

Using NDNQI data to manage CAUTI

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Hospital-acquired catheter-associated urinary tract infections (CAUTIs) are classified as a never event by the Centers for Medicare and Medicaid Services (CMS) and are no longer reimbursed. Never events can cause serious injury or death to patients and result in increased costs from additional days in the hospital, nursing care, medical treatments, and devices. Therefore, the new rule puts forth an incentive for hospitals to eliminate or reduce never events in order to avoid costs for which there will be no reimbursement. To prepare for this responsibility, nurse managers must know more about the prevalence of never events, improve nursing assessment tools and prevention strategies, and identify best practices for effective and efficient treatment of these events. By implementing effective practices in a sustainable manner and monitoring the impact of those interventions, nurse managers can reduce avoidable, nonreimbursed costs to their facilities.

The National Database of Nursing Quality Indicators (NDNQI) began collecting data on CAUTI rates for ICUs in the fourth quarter of 2007. Using these data, nurse managers can compare the CAUTI rates for their units with peer units in similar facilities and examine trends in their rates over time.

Defining CAUTI

CAUTIs may be the least regarded never event because they're viewed as a minor infection causing less morbidity and mortality than central line-associated bloodstream infections, for example.¹ However, CAUTIs are the most prevalent hospital-acquired infection (HAI), accounting for one-third of all HAIs.² Although many CAUTIs are easily treated, it's estimated that there were 13,088 CAUTI-associated deaths in U.S. hospitals in 2002.²

The NDNQI employs the CDC definition of CAUTI and is consistent with the National Quality Forum (NQF) consensus standard.^{3,4} A CAUTI is defined as either a symptomatic urinary tract infection (SUTI) or asymptomatic bacteriuria (ASB). An indwelling catheter has to be in place at the time of or within 7 days before the onset of the UTI to be counted as a CAUTI. After removal of the catheter, patients must be followed up for evidence of infection for 7 days in the ICU or 48 hours after discharge from the ICU. A SUTI must meet the following criteria: fever greater than 100.4° F (38° C); urgency, frequency, dysuria, or suprapubic tenderness with no other recognized cause; and a positive urine culture. An ASB is defined by a positive urine culture without any of the above mentioned symptoms. The CDC recently published an extended definition incorporating a third group of CAUTI; however, this definition isn't being implemented yet.⁵

NDNQI prevalence rates

As of the second quarter of 2008, 446 ICUs from 259 hospitals submitted CAUTI data to the NDNQI, with a pooled median rate of 2.6 CAUTIs/1,000 catheter days. The median pooled catheter utilization rate is 0.75, indicating that 15 out of 20 patients have indwelling catheters in place on a given day. This means that an ICU with 20 patients/day will have 15 patients with urinary catheters per day and just over one incidence of CAUTI (1.17) per month. The prevalence of CAUTIs appears to vary among ICU specialties (*Figure 1*).

How to prevent CAUTI

To prevent CAUTIs, nurses need to be familiar with best practices for catheter care, have information on how to assess for CAUTIs, and implement treatment and comfort

measures promptly. A recent study found that more than 50% of hospitals don't monitor for CAUTIs, more than 70% don't track catheter duration, and only 9% use catheter removal reminders.⁶ In response to the need for clearly articulated evidence-based prevention activities, the Society for Healthcare Epidemiology of America and the Infectious Diseases Society of America Standards and Practice Guidelines Committee appointed a taskforce to create a concise compendium of recommendations for the prevention of common HAIs. Working with the Association for Professionals in Infection Control and Epidemiology, a comprehensive guide to such practices was made available in late 2008.^{7,8} Comprehensive approaches to infection prevention through clearly stated interventions provide a roadmap for success in patient safety initiatives. See *Table 1* for recommended basic practices for the prevention and monitoring of CAUTI in acute care hospitals.

These special approaches are recommended for use in locations or populations within the hospital for which outcome data or risk assessments suggest lack of effective control despite implementation of basic practices⁸:

- ◆ Implement an organization-wide program to identify and remove catheters that are no longer necessary, using one or more methods documented to be effective.
- ◆ Develop a protocol for management of postoperative urinary retention, including nurse-directed use of intermittent catheterization and bladder scanners.
- ◆ Establish a system for analyzing and reporting data on catheter use and adverse events from catheter use.

