Surgeons' Pilot Prevention Program Reduces Postoperative Pneumonia

A recent study published in the *Journal of the American College of Surgeons* shows the new low-cost program is successful in decreasing pneumonia in the hospital surgical ward.

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The results of new research results published in the April issue of the *Journal of the American College of Surgeons* show that a pilot pneumonia-prevention program significantly reduced postoperative pneumonia in a hospital surgical ward.

Postoperative pneumonia is a common complication among surgical patients and is the third most common infectious complication after urinary tract and wound infections. According to the Institute for Healthcare Improvement, a facility that performed 10,000 noncardiac operations per year would be expected to have approximately 150 cases of postoperative pneumonia. In the intensive care unit (ICU), this complication can translate into additional health care costs of approximately $40,000 per patient, and an estimated mortality rate of 20 to 70 percent. National efforts have been focused on reduction of intensive care acquired pneumonias, but there has been no program addressing hospital patients outside of the ICU.

"Postoperative pneumonia is a problem facilities face continually, but our research shows that simple steps in prevention can have such a substantial effect," according to Sherry Wren, MD, FACS, chief of general surgery, Veterans Affairs (VA) Palo Alto Health Care System and professor of surgery, Stanford University School of Medicine. "This program, if expanded to other VA or private hospitals, could help improve patient care and lower morbidity, mortality and overall health care costs."

The ward pneumonia-prevention quality improvement task force was formed in December 2006 and met during a three-month period to review evidence-based strategies. The group agreed on the following eight intervention strategies which were implemented in April 2007:

(1) educating nursing staff about pneumonia prevention; (2) cough and deep-breathing exercises with incentive spirometer, a device that helps patients gauge lung function; (3) twice daily oral hygiene with chlorhexidine swabs; (4) ambulation with good pain control; (5) head of bed elevation to at least 30 degrees and sitting up for all meals; (6) quarterly discussion of the progress of the program and results for nursing staff; (7) pneumonia bundle documentation in the nursing documentation; and (8) computerized pneumonia-prevention order set in the physician order entry system.

Researchers performed a retrospective review of all inpatient pneumonia cases documented in the Veterans Administration National Surgical Quality Improvement Program (VA NSQIP) database at the VA Palo Alto Health Care System from 2006 through 2007. Data was collected from April 2007 through 2008. To be scored as a ward-acquired pneumonia, patients had to be noncardiac surgical patients who had an inpatient admission to the surgical ward.

Pneumonia diagnosed on the surgical ward was found in 13 of 1,668 inpatient admissions in the pre-intervention time period, an incidence of 0.78 percent. In comparison, there were only three of 1,651 inpatient admissions with pneumonia diagnosed on the ward in the post intervention study period, an incidence of 0.18 percent. This result represents an 81 percent decrease in post-operative pneumonias from fiscal year 2006 as compared with 2008 and is highly statistically significant (95 percent confidence interval, 0.13-1.07, p=0.006).

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