

With the surgical robot, similar outcomes at a higher cost

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In a study of national data on colon surgery, Johns Hopkins researchers found that while patients who undergo either minimally invasive laparoscopic surgery or the high-tech robotic approach have similar outcomes, robotic surgery is significantly more expensive.

The findings provide a counterpoint to the aggressive advertising used by some hospitals to tout benefits of the pricey new gadget, even before research has been done to learn whether [robotic surgery](#) is actually better for patients.

"The true test of something new in medicine should be: Is it better? Is it safer? Does it save money? If not, then we probably shouldn't be using it," says Nita Ahuja, M.D., an associate professor of surgery and oncology at the Johns Hopkins University School of Medicine and leader of the study published online on Dec. 18 in *JAMA Surgery*. "What we have found is that the robot is no better than laparoscopy and it costs more. It has no benefit."

Using the U.S. Nationwide Inpatient Sample database, Ahuja and her team analyzed data from 244,129 colectomies (surgery to remove part or all of the colon) between October 2008 and December 2010 performed at hospitals across the country. They found similar complication rates, mortality rates and length of hospital stays between [laparoscopic surgery](#) and robotic surgery, but found that a robotic surgery cost an average of nearly \$3,000 more.

Robotic surgery is costlier because there are pricey disposable parts that need to be purchased for each surgery.

The study was also the first of its size to look at all colon removal surgeries, including open surgery, which was done over the study period in 51.7 percent of patients. Laparoscopy was done in 47.6 percent of cases, while .7 percent of patients had robotic surgery.

Open surgery involves a larger incision that allows surgeons to work inside the body cavity with their hands. About 20 years ago, the less invasive laparoscopy appeared. With laparoscopy, surgeons typically make several small incisions and insert cameras and other instruments into those holes to perform their work. Laparoscopy, in many types of surgery, is associated with shorter hospital stays and faster recovery times.

Ahuja's study confirmed that for colon surgery, when compared to [open surgery](#), laparoscopic surgery is associated with a lower mortality rate, a lower complication rate, shorter hospital stays and lower costs.

Robotic surgery is performed by a surgeon who controls instruments inside the body via computer, often from a room adjacent to the patient. Surgeons lose some of the tactile feel they use to make certain judgments, but many say they gain a larger range of motion, as robotic arms and "hands" can do things that human arms and hands cannot. It is also easier to learn robotic surgery, says Ahuja, a colorectal surgeon.

The researchers say there may be some bias in who is chosen for which type of surgery; healthier and younger patients may be getting laparoscopic and robotic [surgery](#), skewing the results somewhat. A randomized, controlled clinical trial comparing approaches head to head would be the best way to determine which one is truly the best, Ahuja says.

Meanwhile, Ahuja says, the surgical robot is gaining popularity in [colon surgery](#), even though there is no evidence it is better and despite the new evidence showing that it is more expensive.

If the robot proved better despite the costs, she would favor it. But that's not what the data show—so far, at least.

"Just because something sounds like it's good doesn't mean it is," she says. "We need to keep studying it before it becomes the standard of care without the supporting evidence."

Provided by Johns Hopkins University School of Medicine

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