

Shortage of Thoracic Surgeons in the United States: Implications for Treatment and Survival for Stage I Lung Cancer Patients

OBJECTIVES:

The objective of this study is to evaluate whether there is a shortage of thoracic surgeons in the U.S. and whether this shortage is impacting lung cancer treatment and outcomes.

METHODS:

Using the United States Area Health Resources File, we assessed changes in the number of thoracic surgeons per 100,000 people in the U.S. in 2010 vs. 2018. Changes in the percentage of patients diagnosed with stage I non-small-cell lung cancer (NSCLC), the percentage of these patients who underwent surgery, and overall survival of patients with stage I NSCLC from 2010-2018 in the National Cancer Database were evaluated using multivariable logistic regression and Cox proportional hazards modeling. A subgroup analysis was conducted of rural and metropolitan areas.

RESULTS:

From 2010-2018, the number of thoracic surgeons per 100,000 people in the U.S. decreased by 12% ($p<0.001$). Over the same time period, the percentage of patients diagnosed with stage I NSCLC increased by 28% ($p<0.001$). However, the percentage of these patients who underwent surgery decreased by 7.5% ($p<0.001$). In a subgroup analysis of rural and metropolitan regions, the number of thoracic surgeons per 100,000 people decreased by 36% in rural regions compared to 4% in metropolitan regions. From 2010-2018, survival of stage I NSCLC patients increased in metropolitan areas but did not increase in rural regions (Figure). When evaluating the trends in the age of thoracic surgeons, from 2010 to 2018, the proportion of older thoracic surgeons (> 65 years) was found to increase by 18% ($p=0.02$). By 2018, 50% of all thoracic surgeons in rural regions were > 65 years old whereas in metropolitan regions, 22% of thoracic surgeons were > 65 years old.

CONCLUSIONS:

A decline in the number of thoracic surgeons per 100,000 people in the United States, coupled with an increase in the percentage of patients diagnosed with stage I NSCLC, may have led to significantly fewer patients undergoing surgery for stage I NSCLC with resultant worsening disparities in survival between metropolitan and rural areas. Given the significantly fewer surgeons that are now available and an increased number nearing retirement, particularly in rural areas, this health care crisis may negate the efforts by our field to improve outcomes through lung cancer screening initiatives in the near future.

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Trends in the A) Percentage of Stage I NSCLC Patients Who Underwent Surgery from 2010-2018 and B) Five-year Survival of Patients with Stage I NSCLC from 2010-2014

