

Look and learn: infection-prevention success stories

by Susan Cantrell, ELS

There was a time, not so very long ago, when the consensus was that hospital-acquired infections could never be reduced to zero; the best to be hoped for was to hold the numbers down. Holding the numbers down is a good thing, but most facilities are aiming higher these days. Many facilities are on a campaign aimed at lowering infection rates to the vanishing point. Usually a change of some sort is involved, whether it be a change in technique or process or product. Sometimes—here's some welcome news—no extra cost is involved. Better yet, preventing infections can save some serious money.

Some of those facilities who have experienced success in lowering infection rates, sometimes to zero, shared their stories with *Healthcare Purchasing News*. Look and learn.

Catheter-related infections Bloodstream infections

Coram Specialty Infusion Services Totowa, NJ

Coram Specialty Infusion Services is a home-infusion provider, so naturally, they are concerned with preventing catheter-related infections. Donna Maslak, performance improvement coordinator, gave a little background on their situation: "The study began April 1, 2009, after identifying a significant increase in our bloodstream infection (BSI) rates with the first quarter of the year. The BSI rate was 1.45% of total patient census."

How they did it: Kim Archambault, nurse manager, explained that their Performance Improvement Committee, the entire nursing department, managers, and sub-contracted nursing agencies all worked together to implement changes intended to lower the BSI rate. "This was not a product change; this was a standard-of-care change," noted Archambault. "Training and implementation was accomplished at the end of quarter 1 through email, telephonic communication, and staff meetings. A teaching tool, provided by B. Braun Medical Inc. (Bethlehem, PA), was provided to all patients no matter

what brand of injection cap was in use. The training tool portrayed three simple steps for proper antisepsis: (1) wash hands; (2) disinfect injection cap thoroughly, minimum of 10 twists; (3) attach infusion device. These recommendations were in accordance with the current industry standards of utilizing a 15-second swab for proper antisepsis. Standard of care prior to this was a 3-second swab."

Results: Changes resulted in a .77% improvement. "Currently the BSI rate is 0.68% of total patient census," said Maslak. "The decreased infection rate was sustained for a 6-month period of time, through quarters 2 and 3 of 2009. Numbers for quarter 4 aren't available yet."

Garden City Hospital Garden City, MI

Laura Kehler, RN, BSN, MS, CIC, infection prevention coordinator, said: "Garden City instituted the Keystone ICU bloodstream bundle in March 2004 to target catheter-related BSIs in the ICU setting. In January 2005, realizing the success in reduction of BSIs in the ICU, the bundle was rolled out to the remainder of the facility."

How they did it: "Garden City decided to reduce all peripheral- and central-catheter-associated BSIs to a target rate of zero by developing and implementing its Infection Prevention Bloodstream Initiative, a customized bundle approach," explained Kehler. "During a baseline period, September 2007 to May 2008, Baxter's Clearlink IV connector was used on all peripheral and centrally placed intravenous catheters. During this baseline period, the hospital saw 18 BSIs per 37,860 patient-days, yielding a rate of 0.047/100 patient-days.

During the evaluation period, September 2008 to May 2009, the V-Link device (antimicrobial IV connector, which has a silver antimicrobial



Baxter's V-Link Luer-activated device with Vital-Shield protective coating

coating; Baxter, Round Lake, IL) replaced Clearlink as the intravenous connector as part of the bundled approach. The project was championed by the departments of Infection Prevention and Infectious Diseases. Education assistance was provided by the Professional Development team. The Value Analysis Team overwhelmingly approved this product due to the demonstrated improved safety."

Results: The switch paid off in more ways than one, explained Kehler: "BSI rates decreased to 0.019 per 100 patient-days, or 7 BSIs per 32,295 patient-days during the evaluation period. BSI rate reduction was roughly 60% and resulted in cost avoidance of \$365,511 for the hospital. Since May 2009, the hospital BSI rate has dropped even further to 0.011 per 100 patient-days.

