Out of the Red, But Not in the Clear:
Addressing Catheter-Associated Urinary Tract Infections in a Level 1 Trauma Centre

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Background and Context for Change

- Catheter-associated urinary tract infections (CAUTIs) are a key quality indicator, significantly affecting patient length of stay, satisfaction, and outcomes.
- Despite a Medical Directive allowing nurses to initiate urinary catheter removal on wards since 2015, our trauma center was identified as a high outlier in CAUTI rates in the 2021 ACS Trauma Quality Improvement Program (TQIP) report (Odds Ratio = 2.14).
- Performance Improvement (PI) reviews revealed inconsistent compliance with the directive and its limited scope across care levels, necessitating targeted action.

Catheter-Associated UTI	All Patients	1.23	2.14	2.08

Figure 1. Screenshot from Table 5a from SHSC Spring 2025 TQIP Report, Fall 2020 to Fall 2021

Aim Statement

- The project aimed to reduce CAUTI rates and associated harm to patients across the trauma continuum by improving compliance with catheter removal protocols and expanding the scope of the medical directive to enhance early removal practices.

Family of Measures

- Impact was assessed through continuous unit-based audits and review of biannual TQIP reports.
- Audits reviewed the number or urinary catheters on the unit and the number of avoidable urinary catheters. This revealed the number of patients that met criteria for removal based on the Medical Directive but continued to have a urinary catheter.

Problem Characterization

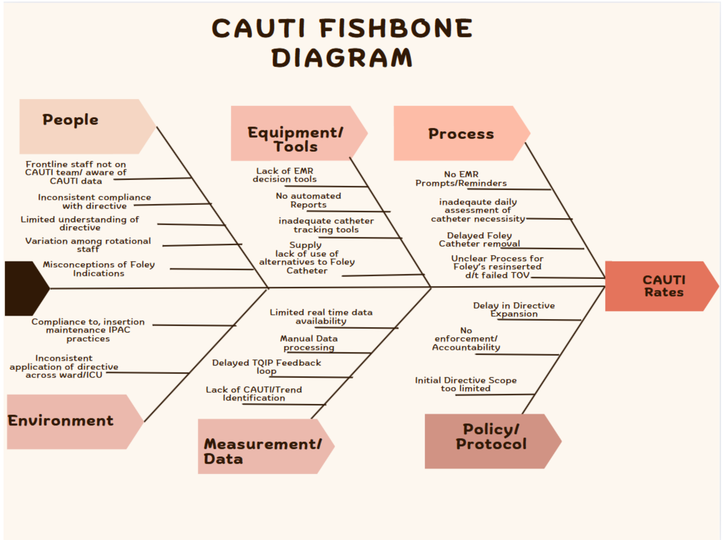

Figure 2. CAUTI fishbone Diagram.

Intervention

- Key interventions included:
  - Expanding the Medical Directive to non-ventilated ICU patients
  - Targeted initiatives such as "Foley-Free February", which featured daily catheter audits, "Foley-Free Fridays" to attempt to sustain change throughout the year with weekly audits, and a daily automated ICU report
  - Raising interprofessional awareness and support for the Medical Directive to promote adherence
- The real-time audits provided opportunities for staff engagement, clarification, and learning.

