Reducing the Incidence of Urinary Tract Infection developing within Acute Stroke Unit at Singapore General Hospital

Arif, R.1, Tan, I. F.2, Chew, J. S.2, Sim, K.4, Chinh, D. Z.6, Qi, D.1, Mahmood, N. F.1, Foong W.D.5, Lin, Z. Z. S.6, Chua X. N.5, Hong, M. Y.8, Qua, C. L.1, Ho, S. S. H.4, Deidre Anne De Silva,6

1Nursing Division, Singapore General Hospital (SGH), 2Neuroscience Nursing, National Neuroscience Institute, 3Neurology Specialty Nursing, SGH, 4Office of Value Based Healthcare, SGH, 5Department of Neurology, SGH, 6Process Transformation and Improvement, SGH, 7Infection Prevention & Epidemiology, SGH, 8Department of Urology, SGH.

Background
Patients with stroke are particularly vulnerable to Urinary Tract Infection (UTI) due to immunosuppression, immobility, bladder dysfunction, increased Foley catheter use for acute urinary retention (ARU). Fever and systemic inflammatory response associated with UTI can impair stroke recovery and lead to poorer neurological outcomes, longer hospital stays, and increased cost of care after stroke.

Aim
To reduce the incidence of urinary tract infection (UTI) developing within 30 days of acute stroke from 9.6% to less than 5% among stroke patients who are admitted to SGH Acute Stroke Unit within 12 months.

Analysis of problem and Intervention
We analyze for the root causes of the problem using the “5 WHY methodology” and develop the interventions using driver diagram

Based on the findings, a bladder protocol with urinary retention prevention strategies (URPS) was developed and piloted from Feb 2022.

Results
Monthly median UTI rates decreased from 9.6% pre-intervention to 5.7% post-intervention. Compliance audits suggested that nurses sometimes did not perform proper handover to follow up on the bladder protocol. Availability of the bladder scanner could also affect compliance.

While the target of <5% was not achieved, there was still a significant improvement in reducing the UTI rate in stroke patients at ASU, with incidences reduced from 93 cases (Jan 21 to Dec 21) to 62 cases in (Jan 22 to Dec 22).

Sustainability Plans
The results demonstrated that early recognition and relieving patients with ARU related to stroke can reduce the chances of developing UTI. For sustainability, compliance to the protocol have to be maintained. This can be done through
1) Incorporation of the bladder protocol into the existing Stroke electronic clinical pathway or intake output chart.
2) Training as part of nursing and resident's orientation program with periodic refreshers

Corresponding author in attendance
Mr CHIN De Zhi, Executive, Office of Value Based Healthcare, Singapore General Hospital