Professional Nursing Practice Beyond the Toolkit: How Enculturating Human Factors Influences Sustained CAUTI Reduction

Cynthia A. Oster, PhD, MBA, APRN, ACNS-BC, ANP

Michelle Norris, BSN, RN, CCRN

Karen Young, ADN, RN-BC

ANCC National Magnet Conference®, Atlanta, Georgia, October 7 - 10, 2015

Porter Adventist Hospital, Denver, Colorado

Introduction

- Catheter-associated urinary tract infections (CAUTIs)
  - Account for > 40% of all hospital associated infections.[7]
  - Increase length of stay by 2 days and direct cost of $1000.[5]
  - Cost healthcare system $400M annually.[1, 6, 10]
  - Reduce hospital payment.[8, 10]
- The Joint Commission identified the prevention of CAUTI as a National Patient Safety Goal (NPSG) to promote and improve patient safety. [9]
  - NPSG.07.06.01: Implement evidence-based practices to prevent CAUTI by January 1, 2013.
- Human factors recognize that the workplace needs to be designed and organized to minimize the likelihood of errors occurring and the impact of errors when they do occur.[11]
- Failure to apply human factor principles is a key aspect of adverse events.[3]
- ***Purpose Statement:*** Reduce the incidence of CAUTI in patients with an indwelling urinary catheter through identification and enculturation of human factors following implementation of an evidence-based prevention program.

Materials and Methods

- Human Factors: personal interaction and structured conversation
  - Daily CNS rounding, deliberate direct nurse conversations, collegial provider dialogues
  - Interprofessional partnerships: interdisciplinary rounds, checklist-scripted collaborative conversations, adjusted EMR documentation (Fig. 3)
- Tools: catheter-removal protocol as foundation to direct interventions (Fig. 1)
  - Intentional assessment of catheter need and daily management according to EBP guidelines[2,3] (Fig. 2)
  - Pursuit of catheter removal according to EBP guidelines[2,4]
- Measure and monitor prevention processes and outcomes [2,4]
  - Monitor adherence to EBP guidelines (Fig. 4)
  - Evaluate effectiveness of prevention efforts

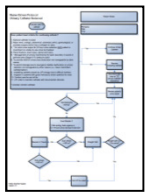

Fig. 1: Nurse Driven Removal Protocol

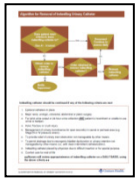

Fig. 2: Daily Assessment for Need Algorithm

Fig. 3: Hospitalist EMR Documentation

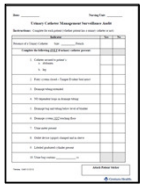

Fig. 4: Surveillance Audit CAUTI Prevention

Abstract

CAUTI spikes required real-time change and catheter-removal protocol implementation. Crucial to sustained CAUTI reduction were human factors, identified as personal interaction and structured conversation. Nurse awareness was enculturated through implementation of daily CNS rounding, deliberate direct nurse conversations, and collegial provider dialogues. Physician partnerships were enhanced with interdisciplinary rounds, checklist-scripted collaborative conversations, and adjusted EMR documentation. The surgical/transplant unit achieved 382 days between events and CAUTI rate reduced from 7.85 to 0/1,000 catheter days. ICU rate decreased from 3.36 to 0/1,000 catheter days. In this era of computerized documentation, protocols, and standardized care; intentional conversations, team collaboration, and human factors must not be underestimated. The value of these interventions lies in enculturation of professional nursing autonomy.

