

# Patient Safety Tip of the Week

## September 25, 2018 Foley Follies

One of the most frustrating things in patient safety is when we fail to improve despite a robust evidence base for best practices. One of the conditions for which we have such a robust evidence base is the catheter-associated urinary tract infection (CAUTI).

Way back in the early 1990's we used a simple chart sticker to get a 50% reduction in unnecessary urinary catheters (see our May 8, 2007 Tip of the Week "[Doctor, when do I get this red rubber hose removed?](#)"). Then we saw further reductions once we began to use clinical decision support built into our electronic medical records. Other useful measures have included daily "huddles" or "catheter rounds", nurse-led protocols, automatic discontinuation orders, and flagging catheter duration in the EMR. Especially helpful has been suggesting alternatives to indwelling catheters (eg. condom catheters in males, use of bladder ultrasound to determine bladder volume). A major step was when clinicians from the University of Michigan ([Meddings 2015](#)) published appropriateness criteria for urinary catheters (see our June 30, 2015 Patient Safety Tip of the Week "[What Are Appropriate Indications for Urinary Catheters?](#)"). After that, more hospitals began auditing practices to ensure that catheter use was in line with appropriateness.

But CAUTI's haven't disappeared. In fact, the latest AHRQ data on hospital acquired conditions show that CAUTI's actually increased in recent years ([AHRQ 2018](#)). And Medicare stopping reimbursement for hospital-acquired conditions has had little impact, though changes in coding by hospitals may play a role in that ([Calderwood 2018](#)).

Historically, there have been 3 areas in the hospital where urinary catheters are often inserted for dubious reasons (and then often left in for unnecessary durations): the ER, the OR, and the ICU. And the bane of those practicing in the hospital is the "surprise" Foley catheter (see our Patient Safety Tip of the Week for May 8, 2007 "[Doctor, when do I get this red rubber hose removed?](#)" and our July 2016 What's New in the Patient Safety World column "[Holy Moly, My Patient has a FOLEY!](#)"). This is when, unbeknownst to the attending physician, his/her patient has a Foley catheter inserted during the evening or night and its presence is not readily recognized.

Our June 2013 What's New in the Patient Safety World column "[Barriers to CAUTI Prevention](#)" highlighted the barriers to implementation of best practices to prevent CAUTI's seen in the highly successful Keystone initiative in Michigan to prevent CAUTI's ([Krein 2013](#)). Not surprising was lack of buy-in from physicians and nurses, or insertion of the catheter in the ER. A surprising barrier, however, was requests from patient or family for the catheter.

While many guidelines and protocols call for timely postoperative removal of urinary catheters placed prior to surgical procedures, there has been a lack of guidelines to help determine in which procedures a catheter is needed at all. We recall working with a small hospital that had only two general surgeons. One routinely used a urinary catheter during appendectomies, the other did not. Once we pointed out the discrepancy, the other surgeon realized he did not need a catheter when doing a routine appendectomy.

Now, the Michigan group ([Meddings 2018](#)) has again come to the rescue! They have developed guidelines for patients undergoing general and orthopedic surgery. Procedural appropriateness ratings for catheters were summarized for clinical use into three groups:

1. can perform surgery without catheter
2. use intraoperatively only, ideally remove before leaving the operating room
3. use intraoperatively and keep catheter until postoperative days 1-4

Specific recommendations were provided by procedure, with postoperative day 1 being appropriate for catheter removal for first voiding trial for many procedures. You'll have to go to the article itself for details about the individual procedures. But the first category (no need for a catheter) includes things like laparoscopic cholecystectomy, open appendectomy, most hernia repairs, and unilateral knee and hip procedures. Examples of procedures where removal of the catheter before the patient leaves the OR include bilateral hip and knee procedures, hip replacement revision surgery, and several bariatric procedures. Lastly, the category where catheter use for at least one post-op day is appropriate includes procedures like colectomies and abdominoperineal resections.

And, while we have focused on CAUTI prevention, don't forget there are many other reasons to avoid unnecessary use of Foley catheters. The Michigan group, again, has recently published an analysis of the various complications of indwelling urinary catheters ([Saint 2018](#)). 71% of the patients were male (largely because some of the hospitals studied were VA hospitals). 76% had the catheter removed within 3 days of insertion. Almost 80% of the patients studied had short-term catheters placed for surgical procedures. Noninfectious complications were 5 times more frequent than infectious ones.

57% of patients reported at least 1 complication due to the indwelling urethral catheter over the 30 days of followup. Infectious complications were reported by 10.5% and noninfectious complications (eg, pain or discomfort, blood in the urine, or sense of urinary urgency) by 55.4%.

Pain, discomfort, bleeding, or trauma at the time of catheter placement were noted by only 2% of patients who had the catheters placed for a surgical procedure but by 57% of those who had the catheter placed for bladder obstruction or urinary retention. Leaking urine, urinary urgency or bladder spasms, and difficulty starting or stopping the urine stream were the most common symptoms in those who had their catheter removed. In those who still had catheters in place the most common symptoms were pain, urgency or bladder spasms, or hematuria. Those who still had a catheter also experienced considerable limitation of activities of daily living or restriction of social activities (the

old “one-point restraint”). Of those who had their catheter removed, 5% had sexual dysfunction. As you’d expect, longer duration of catheter use was associated with both more infectious and noninfectious complications. Women were more likely to report an infectious complication than men (15.5% vs. 8.6%), a point attributed to the shorter female urethra and closer proximity of perineal bacterial colonization to the insertion site of the indwelling catheter.

