Targeting infection prevention in the ICU: strategies for success

Melissa Browning DNP APRN CNS
Maria Roberts RN
Rush University Medical Center, Chicago Illinois USA.

Key Words: catheter-associated urinary tract infection ❖ central-line associated blood stream infection ❖ infection prevention ❖ intensive care unit ❖

E-mail: melissa_browning@rush.edu

SUMMARY

- Infection prevention is a common focus for ICU quality improvement
- Critically ill patients are at risk for acquiring infection in the ICU due to increased acuity, invasive lines and procedures, age, and comorbidities, among other risk factors
- Focused infection prevention measures can reduce infections in the ICU
- Nurse-led quality improvement projects addressing prevention of central line associated blood stream infections (CLABSI) and catheter associated urinary tract infections (CAUTI) can be used to decrease infections in the ICU

OVERVIEW

It is well recognized that preventing infections in the intensive care unit (ICU) is a key area of focus for patient care. Globally, the World Health Organization (WHO) identifies infection prevention and control measures as a global alert and response strategy. The focus of the WHO Infection Prevention and Control in Health Care initiative is to assist global healthcare partners in reducing dissemination of infections associated with healthcare, by assisting with the assessment, planning, implementation and evaluation of national infection control policies. The WHO guidelines reinforce that the basic principle of infection prevention and control is hygiene measures (World Health Organization, 2014).

INFECTION PREVENTION IN THE ICU

Many patients in the ICU require therapies and treatment measures which predispose them to the development of healthcare associated infections. ICU clinicians play an important role in minimizing the risk of infection in the ICU. Reinforcement of measures to prevent central line associated blood stream infections (CLABSI) and catheter associated urinary tract infections (CAUTI) - two common infections in the ICU - include daily review of the necessity of retaining catheters, sterile insertion techniques, and catheter care maintenance (Cardo et al 2010).

Targeting quality improvement

At a 620 bed university medical center, located in Chicago Illinois, USA, the 24 bed Surgical Intensive Care Unit (SICU) nursing staff initiated several measures to target prevention of CLABSI and CAUTI. A formal infection control committee was established to include members of the multiprofessional care team, including nurses, physicians, infection control practitioners, and respiratory therapists. A campaign was mounted “Not on My Watch” to signify that each nurse could make an impact on their shift to ensure that measures such as hand hygiene, proper insertion and maintenance techniques, and use of bundles, or a set of measures that when implemented together, decrease the risk of infection. Education inservices were held at rotating times to cover the different work shifts over a several week period to review the campaign components. Figure 1 outlines a poster that was developed to reinforce best practices for infection prevention of CLASBI. Audits were conducted of central line insertions with the use of a checklist to enable identification of instances where full precaution measures were not instituted and to help reinforce best practices.

In addition to staff nurse education, hand hygiene compliance is monitored on an ongoing basis and rates are reported monthly to the clinical staff to reinforce best practices. Similarly, for CAUTI, a poster was developed to outline specific infection prevention measures rates based on the Center for Disease Control and International infection prevention guidelines (CDC, 2014; NICE, 2014; Royal College of Nursing 2014) (Figure 2). Staff education was provided and audits were conducted to assess compliance with the use of urinary catheter secure device to prevent catheter movement and urethral traction, measures which are indicated by the CDC. The CDC (CDC, 2014) outlines a number of healthcare associated infection prevention toolkits which reinforce these concepts of minimizing the use of catheters to when only necessary, along with the use of sterile insertion techniques and maintenance of catheter care.

Results of quality improvement project

Rates of CLABSI and CAUTI have significantly decreased in the SICU and have been attributed to the focused initiatives aimed at preventing infection. Infection rates are now reported monthly to the clinical staff and an in-depth chart review and analysis is conducted for each documented infection to identify potential factors that might have increased the risk of infection. Increased awareness, implementation of best practices, and ongoing audit and feedback to the clinical staff have been successful strategies that have resulted in decreased infection rates in the ICU.

IMPLICATIONS FOR CLINICAL PRACTICE

Nurses play a key role in infection prevention through reinforcing infection prevention measures, implementing proper catheter care, monitoring all members of the healthcare team, and in providing education to family members and patients about measures to prevent infection. Promoting awareness of current guideline recommendations through ongoing education, conducting periodic audits and providing clinician feedback, and tracking infection rates to provide ongoing results of quality improvement initiatives to clinicians can help to reinforce infection prevention best practices and impact infection rates in the ICU.

REFERENCES

Cardo D, Dennehy PH, Halverson P, et al. (2010). Moving toward elimination of health-care associated infections: A call to action. Infection Control and Hospital Epidemiology 31:1101-1105.

Centers for Disease Control (2014). Healthcare Associate Infection Prevention Toolkits. [Online] Available at: http://www.cdc.gov/HAI/prevent/prevention_tools.html Accessed 15 October 2014

Infusion Nurses Society (2011). Infusion nursing standards of practice. [Online] Available at: http://www.ins1.org/i4a/pages/index.cfm?pageid=3310 Accessed 10 October 2014.

