Surgeons in Pennsylvania are doing fewer heart bypass surgeries every year, yet more patients than ever are making it out of the hospital alive.

This is the finding of a new report Wednesday from the Pennsylvania Health Care Cost Containment Council, a state agency tasked with analyzing the costs and quality of medicine.

Among the 8,280 patients who got bypass surgery without an accompanying heart-valve procedure in 2012, 3.2 percent died in the hospital—down from 5.2 percent in 1994.

The death rate also declined among patients who got open-heart surgery to repair or replace a valve, a category in which the overall number of procedures rose slightly. Among the 7,137 people who had such an operation, 3.2 percent died in the hospital—down from 5.2 percent in 2005, the earliest data available.

The adage on open-heart surgery was that practice makes perfect, and that patients should therefore seek out surgeons who do a lot of it.

These days, the number of surgeries appears to be less important in predicting success, yet no one is entirely sure why, said Peter W. Groeneveld, associate professor at the University of Pennsylvania's Perelman School of Medicine.

The number of bypass surgeries without valve procedure dropped by more than one-third since 2005, from 12,628 to 8,280, largely due to the increased use of stents. Yet surgeons keep getting better.

"It's a bit paradoxical," said Groeneveld, who studies outcomes of cardiovascular procedures but who was not involved in the state report.

Saying no

He said it was likely that multiple factors were behind the trend, including better practices by anesthesiologists and improved postoperative care in intensive care units. Also, hospitals tend to be more reluctant to operate on high-risk patients, he said.

"Surgeons are better at knowing when to say no," Groeneveld said.

Whatever the reasons for the improvement, the bar is now so high that it becomes difficult to patients above average. The way the statistics shake out, most hospitals barely cannot perform better than expected because they would need to have lower than zero deaths.

The state agency’s data analysts calculate an expected number of deaths for each surgeon and hospital based on the risk factors for its patients. Those include age, blood test results, the percent blockage in a coronary artery, and the presence of other conditions, such as chronic kidney disease.

Statistically, the number of in-hospital deaths for each surgeon and facility is expected to fall within a certain range of this projected number, depending on how many surgeries they perform. Generally, the more surgeries a hospital performs, the smaller the range. That is, the more surgeries in a given sample, the more certain we can be that the number of deaths is statistically meaningful and not due to chance.

For example, Thomas Jefferson University Hospital performed 127 total valve procedures between mid-2011 and the end of 2012. Two of those patients died in the hospital, for a death rate of 1.6 percent.

The hospital’s projected death rate was 3.1 percent. To be worse than expected, it would have needed a death rate above 5.5 percent, according to the cost-containment council.

Just one hospital in the state did significantly better than expected on its mortality rate in any surgery category: UPMC Passavant in the Pittsburgh area, for valve procedures.

Surgeons, not one surgeon was better than expected on mortality. Raymond L. Singer, affiliated with the Valley Forge Health Network, for valve procedures. Hospital and surgeons were not evaluated in categories for which they had fewer than 30 cases.

'Absolute confidence'

Locally, five hospitals had a significantly higher death rate than expected in one of the open-heart surgical categories, but in each case, one fewer patient death would have made the hospital’s death rate in the expected range.

The five are Abington Memorial Hospital, Chester County Hospital, Einstein Medical Center, Lower Bucks Hospital, and Bryn Mawr Hospital.

A spokeswoman for Chester County said the hospital’s statistics reflected the performance of a surgeon who is no longer there.

At Abington, chief of staff John J. Kelly said the hospital was the fourth-busiest valve center in the Delaware Valley. "I have absolute confidence in the quality of our surgeons and our program," Kelly said.

Penny Groeneveld cautioned against faulting a hospital based on its performance in just one year, as it could be an aberration. And she said volume remains important.

"You’d rather go to a surgeon that does 100 than 10." He said.