ICU
MANAGEMENT & PRACTICE

Safety Checklist Use Yields 10 Percent Drop in Hospital Deaths

A Johns Hopkins-led safety checklist programme that virtually eliminated bloodstream infections in hospital intensive-care units throughout Michigan appears to have also reduced deaths by 10 percent, a new study suggests. Although prior research showed a major reduction in central-line related bloodstream infections at hospitals using the checklist, the new study is the first to show its use directly lowered mortality.

"We knew that when we applied safety science principles to the delivery of healthcare, we would dramatically reduce infections in intensive care units, and now we know we are also saving lives," says Peter J. Pronovost, M.D., Ph.D., a professor of anaesthesiology and critical care medicine at the Johns Hopkins University School of Medicine and leader of the study published in BMJ, the British Medical Journal. "Thousands of people are believed to have survived because of this effort to reduce bloodstream infections."

Pronovost's previous research has shown that coupling a cockpit-style, infection-control checklist he developed with a work environment that encourages nurses to speak up if safety rules aren't followed reduced ICU central-line bloodstream infections to nearly zero at The Johns Hopkins Hospital and at hospitals throughout the states of Michigan and Rhode Island. Experts say an estimated 80,000 patients a year with central lines get infected, some 31,000 die -- nearly as many as die from breast cancer annually -- and the cost of treating them may be as high as $3 billion nationally.For the new study, Pronovost and his team, using Medicare claims data, studied hospital mortality of patients admitted to ICUs in Michigan before, during and after what is known as the Keystone ICU Project, which features the checklist. They compared the Michigan information to similar data from 11 surrounding states. While data from both Michigan and the other states showed a reduction in hospital deaths of elderly patients admitted to ICUs over the five-year period from October 2001 to December 2006, the patients in Michigan were significantly more likely to survive a hospital stay during and after the Keystone project.

These findings cannot definitively attribute the mortality reduction to the Keystone project, Pronovost says, but no other known large-scale initiatives were uniquely introduced across Michigan during the study period. "This is perhaps the only large-scale study to suggest a significant reduction in mortality from a quality-improvement initiative," Pronovost says.The Keystone ICU Project, developed at Johns Hopkins, includes a much-heralded checklist for doctors and nurses to follow when placing a central-line catheter, highlighting five cautionary and basic steps from hand-washing to avoiding placement in the groin area where infection rates are higher. Along with the checklist, the program promotes a "culture of safety" that comprises safety science education, training in ways to identify potential safety problems, development of evidence-based solutions, and measurement of

improvements. The program also empowers all caregivers, no matter how senior or junior, to question each other and stop procedures if safety is compromised.

Central lines are thin plastic tubes used regularly for patients in ICUs to administer medication or fluids, obtain blood for tests, and directly gauge cardiovascular measurements such as central venous blood pressure. But the tubes are easily contaminated.In 2009, U.S. Health and Human Services Secretary Kathleen Sebelius called for a 50 percent reduction in catheter-related infections nationwide by 2012. To that end, in partnership with a branch of the American Hospital Association and the Michigan Hospital Association, the Johns Hopkins model is being rolled out state-by-state across the country. Forty states have launched the programme, and preliminary data from some of the early adopters is very encouraging, Pronovost says.

Journal Reference:
A. Lipitz-Snyderman, D. Steinwachs, D. M. Needham, E. Colantuoni, L. L. Morlock, P. J. Pronovost. Impact of a statewide intensive care unit quality improvement initiative on hospital mortality and length of stay: retrospective comparative analysis. BMJ, 2011; 342 (jan28 1): d219 DOI: 10.1136/bmj.d219

Published on : Tue, 1 Feb 2011