

On the road to zero CAUTIs: Reducing urinary-catheter device days

How a culture shift, a quality-improvement project, and electronic solutions reduced one hospital's CAUTI incidence

By Catherine V. Smith, MSN, RN, CCNS, CCRN

atheter-associated urinary tract infections (CAUTIs) are common healthcare-associated infections that can prolong lengths of stay and increase morbidity and mortality. Despite their best efforts, many hospitals continue to struggle with climbing CAUTI rates. Recognizing inappropriate or prolonged urinary catheterization as a primary risk factor, our team decided to target urinary-catheter device days as a way to reduce CAUTIs.

The specific aim of this qualityimprovement initiative was to decrease the number of urinary catheters inserted and reduce the time they stayed in place. Each additional day of indwelling catheterization further increases the risk of developing a CAUTI. We anticipated that by inserting fewer catheters and removing them earlier, we would decrease CAUTI incidence.

Targeted areas for improvement included all five of the noncritical care units at our 140-bed community medical center. At the start of this initiative, our critical care unit was exceeding at preventing device-associated infections, but our medical-surgical units were seeing a higher-than-expected CAUTI incidence. As we approached 2013, a system-wide task force was poised to introduce several evidencebased initiatives aimed at reducing CAUTIS.

In addition to the task-force solutions intended to standardize the evidence-based processes used with urinary catheters, our team added several other strategies to enhance our culture of safety and accountability around urinary catheters. To monitor our progress, we identified the urinary catheter device-utilization ratio (DUR) and actual number

Evidence-based indications for indwelling urinary catheters

The following indications for urinary catheters are examples based on the 2009 Guideline for Prevention of Catheter-Associated Urinary Tract Infections from the Healthcare Infection Control Practices Advisory

- Urologic surgery, urinary retention, or urinary outlet obstruction
- Perioperative management for patients undergoing select proce-
- To promote accurate measurement of output (recommended for critically ill patients only)
- To promote wound healing that may otherwise be delayed by incontinence
- To promote comfort at end of life

of CAUTIs as performance measures. Reported monthly, the DUR reflects the proportion of total patients with indwelling urinary catheters. Before our project began, validation studies were done to ensure the accuracy of DUR reporting. CAUTIs were identified and reported by the infection preventionist.

Electronic solutions

In January 2013, we implemented several electronic solutions to support our goal of reducing urinary catheter device days. We also implemented evidence-based indications for urinary catheter insertion and maintenance, based on guidelines from the Healthcare Infection Control Practices Advisory Committee (HICPAC) and the Association for Professionals in Infection Control and Epidemiology (APIC), recommended by the system-wide task force for CAUTI prevention. (See Evidence-based indications for indwelling urinary catheters).

Time-limited catheterization orders and a nurse-driven protocol for catheter removal were the primary electronic solutions supporting this initiative. We also imple-

- an algorithm for bladder scanning and intermittent catheterization for failure to void
- electronic alerts to remind physi-

- cians and nurses when a temporary catheter had been in place more than 48 hours
- revised nursing flowsheets to align our documentation with intervention-bundle recommendations from HICPAC and APIC.

These interventions reinforced our commitment to keeping each catheter in place only as long as medically indicated.

Clinician education and training

Recognizing the importance of clinician education and training to improve outcomes and prevent complications related to urinary catheters, we partnered with the manufacturer of our urinary catheters to develop and implement a training program aimed at expanding knowledge and improving catheter insertion and maintenance competencies. Each unit identified a nurse champion to attend this special training event. In addition to acquiring knowledge and skills, champions learned strategies for sharing the information at the unit level.

As part of the training program, skill stations were set up to review competencies and update techniques. Training emphasized the maintenance bundle and daily reevaluation of the continued need for a catheter.

Nurses aren't the only clinicians who interact with catheterized patients, so a special session was held for non-nursing staff, such as physical therapists and transport personnel. This contributed to an overall increase in bundle compliance.

Improving our culture of safety

The final and most challenging aspect of this initiative was implementing interventions aimed at improving our culture of safety and accountability around urinary catheters. We recognized this as the most crucial step to sustaining the change. Our goal was to transform our culture from one where the urinary catheter is considered the norm for certain types of patients to one where it's seen as an exception.

Maintenance bundle audit elements

The following interventions are examples of catheter maintenance practices recommended for preventing catheter-associated urinary tract infections by the Healthcare Infection Control Practices Advisory Committee. Redundant auditing processes and regular reporting of our compliance have led to improvements in practice.