Urinary Tract infections

Sharon Regional Health System Sharon, PA

Sally E. Tice, RN, MS, CIC, CHSP, nurse epidemiologist, offered a little background information: "Sharon Regional Health System (SRHS) participated in the VHA Rapid Adoption Network (RAN) as a performance-improvement project targeting the reduction and elimination of catheter-associated urinary tract infections (CA UTIs). CA UTIs are the most frequently occurring healthcare-associated infections." Tice highlighted an incentive for reducing CA UTI: "The Centers for Medicare and Medicaid Services has identified CA UTIs as a condition that is preventable and non-reimbursable."

The project ran from June 2008 to June 2009. "At the start of the project, SRHS's CA UTI rate was 10.1 per 1,000 device-days," said Tice.

How they did it: Tice described specific steps the facility took. "SRHS utilized the VHA Blueprint of leading practices from other facilities to complete a gap analysis and identify opportunities for improvement. Included in those were standardization of practice for insertion and care, identification of an acceptable securement device, and development of educational programs and competencies for direct

INFECTION CONNECTION

patient-care staff and ancillary services such as transport, physical therapy, and imaging services. Implementation of a daily assessment sheet has assisted in the decrease of device-days."

Switching from one product to another also was part of the solution, noted Tice. "At the start of the project, SRHS was using a silver-coated catheter that provides antimicrobial activity while the catheter is in place. Foley Anchor (Centurion Medical Products, Howell, MI), a urinary-catheter—securement device, improved comfort for the patient while reducing catheter movement and irritation that can promote microorganism migration in the urinary tract."

"A multidisciplinary team worked on the project. The team included a physician champion, a laboratory representative, clinical staff, infection preventionists, and quality-improvement staff. As the project progressed, staff from the Education Department were added. Administrative support of the project has been one of the keys to the success that was achieved. Our physician champion assisted with the communication and participation of the medical staff. The clinical staff were champions for the patient-care staff and assisted with the implementation of both the products and the education."

Results: Results of the project are dramatic. "At the conclusion of project, SRHS had 3 consecutive months with zero CA UTIs. Since that time, the annual rate is 1.6 CA UTIs per 1,000 device-days. Since the conclusion of the project, 4 of the 7 months have had no CA UTIs identified by surveillance. Since July 2008, SRHS has seen an 82% reduction in the number of CA UTIs. The cost savings has been approximately \$70,000."

Chambersburg Hospital Chambersburg, PA

CA UTIs represented the majority of health-care-acquired infection at Chambersburg Hospital. "This type of infection is costly and is largely preventable. We decided to examine the data more closely with the goal of identifying potential problem trends and implementing successful corrective measures," noted Ericka L. Kalp, MPH, CIC, manager of infection control.

How they did it: Chambersburg Hospital also partnered with VHA's RAN program. "The network included infection preventionists throughout the region, led by a VHA consultant. The program consisted of monthly conference calls or on-site visits with the VHA consultant," said Kalp.

A multidisciplinary UTI taskforce, created in August 2008 and led by the Infection Control Department, was comprised of managers and senior leaders from departments including but not limited to care coordination, medical-

surgical, emergency, intensive care unit, and quality management. "The taskforce was presented with the hospital's CA UTI data, stratified by date and location. Members were introduced to the VHA blueprints, a visual explanation of what high-performing organizations are doing right in regards to CA UTI reduction." An examination of the facility's data, compared against the blueprints of other organizations, revealed gaps in knowledge and skills, as well as infection trends in specific units. "We decided to take a comprehensive approach that included re-educating staff members who either inserted or maintained urinary catheters on the target units with the greatest number of infections."

