An Evidence-based Project to Educate Nurses on a Standard Protocol for Difficult Male Catheterization

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Introduction

» Urethral catheterization is common procedure during hospitalization, and if done incorrectly, can result in urethral injury and patient discomfort (Doherty, 2006; Kashefi, Messer, Sexton & Parson, 2008).

» Evidence-based quality improvement initiatives can be effective in promoting patient safety and standardizing methods for bedside procedures (Altun & Karakoc, 2010; Daneshgari et al., 2002).

» Quality improvement initiatives are most effective in a multidisciplinary team approach, with Advanced Practice Nurse playing significant role in quality regulation and patient advocacy (Cullen et al., 2012; Hall et al., 2008).
Background

» Department chair of urology at tertiary care medical center noticed lack of consistency in nursing technique in male Foley catheterizations with increase in urology consultations.

» “Specialist “orderlies” discontinued in the 1990’s due to cost.

» Previous educational intervention at annual Case Day had little impact on standardization of male catheterization.

» Mosby’s Skills protocol good, but basic, with little emphasis on difficult Foley insertion or Coude catheter use.
Among Registered Nurses working in a tertiary care medical center, does the use of a standardized educational training program for difficult male Foley catheterization technique improve nurses’ knowledge and attitudes when compared to pre-assessment data and current practice during a 3-month implementation period?
Literature Summary

» Trends
  ~ Widespread problem locally and universally with iatrogenic urethral injuries sustained during male Foley insertion.
  ~ Variable nursing practice can increase the incidence and frequency of injury.

» Strengths
  ~ Quality improvement efforts conducted throughout hospital institutions to identify cause and solve the problem.

» Gaps
  ~ Lack of high level research highlighting implications to the larger health community.
  ~ Lack of research on the patient experience.

» Areas for further research
  ~ What are cost and risk management implications in the United States?
  ~ Best method to train nurses on this bedside procedure and sustain training efforts still to be determined.
  ~ Patient experience.
  ~ The articles reviewed for this project ranged from Level III-Level IV.
Project Design

» Loma Linda University Medical Center

» Adult Acute Care units (6100, 6200, 6300, 8300)

» Convenience sample of approximately 150 staff nurses

» Focus of this DNP project
  ~ Educational training for staff nurses on the Adult Acute Care module
Project Methods

» Four one-hour didactic educational sessions covering all staff nurses on pilot units at mandatory quarterly staff meeting.
  ~ Introduction of male Foley catheterization algorithm.
  ~ Video of steps in male Foley catheterization.

» Six 30-minute hands-on sessions for staff nurses as they go on or come off shift.
  ~ Question and answer on patient scenarios with staff relating to algorithm.
  ~ Demonstration by staff nurses on how and when to use the Coude catheter.
  ~ Troubleshooting scenarios with nurses, including question and answer.
Evidence based Algorithm

ALGORITHM FOR DIFFICULT MALE FOLEY CATHETERIZATION

1. Physician Order for Foley Insertion in a Male Patient
2. Nurses obtain patient history from the EMR and from patient
3. Risk Factors for "Difficult Foley" Insertion
   - All Males over the age of 40
   - Enlarged Prostate
   - History of Urethral Stricture
   - Previous “Difficult Foley” insertion previously (patient report)
   - History of False Passage
   - Anticoagulant Therapy
   - Recent Urologic Surgery
   - Patients with Artificial Urinary Sphincter - (Absolute contraindication - discuss with Urology)

   **YES**
   - Obtain order for 2% Lidocaine jelly for insertion
   - Obtain 16 French Coude Urethral Catheter
   - Insert Coude Catheter to the "Hub"
   - Successful Placement of Catheter?
     **YES**
     - CATHETERIZATION COMPLETED
     **NO**
     - Resistance advancing to "Hub" or significant bleeding from meatus

   **NO**
   - Use Standard Foley Catheter: 16 or 18 French
   - Was resistance felt or catheter coiled?
     **YES**
     - Advance catheter to "Hub" and press on suprapubic area to see urine flow
     **NO**
     - Call Urology for difficult foley insertion
Tri-fold Handout at Mannequin Session

Foley Insertion Technique (FIT) Training

November Staff Meeting 2016

Janelle Warren
MS, FNP-BC, RN

Units 6100, 6200, 6300, 8300
Adult Acute Care
Foley Insertion Technique

Risk Factors for a “Difficult Foley” insertion in a male patient:
- Males over 40
- Enlarged prostate
- History of urethral stricture
- “Previous difficulty” with placing Foley
- History of false passage
- Anticoagulant therapy
- Recent urologic surgery
- Presence of an artificial urinary sphincter (Call Urology first)
- Obesity

