



## Cost Comparisons Draw Different Conclusions in Review of Robotic-Assisted, Laparoscopic and Open Surgery for Hysterectomy

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SUNNYVALE, Calif., April 29, 2014 (GLOBE NEWSWIRE) -- Two new studies featured in the May 2014 issue of *Obstetrics & Gynecology* studied the costs associated with minimally invasive robotic-assisted hysterectomy, and compared them with the costs of other surgical methods. Although the studies shared similar objectives, they analyzed different data sets and came to different conclusions.

One study ([Wright, et al](#)) found robotic-assisted hysterectomy to be more costly than laparoscopic hysterectomy, which is a traditional minimally invasive method. Unlike Wright, the other study ([Leitao, et al](#)) also included an open surgery group for comparison. Leitao found robotic-assisted hysterectomy to be less expensive than open hysterectomy, but more expensive than laparoscopic hysterectomy if the costs of acquiring the robotic system are included. However, Leitao noted that the added cost of robotics could be neutralized if its usage replaces more costly open surgery. Leitao observed an overall average savings of \$1,666 per case at his institution, Memorial Sloan-Kettering Cancer Center, excluding the cost of acquiring the robotic system, and an average savings of \$418 when it was included. The authors attributed the savings to a 63% decline in open surgery rates from 2007 to 2010.

The Wright study analyzed data from the [Premier Perspective database](#), which collects data from multiple institutions. This study included 169,324 women who had minimally invasive hysterectomies for non-cancerous conditions. It also looked at 10,906 women who had a minimally invasive hysterectomy for endometrial cancer. The Wright study cost data reflect a range of accounting methods, which makes them difficult to compare accurately. The study did not include detailed clinical outcomes data to compare complication rates. It also did not include an open surgery group. Therefore, the study could not assess the effect of robotic-assisted surgery adoption on the rates of open surgeries.

The Leitao study analyzed data from Memorial Sloan-Kettering Cancer Center. It evaluated the direct costs of 132 laparoscopic hysterectomies, 262 robotic-assisted hysterectomies and 42 open hysterectomies for newly diagnosed uterine cancers. The study included a detailed breakdown of costs for each surgical approach. It used data based on actual costs, providing a more accurate picture than using billed or estimated costs. The study also included data from up to six months after patients were discharged. This means the cost of complications, re-admissions and re-operations related to the initial surgery were largely included.

"When performing a full economic review comparing surgical approaches to evaluate the cost-effectiveness of each approach, it is important to consider clinical outcomes," said Myriam Curet, MD, Senior Vice President and Chief Medical Officer at Intuitive Surgical. "Without this context, one could conclude that an approach that is actually associated with expensive complications is least costly."

Since the introduction of robotic-assisted gynecologic surgery in 2005, the number of open hysterectomies performed for women with both non-cancerous and cancerous conditions has decreased dramatically. This decrease has been in direct proportion to the increase in robotic-assisted procedures. Laparoscopy has also continued to grow in numbers. These trends strongly indicate that minimally invasive surgery is replacing open surgery. As of 2013, approximately 33 percent of hysterectomies for non-cancerous conditions and 76 percent of cancer-related hysterectomies were performed using minimally invasive robotic-assisted surgery.

Neither Leitao nor Wright conducted randomized, controlled studies. Leitao notes that another potential limitation of their analysis was that they did not fully account for possible differences in the patients' disease and overall health, which could have had an impact on outcomes given the small number of open surgeries.

The study authors disclosed the following financial interests: Dr. Leitao is a surgical proctor and consultant for Intuitive Surgical. Dr. Jewell is a speaker for Covidien and Intuitive Surgical. Drs. Wright and Hershman are recipients of grants and Dr. Tergas is the recipient of a fellowship from the National Cancer Institute.

### About Intuitive Surgical, Inc.

Intuitive Surgical, Inc. (Nasdaq:ISRG), headquartered in Sunnyvale, Calif., is the global leader in robotic-assisted, minimally invasive surgery. Intuitive Surgical develops, manufactures and markets the *da Vinci*<sup>®</sup> Surgical System. Intuitive Surgical's mission is to extend the benefits of minimally invasive surgery to those patients who can and should benefit from it.

### About the *da Vinci* Surgical System

The *da Vinci* Surgical System is a surgical platform designed to enable complex surgery using a minimally invasive approach. The *da Vinci* Surgical System consists of an ergonomic surgeon console or consoles, a patient-side cart with three or four interactive arms, a high-performance vision system and proprietary *EndoWrist*<sup>®</sup> instruments. Powered by state-of-the-art technology, the *da Vinci* Surgical System is designed to scale, filter and seamlessly translate the surgeon's hand movements into the more precise movements of the *EndoWrist* instruments. The net result is an intuitive interface with improved surgical capabilities. By providing surgeons with superior visualization, enhanced dexterity, greater precision and ergonomic comfort, the *da Vinci* Surgical System makes it possible for skilled surgeons to perform more minimally invasive procedures involving complex dissection or reconstruction. Potential benefits are specific to the procedure as well as the model *da Vinci* System referenced in the footnoted publications. For more information about clinical evidence related to *da Vinci* Surgery, please visit [www.intuitivesurgical.com/company/clinical-evidence/](http://www.intuitivesurgical.com/company/clinical-evidence/).

### Surgical Risks

All surgery presents risk, including *da Vinci*<sup>®</sup> Surgery and other minimally invasive procedures. Serious complications may occur in any surgery, up to and including death. Examples of serious or life-threatening complications, which may require prolonged or unexpected hospitalization, include injury

to tissues and/or organs, bleeding, infection and/or internal scarring that can cause long-lasting dysfunction and/or pain. Risks of surgery also include the potential for equipment failure and/or human error. Results, including cosmetic results, may vary.

Risks specific to minimally invasive surgery, including *da Vinci* Surgery, include temporary pain and/or nerve injury associated with positioning; temporary pain and/or discomfort from the presence of air or gas; a longer operation and time under anesthesia and conversion to another technique. If your surgeon needs to convert the surgery to another technique, this could result in a longer operative time, additional time under anesthesia, additional or larger incisions and/or increased complications.

Patients who bleed easily, who have abnormal blood clotting, are pregnant or morbidly obese may not be candidates for minimally invasive surgery, including *da Vinci* Surgery. Patients should talk to their doctor about his/her surgical experience and to decide if *da Vinci* Surgery is right for them. Patients and physicians should review all available information on non-surgical and surgical options in order to make an informed decision. For important safety information, including surgical risks and indications and contraindications for use, please also refer to [www.davincisurgery.com](http://www.davincisurgery.com).

#### **Forward-Looking Statement**

This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. These forward-looking statements are necessarily estimates reflecting the best judgment of our management and involve a number of risks and uncertainties that could cause actual results to differ materially from those suggested by the forward-looking statements. These forward-looking statements should, therefore, be considered in light of various important factors, including those under the heading "Risk Factors" in our annual report on Form 10-K for the year ended December 31, 2013, as updated from time to time by our quarterly reports on Form 10-Q and our other filings with the Securities and Exchange Commission. Statements using words such as "estimates," "projects," "believes," "anticipates," "plans," "expects," "intends," "may," "will," "could," "should," "would," "targeted" and similar words and expressions are intended to identify forward-looking statements. You are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date of this press release. We undertake no obligation to publicly update or release any revisions to these forward-looking statements, except as required by law.

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