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### The Big Wee Problem

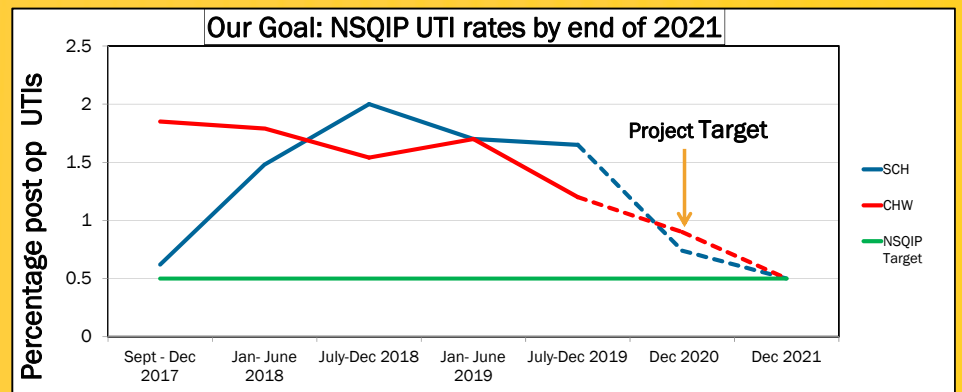
In 2018, SCHN had triple the UTI rates than expected on benchmarked National Surgical Quality Improvement Program data. Over 70% of these children with a UTI post-operatively also had an in-dwelling catheter (IDC) that was inserted in theatre. Through observations and surveys we discovered that doctors currently have a knowledge gap about how to insert IDC's. Timely removal of an IDC is also an issue as IDC's are in situ on average 4 days (n=149). On a case comparison a child with a UTI had over double the length of stay, medical reviews, pathology tests and medical imaging compared to a child without a UTI with a similar procedure and diagnosis. A cost analysis revealed that the added costs of UTI's to the hospital are over double when comparing similar surgical cases as well as the impact on the patient with extra tests and exposure to radiation. Parents reported that their children suffered with fevers, pain and were miserable when they had a UTI. Parent also expressed concern that they felt unequipped to deal with their child's nappy changes whilst the child had an IDC in situ.

### Goal

Improve patient outcomes by reducing NSQIP identified post-operative urinary tract infections (UTI) rates by 50% from 2018 baseline data by end 2021.

### Objectives

- 1.Reduce NSQIP raw data catheter associated UTI rates by 70% from 2018 to end 2021.
- 2.Reduce average costs for selected post-operative orthopaedic and neurosurgery cases by 25% from 2018 to end 2021.
- 3.Improve medical staff knowledge and confidence about catheter insertion from baseline survey median confidence score of 6/10 in 2019 to median 9/10 in 2020.



### Diagnostics

- Focus groups on wards 14 groups (n=53)
- Observational audits in theatres (n=13)
- Surveys to medical staff (n=54)
- Interviews with parents (n=5)
- Literature reviews (n=5)
- Brainstorming with Project Advisory Group
- Key stakeholder interviews (n=7)
- NSQIP data and raw data (n=145)
- Policy gap analysis
- Process mapping
- Issues prioritisation

### Solutions

- Parent/carer factsheet to inform them on how to manage their child's perianal hygiene post operatively with an IDC in situ.
- An eMR alert to consider IDC removal from day 3 post insertion. Slogan 'Day 4: Catheter no more'.
- Multidisciplinary catheter policy review
- Sim videos on male and female catheter insertions available on internal education platform. Posters on general UTI reduction strategies placed above scrub sinks and insertion flowcharts placed in anaesthetic bays and treatment rooms.

### Implementation

- Ward and specialty area champions help to implement solutions
- Buy in from HOD and CMOs to target medical staff education
- Education sessions on ward areas prior to implementation
- Focus groups on wards prior to implementation
- Consumer feedback in evaluation sheets
- Steering committee monitoring change and ongoing data collection
- Support from hospital executive through email messaging and at meetings
- Educator and NUM support at ward levels

### Implementation TimeLine

- IDC preparation solution changed at SCH Oct 2019
- Equipment consistent across Network Jan 2020
- Posters above scrub sinks June 2020
- Policy published June 2020
- Sim videos on intranet education platform July 2020
- eMR alert live September 2020
- Factsheet available for parents September 2020
- IDC flowchart posters in treatment room areas October 2020



### Evaluation

- Ongoing NSQIP data collection
- Median days IDC in situ
- Follow up survey
- Observational audits in theatres
- Focus groups
- Evaluation sheets
- Number of 'hits' on intranet for policy and sim videos

### Benefits so far

- Catheter insertion equipment standardised across the Network
- Change in use of saline to chlorhexidine aqueous for catheter preparation at SCH
- Supporting staff to commence projects using AIM methodology that has branched from The Big Wee Problem project
- Documentation of person who inserts an IDC in theatres in patient records – increasing accountability around insertion practice
- As yet it is too soon to evaluate benefits for the patient, outcomes or cost benefits. This has been delayed until 2021 due to the delays incurred during the Covid epidemic.
- Focus groups with nursing staff have reported that doctors are more proactive about IDC removal
- Feedback about sim videos are positive and are used for Network education purposes
- Increased engagement across departments with project team – collegial effort to reduce UTIs



### Sustaining change

- Ongoing NSQIP data collection
- Sponsorship, HOD and front line staff engagement
- Reporting back to departments – celebrate achievements
- Annual Wee Week
- Ongoing engagement with front line clinical staff
- Ongoing PDSA cycles

### Conclusion

A multifactorial approach was required to address this complex issue in a multi-site hospital Network and across many surgical departments. The benefit of this approach is that other health settings can adapt one or more of our project solutions for implementation to address the issues in their clinical setting.

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