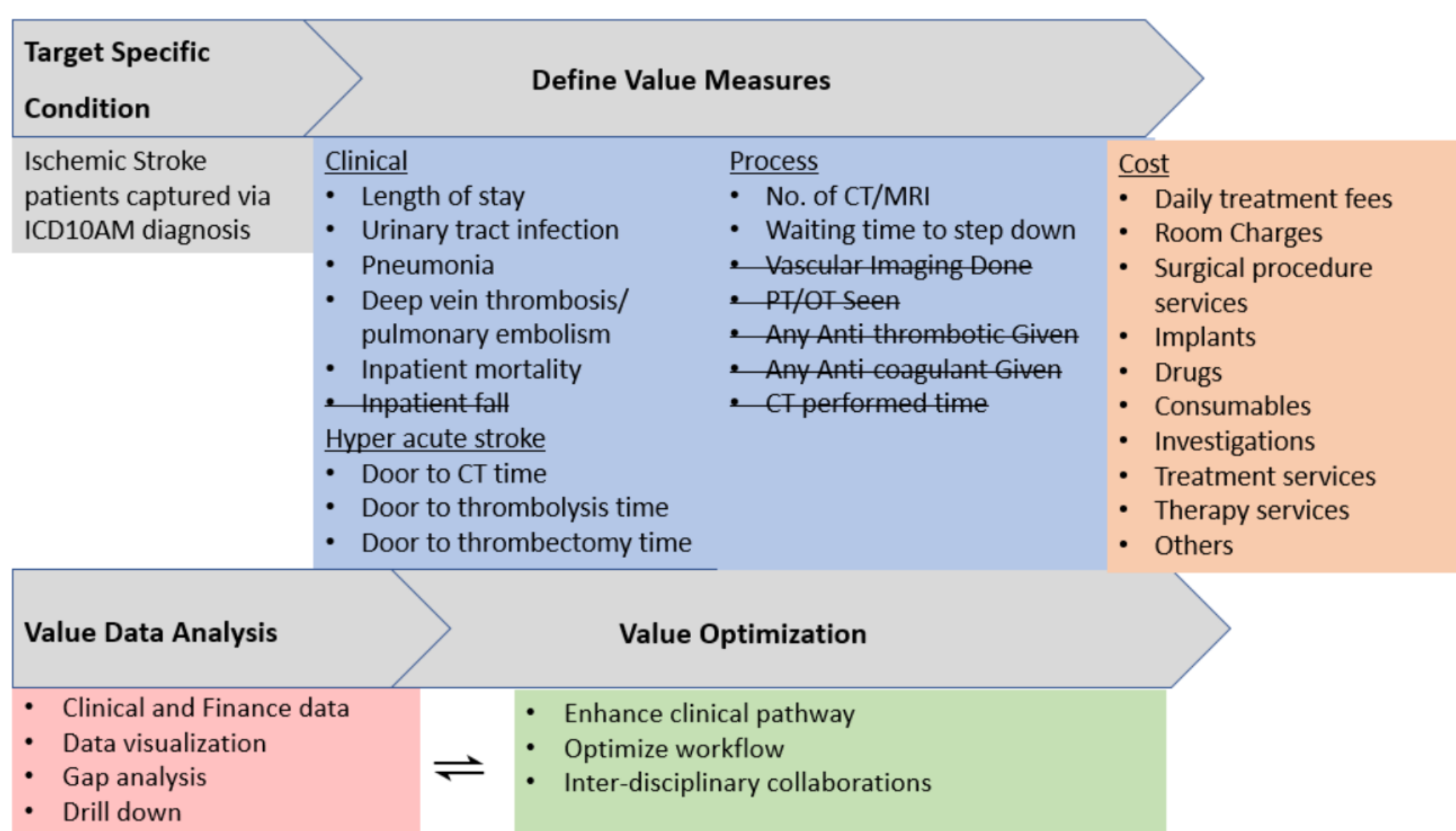
- Ischaemic stroke represents a significant burden on healthcare systems, associated with substantial morbidity and economic impact.
- In Singapore, the direct and indirect costs attributed to ischaemic stroke are estimated at USD1.2 billion and USD2.8 billion¹ respectively.
- The Ministry of Health of Singapore initiated the Value Driven Care (VDC) programme in 2017.
- The Singapore General Hospital (SGH) commenced its VDC programme for ischaemic stroke in 2019.
- We describe here the 5-year experience with this VDC programme.

Methods

- Value measures were selected considering evidence based clinical best practices
- Clinical and process data were extracted from electronic medical data warehouse & audits; Cost data were obtained from the finance department.
- Quarterly dashboards were generated using Tableau software for trend analysis of outcomes and costs, enhancing data visualization
 - Poor-performing areas were subjected to in-depth analyses to identify underlying factors and potential interventions
 - Indicators consistently meeting performance thresholds were periodically retired from active monitoring
 - Trends over time were consistently monitored

Results

- Data fields collated and dashboard of datapoints are shown below



*Measures struck out were retired from active monitoring due to consistently meeting performance thresholds

- Examples of Numerous initiatives addressing areas for improvement are described below

| | Waste and cost reduction | Outcome improvement | Reduction of avoidable complication |
|-----------------|--|--|--|
| Issue | <ul style="list-style-type: none"> • 20% of carotid ultrasound tests were inappropriate and not required • Brain MRI was a major cost driver | <ul style="list-style-type: none"> • 70.8% had door to groin time ≤90 minutes in 2022 | <ul style="list-style-type: none"> • >10% in stroke unit have UTI in 2020-2021 • Majority with acute urinary retention |
| Strategy | <ul style="list-style-type: none"> • Modified department protocol • Education of junior doctors on appropriate orders for carotid ultrasound • Removed MRI sequences not relevant for acute stroke care | <ul style="list-style-type: none"> • Multidisciplinary review of specific micro times to streamline processes | <ul style="list-style-type: none"> • Nurse-led bladder scan protocol for early detection and management of acute urinary retention |
| Result | <ul style="list-style-type: none"> • Inappropriate carotid US reduced from 20% to 6% • ↓ 50% in unit cost of abbreviated MRI • ↓ 14.3% median investigation cost in total | <ul style="list-style-type: none"> • 83.5% of patients achieved door to groin time ≤90 minutes | <ul style="list-style-type: none"> • Reduced UTI rate from 9.6% between Jan 2020 to Jan 2022 to 5.7% between Feb 2022 to Feb 2023 |

Conclusion

- Value-driven approach facilitates continuous monitoring of ischaemic stroke care outcomes, enabling progressive improvements across multiple domains of stroke management.
- SGH has initiated the integration of patient-reported outcome measures (PROMs) into its ischaemic stroke value-based healthcare programme, utilizing the International Consortium for Health Outcomes Measurement (ICHOM) stroke set.
- This comprehensive approach enhances the holistic evaluation of stroke care, advancing the approach to evidence-based, patient-oriented healthcare delivery.

References

¹The Economist Intelligence Unit. The Cost of Inaction: Secondary Prevention of Cardiovascular Disease in Asia-Pacific (2020). https://impact.economist.com/perspectives/sites/default/files/eiu_amgen_cvd_secondary_prevention_whitepaper_0319.pdf. Accessed 8th June 2024.