



# Implementation of a Nurse-Managed Bladder Management QI Pilot

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## Introduction

- Monitoring and management of bladder functioning following indwelling urinary catheter (IUC) removal and for urinary retention on the neurosciences units varies and is prescriber dependent.
- The aim of this quality improvement (QI) project was to ascertain:
  - whether nursing staff can use a bladder management algorithm correctly
  - whether bladder distention occurrences are decreased using the bladder management algorithm
  - any effect on IUC days (per 1000 IUC days) & urinary tract infection (UTI) rates.

## Methods

- A bladder management algorithm was created following an evidence-based practice project on best practices to prevent UTIs following IUC removal and retention.
- The bladder management QI pilot was over six months (December 13, 2019- June 15, 2020) for patients on neurosciences services on two acute-care and two intermediate-care medical-surgical units.
- Based on bladder scan volumes, the algorithm and orders in the electronic medical record guided nursing staff to perform specific interventions and monitoring.

A nurse-led bladder management algorithm can provide safe patient care and increase nurse autonomy.

Neuro Nursing Nurse-Managed Bladder Management Algorithm		
Initiate after indwelling urinary catheter removal and when urinary retention is suspected.		
Toilet and bladder scan patient for post-void residual or suspicion of retention 6 hours after removal of indwelling catheter, whichever comes first.		
Bladder Scan Volume	IMMEDIATE Intervention	Next Steps
More than 300mL	Perform intermittent catheterization*  *Exception: if this is a second consecutive bladder scan volume of more than 500mL, then insert a foley for 12 hours and NHO.	Toilet and bladder scan within <b>4 hours</b> .  If foley inserted: • Remove foley in 12 hours. ◦ If foley due for removal between 01:00 - 05:00 remove at 06:00. • Then toilet and bladder scan within <b>6 hours</b> .
150 - 300mL	Encourage fluid intake if appropriate.	Toilet and bladder scan within <b>2 hours</b> .
0 - 149mL	No intervention at this time.	Toilet and bladder scan within <b>6 hours</b> .  Once two consecutive bladder scan volumes are 0-149mL, D/C algorithm.

Table 1

Demographics	Baseline (N=119)	6 Month QI (N=115)	Comparison of 6 Month QI vs. Baseline, p
Gender (Female N, %)	66 (55.5%)	68 (59.6%)	0.60 (Fisher's)
Age, Years (Mean, SD)	59.5 (16.0)	57.5 (15.9)	0.57
Department (N, %)			0.60 (Fisher's)
Neurology	18 (15.1%)	21 (17.9%)	
Neurosurgery	101 (84.9%)	94 (81.7%)	

Table 2

Protocol Adherence	First Month of Baseline	Last Month of QI	Comparison of Last Month QI vs. First Month Baseline
Compliance with Bladder Management Algorithm (Timing and Intervention) Per Patient (mean %, SD)	6.5% (15%)	46% (53%)	<0.001
Outcomes	Baseline (N=119)	6 Month QI (N=115)	Comparison of 6 Month QI vs. Baseline, p
Bladder Management Following Foley Removal (Yes N, %)	30 of 119 (25.2%)	82 of 117 (70.1%)	<0.001
Number of Foley Days (Mean, SD)	4.5 (7.3)	5.8 (9.4)	0.24
Number of Foleys (Mean, SD)	1.3 (0.7)	1.6 (1.5)	<0.05
Foley Output at Time of Insertion (Mean, SD)	517.4 mL (236.4)	572.3 mL (265.7)	0.48
Discharged with Foley (Yes N, %)	7 (5.9%)	17 (14.9%)	0.03 (Fisher's)
Treated for UTI with Antibiotics (Yes N, %)	6 (5.1%)	13 (11.4%)	0.10 (Fisher's)
If treated for UTI with antibiotics during admission, UTI occurred while cared for on pilot units (Yes N, %)	3 (50.0%)	4 (44.4%)	0.62 (Fisher's)

## Results

- 115 pilot patients were compared to 119 baseline patients (see Table 1).
- Protocol use was associated with** (see Table 2):
  - improved nursing bladder management compliance (e.g., timing of actions & intervention).
  - improved rates of bladder management monitoring following IUC removal.
- Protocol use was not associated with:
  - length of stay
  - rates of fall during hospitalization
  - decreased mobility
  - rates of UTI
- More patients discharged with an IUC during the pilot period compared to baseline.
- Zero CAUTIs occurred during the pilot period compared to 4 during the baseline period.**

## Discussion

- Implementation of a nurse-led bladder management algorithm was successful and found to be safe for patients.**
- Further study is warranted to:
  - adjust the bladder management algorithm to ensure urinary volumes guiding intervention decisions and frequency of interventions have the greatest positive impact on patient outcomes.
  - ascertain generalizability of the algorithm to a variety of patient populations.