

# When it pays to spend on health care



Joseph Doyle, Alfred Henry (1929) and Jean Morrison Hayes Career Development Professor

**W**hen someone is rushed to an emergency room with heart problems, does it matter how much money the hospital spends on that patient?

It may seem logical that high-end medical care would lead to better results for patients. But economists and policy specialists have debated the question extensively, and uncovering a clear answer has proven difficult.

Now an innovative study by Joseph Doyle, Alfred Henry (1929) and Jean Morrison Hayes Career Development Professor, shows that hospitals that spend more money to treat people who enter their emergency rooms are indeed successful in lowering the mortality rates of those patients.

“More intensive and expensive treatment leads to better outcomes,” said Doyle, whose study examined tens of thousands of cases in which out-of-state visitors were admitted to emergency rooms in the state of Florida over a span of several years.

Among other findings, Doyle discovered that an increase of about \$4,000 per patient in hospital expenditures led to a 1.4 percent decrease in the mortality rate. The results were published in *American Economic Journal: Applied Economics*.

Uncertainty over the effectiveness of medical spending stems, in large part, from the fact that health care providers

in some regions of the United States spend considerably more on their patients than providers in other regions do, yet some studies have shown that patients in higher-spending areas do not necessarily have a lower mortality rate than those in lower-spending areas.

But other economists have found data suggesting that additional spending does make a difference; hospitals that spend more money while producing similar outcomes may simply be dealing with sicker patients.

Doyle studied the problem by looking at emergency room visits of people visiting Florida, an approach that reduces the impact of local patient variation on medical spending.

The study examined nearly 37,000 hospitalizations from 1996 to 2003. Doyle analyzed patient data by ZIP code, age, and even seasonality of visit to ensure he was studying demographically similar tourists being treated throughout Florida.

Florida has significant “variation in how areas treat patients after heart attacks,” Doyle said. “Florida looks like a microcosm of the U.S., with high-spending and low-spending areas. And the per-capita income of an area is not correlated very well with [hospital] spending.” In Fort Lauderdale, for example, hospitals spend 30 percent more on heart patients than they do in nearby affluent West Palm Beach.

Therefore, the variation in results that Doyle found does not stem from the prior

health of patients, but from the level of care itself. Specifically, the greater expenses—and benefits—in heart treatment seem to come from a broader application of intensive care unit (ICU) tools and having more medical personnel on hand.

“The higher-spending hospitals use more ICU services, and they have higher staff-to-patient ratios, so they use more labor,” Doyle said. “And that’s expensive.”

Overall, a 50 percent increase in what Doyle calls a hospital’s “spending intensity” allows it to reduce mortality rates due to heart problems to about 26 percent below the mean. He said that identifying the precise medical technologies that provide the greatest additional benefit per dollar spent remains a work in progress—and will require ongoing analysis as new technologies are introduced.

“There are smart ways to spend money and ineffective ways to spend money,” he said. “And we’re still trying to figure out which are which, as much as possible.”

—Peter Dizikes, *MIT News*



**For a look at health care from the perspective of former chairman and CEO of Aetna, Ronald A Williams, SF '84, see page 28.**