Surgeons’ costs vary considerably, even after controlling for complexity and patient risk, according to a report of a new study in the April 2006 *Journal of the American College of Surgeons.*

The study used a statistical model to control for cost fluctuations due to patients’ severity of illness or the nature of the surgical procedure. Essentially, the study gave surgeons an identical set of patients and tested how much it would cost for them to perform an identical set of surgical procedures.

The main conclusions:

- There are notable differences in hospital costs among surgeons, holding patient case mix and procedural complexity constant.
- The cost differences are substantial in actual dollars. For example, based on estimated mean cost, 6 of 28 surgeons differed from a reference surgeon by more than 39%.
- Some surgeons have highly volatile cost profiles, and other surgeons’ profiles are less volatile. Even surgeons who see similar patient case mixes can have very different ranges of costs.

“Surgeons have been provided with information about their total costs, but rarely are those adjusted for the sickness of patients or complexity of the operation,” said the lead author, Bruce L. Hall, MD, PhD, FACS, assistant professor of surgery at Washington University, St Louis. “This process enables surgeons to examine their estimated costs and determine how they utilize resources and whether they do things efficiently.”

The results suggest reducing variability in surgeons’ costs could improve the use of health care resources without sacrificing quality, said a coauthor, Barton Hamilton, PhD, a business professor at Washington University.

Such efforts may also help improve the efficiency of hospital care.

**A management challenge**

But the variability and volatility in surgeons’ costs pose a management challenge, Dr Hall said, because “they can make planning, budgeting, and other management processes much more difficult.”

Case mix doesn’t seem to be what is driving variability, the authors noted, saying the drivers of variability need more study.

This volatile behavior could be “of interest to payers and might be a good target for quality improvement investigation” for both payers and providers, they said.

The study was a collaboration by the University of Michigan, Ann Arbor; Washington University; and the American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP). The researchers used raw data gathered through ACS NSQIP on patients who had general or vascular surgery at the University of Michigan over 1 year between 2003 and 2004.

Data on 785 patients treated by 29 surgeons were analyzed using statistical algorithms.

To control for variations in cost that might be related to treating more seriously ill patients, the researchers used an algorithm to create a “typical patient.” The algorithm adjusted for patients’ severity of illness based on their age, gender, race, number of comorbid conditions, need for a ventilator, anesthesia risk, type of comorbid conditions, and priority of the case.

To control for difference in costs from performing more complex procedures, the investigators used another algorithm that reflected a “standardized” surgical proce-
dure. This algorithm adjusted for the complexity of the procedure based on the number of relative value units (RVU) of the work involved, a method that considers relative differences in resource consumption.

The next step is to learn why costs differ among surgeons, the authors said. “Here is a process that is showing variability, but it’s not clear why,” said Dr Hall. “If we can target this process and examine it more closely, we believe we will be able to improve the quality of the outcome.

“We want to learn whether there are differences that do not need to exist, and if they do not need to exist, how can we improve the efficiency of our system?”

Reference