

Socioeconomic factors affect odds of death after a lung cancer operation

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People with limited education and low income have higher odds of death within 30 days after undergoing an operation for lung cancer than those who are more educated and financially better off, according to new research published as an article in press on the website of the *Journal of the American College of Surgeons* in advance of print publication later this year.

"In order to get uniform superior outcomes for our patients, we need to identify the patients who are at risk for worse outcomes," said study co-author Felix G. Fernandez, MD, FACS, a lung surgeon and an assistant professor of surgery at Emory University School of Medicine. Atlanta. "This is the first step in describing where those disparities exist."

For the study, Dr. Fernandez and his colleagues sought to determine the specific clinical and socioeconomic factors that lead to disparities in 30-day survival for patients undergoing operations for [lung cancer](#).

They analyzed data from over 215,000 lung cancer operation admissions entered into the National Cancer Data Base (NCDB) between 2003 and 2011. This cancer registry is a joint program of the American College of Surgeons and American Cancer Society and is the largest cancer database in the U.S., providing patient demographic data, insurance status, diagnosis, treatment and how long patients live after treatment. NCDB captures an estimated 70 percent of newly diagnosed cancer cases in the United States from approximately 1,500 cancer programs accredited by the Commission on Cancer of the American College of

Surgeons.

NCDB also includes U.S. Census Survey data. For the analysis, the researchers factored in community socioeconomic data, including education and household income level. Education level was defined as the percentage of adults living in a patient's ZIP code who had less than a high school diploma.

Not surprisingly, the analysis showed that demographic and clinical factors such as older age, male gender, multiple co-morbidities, late-stage cancer and larger tumor size were associated with greater 30-day mortality following a lung cancer operation. Previous studies report similar findings.

However, after accounting for these characteristics, the researchers found that specific socioeconomic factors—including living in lower income households and residing in less-educated communities—were also independently associated with increased short-term postoperative mortality.

Patients from communities with a median household income of less than \$30,000 were 25 percent more likely to die within 30 days of a lung cancer operation than those living in neighborhoods with a median household income higher than \$46,000. Similarly, patients from less-educated communities were 16 percent more likely to die within 30 days of their operation than those from better educated communities.

Further, researchers investigated the link between the type of hospital where a patient received care—community, comprehensive center or academic research center—and short-term mortality. They found that patients who underwent a lung cancer operation at a community hospital were 34 percent more likely to die within 30 days compared with those who had the operation at an academic medical center. Patients who

received treatment at a comprehensive center had a 22 percent higher chance of death compared with those who had the procedure done at an academic research center.

"The quality of care needs to be uniform across the country for high risk procedures, so that regardless of the treatment center, whether it is a community hospital or big academic tertiary care center, the results are going to be similar," Dr. Fernandez said.

The study authors also point out that between 2007 and 2012, income disparities and poverty levels increased in the United States from 2.7 percent to 15 percent, or 46 million Americans. That means the number of [lung cancer patients](#) at increased risk for short-term postoperative mortality may still be growing.

Lung cancer accounts for 27 percent of all cancer deaths and is the leading cause of cancer death. Each year, more people die of lung cancer than of colon, breast, and prostate cancers combined, according to the American Cancer Society.* If caught early, however, a surgical procedure can effectively treat the disease.

This is the largest study ever to look at the link between short-term mortality in patients undergoing surgical resection for lung cancer and socioeconomic factors. This research paves the way for future studies that look at why patients with limited education and less income experience worse outcomes.

"It's a very powerful study because it has the largest and most complete data on cancer care that we have for our use in the world," Dr. Fernandez said. "Clearly, our results show that patients who come from less educated and less wealthy communities are at risk for mortality with the lung cancer operation."

Provided by American College of Surgeons

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