

Changing Clinical Behaviors to Lower Costs and Reduce Catheter-Associated Urinary Tract Infections (CAUTI)

ARKANSAS METHODIST MEDICAL CENTER:
How a foley catheter management system combined with education
helped reduce catheter utilization by 21 percent.

by
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Changing Clinical Behaviors to Lower Costs and Reduce Catheter-Associated Urinary Tract Infections (CAUTI)

HOSPITAL: Arkansas Methodist Medical Center, Paragould, AR

SIZE: 129-bed acute care hospital

QUALITY IMPROVEMENT GOAL

Reduce the number of catheter-associated urinary tract infections (CAUTI) by identifying a systematic behavioral approach formulated from the CAUTI guidelines released in 2009 by the Centers Disease Control and Prevention (CDC). The quality goals for this project were to identify patients with valid clinical indications for closed system Foley catheter insertion prior to utilization, developing alternatives to catheterization when no valid clinical indication is identified, maintaining aseptic technique, and removing catheters when they are no longer needed.

FACILITY DEMOGRAPHICS

Arkansas Methodist Medical Center (AMMC) is a general medical and surgical hospital, with 129 beds. AMMC is accredited by The Joint Commission, plus the Commission on Accreditation of Rehabilitation Facilities (CARF). According to the most recent survey data, 24,802 patients visit the hospital's emergency room annually; a total of 4,196 patients are admitted. Physicians perform 795 inpatient and 1,827 outpatient surgeries. The medical center includes:

- A 129-bed inpatient facility
- More than 200 nurses
- Women's services
- Heart catheterization lab
- Infection isolation room
- Critical care unit
- Imaging services

The hospital is a local, not-for-profit, community-focused organization that promotes the health and wellness of Northeast Arkansas and Southeast Missouri families. Through dedication, we provide quality healthcare and promote wellness to the people and communities we serve, thus establishing AMMC as a patient's first choice for healthcare.

OUR CHALLENGE

Arkansas is currently a voluntary reporting state for hospital-acquired infections (HAIs), but we are seeing the trend among most states to mandate public reporting and believe it to only be a matter of time before we will be required to report these infections. Historically we have experienced relatively low CAUTI rates; however, AMMC is striving to get that number to zero by implementing practices that reduce the risk of CAUTI. In addition, we wanted to also reduce the chance of infection and improve patient satisfaction by improving our rates of removing catheters post-operatively within 24-48 hours of insertion per the new SCIP (Surgical Care Improvement Project) measures.

AMMC often exceeds state and national averages for quality care and continues to raise the bar with high marks on national patient safety goals, quality core measures and patient satisfaction scores. An important component of this initiative is infection prevention followed by cost reduction. Implementing this improvement project would satisfy many important aspects of our overall strategic plan. We knew it would not be easy, but it was an important initiative.

Following are the major goals of our CAUTI reduction plan:

- Reduce CAUTI rate
- Reduce catheter utilization
- Improve staff education on proper insertion techniques
- Enhance staff and patient interaction
- Implement SCIP measures to remove catheters post operatively in a timely manner

In January 2010, when we set our hospital-wide goal of reducing the risk of CAUTI, we did not have an updated and comprehensive education program for our staff of nearly 300 clinicians. Our goal was to implement a more effective way to educate our patients about the procedure, including the risks and complications associated with closed system Foley catheters.

We expected that a number of catheter insertions could be attributed to a general lack of focus on the appropriate indications for catheter insertion based upon historical practice and convenience of the clinician. Our clinicians needed education on the CDC guidelines for CAUTI prevention and the alternatives to catheterization. We decided that a checklist to help them make a decision on whether catheterization was appropriate for their patients would also be important in assuring that the education transferred into everyday clinical practice.

