# Utilizing a Data-Driven Approach to Develop Nurse-Driven Indwelling Urinary Catheter Removal and Urinary Retention Management Protocols

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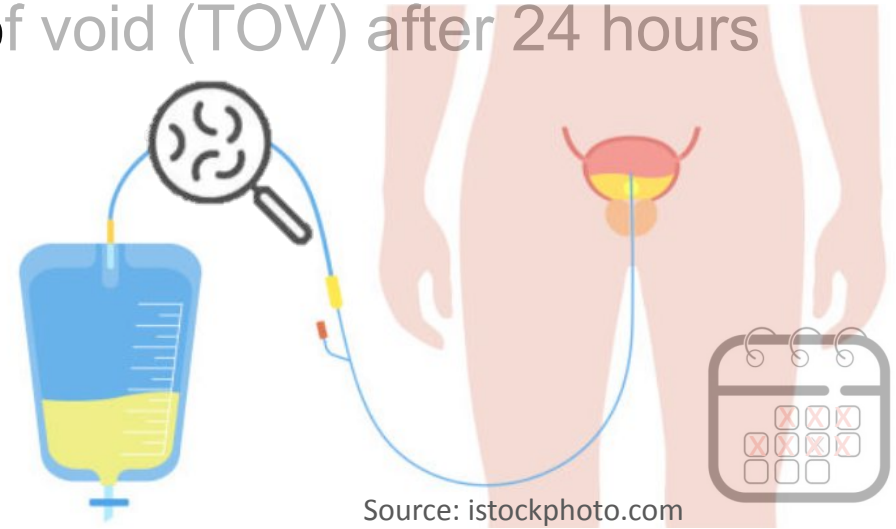
# Background

- Indwelling urinary catheterization (IUC) duration closely correlates with catheter-associated urinary tract infections (CAUTI).
- Evidence shows nurse-driven removal protocols minimize IUC usage and CAUTIs.
- Lack of guidance on tailoring protocols for specific patient populations.
- Current Practice: IUCs are maintained throughout hospitalization and upon discharge for patients who don't pass the trial of void (TOV) after 24 hours of in/out straight catheterization.



Source: istockphoto.com

# Purpose

- Develop nurse-driven IUC removal and acute urinary retention (AUR) management protocols
- Develop protocols based on best practice
- Tailor protocols to specific patient population using institutional IUC utilization and CAUTI data

# Methods

- Literature review
- AUR management discussion with Urology experts
- Retrospective analysis of inpatient IUC utilization and CAUTI (1/2019 - 6/2023)
- Analysis of patient sex, race, IUC duration, multiple IUC insertions during admission, and CAUTI (using National Healthcare Safety Network definitions).
- Odds ratio (OR) calculated comparing CAUTI among longer versus shorter IUC duration (p value cutoff <0.05)

# Results

| Variables | # CAUTI (%) | Total # IUC's |
|---|---|---|
| **Total** | **18 (0.80%)** | **2,238** |
| **Sex** | | |
| Female | 12 (1.04%) | 1,157 |
| Male | 6 (0.56%) | 1,081 |
| **Race** | | |
| Other (patient reported "other" or multi-racial) | 3 (4.76%) | 63 |
| White | 15 (0.83%) | 1,798 |
| **Multiple IUC Inserted Consecutively (no calendar days between removal and reinsertion)** | | |
| Yes | 10 (1.67%) | 599 |
| No | 8 (0.49%) | 1,639 |
| **IUC Duration (days)** | | |
| ≥8 | 8 (4.26%) | 188 |
| 7 | 2 (3.03%) | 66 |
| 6 | 2 (1.82%) | 110 |
| 5 | 2 (1.00%) | 200 |
| 4 | 4 (0.96%) | 415 |
| 3 | 0 (0%) | 1,259 |

- 25,275 IUCs identified
- Most inpatients had only 1 IUC during admission (96.5%)
- 2,238 IUCs (8.9%) were CAUTI Surveillance eligible
- Focus on correlation between IUC duration and CAUTI risk

# Results (Continued)

| Variables | # CAUTI (%) | Total # IUC's | CAUTI Rate |
|---|---|---|---|
| **Total** | **18 (0.80%)** | **2,238** | |
| **IUC Duration (days)** | | | |
| ≥8 | 8 (4.26%) | 188 | **3.3%** (12/364) x100 |
| 7 | 2 (3.03%) | 66 | |
| 6 | 2 (1.82%) | 110 | |
| 5 | 2 (1.00%) | 200 | **0.32%** (6/1874) x100 |
| 4 | 4 (0.96%) | 415 | |
| 3 | 0 (0%) | 1,259 | |

