

# Patient Safety Tip of the Week

## April 3, 2018 Cost of a CAUTI

Some of our earliest columns on the cost of complications (see our Patient Safety Tips of the Week for August 21, 2007 “[Costly Complications About to Become Costlier](#)” and January 22, 2008 “[More on the Cost of Complications](#)”) noted wide variation in the “attributable” costs of CAUTI’s (catheter-associated urinary tract infections).

A new systematic review emphasizes that the attributable costs of CAUTI’s are very dependent upon the nature of the patient population and location of services ([Hollenbeak 2018](#)). From that review the authors note the attributable costs of a CAUTI were: \$876 (inpatient cost to the hospital for additional diagnostic tests and medications); \$1,764 (inpatient cost to Medicare for non-intensive care unit [ICU] patients); \$7,670 (inpatient and outpatient costs to Medicare); \$8,398 (inpatient cost to the hospital for pediatric patients); and \$10,197 (inpatient cost to Medicare for ICU patients).

That review is timely since there were also recent studies on CAUTI’s in the latter two circumstances (ICU’s and pediatric populations).

Mullin and colleagues ([Mullin 2017](#)) assembled a project team composed of all **critical care** disciplines to address an institutional goal of decreasing CAUTI’s. Interventions implemented between year 1 and year 2 included protocols recommended by the CDC for placement, maintenance, and removal of catheters. Also, leaders from all critical care disciplines agreed to align routine culturing practice with American College of Critical Care Medicine (ACCCM) and Infectious Disease Society of America (IDSA) guidelines for evaluating a fever in a critically ill patient. Following implementation, the CAUTI rate decreased from 3.0 per 1,000 catheter days in 2013 to 1.9 in 2014. Device utilization ratio was 0.7 in 2013 and 0.68 in 2014. Hospital-acquired bloodstream infection rates per 1,000 patient days also decreased from 2.8 in 2013 to 2.4 in 2014. The authors attributed success to the multifaceted and collaborative approach but also singled out **stewardship of culturing** as a key component of their success.

The role of cranberry products in prevention or treatment of urinary tract infections has been controversial, with some studies showing benefit and others showing no benefit. But one study in a heterogeneous ICU population ([Sorour 2016](#)) showed that the addition of cranberry-containing products and antimicrobial meatal care may further reduce incidence of CAUTI when added to standard recommendations.

A previous study showed that implementation of a quality improvement prevention bundle can significantly reduce CAUTI rates **in children** ([Davis 2014](#)). The four elements in their prevention bundle were:

- placing an indwelling urinary catheter only when there was an approved indication for its usage
- inserting urinary catheters using aseptic technique and an insertion checklist
- maintaining urinary catheters based on principles of asepsis and positioning the patient and collection device to assist in urine drainage
- reviewing urinary catheter necessity daily and removing promptly when the indications are no longer met.

Implementation was associated with a 50% reduction in the mean monthly CAUTI rate, from 5.41 to 2.49 per 1000 catheter-days. Most patients with CAUTIs were female (75%), received care in the pediatric or cardiac ICUs (70%), and had at least 1 complex chronic condition (98%). Nearly 90% of patients who developed a CAUTI had a recognized indication for initial catheter placement.

But, of course, CAUTI's are a concern not just in ICU populations but also non-ICU populations. One other intervention merits noting since it uses one of our favorite tools, the **"huddle"** (see our December 9, 2008 Patient Safety Tip of the Week "[Huddles in Healthcare](#)"). A recent Health Leaders Media article ([O'Brien 2018](#)) highlighted work done at St. Anthony Hospital in Chicago. They used a daily interdisciplinary safety huddle (DISH) to focus on central venous catheters and indwelling urinary catheters. Their DISH huddle is "a 15-minute meeting held in the morning to incorporate participation from a swath of hospital employees ranging from security to nurse managers, emergency services, and infection control". They also instituted a policy for nurse managers to report catheter usage, while an infection control practitioner reviewed indications, duration, and plans for device removal. Any barriers to catheter removal were required to be addressed within 24 hours. After DISH was implemented, they had a significant decrease in central venous and indwelling urinary catheter use in non-ICU settings. They attributed these declining device utilization rates as key to a 90% reduction in HAI's, which resulted in a cost savings of nearly \$500,000.

