



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

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Background

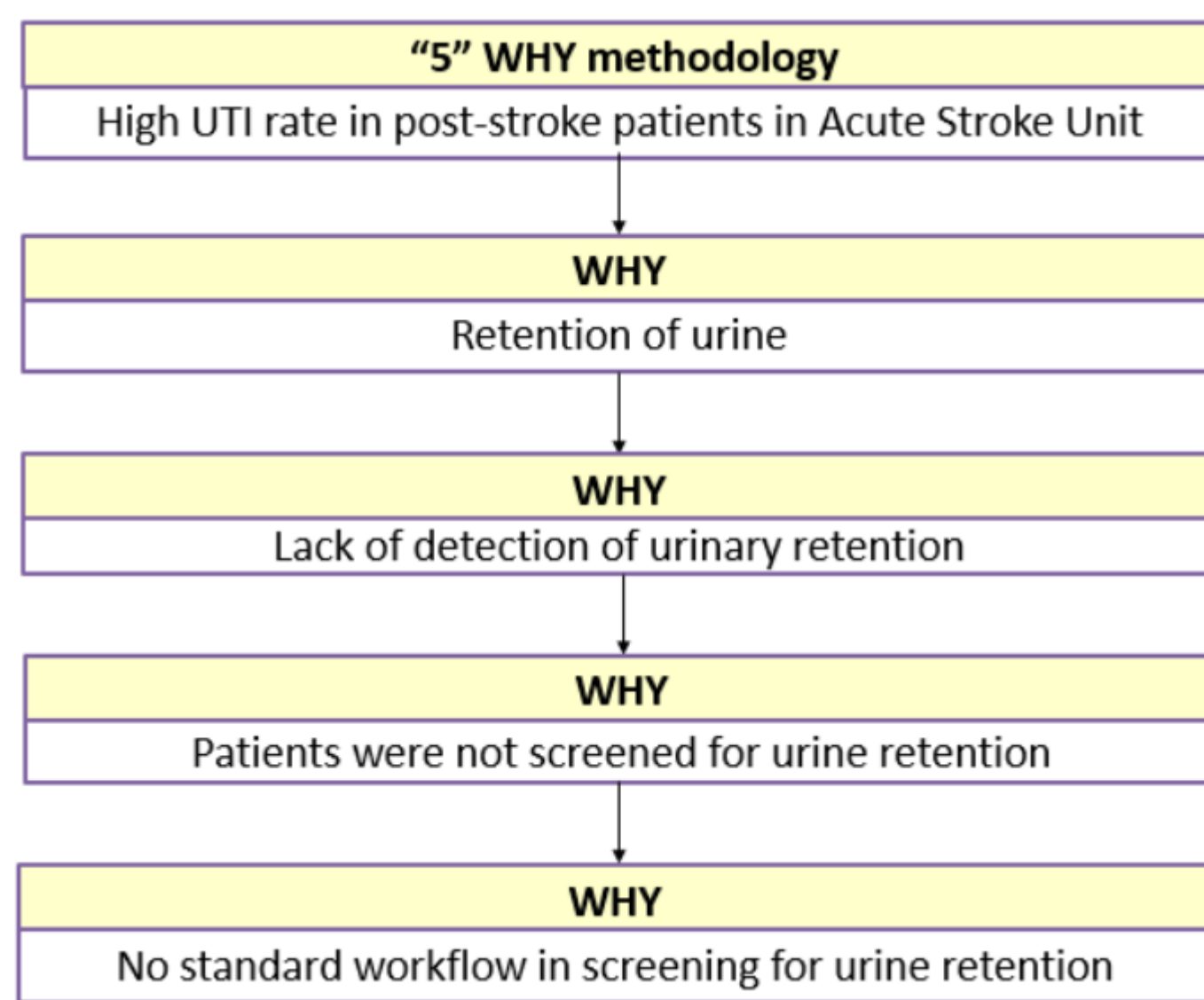
Patients with stroke are particularly vulnerable to Urinary Tract Infection (UTI) due to immunosuppression, immobility, bladder dysfunction, increased Foley catheter use for acute urinary retention (ARU). Fever and systemic inflammatory response associated with UTI can impair stroke recovery and lead 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.

