Celebrating a Decade of Robotic Surgery Advancement

BY TIFFANY PARNELL

OVER THE PAST DECADE, THE CROUSE INSTITUTE FOR ROBOTIC SURGERY HAS BECOME THE LARGEST MULTIDISCIPLINARY ROBOTIC SURGERY PROGRAM IN CENTRAL NEW YORK THANKS TO AN EXPERIENCED TEAM OF REGIONALLY AND NATIONALLY RECOGNIZED PHYSICIANS AND A COMMITMENT TO USING THE MOST ADVANCED, MINIMALLY INVASIVE TECHNOLOGY AVAILABLE.

David Albala, MD, utilizing the robotic surgical system at Crouse.

CROUSE HEALTH BEGAN offering robot-assisted surgery using the da Vinci Surgical System in August 2008. Since then, the health system has continued to set the standard for robot-assisted surgery in the region, to the benefit of both patients and providers. In 2017, Crouse robotic surgeons performed more than 1,000 procedures, more than any other area program.

"Our program started back in 2008 with gynecologic oncology, and as other surgeons began noticing the benefits, we expanded into urology, gynecologic, colorectal, thoracic and general surgery," says Seth Kronenberg, MD, Chief Medical Officer and Chief Operating Officer at Crouse. "Along the way, we supported these physicians by putting the best technology in their hands."

To stay ahead of the curve in this continually advancing field, Crouse has adopted each iteration of the da Vinci Surgical System. Currently, the Crouse Institute for Robotic Surgery is home to three surgical robots, including the da Vinci Si and da Vinci Xi Surgical Systems. Physicians use the da Vinci Si Surgical System to perform procedures such as single-site hysterectomy and cholecystectomy, while surgeons use the da Vinci Xi Surgical System — the latest generation of surgical robot — to perform more complex, multiquadrant robot-assisted surgeries.

Crouse's commitment to this technology extends to adopting advanced imaging, such as using Firefly Fluorescence Imaging, to improve the precision and customization of robot-assisted procedures. This system is compatible with the da Vinci Xi Surgical System and allows for better navigation around key anatomical landmarks, such as blood vessels and lymph nodes, further enhancing the information surgeons have while performing procedures and helping improve patient outcomes.

A NEW STANDARD OF UROLOGICAL CARE

Research continues to illuminate the benefits of robot-assisted surgery. Outcomes are similar to those following open surgery, but because robotic surgery is less invasive, patients benefit from less trauma and shorter hospitalizations and less painful recoveries.

Compared to conventional laparoscopy, procedures completed using the surgical robot feature several technological enhancements, including 3-D, high-definition visualization, EndoWrist instrumentation that is modeled after the human wrist and enhances dexterity, and adjustable console settings that lead to a more ergonomic surgical experience. As a result, the surgeries are easier to perform, allowing physicians to expand patient candidacy for minimally invasive surgery.

The Crouse urology team uses the surgical robot to perform a variety of procedures, including prostatectomy, partial nephrectomy, pyeloplasty and radical cystectomy. According to David Albala, MD, Chief of Urology at Crouse, the robot-assisted approach has become the standard of care during prostatectomy and is quickly becoming standard of care during cystectomy.

"Prostatectomy was the first robotic procedure that we did with significant volume, and over the years, we've modified the technique and have become much more adept at using the robot," Dr. Albala says. "It really depends on the skill of the surgeon, but I believe almost all patients are candidates for the robot-assisted approach."

Prior to the development of the surgical robot, minimally invasive prostatectomy was difficult to perform because the laparoscopic equipment lacked the wristed instrumentation found on the surgical robot.

"Laparoscopic prostatectomy never became popular among community urologists, primarily because sewing the urethra to the bladder was very difficult to master," Dr. Albala says. "There's a learning curve with the robot, but technically, robotic prostatectomy is a much easier operation to perform."