In view of the above study, you have even more reason to ensure appropriate use of urinary catheters. We hope that you’ll implement the many interventions we’ve discussed in detail in our numerous columns listed below and mentioned briefly at the beginning of today’s column. Recently, one hospital system implemented many of those interventions in a serial fashion and achieved excellent results ([Youngerman 2018](#)). After training on best practices, they standardized electronic documentation. In the second phase, duration of urinary catheter use was tracked in real time. In the third phase, clinicians were prompted by an alert reminding them of catheter duration. And in the final phase, orders for new urinary catheters included automatic expiration and required input of an appropriate indication plus suggestions for alternatives. CAUTI rate per 10,000 patient days decreased incrementally in each phase (from 9.06 in phase 1 to 1.65 in phase 4 or a relative risk 0.182). New catheters per 1,000 patient days declined from 53.4 in phase 1 to 39.5 in phase 4 (RR 0.740) and catheter days per 1,000 patient days decreased from 194.5 in phase 1 to 140.7 in phase 4 (RR 0.723). The reinsertion rate also declined.

Our evidence base to avoid inappropriate use of urinary catheters is very strong. It’s time we apply our knowledge of best practices to reduce their use and avoid both the infectious and noninfectious complications associated with them.

### **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](#)”
- April 3, 2018 “[Cost of a CAUTI](#)”

## References:

Meddings J, Saint S, Fowler KE, et al. The Ann Arbor Criteria for Appropriate Urinary Catheter Use in Hospitalized Medical Patients: Results Obtained by Using the RAND/UCLA Appropriateness Method. *Ann Intern Med* 2015; 162(9\_Supplement): S1-S34

<http://annals.org/article.aspx?articleid=2280677>

AHRQ (Agency for Healthcare Research and Quality). AHRQ National Scorecard on Hospital-Acquired Conditions. Updated Baseline Rates and Preliminary Results 2014–2016. AHRQ 2018; June 2018

[https://www.ahrq.gov/sites/default/files/wysiwyg/professionals/quality-patient-safety/pfp/natlhacratereport-rebaselining2014-2016\\_0.pdf](https://www.ahrq.gov/sites/default/files/wysiwyg/professionals/quality-patient-safety/pfp/natlhacratereport-rebaselining2014-2016_0.pdf)

Calderwood MS, Kawai AT, Jin R, Lee GM. Centers for medicare and medicaid services hospital-acquired conditions policy for central line-associated bloodstream infection (CLABSI) and catheter-associated urinary tract infection (CAUTI) shows minimal impact on hospital reimbursement. *Infection Control & Hospital Epidemiology* 2018; 39(8): 897-901 Published online: 28 June 2018

<https://www.cambridge.org/core/journals/infection-control-and-hospital-epidemiology/article/centers-for-medicare-and-medicare-services-hospital-acquired-conditions-policy-for-central-line-associated-bloodstream-infection-clabsi-and-catheter-associated-urinary-tract-infection-cauti-shows-minimal-impact-on-hospital-reimbursement/945EB1EDE41BB4248A4C37D90D15168A>

Krein SL, Kowalski CP, Harrod M, Forman J, Saint S. Barriers to Reducing Urinary Catheter Use: A Qualitative Assessment of a Statewide Initiative. *JAMA Intern Med* 2013; 173(10): 881-886

<http://archinte.jamanetwork.com/article.aspx?articleid=1672274>

Meddings J, Skolarus TA, Fowler KE, et al. Michigan Appropriate Perioperative (MAP) criteria for urinary catheter use in common general and orthopaedic surgeries: results obtained using the RAND/UCLA Appropriateness Method. *BMJ Qual Saf* 2018; Published Online First: 12 August 2018  
<https://qualitysafety.bmj.com/content/early/2018/08/11/bmjqs-2018-008025>

Saint S, Trakutner BW, Fowler KE, et al. A Multicenter Study of Patient-Reported Infectious and Noninfectious Complications Associated With Indwelling Urethral Catheters. *JAMA Intern Med* 2018; Published online July 2, 2018.  
[https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2686144?utm\\_campaign=articlePDF&utm\\_medium=articlePDFlink&utm\\_source=articlePDF&utm\\_content=jamainternmed.2018.2417](https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2686144?utm_campaign=articlePDF&utm_medium=articlePDFlink&utm_source=articlePDF&utm_content=jamainternmed.2018.2417)

Youngerman BE, Salmasian H, Carter EJ, et al. Reducing indwelling urinary catheter use through staged introduction of electronic clinical decision support in a multicenter hospital system. *Infection Control & Hospital Epidemiology* 2018; 39(8): 902-908  
Published online: 13 June 2018  
<https://www.cambridge.org/core/journals/infection-control-and-hospital-epidemiology/article/reducing-indwelling-urinary-catheter-use-through-staged-introduction-of-electronic-clinical-decision-support-in-a-multicenter-hospital-system/9A152480ABA487C923E8F60778C9939B>



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