- Intact securement device
- Maintenance of a closed system
- Unobstructed urine flow
- Drainage bag below the bladder
- Perineal care documented at least daily
- Patient meets an appropriate indication

Daily review of all catheters

The team implemented a daily review of all catheters, including the indication for the catheter and patient's length of stay, at unit-based

shift huddles and the daily hospitalwide safety huddle. Sharing this information in as many forums as possible provides an opportunity for peer coaching and peer checking. It encourages nurses to challenge each other about the patient's ongoing need for a catheter and offers a forum to suggest alternatives.

Partnering with physicians also was crucial to the success of our project. To gain physicians' participation and input, we incorporated a review of urinary catheters at daily interdisciplinary rounds. This promoted further collaboration and teamwork around this initiative.

Finally, we engaged patients and family members, explaining the risks associated with catheterization and setting the stage for early removal at the time of catheter insertion. One of our best strategies has been to educate patients so they request early catheter removal.

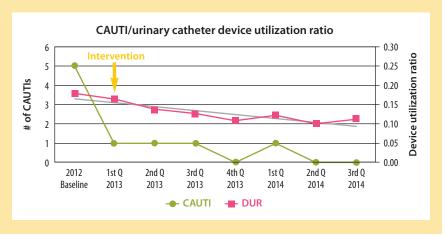
Redundant auditing processes

To monitor the effectiveness of our

Statistics tell the story

Our initial goal was to decrease urinary-catheter device days by 10% in 2013. During the baseline performance period in 2012, our hospital had a device utilization ratio (DUR) of 0.18 on noncritical care units. We surpassed this goal with a 22% reduction, achieving a year-to-date DUR of 0.14 in December 2013. As anticipated, we saw a corresponding decrease in catheter-associated urinary tract infections (CAUTIs) from five in 2012 to three in 2013.

Our efforts continued into 2014. We sustained the improvement during the first three quarters of 2014, with a DUR of 0.11 and only one CAUTI from August 2013 through January 2014. This constitutes a 39% reduction in device days and a 45% drop in the CAUTI rate from the 2012 baseline. One of our medical-surgical units surpassed even this accomplishment with a 49% reduction in DUR, and it hasn't had a CAUTI since April 2013.



interventions, we established redundant auditing processes to determine compliance with evidencebased recommendations for insertion and care maintenance bundles. (See Maintenance bundle audit elements.) Clinical nurses on each unit, nurse leaders across the organization, and third-party auditors from the clinical effectiveness department participate in the audit process. Results are shared at the unit level and with relevant committees and workgroups. Trends are identified and analyzed to help determine solutions.

Compliance with each bundle element as well as overall compliance has risen steadily since implementation. For October 2014, the overall urinary catheter bundle compliance rate was 94.7%. A true measure of success for this project has been the steady decline in urinary catheter device days and the actual number of CAUTIs. (See Statistics tell the story.)

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By focusing on evidence-based prevention strategies and promoting a culture of safety and accountability, we were able to exceed our goal for reducing urinary-catheter device days. We saw a shift in culture when our nurses began leading the way by advocating for fewer catheter insertions and promoting earlier removal. As a result, we are well on our way to zero CAUTIs and your organization can be, too. 🔷

Editor's note: For more information about CAUTI, see "ANA CAUTI Reduction Tool" at www.nursingworld.org/ MainMenuCategories/ThePracticeof

ProfessionalNursing/Improving-Your-Practice/ANA-CAUTI-Reduction-Tool.

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Keeping a grasp on patient safety

A wall hook for hanging a gait belt served as the focal point of a performance-improvement project.

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n any organization, keeping both patients and caregivers safe during patient mobilization is a priority. As patient advocates, nurses share responsibility for maintaining optimal patient health. Although healthcare providers have made progress in reducing patient falls, the nursing profession can establish and take ownership of additional interventions to enhance patient mobility and promote a culture of safety. Direct bedside caregivers need tools to assist patients who fall unexpectedly during ambula-

Such barriers as poor patient compliance, limited access to patient-handling equipment, and fear of patient falls or risk of personal injury can discourage staff from ambulating hospital patients. Identifying and implementing nurse-driven strategies to enhance patient mobility, decrease patient falls, and promote employee safety can improve both patient and caregiver safety. Safe patient-handling tools, such as gait belts, help caregivers manage and mitigate injuries from patient falls. They give caregivers a handle to control and manage patients during an assisted fall, which can occur when they try to impede the fall.

