



Singapore Healthcare Management 2018

# Improving right-siting of eligible ischaemic stroke patients to Acute Stroke Unit (ASU) in Tan Tock Seng Hospital (TTSH)

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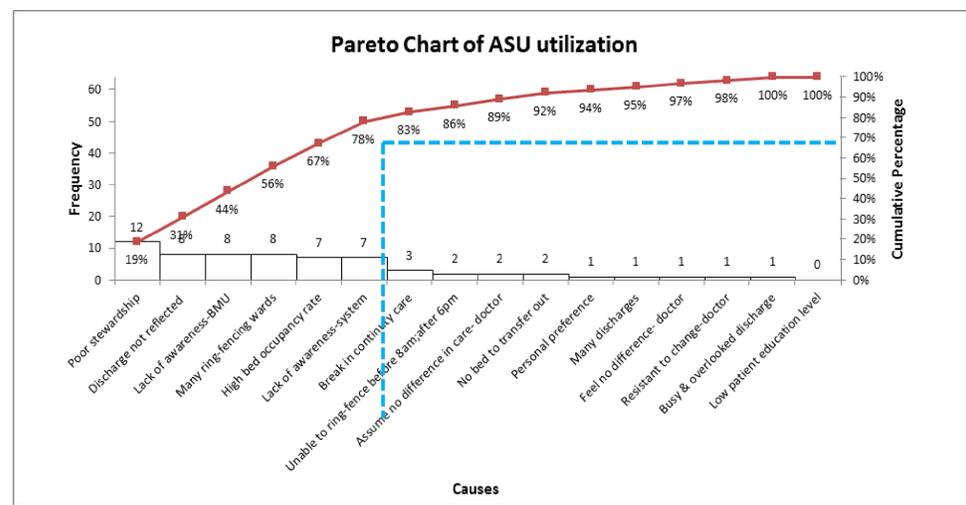
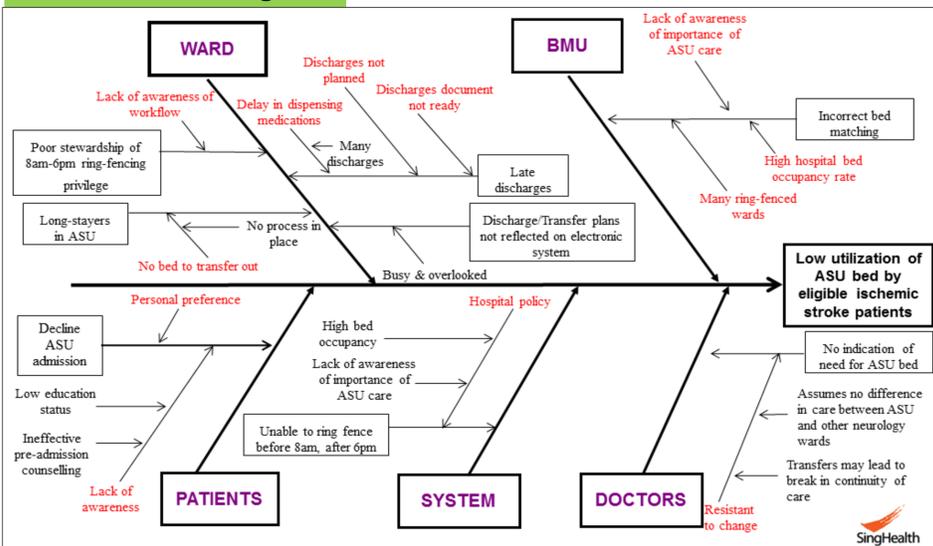
## BACKGROUND AND AIM

ASU care for ischaemic stroke patients has been shown to reduce mortality, improve independence and reduce institutionalisation<sup>1</sup>. Our local experience suggests that the standard of neuroscience care in outlier non-ASU wards is not optimized due to lack of familiarity with neurological monitoring and essential assessment tools such as National Institute of Health Stroke Scale (NIHSS) and modified rankin score (mRS), resulting in delayed recognition of neurological deterioration, increased medical complications, delayed rehabilitation referral and prolonged length of stay. Our ASU admission rate for eligible ischaemic stroke patient was low at 51%. We aim to improve the right-siting of eligible ischaemic stroke patients to ASU from 51% to 100%.