UPDATES IN GYNECOLOGIC ONCOLOGY

The most common robotic procedure Crouse gynecologic oncologists perform is removal of the uterus, cervix, ovaries

MEMBERS OF THE CROUSE ROBOTIC SURGICAL TEAM

GENERAL SURGERY
Brian Anderson, MD
Kenneth Cooper, DO
Jeffrey DeSimone, MD
Ben Sadowitz, MD

COLORECTAL
David Nesbitt, MD
John Nicholson, MD

GYN ONCOLOGY
Rinki Agarwal, MD
Douglas Bunn, MD
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Stephen Brown, MD
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Navpriya Oberoi, MD
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UROLOGY
David Albala, MD
Po Lam, MD
Andres Madissoo, MD
Nedim Ruhotina, MD
Harvey Sauer, MD
Jeffrey Sekula, MD
Daniel Welchons, MD

> "We have excellent physicians who use the robotic platform as a tool to provide the best possible patient care. The quality of robot-assisted surgery programs depends on the level of care and experience that's provided both by the surgeon and the hospital system that cares for patients before, during and after surgery. That's where we feel the Crouse Institute for Robotic Surgery excels."
>
> — SETH KRONENBERG, MD, CHIEF MEDICAL OFFICER AND CHIEF OPERATING OFFICER AT CROUSE HEALTH

and lymph nodes, which is indicated for patients with endometrial cancer. As is the case for those in need of a prostatectomy, most Crouse patients with endometrial cancer are able to benefit from minimally invasive, robotic radical hysterectomy.

"When studies were first done on laparoscopic surgery for endometrial cancer, the success rates for the procedure weren't good," says Mary Cunningham, MD, gynecologic oncologist at Crouse and a regional pioneer in robot-assisted surgery. "Lymph nodes are much more difficult to access in patients who weigh more, and being overweight is a risk factor for endometrial cancer. Operating on heavier patients using laparoscopy was a particular challenge because of the 2-D visualization. Now, the vast majority of women can have their surgery performed laparoscopically using robotic technology."

Dr. Cunningham utilizes Firefly Fluorescence Imaging, during these procedures, to inject dye into the cervix and more easily visualize and map sentinel nodes that need to be removed during the procedure.

"Rather than taking out large groups of lymph nodes, we tailor the surgery to individual patients and remove only the lymph nodes that are most important to each individual case," Dr. Cunningham says.

A NATIONALLY RECOGNIZED PROGRAM

In the realm of colorectal surgery, surgeons use minimally invasive technology to perform partial colectomy for treatment of colorectal cancer, diverticulitis and inflammatory bowel disease. The Crouse Institute for Robotic Surgery team has offered robotic colorectal surgery since 2009. Because the physicians were early adopters of the technology and have ample experience, Intuitive Surgical has designated Crouse a colorectal surgery Epicenter. As part of Epicenter designation, colorectal surgeons conduct daylong training sessions for other established surgeons who want to learn more about robot-assisted surgery.

"Colorectal surgeons from all over the country, particularly those on the East Coast, come to Crouse to learn from us before they embark on robotic surgery," says David Nesbitt, MD, FACS, FASCRS, colorectal surgeon at Crouse. "The Epicenter designation also allows us to remain early adopters of new technology, such as Firefly Fluorescence Imaging and new stapling devices."

A SKILLED, COLLABORATIVE TEAM

Innovative technology is only one part of the Crouse Institute for Robotic Surgery's high-quality program. Even more important than the equipment is the expert team that ensures continuity of care at all stages of the procedure.

"The building block of a successful robotic surgery program is the team," Dr. Albala says. "Programs aren't built on the success of one or two surgeons, but on the skill of the nurses, physician assistants, technicians and assistants who help with procedures, prep rooms between surgeries and help keep our turnover times low. It's very much a team effort, and everyone contributes."

For more information about the Crouse Institute for Robotic Surgery, visit crouse.org/robotics. ■

John Nicholson, MD, and David Nesbitt, MD, of Colon Rectal Associates of CNY

Mary Cunningham, MD, performing robotic surgery in Crouse's Witting Surgical Center.