InnOVATIONS:
Recognizing Advances in Health Care
An Issue Brief from the St. Louis Area Business Health Coaltion

Program leads to changes in culture to protect patients from medical errors

Abstract *More than two million health care-associated infections occur each year in U.S. hospitals, according to the Centers for Disease Control and Prevention. These infections result in 99,000 deaths and $40 billion in excess costs.*

A program developed by a physician at Johns Hopkins Hospital in Maryland aims to reduce the number of health-care associated infections occurring each year by focusing on an empowered, coordinated, team approach.

The results have been dramatic and the program, the Comprehensive Unit-Based Safety Program or CUSP, is moving across the country. With the assistance of the Missouri Center for Patient Safety, at least 20 Missouri hospitals have implemented the program. Some are taking CUSP, which was originally designed for intensive care units, and expanding it to other departments.

In 2001, 18-month-old Josie King died from a central line bloodstream infection acquired at Johns Hopkins Hospital in Maryland. A year later, her mother wanted to know how Hopkins had changed its practices to prevent a similar tragedy from happening again. "I did not have an answer for her," said Peter Pronovost, MD, an intensive care specialist at Johns Hopkins.

Josie's death spurred Pronovost to develop a safer way to care for patients in intensive care units. Ten years later, his efforts to change the culture of medicine are making care safer across the nation, including in Missouri.

What happened to Josie was not a rare occurrence. According to the Centers for Disease Control (CDC), roughly two million health care-associated infections (HAI) occur each year in U.S. hospitals resulting in 99,000 deaths and $40 billion in excess costs. More people die as a result of HAIs than from breast cancer, AIDs, and auto accidents combined.

The Comprehensive Unit-Based Safety Program or CUSP developed by Pronovost addresses the inadequate empowerment of frontline nurses to challenge the hierarchal physician culture. Physicians want to provide the best care yet are often not receptive to feedback such as being reminded to wash their hands, or told they have yet to effectively address a patient's medical issue. Pronovost knew this problem could not be solved by regulation or paying doctors more. Cultural change would have to be led by "a respected physician champion."

Josie King and her mother, Sorel King

Another serious patient safety challenge cited by Pronovost is the "Bystander Effect." When an individual is in a group, he or she is less likely to take charge in an emergency assuming someone else in the group will take action. This often happens in medicine when multiple specialists are involved.[1] **"When no one person is responsible, no one takes charge," Pronovost said.** To address this

[1] Stavert R.R. and Lott J.P., The Bystander Effect in Medical Care, *N Engl J Med 2013*; 368:8-9

Peter Pronovost, MD

problem, the CUSP design establishes a team leader, usually a frontline nurse, and a physician champion to take charge. Other team members include a representative from each shift as well as ancillary representatives from services such as pharmacy, respiratory therapy and maintenance to ensure quality and coordination of care. A senior executive team member adopts the unit to remove barriers, provide resources and attend monthly meetings.

In four years, Hopkins reduced central line bloodstream infection rates (CLABSI) down to zero using CUSP. Hopkins partnered with the American Hospital Association to expand CUSP to hospitals in Michigan that achieved similar results. Since then CUSP has been offered to hospitals nationwide. In addition to CLABSI, the program has been expanded and adapted to include prevention of catheter-associated urinary tract infections (CAUTI) and reduce adverse events such as falls.

The Process An outline of the CUSP six step process is shown in the box at right. The Agency for Healthcare Research and Quality (AHRQ) recently developed a CUSP toolkit accessible online to guide hospital unit leaders and their teams through the process. An initial step in safety improvement is to assess an organization's safety culture. CUSP encourages assessment of a specific unit's safety culture using resources such as the AHRQ Survey on Patient Safety in addition to proactively learning from defects by teaching team members to consistently ask "How do you think the next patient will be harmed on your unit, and how can you prevent this?" Teams learn the science of safety and a defect tool teaches them to identify hazards and get to the root of problems. Other tools, such as insertion kits and checklists, provide standardized, scientifically-grounded protocols which significantly reduce the risk of infection

The CUSP Six-Step Process

- > Measure Culture of Safety
- > Understand Science of Safety
- > Educate Staff to Identify Problems
- > Educate Staff to Resolve Problems
- > Bridge the Gap between Senior Hospital Leaders and Frontline Staff
- > Provide Tools to Improve Systems of Care

"Understanding the Science of Safety by Dr. Peter Pronovost," Retrieved from website: http://www.josieking.org/patientsafety

In Missouri, the Center for Patient Safety (CPS) introduced the program in 2009 in the Kansas City region with funding from Blue Cross and Blue Shield of Kansas City. "Hospital staff really resonated with CUSP and wanted to focus their efforts on proactively identifying vulnerabilities in the ICU and other units," said Becky Miller, CPS executive director. CPS assists hospitals by offering tools and resources, including a CUSP toolkit modeled after the AHRQ toolkit, providing education on CUSP and providing culture assessment services using the AHRQ Culture of Safety survey. "The CUSP training consists of monthly 'Coaching Calls' that give teams the opportunity to share with each other, ask questions, offer suggestions, etc… truly allowing for group learning to occur," Miller said. National CUSP activities consist of webinars that feature topic experts.

