



Dartmouth College researchers report health care disparities

SAS® analysis helps uncover wasteful spending

Dartmouth researchers estimate that up to 30% of Medicare dollars are wasted each year. Their groundbreaking studies on regional variation in Medicare spending, resource allocation and utilization are reshaping the way medicine is practiced and how Medicare pays providers. The interactive database that compares the efficiency of more than 4,000 hospitals in the US is powered by SAS.

Industry

Education

Business Issue

Evaluate health care consumption throughout the United States.

Solution

Dartmouth Atlas Project researchers use SAS to manage and analyze data from large health care claims databases.

Benefits

Dartmouth estimates that about 30% of Medicare spending is wasted in unnecessary health care. Its research is propelling changes in the way Medicare pays for services.

For the last 15 years, the Dartmouth Atlas Project has focused on accurately describing the distribution and consumption of medical resources in the United States. Using SAS software to analyze data from large health care claims databases, researchers at The Dartmouth Institute for Health Policy and Clinical Practice (TDI) in New Hampshire can compare thousands of US hospitals. The resulting series of Atlas publications document marked differences in how Americans use health care resources and how local resource supplies can influence rates of health care consumption.

Funded by the Robert Wood Johnson Foundation, research from the project has been presented in peer-reviewed journals including the *Journal of the American Medical Association* and the *New England Journal of Medicine*, and premier national and leading local media outlets such as *The New York Times*, *The Wall Street Journal*, *The Washington Post*, *USA Today* and ABC News, as well as to the US Congress. Policy-makers, journalists and the general public can access the study's findings online at www.dartmouthatlas.org, where browsers can view hospitals by metropolitan region. You may have read about Medicare patients in Elyria, OH, getting angioplasties performed at a rate four times the national average; that data – and much more – was pulled together by the Atlas project.

The data has also played a role in medical fraud investigations in California and Louisiana. In California, patient complaints led to an FBI investigation in

2002 of doctors at Redding Medical Center. Atlas project data supported that this hospital stood out as having the highest rate of heart bypass surgeries among Medicare benefactors in the nation.

The project's researchers don't just look at usage, but also at the quality of care, showing over and over again that quantity doesn't produce quality. In its recent study focusing on end-of-life care, researchers discovered:

- The average number of hospitalized days during the last six months of life ranged from 12.0 days per decedent at St. Mary's Hospital (the principal Mayo Clinic hospital in Rochester, MN) to 22.7 at New York-Presbyterian Hospital.
- The University of California – Los Angeles has the highest number of days in intensive care units during the last six months of life (11.6 days per decedent), a rate 3.5 times higher than the rate for patients treated at the University of California's teaching hospital in San Francisco (3.4 days per decedent).

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All of these hospitals are highly regarded. What Dartmouth researchers find is the hospitals with higher usage rates have more specialists and beds, but they don't have better outcomes – or better patient satisfaction – than those hospitals with much lower utilization.



**THE
POWER
TO KNOW.**

“For most of the folks I’ve worked with in health care research, SAS is their gold standard. We can do all the data management and data manipulation that we need, as well as the heavy analytics.”

Stephanie Raymond
Senior Programmer

If information is power, the Dartmouth Atlas Project’s research may empower health care consumers to become better informed about the care they receive – and propel changes in the way health care is paid for to help keep programs like Medicare solvent. “Higher spending doesn’t lead to better quality or outcomes,” says Dr. Elliott Fisher, director of the Center for Health Policy Research at the Dartmouth Institute for Health Policy and Clinical Practice. “We found no evidence that a higher-intensity pattern of care leads to better survival. Some patients benefit, but just as many or more may be harmed.”

The end-of-life study came from data of 4.7 million Medicare enrollees who died from 2001 to 2005 and had at least one chronic illness. It showed that Medicare could have saved \$50 billion if all US hospitals adhered to the high quality/low-cost standard set by hospitals in the Salt Lake City region.

“The majority of acute care hospitals are applying their standard forms of ‘rescue medicine’ to people who are in advanced stages of diseases that can’t be cured,” says principal investigator John E. Wennberg, MD, MPH. “Patients don’t benefit – they can’t be rescued – and the costs of such care are very high, both in dollars spent and in providing care that they majority of chronically ill

patients might not want, such as admissions to intensive care and being sent to specialist after specialist.”

SAS®: The gold standard for analyzing health care data

Dartmouth researchers rely on nearly three terabytes of claims data available from Medicare. “We have found that the Medicare data is a very good indicator of what’s going on with the population as a whole,” says Kristen Bronner, Editor of the Dartmouth Atlas. “Research using private insurance and state discharge data in California, Michigan, Virginia and Pennsylvania has shown that the patterns we observe in fee-for-service Medicare are highly correlated with younger populations, as well as Medicare enrollees covered by HMOs.”

Stephanie Raymond, Senior Programmer with the Atlas project, uses SAS software to extract event-defining information from the Medicare data. She then summarizes those events by geography to measure health care usage rates throughout the country.

“For most of the folks I’ve worked with in health care research, SAS is their gold standard,” Raymond says. “We can do all the data management and data manipulation that we need, as well as the heavy analytics.”

In particular, Raymond praises SAS for its speed and flexibility. She was able to create a process to automatically extract descriptive elements that define a Medicare claim data, transform that into SAS code, and load the claim data in SAS data sets. “I like SAS for its versatility in handling and managing data,” she says. “SAS handles really huge files very nicely, and SAS makes it very easy for me to process multiple years of data and multiple file segments. We try to use all the tips, tricks, and techniques SAS has to offer to efficiently process the claims data. Features and improvements with SAS 9, especially use of multithreading across multiple processors saves time and resources.”

Raymond’s results are used by Dartmouth faculty members for numerous projects, including the books and reports in the Atlas series, the Atlas project website and ongoing research projects that recommend long-term changes in health care practices and Medicare spending.

Overall, Raymond says, “We’re definitely getting our money’s worth from SAS. It provides access to an incredible amount of information.”



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