

The *da Vinci*® Surgical System

The *da Vinci* System is a sophisticated surgical platform designed to facilitate surgical procedures using a minimally invasive approach.

da Vinci provides surgeons with enhanced capabilities, including high-definition 3D vision and a magnified view. The surgeon controls the *da Vinci* System, which translates his or her hand movements into smaller, more precise movements of tiny instruments inside the body. Although it is often called a “robot,” the *da Vinci* System cannot act on its own - surgery is performed 100% by the physician.

da Vinci technology allows surgeons to perform surgical procedures through just a few tiny incisions. As a result, patients may get back to their lives faster – without the usual recovery following major surgery.

The *da Vinci* System has been used successfully worldwide in well over one million surgical procedures to date. The enabling features of the *da Vinci* System raise the standard of care for surgery. Complex conditions like cancers of the prostate, cervix, uterus, lung, colon/rectum, as well as heart disease and fibroid tumors can now be treated minimally invasively with *da Vinci* Surgery. There are many potential benefits for patient when comparing *da Vinci* Surgery to traditional open surgery, including:*

- Shorter hospital stay^{1,2,3,4}
- Less blood loss^{2,3,4,5}
- Less pain^{1,6,7,8}
- Faster recovery^{1,2,9,10}
- Smaller incisions for minimal scarring¹¹

The *da Vinci* System consists of an ergonomic surgeon’s console, a patient-side cart with four interactive robotic arms, a 3D HD vision system and miniaturized wristed instruments. Powered by state-of-the-art technology, the *da Vinci* System is designed to scale, filter and seamlessly translate the surgeon’s hand movements into more precise movements at the instrument tips. The net result is an intuitive interface with breakthrough surgical capabilities.

The *da Vinci* Surgical System’s main features include *Intuitive*® motion, high-resolution 3D vision and innovative *EndoWrist* instrumentation. *Intuitive* motion refers to the System’s interface, which helps make *da Vinci* Surgery look and feel like traditional open surgery. But that is where the similarities end.

The *da Vinci* System’s high-resolution 3D stereo viewer is designed to provide surgeons with an immersive experience. Unlike conventional approaches, the target anatomy appears at high magnification, in brilliant color and with natural depth of field. Operating through a few small incisions, the surgeon uses the console’s master controls to maneuver the patient-side cart’s four robotic arms. These arms securely hold the patented *EndoWrist*® instruments and high-resolution endoscopic camera. The *EndoWrist* instruments’ jointed-wrist design exceeds the natural range of motion of the human hand; motion scaling and tremor reduction further interpret and refine the surgeon’s hand movements. A final hallmark of the *da Vinci* System is that it incorporates multiple redundant safety features designed to minimize risks associated with both machine and human error.

The *da Vinci* System is a remarkable improvement over conventional laparoscopy, in which the surgeon operates while standing and uses hand-held, long-shafted instruments that cannot bend or rotate. With conventional laparoscopy, the surgeon must look up and away from the instruments to a nearby 2D video monitor to see an image of the target anatomy.

In conventional laparoscopy, the surgeon must also rely on his/her patient-side assistant to position the camera correctly. In contrast, the *da Vinci* System’s ergonomic design allows the surgeon to operate from a comfortable, seated position at the console, with eyes and hands positioned in line with the instruments. To move the instruments or to reposition the camera, the surgeon simply moves his/her hands.

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By providing surgeons with superior vision, enhanced dexterity, greater precision and ergonomic comfort, the *da Vinci* Surgical System makes it possible for more surgeons to perform minimally invasive procedures involving complex and delicate dissection or reconstruction.

*The following procedures are represented in all stated claims and referenced publications herein: *da Vinci* Surgery as a treatment for cancers of the prostate, cervix, uterus (endometrium), rectum and lung, as well as coronary artery disease and fibroid tumors. Claims are based on comparisons to open surgery. Long-term data for head & neck procedures are not yet available.