The Hollenbeak study did not address the cost of CAUTI's in the other setting where CAUTI's remain significant - **long-term care** (LTC). But it's worth noting the "AHRQ Toolkit Designed to Reduce Urinary Tract Infections in Long-Term Care" ([AHRQ 2017](#)). The toolkit is based on the experiences of more than 450 long-term care facilities across the country that participated in an AHRQ-funded project and reported significant CAUTI rate reductions. The toolkit uses strategies from AHRQ's Comprehensive Unit-based Safety Program (CUSP) and includes behavior change elements that promote leadership involvement, improvement in safety culture, teamwork, and communication, and sustainability.

#### **Our other columns on urinary catheter-associated UTI's:**

- May 8, 2007 Tip of the Week "[Doctor, when do I get this red rubber hose removed?](#)"

- January 8, 2008 Tip of the Week “[Urinary Catheter-Associated Infections](#)”
- April 2008 What’s New in the Patient Safety World column “[More on Nosocomial UTI’s](#)”
- June 24, 2008 Tip of the Week “[Urinary Catheter-Related UTI’s: Bladder Bundles](#)”
- April 21, 2009 Tip of the Week “[Still Futzing with Foleys?](#)”
- June 9, 2009 Tip of the Week “[CDC Update to the Guideline for Prevention of CAUTI](#)”
- March 2010 “[IDSA CAUTI Guidelines](#)”
- February 2011 What’s New in the Patient Safety World column “[Catheters Not Needed in C-Sections?](#)”
- January 2012 “[CAUTI’s Still Get No Respect](#)”
- May 2012 “[Foley Catheter Hazards](#)”
- November 2012 “[CAUTI Conundrum](#)”
- December 18, 2012 “[Unintended Consequences of the CAUTI Measure?](#)”
- January 2013 “[Silver-Coated Urinary Catheters Don’t Reduce CAUTI’s](#)”
- June 2013 “[Barriers to CAUTI Prevention](#)”
- November 2013 “[Further Reducing Urinary Catheter Use](#)”
- June 2014 “[Updated HAI Prevention Guidelines from SHEA/IDSA](#)”
- June 30, 2015 “[What Are Appropriate Indications for Urinary Catheters?](#)”
- December 2015 “[CAUTI Prevention Tools](#)”
- July 2016 “[Holy Moly, My Patient has a FOLEY!](#)”
- December 2016 “[The Joint Commission NPSG for CAUTI’s](#)”

## References:

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<http://pediatrics.aappublications.org/content/early/2014/08/06/peds.2013-3470>

O'Brien J. Fewer Catheters, Fewer Infections: Reducing HAIs Through a 'Hospital-wide Huddle'. Health Leaders Media 2018; February 19, 2018

<http://www.healthleadersmedia.com/physician-leaders/fewer-catheters-fewer-infections-reducing-hais-through-hospital-wide-huddle#>

AHRQ (Agency for Healthcare Research and Quality). Toolkit To Reduce CAUTI and Other HAIs in Long-Term Care Facilities. AHRQ March 2017

[https://www.ahrq.gov/professionals/quality-patient-safety/quality-resources/tools/cauti-ltc/index.html?utm\\_source=ahrq&utm\\_medium=psls&utm\\_term=&utm\\_content=6&utm\\_campaign=AHRO\\_cauti4ltc\\_2017](https://www.ahrq.gov/professionals/quality-patient-safety/quality-resources/tools/cauti-ltc/index.html?utm_source=ahrq&utm_medium=psls&utm_term=&utm_content=6&utm_campaign=AHRO_cauti4ltc_2017)



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