"Keep a Grasp on Patient Safety," a pilot project sponsored by our network-wide fall-prevention work-group, was implemented in our hospital in the spring of 2014. The goal



was to remove barriers to gait-belt use by making the belts more accessible and visible. Over the past few years, this workgroup, in collaboration with rehabilitation staff, has made efforts to use gait belts more often in patient transfers and ambulation—but lacked qualitative evidence to demonstrate an increase in their use.

We hoped to enhance communication among bedside caregivers by providing a visual cue—a wall hook on which to hang a gait belt in each patient room to encourage gait-belt use during ambulation. Our steps involved educating staff

about project goals and processes and developing a computer-based learning module in-house to refresh their skills and knowledge about gait-belt use and proper patient selection. Wall hooks were installed in a visible area in all 36 patient rooms on a cardiac care unit.

Plan phase

In February 2014, the work-group adopted the Plan-Do-Study-Act (PDSA) framework for developing and implementing the project. (See *Plan-Do-Study-Act framework*.) The Plan and Do processes started with selection of the target unit. We chose a progressive cardiac care unit because patients typically admitted there have cardiac-related diagnoses and cardiac rehabilitation is

strongly encouraged. Unit leaders approved the project and promoted staff engagement.

Do phase

In March 2014, the "Do" phase began when unit staff received education about project goals and processes. A poster with this information was placed in a centralized area of the unit. Audit screening tools were developed, and wall hooks were installed on the closet door of every patient room for maximal visibility. Using the audit screening tool, pre-audit data were collected 2 weeks before launch of

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Plan-Do-Study-Act framework

The Plan-Do-Study-Act served as a framework for developing and implementing the gait-belt project at Lehigh Valley Health Network.

- Ensure adequate supply par levels
- Secure wall hooks and signage.
- Foster staff engagement and accountability.
- Participate in morning safety huddles.
- Provide consistent support and visibility for staff.

- Ensure transparency of audit results with staff.
- Share all identified missed opportunities and successes with unit leaders and staff.
- Seek staff feedback on their perception of value of and barriers to gait-belt use.

- Establish partnerships.
- Select unit for trial.
- Incorporate current fallprevention practices
- Develop computer-based learning module.
- Create audit screening tools.

PLAN

- Encourage staff engagement.
- Assign staff to learning module.
- Install wall hooks.
- Collect pre-audit data.
- Collect serial visual and chart audit data.

the pilot program to provide a baseline on current gait-belt practices.

Evaluation and reinforcement

Real-time chart and visual audits began in April 2014. Audits were done six times over a 4-month period, with results disseminated to unit leadership and staff to maintain their engagement. To eliminate bias, a project team member who didn't represent the selected unit performed all chart audit data collection.

Study phase

The "Study" phase started after data from the initial audit were collected and disseminated. Project design complied with the organization's defined criteria for a qualityimprovement project, so an institutional review board approval wasn't necessary. Evaluation metrics included a risk-for-injury screening tool and a review of the patient's

fall risk score, risk for injury score, current mental and mobility status, and assistive device use. Metrics and data analysis allowed us to identify missed opportunities for patients who could have benefited from gait-belt use if one had been readily available.

Act phase

The "Act" phase began when we identified gaps from the initial audit analysis. Throughout the PDSA cycles, we collaborated with unit leadership and fall-prevention champions to find opportunities to foster staff engagement and accountability. We made an effort to stress that using the gait belt protects staff as well as patients from injury. Using the cycles, we formulated strategies to eliminate barriers revealed by data analysis.

Data analysis from the six serial audits found nurses were accurately identifying patients at risk for falls,

according to our health network's policy. We saw an overall 38% increase in staff placing gait belts in the rooms of patients who were at risk for falls and would benefit from gait-belt use, compared to pre-audit results.

Project leaders' efforts to monitor, promote, and sustain momentum were harder to quantify. We used morning safety huddles, small incentives, and other efforts to inject fun and enhance staff engagement.

Innovating ways to remove barriers

Nurses are committed to developing and implementing practices to encourage ambulation and promote safety, but we need to be innovative in eliminating barriers to achieving these goals. In our organization, gait belts are a nurse-driven intervention, and nurses are encouraged to use them when ambulating a patient identified as at risk for falling.

Interventions that support or enhance existing fall-prevention practices promote the overall goal of eliminating patient falls and related staff injuries. "Keep a Grasp on Patient Safety" showed that improving the accessibility and visibility of an effective safe-patient handling tool encourages its use and helps keep patients and staff safe during ambulation.

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Visit www.americannursetoday.com/?p= 19020 for audit screening tools and a table comparing pre-audit and later results.

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