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Robotic-assisted prostate cancer surgery drives up costs

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In one of the most comprehensive analyses to date of the cost of robotic-assisted, laparoscopic surgery for prostate cancer, researchers at UPMC found that this now-dominant surgical approach is significantly more costly than standard open surgery, despite little scientific evidence of long-term improved patient outcomes. The results of the study are available online and will appear in the July issue of the journal *Urology*.

In one of the first studies based on actual direct and indirect costs at a single institution—rather than computer models that evaluate theoretical costs—the researchers found that the mean total cost per case of robotic-assisted laparoscopic radical prostatectomy (RARP) exceeded by 62 percent the cost of open radical retropubic prostatectomy (RRP). There was no significant difference in the mean length of stay for patients undergoing RARP vs. RRP, 1.2 and 1.4 days, respectively.

Since payment to the hospital was nearly equivalent for both types of procedures, the hospital lost $4,013 on average for each RARP case, while the payments exceeded costs by $1,325 for the standard open approach. Most of the cost difference, researchers found, was attributable to the robotic equipment and supplies.

"Nearly 240,000 new cases of prostate cancer are diagnosed annually, and radical prostatectomy is the most common treatment," said Joel B. Nelson, M.D., senior author of the study and chairman of the Department of Urology at UPMC and the University of Pittsburgh School of Medicine. "The value of that care for patients is of particular

concern to a nation struggling to control health care costs while improving outcomes." During the past decade, he noted, RARP has become the dominant surgical approach in the treatment of prostate cancer, with a surgeon controlling a robot's arms remotely to remove cancerous organs through small incisions in the patient's abdomen. Yet there is limited data to show that this technological innovation has produced better long-term patient results. "It is reasonable to question whether the increased costs of this robotic-assisted approach are justified," said Dr. Nelson, who is also co-director of the University of Pittsburgh Cancer Institute's Prostate Cancer Program.

For their cost analysis, the researchers looked at the treatment of 473 consecutive patients from July 2009 to October 2010 at UPMC Shadyside hospital. Four urologic oncologists with considerable experience in RARP and RRP operated on these patients, using RARP for 115 and RRP for 358.

The overall cost per case for RARP exceeded the cost for RRP by almost $5,300. The major contributors to the cost gap were greater operating room supply costs and indirect costs associated with the purchase and maintenance of the robotic equipment. Operating room supply costs were almost seven times greater for RARP, while ancillary, cardiology, imaging, administrative, laboratory and pharmacy costs were not significantly different between the two approaches.

Several previous studies also have demonstrated a cost advantage for the standard open surgical approach. However, those studies sometimes excluded certain costs or involved hospitals with lower surgical volumes or surgeons who were less experienced with the robotic-assisted technology, potentially skewing the cost per case.

Dr. Nelson noted that randomized clinical trials—the gold standard in scientific research—comparing RRP and RARP are lacking. But a

recent review of 37 comparative prostatectomy studies found no superiority for one approach vs. the other in terms of functional (such as post-operative continence and potency) and oncologic outcomes for patients.

"While further studies are needed to compare the long-term outcomes of RRP vs. RARP, our study suggests that our society may be paying too high a price for what has been widely perceived as a medical advance," said Dr. Nelson.

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