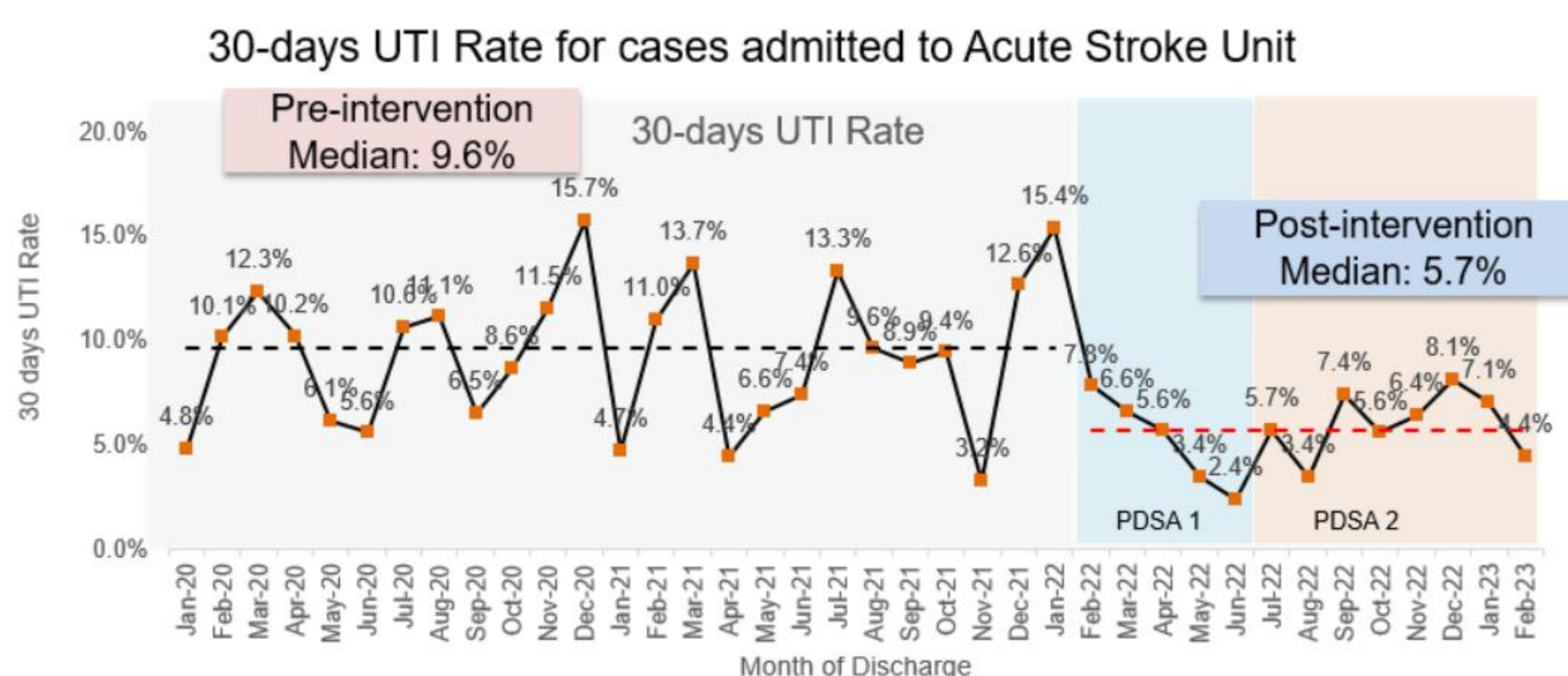
Analysis of problem and Intervention

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.

