



**The Society of Thoracic Surgeons**  
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# News

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## **Lung Cancer Surgery Patients May Reap Benefits of Larger, More Centralized Hospitals *'Promising' study demonstrates regionalization significantly improves patient outcomes***

SAN DIEGO, CA (January 28, 2019) — Regionalizing lung cancer surgery is not only feasible, it's also effective for patients, resulting in shorter hospital stays and fewer complications, according to research presented today at the 55th Annual Meeting of The Society of Thoracic Surgeons.

"This study examined outcomes that really matter to patients and found exciting improvements as a result of regionalization in our hospital system," said Jeffrey B. Velotta, MD, of Kaiser Permanente Oakland Medical Center and the University of California San Francisco (UCSF) School of Medicine. "Our results are promising and could even instigate regionalization attempts in other US health care systems."

Sora Ely, MD, of the UCSF East Bay Surgery Program in Oakland, along with Dr. Velotta and other colleagues at Kaiser Permanente, examined data from patients who underwent major lung cancer surgery (lobectomy, bi-lobectomy, or pneumonectomy) at hospitals within the Kaiser Permanente Northern California (KPNC) network. This system covers patients from across a wide area, including the Central Valley, Oakland, and San Francisco.

KPNC regionalized thoracic surgery care in 2014 shifting cases from 16 hospitals to five designated Centers of Excellence. The researchers looked for effects of regionalization by comparing two groups of patients: 782 patients who underwent lung cancer surgery between 2011 and 2013 ("pre-regionalization" [PreR]) and 845 patients who had surgery between 2015 and 2017 ("post-regionalization" [PostR]).

"Regionalization of lung cancer surgery within our managed care hospital system was very successful, with 100% of major lung cancer surgeries completed at the Centers of Excellence in 2016 and onward," Dr. Velotta said. "We found that regionalization resulted in improvements in quality of care throughout surgical treatment."

The study demonstrated that PostR patients spent less (or no) time in the intensive care unit (-1.7 days), and were able to leave the hospital much sooner (-3.3 days in length of stay). Importantly, PostR patients also had fewer major complications than PreR patients (9.6% vs. 13.6%, respectively).

### **KEY POINTS**

- Regionalization is the shifting of patient care to designated centers within a certain system or region.
- Lung cancer surgery patients may spend fewer days in the hospital and experience fewer complications when care is received within a regionalized system.
- Regionalization may result in higher VATS utilization.

The researchers also found that regionalization resulted in increased use of minimally invasive video-assisted thoracoscopic surgery (VATS), 57% PreR vs. 86% PostR. In addition, the average operating time for VATS lobectomies decreased by more than 30 minutes after regionalization, possibly due to the surgical team's efficiency with repetition of these cases.

"We observed that after regionalization, the cases had shifted to being performed mostly by VATS, with only a small minority still being performed via open technique," said Dr. Velotta. "This meant that more patients could benefit from the known advantages of VATS."

The increased use of VATS is especially noteworthy because patients undergoing surgery via this minimally invasive technique may benefit from lower complication rates, less postoperative pain, and higher quality of life compared to patients who have open surgery.

"The cardiothoracic surgery community seems to be moving toward the VATS approach for major pulmonary resections as the standard of care for patients who are candidates," said Dr. Velotta.

This study was the first time regionalization of lung cancer surgery was attempted in the United States, according to Dr. Velotta. "While our findings may not have an immediate impact on most practicing cardiothoracic surgeons, we believe that surgeons and administrators in leadership positions may want to consider regionalizing cardiothoracic surgery care within their organizations in an effort to improve outcomes," he said. "Hopefully our study will serve as a model for regionalization in other American healthcare networks.

Leah M. Backhus, MD, MPH, of Stanford Health Care in California, agreed that this research, with its observed outcomes benefits, deserves further investigation. More specifically, she would like to see how factors such as surgeon specialty (e.g., board certified cardiothoracic surgeons) and enhanced recovery programs contribute to improving outcomes in a regional model. "This is an important study with potential implications for health care delivery in the US," said Dr. Backhus. "There are similar practices in place that also have shown positive outcomes from both clinical and health care expenditure perspectives." Dr. Backhus was not directly involved with this study.

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The other authors of the study were S Ely, SF Jiang, and TC Tung.

Find comprehensive medical information presented for patients by leading experts in cardiothoracic surgery on the STS Patient Website ([ctsurgerypatients.org](http://ctsurgerypatients.org)). For more information, contact Media Relations Manager Jennifer Bagley at 312-202-5865 or [jbagley@sts.org](mailto:jbagley@sts.org).

Founded in 1964, The Society of Thoracic Surgeons is a not-for-profit organization representing more than 7,400 cardiothoracic surgeons, researchers, and allied health care professionals worldwide who are dedicated to ensuring the best possible outcomes for surgeries of the heart, lung, and esophagus, as well as other surgical procedures within the chest. The Society's mission is to enhance the ability of cardiothoracic surgeons to provide the highest quality patient care through education, research, and advocacy.