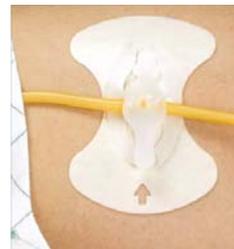
"Our education program consisted of a CA UTI pre-test and post-test, a urinary-catheter education video, CA UTI informational slides, and a hands-on Foley-skills competency assessment. Once the education and hands-on competency were complete, the staff member completed the Foley Insertion Contract, a formal agreement that the staff member would follow the defined policies and protocols for inserting and discontinuing Foley catheters."

Kalp said there was a little resistance to the education, particularly from experienced staff members who felt they did not need it. "However, as the education progressed and the test scores were posted," said Kalp, "it was clear that even the most seasoned nurses had improved their CA UTI knowledge and skills."

Results: In 2007, the CA UTI rate was 8.3% (88 CA UTIs/1,000 Foley catheter-days), with a 69-day total increase of LOS. Total cost of UTI was \$36,346.64. In 2008, the rate of infection was reduced to 4.8% (46 CA UTIs/1,000 Foley catheter-days), with a 36-day total increased LOS. Total cost was \$18,999.38. In 2009, the CA UTI rate dropped to 2.3% (22 CA UTIs/1,000 Foley catheter-days), with a 17-day total increased LOS. Total cost was \$9,086.66.

"This represents not only a reduction in patient disease, but also a reduction in nursing time, lab tests, and use of antibiotics to treat CA UTIs," observed

Centurion's
Foley
Anchor
urinary
catheter
securement
device



Kalp. "The decrease of these elements created a significant cost savings to the hospital, and there was no increase in the cost of catheters (silver) or the securement device. Based on 2009 LOS data, patients with a UTI diagnosis had a hospital stay 0.78 days

longer than a patient without a UTI. The increase in LOS, additional nursing time, lab tests, and antibiotics collectively cost an additional \$413.03 per case. Further, patients with increased LOS decrease patient throughput and consequently decrease potential hospital revenue."

The bottom line: "CA UTIs at Chambersburg Hospital decreased 75% from 2007 to 2009, thus leading to a \$27,260 reduction in CA UTI-related expenditures." Kalp also noted a significant but perhaps unexpected gain. "Beyond the success of decreased infections and cost reduction, the CA UTI reduction program was pivotal in forming trust and collaboration among peers. The support received from Chambersburg Hospital's senior leadership facilitated and sustained the ongoing success of the program. We continue to use the tools and information we gained through the participation in the VHA RAN program. Our goal is to continue the success of the program, which will enable us to provide the best possible care to our patients."

Ventilator-associated pneumonia

Texas Health, Presbyterian Hospital Dallas, TX

Presbyterian Hospital was already doing well but strived to do better. In late 2008, the facility began a campaign against ventilator-associated pneumonia (VAP). Mark Rose, RT, respiratory manager, explained: "Although we were already well below the national average, 8.9 infections per 1,000 ventilator-days, we wanted to make our staff better aware of the benefits befalling a robust VAP reduction strategy."

How they did it: Our VAP strategy is aimed at addressing many variables. We utilize head-of-bed elevation, supraglottic and subglottic suctioning via tonsil tip at least every 4 hours, and pre-/post-turns/travel, gastrointestinal prophylaxis, sedation vacations, and the Kimberly-Clark Microcuff Endotracheal Tube. Additionally, we utilize an intensivist-run medical intensive care unit."

Simply switching to Kimberly Clark's Microcuff Endotracheal Tube for all elective or emergent intubations and for all operating-room intubations with a high probability of postoperative ventilation helped to decrease the infection rate. A valuable plus, noted Rose, was that "This change didn't increase time demands on staff."

Research led to the change. "The Respiratory Care Department spear-headed this initiative," said Rose. "We first implemented the Microcuff tube in the 'emergent intubation' settings. After performing an in-house bench study on the three endotracheal tubes we had at our disposal, we found the Microcuff appeared to perform better at defeating microaspiration. This prompted our facility to request that the anesthesia department begin using the Microcuff for all intubations with a high probability of postoperative ventilation."