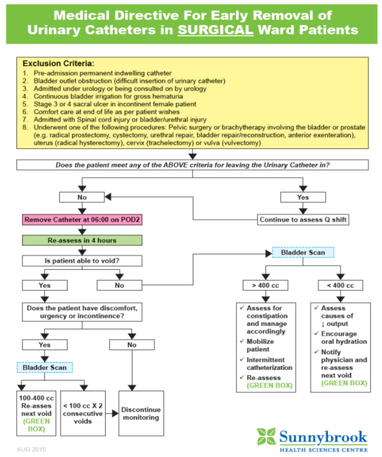

Figure 3. Screenshot of SHSC algorithm for surgical patients

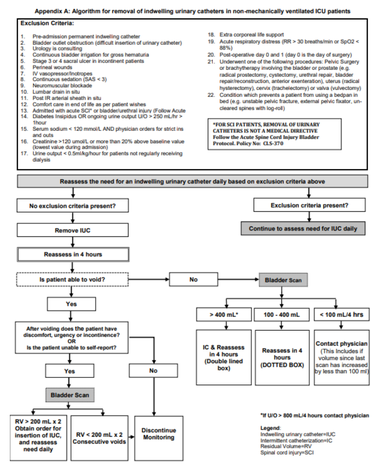

Figure 4. Screenshot of SHSC algorithm developed for non-mechanically ventilated ICU patients.

Project Results

- As compliance with the Medical Directive improved, a reduction in urinary catheter utilization across units was observed. Notably, measurable improvements in CAUTI rates and corresponding TQIP performance metrics emerged by Spring 2025 (Odds Ratio reduced to 1.51).

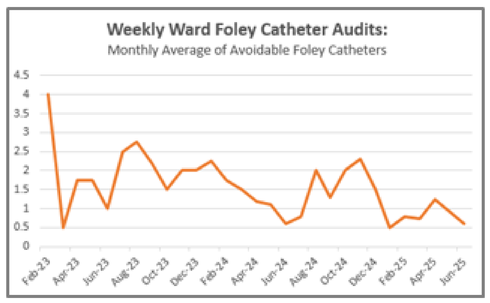

Figure 5. Weekly audit data from "Foley Free Friday" on the ward.

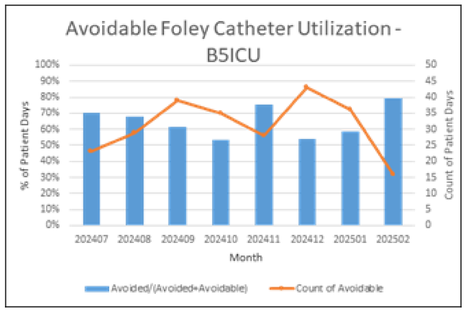

Figure 6. Avoidable Foley Catheter Utilization in Level 2 ICU

2.27	8.12	2.19	2.33	2.97	2.49	1.51

Figure 7. Screenshot from Table 5a of Catheter-Associated UTI, All patients, Spring 2022 to Spring 2025

Results

- This measurable improvements in the ACS TQIP report underscored the complexity and the effort required to achieve meaningful change.
- Initial data demonstrates progress, however for long term sustainability continued monitoring and staff engagement is essential.
- **Limitations:** The current documentation system on the wards limits comprehensive data capture due to reliance on manual audit processes. In contrast, the ICU benefits from an electronic medical records (EMR) system that supports automated daily data collection, highlighting a disparity in data quality and efficiency between the wards and ICU.

Significance & Generalizability

- Policy optimization and real-time performance monitoring improves patient outcomes.
- By enhancing compliance and expanding directive scope, the project strengthened nursing autonomy, promoted early catheter removal, and supported trauma program quality goals reflected in improved TQIP metrics. The initiative also reinforced the importance of interdisciplinary collaboration and continuous data-driven performance improvement to sustain gains over time.
- The principles used can be adapted to reduce other device-associated infections. These include: policy reinforcement and scope expansion, real-time audits and feedback loops, frontline engagement and interprofessional collaboration.

Conclusions

- Ongoing PI reviews guided our strategies to address CAUTI, recognizing that sustained improvements require a coordinated, interprofessional approach.
- Although initial data shows progress, continued monitoring and engagement are essential.
- Long-standing directives require ongoing reinforcement, interprofessional collaboration, and data-driven feedback to maintain effectiveness
- We have identified key opportunities for continual improvement to strengthen rotational team member engagement and data management processes through leveraging upcoming Electronic Medical Record (EMR) enhancements to establish automated data capture and analysis.
- Overall, frontline staff remain central to this initiative, driving change and contributing to long-term success.

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