While clinical studies support the effectiveness of the *da Vinci* Surgical System when used in minimally invasive surgery, individual results may vary. There are no guarantees of outcome. All surgeries involve the risk of major complications. **Before you decide on surgery, discuss treatment options with your doctor. Understanding the risks of each treatment can help you make the best decision for your individual situation.** Surgery with the *da Vinci* Surgical System may not be appropriate for every individual; it may not be applicable to your condition. Always ask your doctor about all treatment options, as well as their risks and benefits. Only your doctor can determine whether *da Vinci* Surgery is appropriate for your situation. © 2012 Intuitive Surgical, Inc. All rights reserved. *Intuitive*, *Intuitive Surgical*, *da Vinci*, *da Vinci S*, *da Vinci Si*, *Single-Site*, *InSite*, *TilePro* and *EndoWrist* are trademarks or registered trademarks of Intuitive Surgical, Inc. All other product names are trademarks or registered trademarks of their respective holders. PN 871071 Rev F 11/12

¹ Park JS, Choi GS, Lim KH, Jang YS, Jun SH. S052: a comparison of robot-assisted, laparoscopic, and open surgery in the treatment of rectal cancer. *Surg Endosc*. 2011 Jan;25(1):240-8. Epub 2010 Jun 15.

² Poston RS, Tran R, Collins M, Reynolds M, Connerney I, Reicher B, Zimrin D, Griffith BP, Bartlett ST. Comparison of economic and patient outcomes with minimally invasive versus traditional off-pump coronary artery bypass grafting techniques. *Ann Surg*. 2008 Oct;248(4):638-46.

³ Health Information and Quality Authority (HIQA), reporting to the Minister of Health-Ireland. Health technology assessment of robot-assisted surgery in selected surgical procedures, 21 September 2011.

⁴ Landeen LB, Bell MC, Hubert HB, Bennis LY, Knutsen-Larson SS, Seshadri-Kreaden U. Clinical and cost comparisons for hysterectomy via abdominal, standard laparoscopic, vaginal and robot-assisted approaches. *S D Med*. 2011 Jun;64(6):197-9, 201, 203 passim

⁵ deSouza AL, Prasad LM, Ricci J, Park JJ, Marecik SJ, Zimmern A, Blumetti J, Abcarian H. A comparison of open and robotic total mesorectal excision for rectal adenocarcinoma. *Dis Colon Rectum*. 2011 Mar;54(3):275-82

⁶ Cerfolio RJ, Bryant AS, Skylizard L, Minnich DJ. Initial consecutive experience of completely portal robotic pulmonary resection with 4 arms. *J Thorac Cardiovasc Surg*. 2011 Oct;142(4):740-6. Epub 2011 Aug 15.

⁷ Lowe MP, Hoekstra AV, Jairam-Thodla A, Singh DK, Buttin BM, Lurain JR and Schink JC. A comparison of robot-assisted and traditional radical hysterectomy for early-stage cervical cancer. *Journal of Robotic Surgery* 2009:1-5.

⁸ Menon M, Tewari A, Baize B, Guillonneau B, Vallancien G. Prospective comparison of radical retropubic prostatectomy and robot-assisted anatomic prostatectomy: the Vattikuti Urology Institute experience. *Urology*. 2002 Nov;60(5):864-8.

⁹ Bell MC, Bell MC, Torgerson J, Seshadri-Kreaden U, Suttle AW, and Hunt S. Comparison of outcomes and cost for endometrial cancer staging via traditional laparotomy, standard laparoscopy, and robotic techniques. *Gynecologic Oncology* 2008:407-411.

¹⁰ Miller J, Smith A, Kouba E, Wallen E, Pruthi RS. Prospective evaluation of short-term impact and recovery of health related quality of life in men undergoing robotic assisted laparoscopic radical prostatectomy versus open radical prostatectomy. *J Urol*. 2007 Sep;178(3 Pt 1):854-8; discussion 859. Epub 2007 Jul 16.

¹¹ Data on file with Intuitive Surgical, Inc.

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