CHANGING PRACTICE ON POSTOPERATIVE URINARY RETENTION (POUR) USING A3 PROCESS IMPROVEMENT METHODOLOGY

Marge Kearney APN, ONC
Michelle Nottoli RN, MBA, ONC, CAPA
First applied by Henry Ford in 1940’s
Healthcare organizations began applying LEAN concepts in 2001 to produce breakthrough improvements in Quality, Service & Cost
Structured, transformational approach to process improvement
  - Structured: P-D-S-A discipline, driven by data
  - Transformational: develops a “community of problem solvers”
A3 Thinking—problem solving tool that tells the improvement story
SIGNIFICANCE OF PROBLEM

- High incidence of postoperative urinary retention (POUR) in elective general orthopaedic surgical patients

- Literature review
  - Bladder anatomy and physiology
  - Predisposing and precipitating factors
  - Use of bladder ultrasound
OBJECTIVES/PURPOSES OF PROJECT (PLAN)

- Post-operative orthopaedic unit—implementation of an evidence-based bladder management program for elective general orthopaedic surgical patients at risk for POUR
- Peri-operative units—implementation of an evidence-based screening tool to identify elective general orthopaedic surgical patients at high risk for POUR and change practice to proactively insert foley catheters in these patients in surgery
STRATEGY FOR IMPLEMENTATION (PLAN)

- Current state:
  - Standard practice to wait up to eight hours for postoperative patients to void before bladder scan or straight catheterization was done
  - Large volumes seen on bladder scan postoperatively
  - Large numbers of foley catheters inserted on unit due to POUR
  - Use of PCA (Patient controlled analgesia) morphine for many orthopaedic surgeries.

- Target state:
  - Follow evidence based protocol for POUR based on bladder scan volumes rather than time to first void
SOLUTION APPROACH (DO)

If we:
- Change our order sets to reflect best practice of monitoring voiding by volume not time
- Educated staff on postoperative unit on bladder anatomy and use of ultrasound for bladder management

Then:
- We could facilitate appropriate use of catheterization in patients at risk of POUR
- Prevent over-distention of bladder in postoperative patients and intervene to correct POUR before muscle damage occurred
RAPID EXPERIMENTS AND COMPLETION PLAN (DO)

- Deployment of algorithm to treat postoperative urinary retention
- Initiation of changes to postoperative order sets
- Education of staff on POUR evidence and begin practice change
STRATEGY FOR IMPLEMENTATION (PLAN)

- Current state:
  + No pre-operative screening for patients at risk of POUR
  + Arbitrary insertion of Foley catheters by MD preference
  + Lack of attention to voiding in PACU (Post Anesthesia Care Unit)
  + Absence of bladder management in PACU

- Target state:
  + Assess patients preoperatively for high risk of POUR
  + Selectively insert foley catheters in high risk POUR patients in surgery
  + Begin bladder scan and management of low risk POUR patients in PACU (Post Anesthesia Care Unit)
SOLUTION APPROACH (DO)

If we:

- Develop a screening tool to identify patients at high risk of POUR and
- Educate staff in peri-operative areas on bladder anatomy and best practices for POUR
- Develop an algorithm for bladder management in PACU and
- Obtain a bladder ultrasound machine and train PACU nurses

Then:

- We could proactively insert foley catheters in these patients during surgery
- We could prevent over-distention of the bladder and intervene before bladder muscle damage occurred
Risk Factor Assessment for Postoperative Urinary Retention (POUR)

Elective General Orthopaedic Patients

- Male
- ≥ 50 years of age
- History of Genitourinary Problems
  - Congenital GU disorder
  - Dialysis or Renal Failure
  - Difficulty urinating
  - Frequency/Urgency of urination
  - Hematuria
  - Incontinence
  - Kidney Stone
  - Prostate Disease or Surgery
  - Renal Insufficiency or high serum creatinine
  - Chronic Urinary Tract Infection
- Diabetes

IF THREE OR MORE RISK FACTORS PRESENT, PATIENT IS AT HIGH RISK OF POSTOPERATIVE URINARY RETENTION (POUR) → Recommend placement of Foley catheter in surgery
RESULTS (STUDY)

- # TJ Pts
- #Pt high risk POUR
- %Pt high risk POUR
- % REQ FOLEY
- % IN OR
- % ON UNIT

Graph showing data comparisons between pre and post periods.
AVERAGE STRAIGHT CATH VOLUMES PRE- AND POST-IMPLEMENTATION
RESULTS

- 61% High risk POUR Pt w/ foley in OR
- 17% High risk POUR Pt w/o foley in OR who needed foley postop
- 11% High risk POUR Pt w/o foley in OR who needed straight cath
- 11% High Risk POUR Pt who voided spontaneously

Advocate Good Samaritan Hospital
Inspiring medicine. Changing lives
CONCLUSIONS/LIMITATIONS/CHALLENGES

• Conclusions
  • Education of staff on unit and auditing showed improvement in monitoring and maintenance of bladder function
  • Nurses very open to evidence-based practice changes

• Challenges
  • Takes time to incorporate new practices into workflow for RNs & PCAs
  • Challenge to coordinate POUR process through multiple peri-operative areas
  • Surgeon behavior change regarding foley catheter insertion in surgery
IMPLICATIONS

- Explore practice change for surgeons who automatically insert foley catheters in their surgical patients
- Expand these practice changes for other types of surgeries, e.g. abdominal/colon, spine, urogynecologic

- As nurses, remember your own bladder capacity and don’t ignore that urge to void!!
ACKNOWLEDGEMENTS

- Orthopaedic staff nurses who raised the question (POUR team)
- Nancy Kreller, Clinical informatics, Advocate Good Samaritan Hospital
- Lina Munoz RN, MSN, CPAN, Manager, Peri-anesthesia Care Services
- Kate Woolard, Operations Improvement Facilitator, Advocate Good Samaritan Hospital