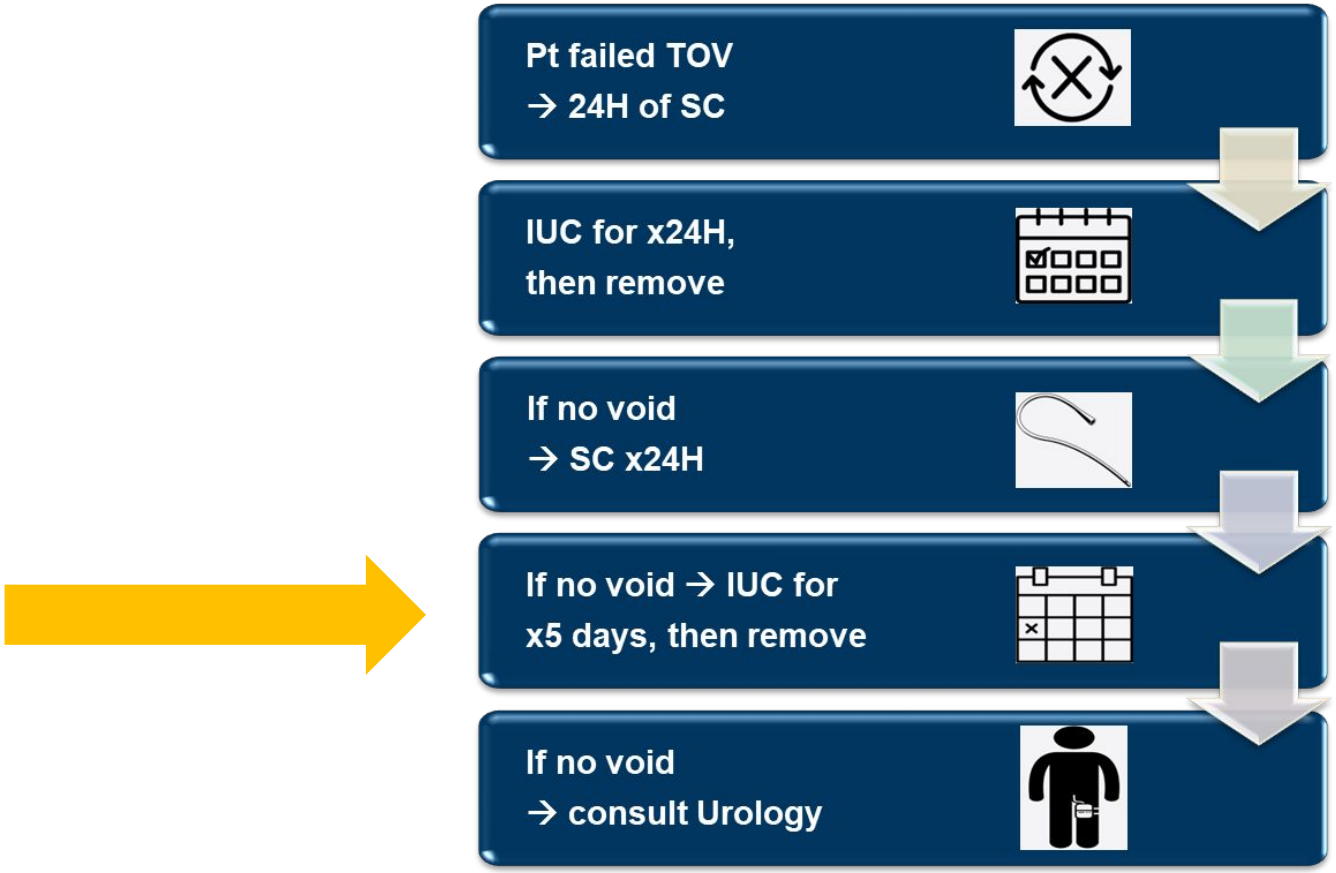
| Odds Ratio | # CAUTI | No CAUTI | Total # IUC's |
|---|---|---|---|
| IUC ≥6 days | 12 | 352 | 364 |
| IUC 3-5 days | 6 | 1,868 | 1,874 |
| | **18** | **2,220** | **2,238** |

$$\frac{12 \times 1{,}868 = 22{,}416}{6 \times \quad 352 = \ 2{,}112} = 10.6$$

Patients with an IUC for **6 or more days** are **10.6x more likely** to develop a CAUTI than patients who had an IUC for 3 to 5 days

# Conclusions

The AUR protocol we developed aligns with both Urology recommendations and institutional data findings (IUC removal at 5 days to reassess void status).



# References


1. Patel, P. K., Advani, S. D., Kofman, A. D., Lo, E., Maragakis, L. L., Pegues, D. A., Pettis, A. M., Saint, S., Trautner, B., Yokoe, D. S., & Meddings, J. (2023). Strategies to prevent catheter-associated urinary tract infections in acute-care hospitals: 2022 update. *Infection Control Hospital Epidemiology*, 44(8), 1209–1231. https://doi.org/10.1017/ice.2023.137
2. AHRQ (2015). Toolkit for reducing catheter-associated urinary tract infections in hospital units: Implementation Guide. https://www.ahrq.gov/hai/cauti-tools/impl-guide/index.html

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