Moreover, there was a significant risk of increased CAUTI cases due to the lack of communication amongst our staff and physicians on the exact day a patient had been catheterized. One of the leading factors for developing CAUTI is leaving a catheter in place for more than two days post operatively. In the first quarter of 2010, only 20 percent of the catheters we placed in the operating room were being removed after two days. We needed to get this to 100 percent.

Another very important issue was the new CMS focus on a list of hospital-acquired conditions in 2008, which included CAUTI as a preventable healthcare-acquired condition.

It was overwhelmingly clear that AMMC had to reevaluate the current CAUTI program and create a new, prevention-oriented system.

THE SOLUTION

In January we were introduced to Medline's new ERASE CAUTI Foley catheter management program. Timing could not have been better, as this program incorporated the CDC's guidelines into not only a comprehensive educational program and competency tool that supported our initiatives, but also provided the clinician at the bedside with visual reminders and cues through checklists, instructions, and organization of the procedure. The product design was different from our traditional Foley kits in that the tray was only one layer. In addition, the tray was labeled in a specific sequence that helped guide the nurse during catheterization to adhere to current recommendations, including aseptic technique.

The program emphasizes evidence-based techniques backed by teaching materials that help bridge the gap between inconsistent practices. The acronym ERASE is easy to remember, reminding our clinicians to:

- E**—Evaluate indications;
- R**—Read directions and tips;
- A**—Aseptic technique;
- S**—Secure catheter;
- E**—Educate the patient.

We decided not only to implement the new product, but also to require all of our clinicians who insert catheters to go through the education program and to measure the results to determine if this program and product would help us to achieve our goals for reduced catheterizations and a reduction in CAUTI.

There were other benefits of the new tray that made this an easier change in practice and procedure for our nurses. These included:

- 1. Clear photography of tray contents on the outside of the package.** The product instructions and clear color images are located on the outside to encourage clinicians to review the information before they start. Clinicians can review the instructions before entering the patient room as well as reminders and tips for prevention of CAUTI.
- 2. Outer label checklist.** Listed on the checklist label on the outside packaging are the CDC's six valid clinical indications for inserting an indwelling catheter. Additionally, there are clinician-specific questions included on the checklist to ensure we are following all of the CDC's recommended CAUTI prevention guidelines. The checklist is printed on a peel-off sticker, making it easy to complete and place in the patient chart. Ultimately, we hoped this would help us reduce the number of potentially unnecessary catheter placements.
- 3. Patient Education Care Cards™.** The first thing you see when you open up the Medline tray is a Patient Care Card. It looks just like an actual get well card, however, it contains patient education information. Before, we had to print our education from the computer, and it was not something the patient or the clinician normally took time to review. We think this new card will more effectively communicate how the patient and family can be involved in their care to reduce the incidence of CAUTI even after they are discharged, thus reducing the opportunity for readmissions.

EXECUTION

After being educated on the program and agreeing to continue the approval process in the hospital, we followed three crucial steps toward implementation.

Step 1 – Cost Analysis

We first met with materials management to perform a cost-benefit analysis. We did not want to get far down the road in our evaluation, and then have a stumbling block because of cost. The cost of the new tray was comparable to the tray that we had been buying, so we determined that acquisition cost was not an issue. If we were successful in reducing the number of catheters inserted, then we further believed we would see an overall cost savings. In addition, although we were not certain of the exact costs we were incurring when a patient developed a CAUTI, we predicted that additional savings would be gained through CAUTI reduction.

Step 2 – Department Manager Education

We introduced Medline's ERASE CAUTI program to the hospital's chief nursing officer, the quality control team and the nurse managers following one of our infection control committee meetings. Because we had an idea of the pricing and the education materials that would accompany the program, we immediately were able to schedule a two-day in-service with the nurse managers to fully introduce the ERASE CAUTI program. Following the in-service training, it was agreed that AMMC would convert to Medline's ERASE CAUTI program.