## METHODOLOGY

A multi-disciplinary workgroup comprising various stakeholders (Neurology doctors, ED/ASU/NICU nurses and administrators) was formed in January 2017 to review ASU admission workflow and factors contributing to low ASU admission rates.

### Cause & Effect Diagram



### We implemented the following measures:

- Lack of Awareness on the importance of ASU care**
  - Education of relevant stakeholders to heighten awareness and importance of ASU care
  - Increase awareness of administrative process to ASU
- Poor stewardship of existing ring-fencing rights**
  - Strict compliance of ASU ring-fencing (8am-6pm daily) by ASU nursing/administrative team
  - Daily identification of outlier acute stroke patients for transfer back to ASU by case manager
- A workflow was constructed and disseminated to relevant stakeholders
- ASU admission data was monitored

Process improvement was further refined with 24-hour ring-fencing rights (mid-February 2018)

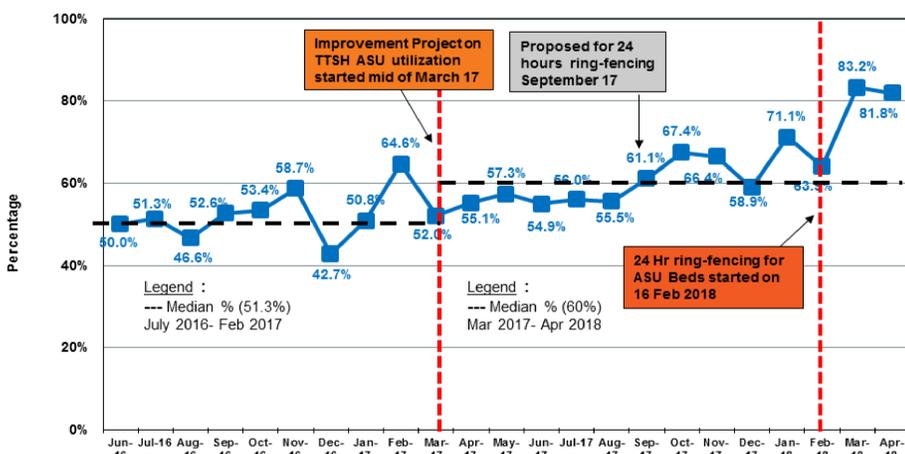
- BMU**
  - Lack of awareness of importance of ASU care for stroke patients
  - Many ring-fenced wards resulting in difficulty in facilitating transfers
- Ward**
  - Poor stewardship of ASU ring-fencing privileges
  - Discharge/transfer plans not reflected on system visible to BMU
- System**
  - High bed occupancy rate
  - Lack of awareness of importance of ASU care for stroke patients

### Root-cause analysis identified modifiable factors which include:

- Lack of awareness on the importance of ASU care
- Poor stewardship of existing ring-fencing rights

## RESULTS

Total patients (B, C class) : 2016 Jun-Dec (N = 836), 2017 (N = 1507), 2018 Jan-Apr (N = 455)



A pilot study performed from March to June 2017 showed that there was **no significant improvement** in ASU admission rates for eligible ischaemic stroke patients (51% to 61%).

Preliminary data showed that majority of stroke patients were admitted outside of the ring-fenced hours (after 6pm to 8am), accounting for a persistent gap limiting right-siting of these patients.

Implementation of 24-hours ring-fencing process, in tandem with the other measures mentioned above from mid-February 2018, demonstrated a **significant improvement** in ASU admission rates for eligible ischaemic stroke patients, **from 61% to 82%**.

## CONCLUSION

Our project has identified gaps in ASU admission workflow and provided the opportunity to right-site our patients to achieve optimal outcome. We highlight the importance of senior management support and a dedicated multi-disciplinary team to upkeep the improved admission rates of eligible ischaemic stroke patients to ASU.

## REFERENCE

1. Powers, W. J. et al., (2018). *Stroke AHA Journal*. American Heart Association/American Stroke Association Guideline. 2018 Guidelines for the early management of patients with acute ischaemic stroke: A guideline for healthcare professionals from AHA/ASA. DOI: 10.1161/STR.000000000000158