High-spending hospitals may save more lives

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Studies have shown that regions spending more on medical care, such as Miami, do not have better health outcomes than regions that spend relatively less, such as Minneapolis. However, less is known about how medical spending affects health at certain critical times, such as in the immediate period after a patient is admitted to the hospital with a life-threatening condition.

When hospitalized for a major acute medical condition — including heart attack, stroke and pneumonia — patients were less likely to die in high-spending hospitals, according to a new study appearing in the Feb. 1 issue of the *Annals of Internal Medicine*.

The findings inform the ongoing discussion on how to curb health care spending.

"Our findings suggest that while regions spending more on health care generally produce no better care, specific types of medical spending, such as acute-care hospital spending, may save lives," said John Romley, an author of the study and an economist with the Schaeffer Center for Health Policy and Economics at USC, which is supported by the USC School of Policy, Planning, and Development and the USC School of Pharmacy.

Romley and Dana Goldman of the Schaeffer Center at USC, and Anupam Jena of Massachusetts General Hospital and Harvard Medical School, looked at discharge records for more than 2.5 million patients admitted to 208 California hospitals from 1999 to 2008 with one of six

major medical conditions: heart attack, congestive heart failure, acute stroke, gastrointestinal hemorrhage, hip fracture or pneumonia.

The researchers found that as hospital spending went up, the risk of dying in the hospital from the condition that caused hospitalization went down.

For example, from 2004 to 2008, patients admitted for heart attack to the top-spending hospitals were 19 percent less likely to die than patients admitted to the lowest-spending hospitals. From 1999 to 2003, patients admitted for heart attack were 9 percent less likely to die at the highest-spending hospitals than at the lowest-spending hospitals.

"Adjusted inpatient mortality was negatively associated with hospital spending for all six diagnoses, meaning those admitted to hospitals that spent the most were less likely to die in the hospital than were patients admitted to hospitals that spent the least," said Goldman, Norman Topping Chair in Medicine and Public Policy at USC and director of the Schaeffer Center at USC.

In their analysis, the researchers accounted for patients who have additional life-threatening conditions, such as AIDS or cancer. They adjusted for hospital, regional and socio-demographic differences that might correspond to variations in health, such as median household income in patients' neighborhoods.

The researchers estimated the number of lives that might have been saved if all patients in the sample were admitted to the highest-spending hospitals rather than to the lowest-spending hospitals, including 5,198 lives from heart attack, 11,089 lives from pneumonia and 7,467 lives from stroke.

In 2004 to 2008, the period for which the researchers had disease-

specific cost data, the highest-cost hospitals spent three to five times more than the lowest-cost hospitals. For example, the highest-spending hospitals (top one-fifth) spent an average of $21,072 on each patient who had suffered a heart attack, compared to an average of $5,168 by the lowest-spending hospitals (lowest one-fifth).

Variations in hospital spending may be incurred by time spent in the intensive care unit, use of specialists, diagnostic tests and imaging, and medical procedures, including mechanical ventilation and dialysis.

"While our analysis demonstrates that intensive spending by hospitals is associated with lower mortality, it does not identify the specific costly interventions that high-spending hospitals undertake to achieve this mortality benefit," Romley said. "Important questions about the efficacy and value of hospital care on post-discharge mortality remain to be answered."

The researchers acknowledge the possibility that high-spending hospitals might have lower thresholds for hospital admission, thereby admitting healthier patients. This concern is less relevant for the most acute medical events.

Another possibility is that high-spending hospitals may spend more because the patients they admit are sicker and require more care. This would lead the authors to underestimate the effect of hospital spending on mortality.

More information: Romley, et. al. "Hospital Spending and Inpatient Mortality: Evidence From California." *Annals of Internal Medicine*: February 1, 2011

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