Through the Kansas City area project that included other hospitals from across the state in 2011, as many as 20 Missouri hospitals completed the program with CPS assistance. This helped to establish a culture that lead to a reduction of CLABSIs by 69% and CAUTIs by 30%. In October 2012, the Armstrong Institute for Patient Safety and Quality at Johns Hopkins recognized CPS for its outstanding work with CUSP.

Ozarks Medical Center (OMC) is located in a rural area near the Arkansas border. Director of Quality, Mary Fine, RN, learned about CUSP at the 2010 CPS annual patient safety conference. OMC is one of the few Missouri hospitals that has completed all of the CUSP modules.

OMC has only one ICU yet did not stop there. "We started the program in the ICU and expanded it to all seven hospital floors." Fine said. **OMC's ICU has not had a CLABSI infection in more than three years.** "Nurses love the program and physicians are supportive," she said. The CUSP teams at OMC include employees from all services that touch patient care including housekeeping. This leads to all taking action to prevent infections. For example, the environmental services manager created an orientation packet for the maintenance crew regarding the proper disinfection and cleaning of patient rooms and how the rooms need to be set up.

Fine admits it is challenging to keep the ICU and all hospital floors engaged on an ongoing basis. To facilitate staff sharing and group learning, OMC has a quarterly meeting in which all units participate.

Fine also presents OMC's experience on national calls to give advice and help hospitals troubleshoot during program implementation.

Mary Fine, RN

The Missouri Hospital Association's Hospital Engagement Network (HEN) is keeping the momentum going by involving many more hospitals in CUSP with the assistance of CPS. The Missouri HEN is part of the American Hospital Association's Health Research & Education Trust's Hospital Engagement Network under the Centers for Medicare & Medicaid Services' Partnership for Patients campaign to help hospitals reduce patient harm in nine clinical focus areas in addition to reducing readmissions.

CUSP is an ongoing process and participating hospitals must stay engaged by reassessing their safety culture and educating staff. "You have to get CUSP components ingrained in your culture until you can say this is just how we do work," Miller said. She praised all hospitals participating in CUSP, yet cited three Missouri hospitals whose accomplishments really stood out: Ozarks Medical Center, located in southern Missouri; and two St. Louis area hospitals, Mercy Hospital Washington and St. Louis University Hospital.

Mercy Hospital Washington is part of the Mercy hospital system located in a rural part of the St. Louis metropolitan area. **"We have only one ICU which has not had a CLABSI infection since 2005,"** said Jeanette Holtmeyer, RN, MSN, CIC infection prevention specialist, "Everyone, even hospital floors got training." The patient safety culture tool found hand-off communication to be a major problem. "This was a big one," Holtmeyer said. Tackling it took a multifaceted approach. The EPIC electronic health record system used by Mercy brought built-in features to improve handoffs and its sister organization, Mercy Hospital St. Louis, provides telemedicine e-ICU services that monitor compliance with protocols.

Engaged leadership is essential to sustaining a culture of safety. Mercy Washington executives have been very supportive of CUSP, especially President Terri McLain, and COO Joan Frost. Also encouraging, according to Holtmeyer, has been Mercy St. Louis Infectious Disease specialist, Dr. Farrin Manion's frequent question 'What do you need?" Eager to support the success of others, Holtmeyer makes presentations on statewide coaching calls recounting Mercy's accomplishments in using CUSP to eliminate infections.

Jeanette Holtmeyer, RN

St. Louis University Hospital (SLUH) is a large urban teaching hospital located in the City of St. Louis. Nancy Noedel, RN, chief quality officer at SLUH, enrolled in CUSP two years ago. The program successfully decreased and virtually eliminated central line infections in the participating unit. Since that time, SLUH has been in the process of implementing CUSP in all five ICUs. "At first, team members had a hard time talking to each other and being accountable to each other. It took time to develop trust," Noedel said, "Once the program was established and fully understood, nurses were empowered and moved forward quickly." CUSP is being used to both prevent infections and falls. SLUH nurses make presentations and offer suggestions to other hospitals on both state and national coaching calls.

CUSP tool, the "Huddle Board" has been useful in improving communication and teamwork regarding patient safety. It contains information regarding goals, progress and any interventions the unit is implementing.

CUSP entrusts clinicians to know what the hazards are and empowers them to solve their own problems through system design that improves leadership and teamwork and by using evidence-based protocols. The program has made a significant difference in improving care quality and has saved lives. It enables frontline caregivers to practice the kind of safe and effective care they always wanted to provide.

The Secret of Quality While changing hospital culture and systems are important to make care safe, there is another essential ingredient to improve quality according to Pronovost. He cited one of the pioneers that transformed thinking about systems of care and quality, Avedis Donabedian, MD, MPH, distinguished professor of public health at the University of Michigan and member of the Institute of Medicine. When Dr. Donabedian was asked, "What is the secret of quality?" he said, "Systems awareness and systems design are important for health professionals, but they are not enough. They are enabling mechanisms only. It is the ethical dimensions of individuals that are essential to a system's success. Ultimately, the secret of quality is love."

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