Figure 1: CAUTI per 1,000 catheter days by ICU specialization

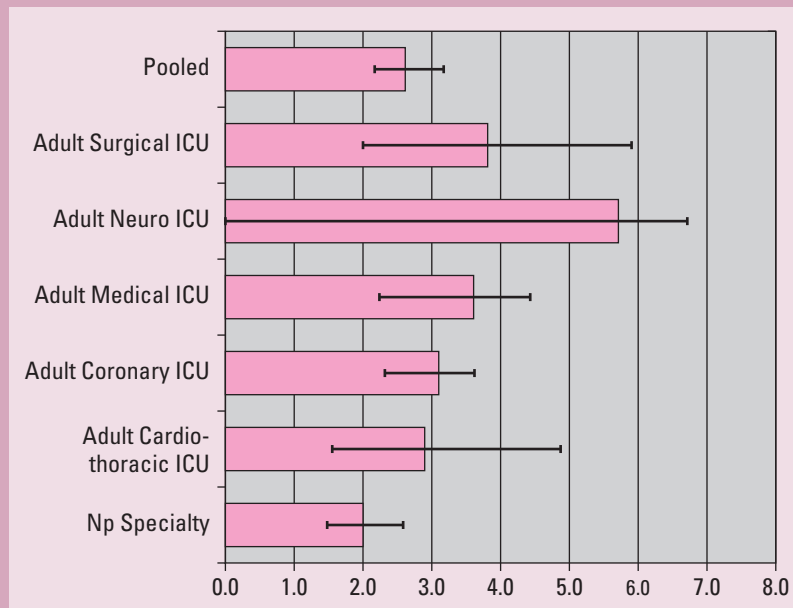


Table 1: Basic practices for prevention and monitoring of CAUTI recommended for all acute care hospitals⁸

A. Appropriate infrastructure for preventing CAUTI

1. Provide and implement written guidelines for catheter use, insertion, and maintenance.
2. Ensure that only trained, dedicated personnel insert urinary catheters.
3. Ensure that supplies necessary for aseptic technique catheter insertion are available.
4. Implement a system for documenting the following information in the patient record:
 - indications for catheter insertion
 - date and time of catheter insertion
 - individual who inserted catheter
 - date and time of catheter removal.
5. Ensure that there are sufficient trained personnel and technology resources to support surveillance of catheter use and outcomes.

B. Surveillance of CAUTI

1. Identify the patient groups or units in which to conduct surveillance, on the basis of risk assessment, considering the frequency of catheter use and the potential risk factors (types of surgery, obstetrics, and critical care).
2. Use standardized criteria to identify patients who have a CAUTI (numerator data).
3. Collect information on catheter days (denominator data) for all patients in the patient groups or units being monitored.
4. Calculate CAUTI rates for target populations.
5. Measure the use of indwelling urinary catheters, including the percentage of patients with an indwelling urinary catheter inserted during hospitalization, the percentage of

(continued)

Table 1: Basic practices for prevention and...(continued)**B. Surveillance of CAUTI**

- catheter use with accepted indications, and duration of indwelling catheter use.
6. Use surveillance methods for case finding that are appropriate for the institution and are documented to be valid.

C. Education and training

1. Educate healthcare personnel involved with the insertion, care, and maintenance of urinary catheters about the compendium of strategies to prevent HAIs and CAUTI prevention, including alternatives to indwelling catheters and procedures for catheter insertion, management, and removal.

D. Appropriate technique for catheter insertion

1. Insert urinary catheters only when necessary for patient care and leave them in place only as long as indications persist.
2. Consider other methods for management, including condom catheters or in-and-out catheterization, when appropriate.
3. Practice hand hygiene (in accordance with CDC or World Health Organization guidelines) immediately before insertion of the catheter and before and after any manipulation of the catheter site or apparatus.
4. Insert catheters by use of aseptic technique and sterile equipment.
5. Use gloves, a drape, and sponges; a sterile or antiseptic solution for cleaning the urethral meatus; and a single-use packet of sterile lubricant jelly for insertion.
6. Use as small a catheter as possible that's consistent with proper drainage to minimize urethral trauma.

E. Appropriate management of indwelling catheters

1. Properly secure indwelling catheters after insertion to prevent movement and urethral traction.
2. Maintain a sterile, continuously closed drainage system.
3. Don't disconnect the catheter and drainage tube unless the catheter must be irrigated.
4. Replace the collecting system by use of aseptic technique and after disinfecting the catheter-tubing junction when breaks in aseptic technique, disconnection, or leakage occur.
5. For examination of fresh urine, collect a small sample by aspirating urine from the sampling port with a sterile needle and syringe after cleansing the port with disinfectant.
6. Obtain larger volumes of urine for special analyses aseptically from the drainage bag.
7. Maintain unobstructed urine flow.
8. Empty the collecting bag regularly, using a separate collecting container for each patient, and avoid allowing the draining spigot to touch the collecting container.
9. Keep the collecting bag below the level of the bladder at all times.
10. Cleaning the meatal area with antiseptic solutions is unnecessary; routine hygiene is appropriate.

Approaches that shouldn't be considered a routine part of CAUTI prevention include:

- ◆ routine use of silver-coated or other antibacterial catheters
- ◆ screening for ASB in catheterized patients
- ◆ treating ASB in catheterized patients except before invasive urologic procedures
- ◆ avoiding catheter irrigation

- ◆ using systemic antimicrobials routinely as prophylaxis
- ◆ changing catheters routinely.⁸

Data to the rescue

Given the relative frequency of CAUTIs, the new CMS nonreimbursement rule indicates that hospitals should engage in CAUTI quality improvement initiatives. However, recent research shows

that a minority of hospitals collect data on CAUTIs. The collection of CAUTI data according to an established protocol, such as those endorsed by the NDNQI, the NQF, and the CDC, is the first step in a coordinated quality improvement strategy. Monitoring CAUTI rates over time can show the impact and success of prevention strategies. **NM**

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