Results

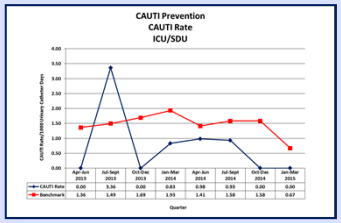

Fig. 5: ICU/SDU CAUTI rate below benchmark

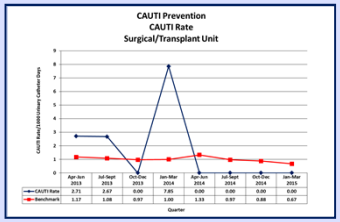

Fig. 6: Surgical/Transplant unit CAUTI rate below benchmark

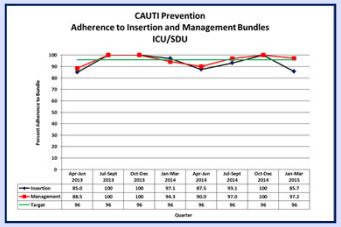

Fig. 7: ICU/SDU adherence to bundles at or above target

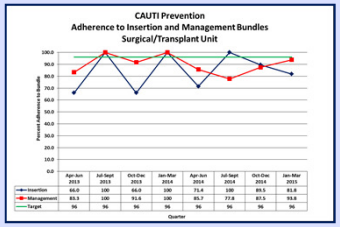

Fig. 8: Surgical/Transplant unit adherence to bundles below target

Discussion and Conclusions

- CAUTI rates exceed benchmark.
- Adherence to EBP bundles near target. (Fig. 9)
- Enculturating human factors helps to design processes that make it easier for physicians and nurses to do the job right.
  - Avoid reliance on memory
  - Make things visible
  - Standardize processes (Fig. 10)
  - Routinely use checklists (Fig. 11)
- The influence of human factors, intentional conversations, and team collaboration cannot be underestimated in the age of standardization and computerization.
- Enculturation of professional nursing autonomy enables nurses to make nursing care decisions within the full scope of their practice in an interprofessional practice environment.

Fig. 9: CAUTI Prevention Bundle

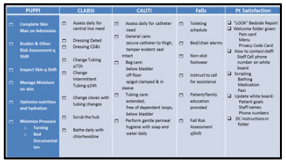

Fig. 10: Standardized Processes in the ICU/SDU CAUTI Prevention Tool

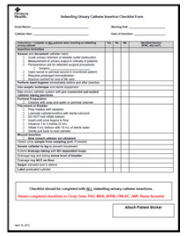

Fig. 11: Catheter Insertion Checklist CAUTI Prevention Tool

Literature Cited

[1] Fuchs, M.A., Sexton, D.J., Thornlow, D.K., & Champagne, M.T. (2011). Evaluation of an evidence-based, nurse-driven checklist to prevent hospital-acquired catheter-associated urinary tract infections in intensive care units. *Journal of Nursing Care Quality*, 26(2):101-109.

[2] Gould, C. V., Umscheid, C. A., Agarwal, R. K., Kuntz, G., Pegues, D. A., Healthcare Infection Control Practices Advisory Committee. *(2009). Guideline for prevention of catheter-associated urinary tract infections 2009*. Bethesda, MD: Centers for Disease Control. Retrieved from http://www.cdc.gov/ncidod/dhqp/pdf/guidelines/CAUTI_Guideline2009final.pdf.

[3] Kohn, L.T., Corrigan, J.M., & Donaldson, M.S. (2000). To err is human: building a safer health system. The National Academies Press: Washington, DC.

[4] Lo, E., Nicolle, L., Coffin, S.E., Gould, C., Maragakis, L.L., Meddings, J., Pegues, D.A., Pettis, A.M., Saint, S., & Yokoe, D. S. (2014). Strategies to prevent catheter-associated urinary tract infections in acute care hospitals: 2014 update. *Infection Control and Hospital Epidemiology*, 35(5), 464-479.

[5] Pappas, S. (2008). The cost of nurse-sensitive adverse events. *Journal of Nursing Administration*, 38(5), 230 – 236.

[6] Rebmann T. & Greene, L.R. (2010). Preventing catheter-associated urinary tract infections: An executive summary of the Association for Professionals in Infection Control and Epidemiology, Inc. Elimination Guide. *American Journal of Infection Control*, 38(8):644-646.

[7] Saint S. & Chenoweth C.E. (2003). Biofilms and catheter-associated urinary tract infections. *Infectious Disease Clinics of North America*, 17(2):411-432.

[8] Saint S., Meddings, J.A., Calfee, D., Kowalski, C. P., & Klein, S.L. (2009). Catheter-associated urinary tract infection and the Medicare rule changes. *Annals of Internal Medicine*, 150(12): 877-884.

[9] The Joint Commission. (2011). *Catheters-Associated Urinary Tract Infections*. Joint Commission- R3 report. Retrieved from http://www.jointcommission.org/assets/1/18/r3%20report%20issue%201%2020111.pdf.

[10] Wald H.L. & Kramer A. (2007). Nonpayment for harms resulting from medical care: catheter-associated urinary tract infections. *Journal of the American Medical Association*, 298(23): 2782-2784.

[11] World Health Organization. (2012). Patient Safety Course – To Err is Human. Retrieved from http://www.who.int/patientsafety/education/curriculum/who_mc_topic-2.pdf.

Contact Information

Cynthia A. Oster, PhD, MBA, APRN, ACNS-BC, ANP
cynthiaoster@centura.org

Michelle Norris, BSN, RN, CCRN
michellenorris@centura.org

Karen Young, ADN, RN-BC
karenyoung@centura.org

Peer reviewed by South Denver Evidence-Based Practice and Research Council: Porter, Littleton and Parker Adventist Hospitals.