

# less is more

## surgeons and robots team up for less-invasive surgery

When 53-year-old Carrie Cutrell, R.N., director of nursing and an avid singer from La Junta, Colorado, was diagnosed with a benign tumor of the parathyroid gland, she had two immediate questions. Will surgery harm my voice and will it leave a large scar on my neck?

“My mother had a parathyroidectomy 15 years ago, and she ended up with an ear-to-ear scar,” Cutrell says.

Fortunately, parathyroid surgery has come a long way in the past 15 years, and Cutrell’s

surgeon at Porter Adventist Hospital has been keeping pace with the latest advancements. As one of the country’s most experienced surgeons using the minimally invasive da Vinci® Surgical System, Warren Kortz, M.D., has also received training in robotic thyroidectomies and parathyroidectomies. In fact, he was the first surgeon in the Rocky Mountain Region to perform a parathyroidectomy using the da Vinci.

### para-what?

A parathyroidectomy is a surgery to remove one or more of the four parathyroid glands in the front of the neck on either side of the thyroid. Parathyroid glands regulate calcium. In Cutrell’s case, one was over-producing a hormone that kept her blood calcium levels elevated at the expense of her bones and, ultimately, she suffered from bone pain and osteoporosis.

Kortz, who referred to Cutrell throughout treatment as “the singing nurse,” reassured her that the enhanced precision of the robotic instruments was ideal for working with the tiny vessels and nerves in her neck and, more specifically, with her recurrent laryngeal nerve (which, if damaged, can result in permanent hoarseness).

Kortz also explained that the surgery would not leave a scar on her neck. Unlike traditional thyroid or parathyroid surgery in which the surgeon makes an incision in the neck to remove the tumor, the da Vinci system allows the surgeon to perform the surgery through an incision in the armpit.

Warren Kortz, M.D., is one of the most experienced surgeons using the minimally invasive da Vinci® Surgical System in the country.



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by suzy devers

## super human vision and dexterity

When you're talking about surgical robotics today, the da Vinci Surgical System is at the center of the action, according to Kortz. The da Vinci is a robotic system outfitted with a high-resolution camera and multiple arms equipped with micro instruments.

The surgeon sits at a console and controls the surgical instruments with hand devices and foot pedals. The robotic instruments or "hands" can rotate 360 degrees, have wristed action and even include a tremor control feature to steady themselves. Under the guidance of a skilled surgeon, these instruments are so precise they can thread a tiny needle.

"The camera can magnify up to 10 times and it uses 3-D versus 2-D," Kortz says. "This gives you an X, Y and a Z axis, so you always know where you are in the patient's body."

Kortz says that the da Vinci offers a less-invasive surgery with less bleeding, faster recovery time, smaller incisions, less scarring, less tissue damage and more technical options for the physician to solve surgical problems.

Cutrell spent 24 hours in the hospital for her robotic parathyroidectomy and was back to work within days after the operation. She says she experienced some pain under her arm, but it was never bad enough to need the prescription painkillers she was given.

## exploring new territory

Recognizing the tremendous benefits of the da Vinci system, Kortz helped develop a program at Porter Adventist Hospital to robotically remove kidneys from living donors.



A surgeon controls the robotic instruments with hand devices and foot pedals as he sits at the console of the da Vinci® Surgical System.

Since 2005, the program has performed more than 150 such surgeries. In addition, 100 general robotic surgeries, such as surgeries on the spleen, adrenal glands, colon, stomach and pancreas, have been accomplished. The da Vinci system is also used in prostatectomies and mitral valve repair at Porter Adventist Hospital.

Kortz received specialized training in robotic thyroidectomies and parathyroidectomies in Seoul, South Korea. Driven by cosmetic concerns, South Korean surgeons

Under the **guidance of a skilled surgeon**, these instruments are so precise they can thread a tiny needle.

pioneered the use of da Vinci robotics for these procedures because many young Korean women suffer from thyroid cancer. The standard surgery with a neck incision leaves them disfigured and socially stigmatized.

## the next wave

The first surgical robotic system was developed in the 1980s at Stanford University in California with funding from NASA (think robots performing surgeries in space, guided by human hands back here on earth). Later, the defense department picked up the tab inspired by visions of robots performing surgeries on the front lines, guided by surgeons behind enemy lines. >

da Vinci

# da Vinci

Today, the da Vinci surgical system is manufactured by a private company, Intuitive Surgical, and is used primarily in hospital settings. Initially, the system was envisioned for use with heart patients, but it didn't work for all cases because it couldn't access the back of the heart.

