

The DaVinci Code: Robot Strategy Trends in the Treatment of Patients

Maria Shepherd • Data Decision Group

How do they do it? Intuitive Surgical is succeeding against all the common axioms that the rest of us in the medtech industry endure in our rapidly changing healthcare environment. Sunnyvale, Calif.-based Intuitive Surgical's da Vinci robot-assisted surgical system consists of an ergonomic surgeon console, a patient-side cart with three or four interactive arms, a high-performance vision system and proprietary instruments. According to the company, da Vinci is designed to give surgeons "superior visualization, enhanced dexterity, greater precision and ergonomic comfort." But all of that comes with a steep price tag. The average selling price of the robot can start at \$1 million, but can reach \$2.3 million when add-ons are included, making it an enormous expense to hospital.¹ The company's proprietary consumables are reported to have average selling prices of double or triple the cost of competitive, non-robotic medical devices. In addition, our research with hospital CEOs reported that da Vinci systems frequently are under-utilized, citing two reasons.² First, the surgeon skillset required to operate the robot mandates a high level of physician time invested in training, and many surgeons are too busy to make the time commitment. Second, CEOs report that some surgeons do not like the tactical disruption of the robot, and prefer the direct patient contact of traditional surgery.

Why It's Important

In a recent presentation on robotic surgery, James Hu, M.D., director of Urologic Robotic and Minimally Invasive Surgery at the UCLA Health in Los Angeles, Calif., cited data from the *New England Journal of Medicine* that reports that the use of the da Vinci adds 13 percent to the cost of surgery, that robotic prostate surgery appears to lead more men to choose surgery than if robotic surgery had not been offered and that replacement of open surgery with a robotic procedure adds \$2.5 billion per year in additional cost to the healthcare system.^{3,4}

How Did They Do It?

In their presentation at the recent 32nd annual J.P. Morgan Healthcare Conference in San Francisco, Calif., Intuitive Surgical officials reported company sales for 2013 were expected to reach \$2.3 billion, an increase of approximately 4 percent.⁵

The company reported that the highest procedure volume growth was seen in general surgery and gynecologic surgery in the United States and in urology procedures internationally. This breaks another axiom in the medtech business—that selling expensive equipment outside of the United States is a challenging



Billboard outside Fenway Park in Boston, Mass., touts the benefits of robotic surgery. Photo credit: Associated Press.

and sometimes insurmountable task.

A significant part of the Intuitive Surgical strategy has been based on an investment in marketing excellence rarely seen in the medical device world. The company was founded in 1995, and in 1999, the first da Vinci was launched.⁶

The marketing pitch when the company first launched was that the robot would be the great equalizer, making every surgeon as good as the best surgeon in the area, regardless of surgical skills.

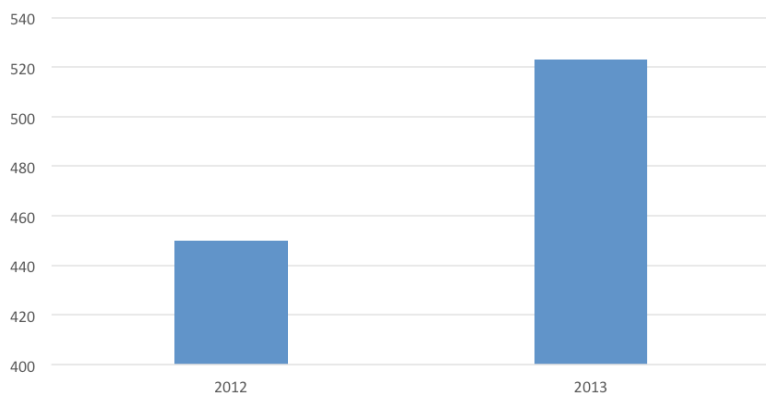
"You can do things with the robot that you can't do with a laparoscope — or only the world's best surgeon can do," said Richard Satava, M.D., a robotics pioneer at the University of Washington. "It's kind of a democratizing tool, if you will."⁷

Hospitals started to invest, and the next marketing strategy Intuitive Surgical employed was using direct-to-consumer advertising in high-visibility spots (see the image on page XX) and through public outreach on popular shows such as "The Doctors" and other such media outlets.⁸