National Institute for Health and Care Excellence (2014). Infection prevention and control. [Online] Available at: https://www.nice.org.uk/guidance/qs61 Accessed 01 October 2014.

Royal College of Nursing (2014). Infection prevention and control [Online] Available at: http://www.rcn.org.uk/development/practice/infection_control Accessed 01 October 2014.

World Health Organization (2014). Infection Prevention and Control in Healthcare. [Online] Available at: http://www.who.int/csr/bioriskreduction/infection_control/en/index.html Accessed 10 October 2014.

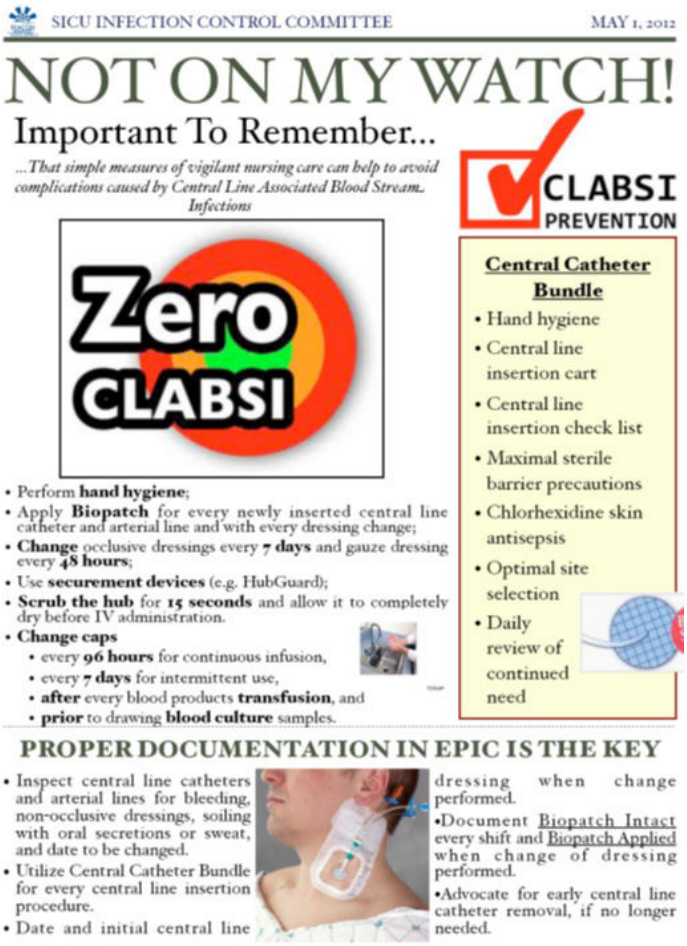

Figure 1. Poster: best practices for infection prevention of CLASBI*

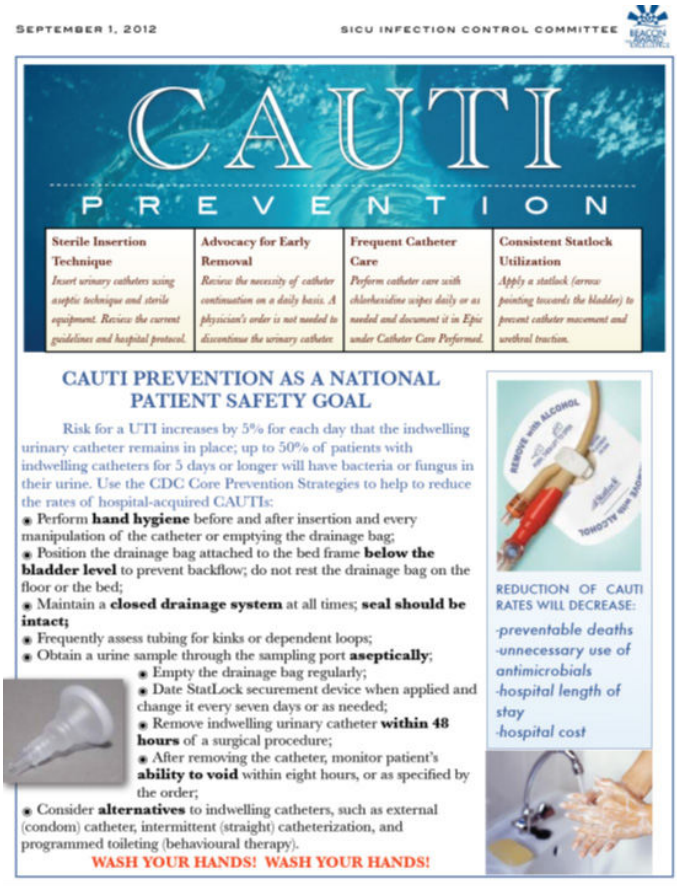

Figure 2. Poster: CAUTI prevention CLASBI*

* Posters reprinted with permission, Rush University Medical Center, Chicago Illinois USA