Instead, urologists became the first major group to adopt the technology for surgeries. Today approximately 70 percent of da Vinci surgeries are prostatectomies (surgery for the prostate gland).

Gynecologists also use robotics for a range of conditions, including uterine fibroids, heavy uterine bleeding, uterine prolapse, endometriosis and gynecological cancer. Of course, today the da Vinci is used for more than prostate and gynecological surgeries but in smaller numbers. For example, Porter Adventist Hospital now offers robotic mitral valve repair.

Kortz says he believes that the da Vinci system is at the beginning of a wave that will expand into general surgery as more and more surgeons ask, "How can I apply this amazing technology to the types of surgeries I perform?"

## need surgery?

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Many surgeries can be performed with the assistance of the da Vinci® Surgical System. For a full list of robotic surgeries available at Porter Adventist Hospital, please visit [porterhospital.org/robotics](http://porterhospital.org/robotics).

"My prediction is it will eventually replace everything else," Kortz says. "It's *Star Wars* stuff."

## a 'no-brainer'

Ask Cutrell what she thinks of da Vinci and she quickly answers, "When Dr. Kortz explained the benefits, the decision was a no-brainer for me," although she admits to some fears.

"I was so worried I would wake up and not be able to talk or sing if my laryngeal nerve got clipped," says Cutrell, who cut a record in college and still performs publicly. "When I woke up, the first thing I did was start talking. I was never so glad to hear my voice."

Cutrell's two adult sons, Rhett and Shea, were at her bedside when she awoke, and you can be sure her voice was music to their ears, too. [v&v](#)

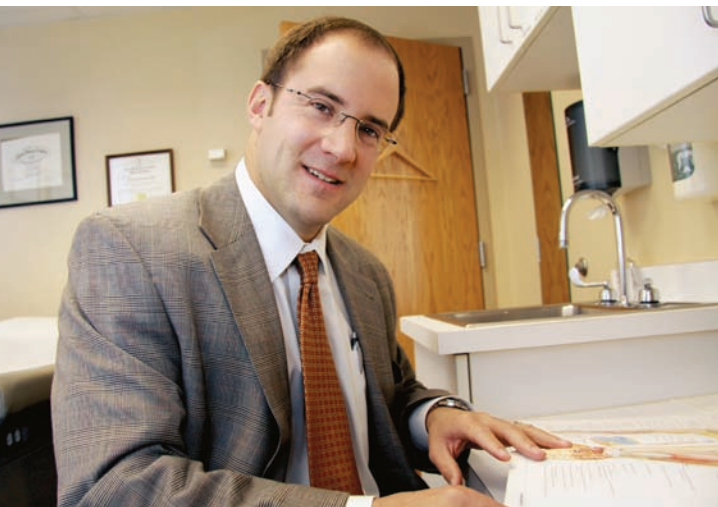
## a perfect match

As the new medical director of kidney transplant with Porter Kidney Transplant Services at Porter Adventist Hospital, Peter Kennealey, M.D., plans to increase the volume of living donors by expanding a program called "paired matching."

Last year, Porter facilitated a paired match between Christian McNellis and Diana Bolton. McNellis wanted to give one of his kidneys to his mom, but it wasn't a match. And Bolton wanted to give one of her kidneys to her brother, but it was too small for his 6-foot, 215-pound frame. So the two donors participated in a synchronized exchange so each patient received a match.

Kennealey describes paired matching as a "criss-cross" and says he and his fellow surgeons performed a number of paired donations at Harvard, where he served as a clinical fellow in surgery before joining Porter Adventist Hospital. The program even performed three transplants from synchronized donors all on the same day. At Porter Adventist, Kennealey will support an active database of living donors and get the word out to expand this lifesaving program.

Currently, Porter Kidney Transplant Services averages 60 transplants a year and far exceeds the national average for patient survival rates at the one-month, one-year, three-year and five-year markers. Kennealey attributes the program's excellent success rate to a multidisciplinary approach to patient care, an extensive selection process for living donors and extremely close patient monitoring before, during and after the transplant surgery.



Peter Kennealey, M.D., medical director of kidney transplant with Porter Kidney Transplant Services at Porter Adventist Hospital