Respiratory Care Program Could Decrease Surgical Pulmonary Complications

Respiratory complications—including pneumonia and ventilator dependency—are among the most common complications that occur after operations. A post-operative pulmonary care program known as “I COUGH” could help reduce the likelihood of those complications, researchers from Boston University Medical Center reported today at the 2012 American College of Surgeons (ACS) Annual Clinical Congress.

“Few data exist for best-practice guidelines regarding post-operative pulmonary care,” explained study coauthor David McAneny, MD, FACS, associate professor of surgery, Boston University School of Medicine. “There is a lot of medical literature about ventilator-associated pneumonias, but little is written about standard post-operative pulmonary care.” Boston University Medical Center participates in the American College of Surgeons National Surgical Quality Improvement Program. ACS NSQIP is the leading nationally validated, risk-adjusted, outcomes-based program to measure and improve the quality of surgical care in private sector hospitals. Benchmark reports from this national database allow hospitals to compare their surgical outcomes and other factors to comparable patients in the other institutions participating in the program.

“The NSQIP data showed that our hospital had a greater than expected incidence of pulmonary complications, as well as venous thromboembolic complications, based upon our patients’ risk factors. So we developed the I COUGH program to decrease the incidence of pulmonary complications,” Dr. McAneny said. I COUGH stands for:

- Incentive spirometry
- Coughing/deep breathing
- Oral care
- Understanding (patient and staff education)
- Getting out of bed at least three times daily
- Head of bed elevation.

“Our efforts were aimed at correcting basic nursing interventions as well as intensified patient and family education before the operation and in the immediate post-operative period,” Dr. McAneny continued.

The findings showed that the intervention reduced the likelihood of pneumonia after surgery and unplanned intubation. At the same time, study results revealed another favorable outcome: a decline in venous thromboembolic (VTE) complications. “By virtue of the fact that there was a greater focus on mobilizing patients out of bed soon after their operations and on standardizing their pulmonary care, in addition to

an early program of risk-stratified prophylaxis against VTE complications, we concommitantly saw a dramatic decrease in venous thromboembolic complications," Dr. McAneny said. "We are excited about these results."

In August 2010, the I COUGH initiative was implemented by the hospital's multidisciplinary team composed of surgeons, surgical residents, internal medicine physicians, nurses, quality improvement and infection control experts, respiratory therapists, and physical therapists. "Because the program is hard wired into the computerized physician orders, the I COUGH program steps are automatically ordered on all patients," Dr. McAneny said.

Ultimately, the research team aims to improve respiratory care and reduce costs by achieving a standardized level of care throughout their entire institution. The program's goal is to decrease the number of post-operative respiratory complications hospital-wide by at least 50 percent, according to Dr. McAneny. "We have two campuses and are standardizing the care between the campuses," he said. "The costs of these serious complications can range from $18,000 to $52,000 per event, and we estimate at least $1 million in savings at our institition from these interventions," Dr. McAneny said.

Michael Cassidy, MD, first study author and surgical resident at Boston University Medical Center; Pamela Rosenkranz, MEd, BSN, RN; and Karen Weinstock, BSN, participated in this study.

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