



A family-centered care model to reduce pediatric CAUTI

BY VICKY UHLAND

When the staff of Akron Children's Hospital in Akron, Ohio, decided to implement a catheter-associated urinary tract infection (CAUTI) prevention program, they knew they faced some challenges. Unlike most adult CAUTI prevention programs, pediatric CAUTI initiatives require both patient and family participation. Fortunately, Akron Children's already had a robust patient- and family-centered model of care delivery when it enacted its CAUTI prevention program three years ago. And the team, co-led by infection prevention staff, had the added benefit of being able to participate in the Ohio Children's Hospitals' Solutions for Patient Safety—a pioneering pediatric collaborative to prevent serious harm from hospital acquired conditions including healthcare-associated infections (HAIs).

Akron Children's is the largest pediatric health-care system in northeast Ohio, with about 800,000 patient visits a year. It operates two hospitals and has about 80 locations across the region. The hospital has earned Magnet designation for excellence in nursing care. In 2012, Akron Children's infection prevention team, including Cheryl Christ-Libertin, DNP, CPNP-PC, RN-BC, NE-BC, evidence-based practice coordinator, and Tina L. Bair, MSN, RN,

CIC, manager of infection prevention and control, evaluated nursing sensitive quality indicators and found that the burn center and pediatric intensive care unit (PICU) had the highest CAUTI numbers—mainly because they served many critically ill patients who required catheters. Using the Rosswurm-Larrabee model for planned change in practice based on evidence, the team first developed a pilot study for the Paul and Carol David Regional

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Akron Children's nurse provides patient- and family-centered care for quality outcomes.

PHOTO COURTESY: AKRON CHILDREN'S HOSPITAL.

Burn Center. The surgeons and nursing staff helped individualize the infection prevention plan to the burn injured patients and measured reliable use of the insertion and maintenance bundles, as well as strategies to reduce catheter days.

In 2013, they joined efforts with the Ohio Children's Hospitals' Solutions for Patient Safety network and spread the work to the PICU. Key drivers to prevent CAUTI included use of clinical criteria for catheters, use of insertion and maintenance bundles, and daily evaluation of the need for the catheter. Interventions tested encompassed everything from a catheter removal decision-making algorithm to a patient information handout for family members. In 2013, Bair and an administrative intern instituted a hand hygiene improvement program using Lean Six Sigma methodologies.

The results have been impressive. "We were recognized as a top-five network hospital among the more than 80 hospitals in the National Children's Hospitals' Solutions

for Patient Safety network for reduction of catheter days," Christ-Libertin said.

Between 2012 and 2013, the burn center reduced catheter days by 75 percent, from 618 to 245. The number of CAUTIs dropped from seven in 2012 to two in 2013. The burn center has gone more than 330 days without a CAUTI. And the 2013 CAUTI rate of 1.27 notably outperformed the National Healthcare Safety Network's pooled mean of 4.10. American Burn Association (ABA) verification surgeons took note and called the center to discuss its strategy. The successes were shared at the ABA regional and national conferences. The PICU pediatric intensivists and nursing staff reviewed progress toward established goals monthly. The team also reduced catheter days and established highly reliable use of the bundles (greater than 95 percent). They reduced CAUTI from five in 2012 to two in 2013. The PICU shared its successes at the American Nurses Association Quality Conference.

PROS AND CONS OF AN RN-DRIVEN CATHETER REMOVAL ALGORITHM

The team implemented a decision-making algorithm that determined when catheters should be used or removed. The algorithm, which Christ-Libertin said came from published literature, focused on RN-driven catheter removal.

During the trial period, the nurses completed the algorithm and recorded their decision about catheter removal for each patient. Then the providers recorded what their decision would be. Christ-Libertin said the infection prevention team was looking for 95 percent agreement, and got 90 percent.

"We found that nurses wanted to keep the catheters in more often," she said. "The providers wanted to take the catheters out more often."

So the team decided to abandon the algorithm. "Unlike in the adult world, our pediatric intensivists and acute care nurse practitioners are onsite and round at three scheduled times a day in the PICU. The nursing staff and providers use a shared team decision-making approach." Christ-Libertin



READ MORE ABOUT CAUTI IN THE AMERICAN JOURNAL OF INFECTION CONTROL

Using electronic medical records to increase the efficiency of catheter-associated urinary tract infection surveillance for National Health and Safety Network reporting, Shepard, John et al., *American Journal of Infection Control*, Volume 42, Issue 3, e33-e36.