If “Yes” for Difficult Foley Insertion
Risk Factors:
- Lubricant is important!
  - 10mL 2% viscous lidocaine or regular lubricant injected into the urinary meatus
  - The provider needs to enter the following order into LLEAP: 2% lidocaine (Xylocaine) jelly 2% in applicator
- Start with 16 French Coudé catheter (if resistance is felt, proceed to the 18 French Coudé catheter)
- Insert catheter to “hub” or “Y” bifurcation with penis on 90 degree stretch
- Troubleshooting techniques if there is no urine return:
  - Press on suprapubic region
  - Flush catheter with 60mL normal saline and withdraw (catheter might be plugged with lubricant)
- If urine returns inflate the balloon
- Don’t Forget! Always pull the foreskin down after catheterization is complete

ATTENTION NURSES:
- 2% lidocaine gel in applicators are stocked in the Acudose on 6300 and 8300 units
- All supply rooms now have:
  - 16 and 18 french Coudé catheters
  - Coudé catheter kits
  - Slip tip syringes for sterile lubricant
Measurement Tool

» Demographic data
   ~ Years in nursing
   ~ Degree held in nursing
   ~ Gender
   ~ Estimation of how many Foley catheters they have inserted in the last 6 months (experience)

» “Male Foley Catheterization Questionnaire”. Scale adapted with permission from (Cohen et al., 2016).
   ~ 15-item tool with five-point Likert scale
   ~ Measures attitudes and knowledge on male Foley catheterization including use of Coude catheter and troubleshooting techniques.
Demographics

Years in Nursing

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<th>Frequency</th>
<th>Percentage</th>
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<td>25</td>
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Demographics

Gender

- Female: 71 (76.34%)
- Male: 22 (23.66%)
Frequency of Performing Catheterization

c. # foley catheters inserted in last 6 months

<table>
<thead>
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Data Results

Difference in Mean Scores: pre and post intervention

- Mean Pretest
- PreMeanAttitudeSc...
- PreMeanKnowledge...

Five point mean

- Red: Pre
- Blue: Post
The researcher used a mixed method repeated measures ANOVA design to assess the effect of type of intervention (didactic versus didactic plus simulation) upon participants’ overall attitudes and knowledge, as well as their attitudes and knowledge separately, regarding catheterization over time (pre and post intervention). Histograms and box plots demonstrated that the assumptions of normality were met across variables.
Didactic, Mannequin or Both

Type of Training N = 74

- 81% Didactic plus mannequin training
- 19% Didactic training
Results-Con’t

» Results demonstrated a significant difference in mean knowledge regarding those that attended the mannequin training Mdn=2, P< 0.001.

» For those that did not attend the mannequin session there was not a statistically significance difference in median knowledge regarding how far to insert the catheter (Mdn=2,0), P=.172
Trends in Difficult Foley Calls

Pilot Units

Pilot Unit Trends

<table>
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<th>Number of Foley Calls</th>
<th>Pre-Education (March through Oct 2016)</th>
<th>Post-Education (November 2016 through February 2017)</th>
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<tr>
<td>6100</td>
<td>2</td>
<td>4</td>
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<td>2</td>
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<tr>
<td>Total</td>
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<td>8</td>
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Evaluation of Outcomes

» Overall knowledge and attitudes improved regarding male Foley catheterization following educational initiative.

» “To the hub”- statistical significance for those who attended mannequin.

» Staff feedback on the educational training:
   ~ “Improved confidence and learned a lot”
   ~ ”It helped with my confidence”
   ~ “Mannequin was hands-on which helped me remember what I learned”
   ~ “I feel more competent and confident”
   ~ “It helped me to be more confident and troubleshooting difficult Foley insertion”
Strengths and Limitations

» Limitations
  ~ Disparate sample size of those who attended mannequin and those that did not.
  ~ Post questionnaire did not accurately capture those that DID ATTEND mannequin.
  ~ Pre-and post-questionnaire sample different: 143 versus 93.
  ~ Mannequin was not high fidelity

» Strengths
  ~ Large sample size of nursing staff.
  ~ Better response rate for pre-and post-test survey versus web-based.
  ~ Staff buy-in.
  ~ Stakeholder support: pharmacy, central service, physicians, nursing leadership.
Projections for Future Work

» Track the difficult Foley calls and run monthly reports.

» Prioritize units with the most calls for training on the evidence-based algorithm.

» Add difficult Foley catheterization algorithm to Mosby’s Skills manual.

» All units in the hospital stocked with Coude catheter kits.

» All unit-based medication carts stocked with 2% Lidocaine gel with applicator for difficult catheter insertion.

» Information Technology to adapt current physician order entry for Foley catheter insertion to include “2% lidocaine gel prn difficult Foley insertion”, eliminating physician phone calls.
Conclusion

• Combining specific didactic education with an option of hands-on mannequin training can improve nursing knowledge and confidence in male Foley catheterization procedure.

• The sample size was small and data did not fully reflect mannequin participation.

• More research is need to evaluate the effectiveness of hands-on mannequin education and classroom compared to standard classroom didactic session alone.
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References