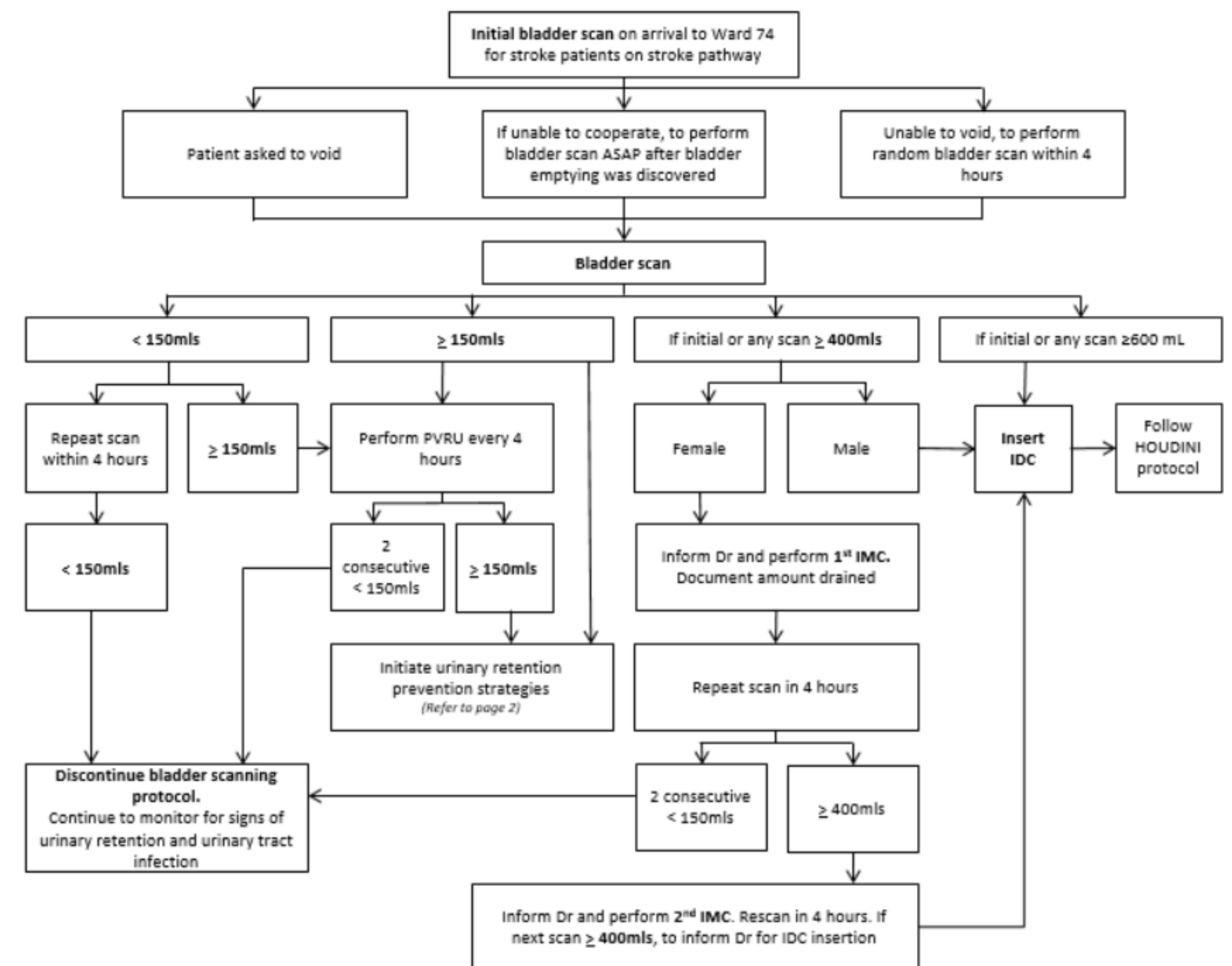
Results



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 (Jan 22 to Dec 22).

ARU workflow chart with Urinary Retention Prevention Strategies (URPS)



Feb 2022

Plan

- Literature review by clinical team
- Consultation with experts
- Developed new protocol

Do

- Updated all stakeholders on the new protocol developed
- Updated department on start date, emphasizing criteria for re-insertion of urinary catheter
- Roll call to all nurses in ASU on the new protocol

Study / Check

- Reviewed UTI rate for past 3 months (Jan-Mar 2022)
- Performed monthly audit on compliance to new protocol
- Identified issues resulting in non-compliance

Act

- Reminded nurses on compliance
- Reviewed protocol with experts
- Presented amended protocol and reinforce compliance during unit meetings and roll calls
- Explore need to purchase another bladder scanner



Jun 2022

Plan

- Literature review by clinical team
- Modified bladder protocol

Do

- Updated all stakeholders on the updated protocol
- Updated department on starting date (11 Jun 2022)
- Roll call to all nurses in ASU on the new modified protocol

Study / Check

- Reviewed UTI rate for 3 months (Jun-Aug 2022)
- Perform monthly audit on compliance to new workflow
- Identify issues encountered on non-compliance

Act

- Reminded nurses on compliance
- Presented amended workflow and reinforce compliance during unit meetings and roll calls

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

- Incorporation of the bladder protocol into the existing Stroke electronic clinical pathway or intake output chart.
- Training as part of nursing and resident's orientation program with periodic refreshers