Step 3 – The Implementation

After buy-in from our CNO and department managers, we converted to the ERASE CAUTI program throughout the entire facility at the end of February 2010. The system is now being used in the emergency department, labor & delivery, operating room, the medical surgery floor and the critical care unit.

Medline provided clinical and product staff to implement the education component to all clinicians covering three nursing shifts. Nursing staff were shown how to use the tray correctly and retrained on the principles of Foley catheter insertion. Every nurse was also required to watch an educational film that accompanies the program and teaches the indications and alternatives to catheterization; aseptic technique and proper insertion of a Foley catheter; care and maintenance, signs and symptoms of CAUTI and timely removal; and competency validation. This video is currently on the hospital's internal website (intranet) to make viewing accessible to our nursing staff any time of the day. Having it on our intranet will also help train our incoming nursing students in a timely manner. Ensuring proper education is a crucial step in the success of the program.

THE RESULTS

By April 2010 – about six weeks into the conversion – we were able to compare the usage rate, the CAUTI cases, timely removal and cost savings to a similar time period the previous year. The results were impressive.

Reduction in Catheterization

We saw a 21 percent reduction in Foley usage from March 2009 to March 2010 based on adjusted patient days (91 vs. 72) and a 22 percent reduction in April compared to the previous year (101 vs. 79).

Reduction in CAUTIs

While we did not have high CAUTI rates prior to implementation, we did get to our goal of zero in April 2010, compared to the three we had in April 2009. We expect to maintain lower rates as we go forward.

Cost Savings

With the inclusion of the securement device in the new tray (in the old tray, the securement device was purchased separately), the price of the actual ERASE CAUTI tray was comparable to our old tray. But when you factor in the reduced utilization (151 catheterizations in March and April combined in 2010 vs. 192 in 2009), we projected an annual reduction in acquisition costs for Foley kits of 21 percent -- or more than \$2,500 annually. Combining this savings with the elimination of three CAUTIs (which could be as high as \$44,043 per case according to CMS), the cost reduction we anticipate is substantial.

Timely Removal in Post Operative Care

Our two-day post-operative removal rate increased to 50 percent (from 20 percent) for the first quarter. With the Foley InsetTag and checklist sticker on the chart, nurses and physicians knew exactly when the catheters had been placed and were able to remove them in the necessary 24 - 48 hours post-op.

We found that the ERASE CAUTI program clearly supports the CDC guidelines and is helping us change the behavior of our clinicians to incorporate proven, consistent insertion techniques. Additionally, we have turned to alternative, cost-effective solutions for patients who do not need to be catheterized, including bedside urinals, bed type commodes and bed pans.

Finally, the patient education component in the ERASE CAUTI program (the Patient Education Care Card) has significantly improved our ability to provide the patient and family with a tool to help them better understand the proper care and maintenance of the catheter, signs and symptoms of CAUTI and how they can help reduce the chances of developing a CAUTI, which we are confident can only increase patient satisfaction.

Foley Catheter Tray Utilization			
(based on adjusted patient days)			
	2009	2010	% decrease
March	91	72	21%
April	101	79	22%
Total	192	151	21%

CAUTI Rates Trending Down			
(per 1,000 urinary catheter days)			
	2009	2010	% decrease
March	2	2	0
April	3	0	100%

Timely Removal in Post-Operative Care			
(% of catheters removed within 2 days post-operatively)			
	2009	2010	% Improvement
1st Quarter	20%	50%	150%

SUMMARY OF CLINICAL OUTCOMES

Changing clinical behaviors resulted in an average 21 percent reduction in catheter utilization, decreased the number of CAUTIs to zero to date and increased timely removal of catheters in post-operative care from 20 percent to 50 percent. We believe these outcomes were a result of changing clinician behavior by reducing variability in the insertion process and ultimately reduced opportunity for CAUTI through implementation of the CDC guidelines. Together these processes and behaviors were reinforced through visual reminders and cues that were incorporated into the new product and supported by an evidence-based education program provided to our clinicians.