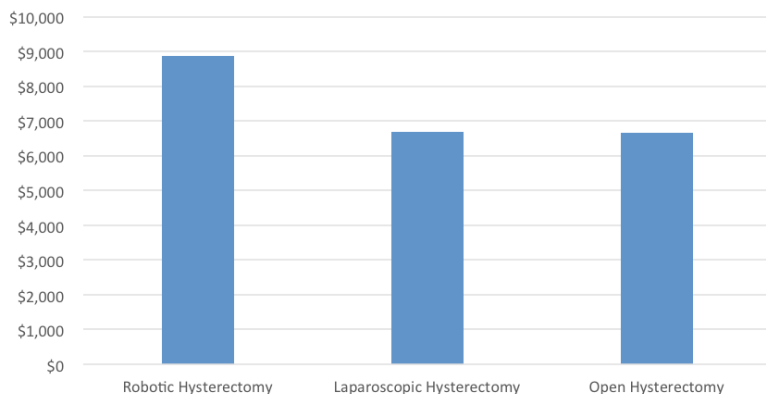
No Stranger to Controversy

Like most disruptive technologies, robotic surgery is highly controversial. According to the *Wall Street Journal*, advocates of robotic surgery claim that there is less scarring, pain and blood loss, fewer complications, shorter hospital stays and a faster recovery than traditional open surgery with a large incision that can take weeks to heal.⁹ Detractors insist that these advantages are due to the impact of a minimally invasive procedure, whether performed with a robot or not. Traditional laparoscopic surgery also

2012-2013 da Vinci Procedure Rate Growth (000)



Average Total Cost to Hospital by Procedure Type



is minimally invasive, and at less cost. The results are interesting, and show that the costs of robotic surgery are higher, but not as high as many think.

In a recent study at Columbia University in New York, N.Y., the average total cost to the hospital for a robotic hysterectomy was \$8,868, compared with \$6,679 for a laparoscopic procedure and \$6,651 for the open surgery.¹⁰

The Columbia study retrospectively reviewed records of 264,758 women who had hysterectomies for non-cancerous conditions at 441 U.S. hospitals from 2007 to 2010. During that period, robotic surgery rose from 0.5 percent to nearly 10 percent of all the hysterectomies studied. Laparoscopic procedures rose from 24 to 30 percent. Open surgeries dropped but were still the most common form of hysterectomy as of 2010. Vaginal hysterectomy procedures remained at approximately 20 percent.

The Jury's Still Out

Will robotic surgery provide lower cost for the healthcare system or improved treatment for patients? It's too early to tell. Whether an advocate or a critic of robotic surgery, however, one has to admire the marketing excellence that resides at Intuitive Surgical. There is profit in providing improved (though often controversial) clinical outcomes in all of healthcare. How will you identify them?

References:

1. online.wsj.com/news/articles/SB10001424127887323764804578314182573530720
2. Data on file, Data Decision Group, 2013
3. Hu, JC, *New Technologies in Surgery* UCLA
4. Barbash G, Glied S, *NEJM, New Technology and Healthcare Costs – the Case for Robotic Assisted Surgery*, August 19, 2010
5. phx.corporate-ir.net/phoenix.zhtml?c=122359&p=irol-newsArticle&ID=1890591&highlight=
6. www.intuitivesurgical.com/company/profile.html
7. seattletimes.com/html/local-news/2018631542_robot08m.html
8. www.npr.org/blogs/health/2013/06/26/195835806/men-pick-robotic-surgery-for-prostate-cancer-despite-risks
9. online.wsj.com/news/articles/SB10001424127887323764804578314182573530720
10. *JAMA*. 2013;309(7):689-698. doi:10.1001/jama.2013.186.

Editor's note: Readers are invited to submit market data and trend questions to Maria Shepherd. Periodically, selected questions will be presented in this column, with answers from Maria. Send your questions to mshepherd@ddecisiongroup.com.

Maria Shepherd has 20 years of leadership experience in medical device/life-science marketing in small startups and top-tier companies. After her industry career—including her role as vice president of marketing for Oridion Medical, where she helped boost the company valuation prior to its acquisition by Covidien; director of marketing for Philips Medical; and senior management roles at Boston Scientific Inc.—she founded Data Decision Group. Data Decision Group (www.ddecisiongroup.com) provides whitespace research and critical data to support medical device product development. The firm performs market research, evaluates new technologies and provides marketing services and human factors usability testing. Shepherd has taught marketing and product development courses and recently was appointed to the board of the MSBiV Medtech Investment Committee. She can be reached at (617) 548-9892 or at mshepherd@ddecisiongroup.com.