Personal Hand Hygiene Device Reduces Healthcare Associated Infections in the Operating Room

A Dartmouth-Hitchcock Medical Center study published in the May issue of Anesthesiology reveals a new approach to reducing healthcare associated infections by helping anesthesiologists keep their hands clean during operations using novel personal sanitizer dispensers with tracking electronics.

Lebanon, NH (PRWEB) May 6, 2009 -- A Dartmouth-Hitchcock Medical Center (DHMC) of Lebanon, NH study published in the May 2009 issue of Anesthesiology reveals a new approach to reducing hospital infections by using novel personal sanitizer dispensers that make it easier for the anesthesiology staff to keep their hands clean during operations. The before-and-after study introduced a point-of-care alcohol-based hand hygiene device that records use as well as prompts the healthcare providers to perform hand hygiene every 6 minutes. The result was a reduction in healthcare-associated infections from 17.2% before the introduction of the personal dispensers down to just 3.8% with the use of the devices.

The study found, "Use of the Sprixx GJ device (Harbor Medical Inc., Santa Barbara, CA) increased hourly hand decontamination events by 27-fold as compared with baseline rates (P < 0.002; 95% confidence interval, 3.3-13.4). Use of the device was associated with a reduction in contamination in the anesthesia work area and peripheral intravenous tubing. Intravenous tubing contamination was identified in 32.8% of cases in the control group versus 7.5% in the treatment group (odds ratio, 0.17; 95% confidence interval, 0.06-0.51; P < 0.01). Healthcare-associated infections rates were reduced in the device group (3.8%) as compared with the control group (17.2%)."

"This is the first clinical study that has showed the potential implication of bacterial cross contamination by anesthesiologists in the operating room. It also potentially sheds light onto the fact that Anesthesiologists may unknowingly be contributing to patient morbidity and even mortality in the OR by ineffective aseptic practice," says Dr. Loftus an Anesthesiologist and Intensivist at Dartmouth Hitchcock Medical Center. Dr. Loftus has recently received funding by the Anesthesia Patient Safety Foundation to study this broadly and in more detail.

As the study authors point out, "Given the recent increase in community spread of pathogenic, multidrug-resistant bacterial organisms, this is a major public health concern." Experts agree hand hygiene is the number one preventative measure against healthcare acquired infections which in the U.S. each year infect over 2 million hospital patients of which 99,000 die. New super-bugs such as Methicillin-resistant Staphylococcus aureus (MRSA) and Vancomycin-resistant enterococci (VRE) have increased the threat to patients as the percentage of antibiotic resist hospital infections are rapidly increasing: over 59% of staphylococcus aureus cases in intensive care units (ICU) are now MRSA; over 28% of ICU enterococcus cases are VRE.

"This is also the first study of its kind to reveal the importance and effectiveness of hand hygiene by anesthesiology staff in the operating room," explains study article lead author Matthew Koff, MD an Assistant Professor at Dartmouth-Hitchcock Medical Center in the department of Anesthesiology and Critical Care Medicine. "By adopting a simple but necessary strategy already shown to be effective in other areas of healthcare we were able to show a dramatic drop in operating room contamination leading to a significant reduction in infection rates through something as simple and cost effective as hand hygiene. We hope this study is the beginning of practice patterns that will have a far reaching impact on patient outcomes across the country." Dr. Koff sees the use of the personal dispensers on a broader scale, "Use of this point-of-care device by all health
care providers may further reduce healthcare-associated infections hospital-wide."

The new personal sanitizer dispensers are from Sprixx of Santa Barbara, CA. The dispensers are clipped to the clothing of healthcare providers, and are designed to be operated with one hand on-the-go anytime, anywhere. The Sprixx GJ Personal Dispenser takes a 58 ml replacement cartridge that dispenses an alcohol sanitizer gel "at the point of care" as recommended by the Centers for Disease Control and Prevention (CDC). The dispensers have four attachment options for clothing including: lanyard, belt clip, pocket clip, and scrub clip.

"The personal dispensers make it so much easier to respond to every hand hygiene opportunity especially when things are busiest," explains study author Randy Loftus, MD

The personal dispensers include the ability to record time stamp records every time the dispenser is used. The results are downloaded into a central computer for analysis and reporting. The Sprixx Hand Hygiene System's (SHHS) uses the electronic performance data to empower frontline healthcare providers to improve their hand hygiene. The key measure is Average Hourly Episodes (AHE) which is calculated by Total Hand Hygiene Episodes/Hours (decimal). Different positions have varied AHE goals for their shift to fit their duties and hand hygiene frequency requirements. The system generates a poster that graphs the AHEs for each provider's shift yet only identifies providers by a reference number. A handout is generated for each provider that graphs her/his hourly hand hygiene episodes for each working hour of the shift. This allows providers to see their individual performance from within the context of the group and group goals. Shared purpose and group governance are then the primary force for positive change.

"We believe this is the first time an electronically monitored rate of hand hygiene events has been associated with a decrease in infection rates" professes Sprixx VP of Research and Development, Ron Cagle. "Electronic monitoring of hand hygiene performance is a part of the Sprixx philosophy to raise hand hygiene to a highly respected advanced clinical skill. The system engages providers in their performance figures to drive and sustain significant improvements that translate directly into lower infection rates."

The system is compliant with the hand hygiene recommendations made by the Centers for Disease Control & Prevention (CDC), the World Health Organization Patient Safety Challenge, and the Institute for Healthcare Improvement (IHI). It is built and implemented using the best-practices methods of our day: the Geneva Hand Hygiene Model, IHI Improvement Process, and Six Sigma principles.

"We feel there is a parallel between the need for hand hygiene by the anesthesiology staff in the operating room and the need for hand hygiene within the patient rooms throughout the hospital" explains Dr. Koff. "Hand hygiene should be performed more than when coming and going from a patient room whether it be the operating room, in the intensive care unit, or on a Med Surg unit. It must be after contact with the patient or patient surroundings even during the busiest times." But providers need adequate tools to be able to do this. I compare the Sprixx device to a cell phone versus a wall phone. It makes it more convenient for the health care worker to get this important job done on their own terms.

The study article appears in the May 2009 issue of Anesthesiology which is the official peer-reviewed journal of the American Society of Anesthesiologists The study article can be found online at http://journals.lww.com/anesthesiology. The American Society of Anesthesiologists is an educational, research and scientific association with 43,000 members organized to raise and maintain the standards of the medical practice of anesthesiology and improve the care of the patient.
Dartmouth-Hitchcock Medical Center (DHMC), internationally renowned, nationally ranked, and regionally respected, integrates high-quality patient care, advanced medical education, and translational research to provide a full spectrum of health care. DHMC is located on a 225-acre campus in the heart of the Upper Connecticut River Valley, in Lebanon, New Hampshire. For more information about DHMC, visit www.dhmc.org.

Sprixx is a DBA of Harbor Medical, Inc., of Santa Barbara, CA. Sprixx holds an exclusive patent license for body-worn, single-hand operated sanitizer dispensing and is the developer of the Sprixx Hand Hygiene System. For more information on Sprixx, phone 805-570-5312, visit www.sprixx.com.

###
Contact Information
Ron Cagle
Sprixx
http://www.sprixx.com
805-570-5312

Online Web 2.0 Version
You can read the online version of this press release here.