Nurse-directed catheter removal protocols to prevent catheter-associated urinary tract infection: Strategies for implementation, Hebden, Joan N., *American Journal of Infection Control*, Volume 42, Issue 6, 670.

A comparison of the microbiologic profile of indwelling versus external urinary catheters, Grigoryan, Larissa et al., *American Journal of Infection Control*, Volume 42, Issue 6, 682-684.

Impact of catheter-associated urinary tract infection bundle on other health care-associated infections, Cheng, Wei-YaLin, Yu-HsiuLai, Chih-ChengChao, Chien-Ming et al., *American Journal of Infection Control*, Volume 43, Issue 2, 197-198.

Risk factors for catheter-associated urinary tract infection in Italian elderly, Vincitorio, Daniela et al., *American Journal of Infection Control*, Volume 42, Issue 8, 898-901.

Introducing a catheter-associated urinary tract infection (CAUTI) prevention guide to patient safety (GPS), Saint, Sanjay et al., *American Journal of Infection Control*, Volume 42, Issue 5, 548-550.

Emergence of extended-spectrum β -lactamase-producing *Escherichia coli* in catheter-associated urinary tract infection in neurogenic bladder patients, Takaba, Kei et al., *American Journal of Infection Control*, Volume 42, Issue 3, e29-e31.

Clinician practice and the National Healthcare Safety Network definition for the diagnosis of catheter-associated urinary tract infection, Al-Qas Hanna, Fadi et al., *American Journal of Infection Control*, Volume 41, Issue 12, 1173-1177.

What we don't know may hurt us: Urinary drainage system tubing coils and CAUTIs—A prospective quality study, Kubilay, Zeynep et al., *American Journal of Infection Control*, Volume 41, Issue 12, 1278-1280.

Trends in catheter-associated urinary tract infections among a national cohort of hospitalized adults, 2001-2010, Daniels, Kelly R. et al., *American Journal of Infection Control*, Volume 42, Issue 1, 17-22.

said. “We found that discussion in rounds can replace the algorithm.”

The clinical staff added review of the number of urinary catheter days to its rounding tool that details the topics to be discussed during rounds.

CHANGING PROCEDURES AND STAFF BUY-IN

After realizing that operating room (OR) staff places more than half of all catheters used in the hospital, the infection prevention team expanded its CAUTI prevention program to Surgical Services. The OR and PICU teams began evaluating pre-connected catheter systems, which were not widely used in children's care.

Because the OR has restricted space, the OR education coordinator led staff practice with inserting the systems on training mannequins. This had the added benefit of helping staff develop a best-practices insertion method without interference with a surgery. In addition, all new nurse hires receive simulated insertion training, and all nurses complete ongoing education on catheter insertion, maintenance, and CAUTI prevention best practices. The anesthesia team evaluated practices and reduced catheter days for patients with epidural catheters.

Christ-Libertin said not all nurses were comfortable with the new catheter methods. “We actually needed more buy-in from hospital staff than from patients' families,” she said. “The literature tells us that nurses and providers may believe that CAUTI are fairly benign and don't cause much harm. Competing priorities for care, catheter [care] can get lost.”

The team also developed a patient information handout on CAUTIs, detailing things like the definition of a CAUTI, symptoms of a UTI, what staff will do to prevent a CAUTI, and what patients and families can do. The handout review process included review by the hospital Parent Advisory Council. Christ-Libertin said the handout guides staff on information to review with families on the topic of CAUTI.

“At the heart of patient- and family-centered care is the recognition that parents are the constants in their children's lives. They hold the most complete understanding of each child's past, present, and future,” Christ-Libertin said. “Our biggest insight is that we may think we know the best thing for the patient, but unless we involve them and their families, we won't know for sure.”

Vicky Uhland is a medical writer for Prevention Strategist.



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- 3205—“Plastic” Rounds: A Nurse-Centric Approach to Reducing Catheter-Associated Urinary Tract Infection (CAUTI) and Central Line-Associated Bloodstream Infection (CLABSI).
- 3500—NHSN CLABSI and CAUTI Surveillance 2015.
- 3002—Proper Collection of Blood and Urine Cultures: Potential Impact on Central Line-Associated Bloodstream Infections (CLABSI)/Catheter-Associated Urinary Tract Infections (CAUTI) Surveillance.
- 3103—Using CUSP to Prevent CAUTI: Key Lessons Learned from a Large National Clinical and Fellowship Project.