

Elderly patients who undergo surgery at teaching-intensive hospitals have better survival rates than at nonteaching hospitals, but these better survival rates apparently occur in white patients, not black patients.

"We found an advantage in surgical outcomes for patients in teaching-intensive hospitals compared to nonteaching hospitals, as we had expected from other studies," said study leader Jeffrey H. Silber, M.D., Ph.D., director of the Center for Outcomes Research at The Children's Hospital of Philadelphia, and a professor at the University of Pennsylvania. "What we didn't expect was that better outcomes in teaching hospitals occurred for white patients but not for black patients." Furthermore, he added, the survival advantage from teaching hospitals came from lower death rates after complications (lower rates of a measurement called "failure-to-rescue"), not from lower complication rates.

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The study group analyzed Medicare claims from 4.6 million patients aged 65 to 90 admitted for general, orthopedic and vascular surgery at 3,270 acute care hospitals in the United States from 2000 to 2005. Hospitals were classified as nonteaching hospitals if they had no residents, and teaching hospitals were scaled by their ratio of residents to hospital beds.

The researchers measured mortality 30 days after surgery, in-hospital complications and failure-to-rescue, defined as the probability of death following complications. They found that compared to nonteaching hospitals, hospitals with the highest ratio of residents to beds had 15 percent lower mortality after surgery, no difference in complications, and 15 percent lower odds of death after complications (failure-to-rescue). However, these benefits were observed in white patients, not black patients. These associations were adjusted for patient illness on admission, and adjusting for income level did not change these results. Unlike whites, for black patients, the odds of death, complication and failure to rescue were similar at both teaching and nonteaching hospitals.

Silber's group did not find lower rates of complications in teaching-intensive hospitals. "Overall, the improved survival rates were not because patients were less likely to have complications, but because they were less likely to die from those complications in teaching hospitals," said Silber, who first developed failure-to-rescue as a quality of care measure more than a decade ago. The National Quality Forum subsequently adopted it as a hospital quality indicator.

Black patients displayed higher complication rates than white patients at both teaching and nonteaching hospitals, though there was no difference in complication rates between teaching and nonteaching hospitals for both black or white patients. While white patients at teaching hospitals experienced better survival rates after complications than black patients when compared to nonteaching hospitals, black patients experienced the same survival after complications at both types of hospitals. The researchers found this racial disparity existed not only across different hospitals, but also for white and black patients within the same hospitals.

"We don't yet know why these racial disparities exist in surgical outcomes, but we have some working hypotheses," said Silber. His group offers possible explanations, such as unintentional

differences in communication between patients and providers. Also, in previous work, Silber and colleagues found that surgical procedures take longer for black patients than white patients in some hospitals. "That finding raised the question of whether less experienced physicians might be more often operating on black patients," he added.

However, Silber noted, the current study relied on Medicare claims data, not on detailed medical records, so it did not provide specific information on patient care that might shed light on the reasons for the observed racial disparities. "Our findings provide a starting point for further studies of detailed patient care that might shed light on why these disparities exist and how they could be reduced."

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