The anesthesia department presented their biggest obstacle to making the change. "New staff and anesthesiologists are not well-informed as to the benefit or need for using the Microcuff. This will only be achieved by getting 'buy-in' amongst the clinical educators at all levels. When the educators understand the importance related to reducing VAP rates, then they will hopefully begin to join the respiratory therapists in being a champion for these simple and apparently effective methods."

Results: Unfortunately, Presbyterian Hospital does not know the specific rate of VAP in their facility prior to their campaign to reduce or eliminate it. They do know they were already well below the national average. After changing to the Kimberly-Clark Microcuff Endotracheal tube, they even improved on that. In the previous 9 months, they have had only one clinically diagnosed VAP.

Kimberly Clark's Microcuff Endotracheal Tube



Gladys Spellman Specialty Hospital and Nursing Center

Cheverly, MD

The Gladys Spellman Specialty Hospital and Nursing Center (GSSHNC) is attacking infection on several fronts. Kathy Jones, chief nursing officer, explained: "Because of the complexity of patients' medical conditions and that many require long-term ventilator care, keeping patients free of hospital-acquired pressure ulcers, nosocomial infections, and VAP is a key concern. The facility admits patients with multiple infections, including methicillin-resistant *Staphylococcus aureus* and vancomycin-resistant *Enterococcus*."

The Table-Top Wound Committee started in July 2008. In 2009, the facility employed a full-time infection-prevention coordinator. An infectious disease physician makes rounds weekly, and a part-time nurse practitioner makes rounds twice per week.

How they did it: "The Table-Top Wound Committee is a multidisciplinary team including the dietician, certified wound nurses, physical therapist, quality-improvement coordinator, medical director, infection control coordinator, nurse practitioner, chief nursing officer, material management coordinator, and vendor representatives from Universal Hospital Services (UHS; Edina, MN) and Smith & Nephew (Andover, MA)," explained Jones. "The Wound Committee meets monthly to discuss the progress of each wound and treatment plan, reviews the nutritional laboratory results, the healing of each wound, current treatment, and clinical status of the patient. After reviewing this information, the Wound Committee will initiate a treatment plan for the patient. The feedback from UHS and Smith & Nephew has helped our facility keep our nosocomial infections and acquired pressure-ulcer rates low in our facility."

An infection control committee, chaired by the infection control coordinator and

comprised of nursing managers, nurse practitioners, geriatric nursing assistant, material-management coordinator, and environmental-services manager, meets monthly to discuss ways in which to improve in processes to eliminate or reduce infection in preparation for the quarterly infection control committee meeting that includes the infectious disease physician.

"To reduce or eliminate infections, the primary role of a registered nurse on each shift is to manage all aspects of infusion therapy," noted Jones. "Duties include but are not limited to managing all lines and dressing changes, and making rounds with the infectious disease physician or nurse practitioner."

A hand-washing competency was developed for all staff, and compliance is being monitored. Hand-washing foam is placed at the receptionist desk, elevator, entrance to day rooms, employee lounge, and outside of each patient's room. The receptionist bears the responsibility of reminding visitors to wash their hands before entering the elevator. The infection control coordinator or nurse educates the patient-resident, or responsible party, if there is an infection present."

Results: While data has not yet been compiled, "our acquired pressure-ulcer rate and nosocomial infection rates were sustained over time," said Jones. With the exception of 1 month, December 2009, "the acquired pressure-ulcer rate remained below the national and state rate."

Conclusion

These stories are encouraging examples of the solid work being performed in prevention of healthcare-associated infection. Often no cost increase is involved in tweaking the steps toward eliminating infection; in fact, cost can be avoided by preventing further treatment and increased LOS. What facility wouldn't like that? These types of stories are happening everywhere, hopefully in your facility, too; so, get your data together. Next time you can tell us your story. **HPN**

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