

New robot will perform surgeries

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The future of surgery has four arms and 3-D vision, and University Medical Center hopes to bring it to UA by May.

The \$1 million da Vinci surgical robot, on campus last Wednesday for a promotional demonstration, was hailed as a major benchmark in modern surgery's continual progression toward minimally invasive procedures.

"Robotic tools are to the future of surgery what antibiotics were in the '50s and what computers were in the '80s," said Dr. Allan Hamilton, chair of the department of surgery at UMC.

"We want UMC to be the premiere location here in the Southwest."

The futuristic machine could start operating as soon as June, Hamilton said.

"Not a student comes through UMC's doors that won't have to be fluent in robotics in order to be competitive," he added.

Named after one of the most acclaimed thinkers in art, technology and invention, the da Vinci machine allows a surgeon to operate without ever placing a hand on the patient.

The surgeon sits about five feet away from the action, at a computer console with a 3-D monitor, and uses hand and foot controls to maneuver the robot's arms. A large screen behind the surgeon projects what he or she is looking at, so the surgical team can assist appropriately. The robot makes three to four incisions that are between one-half inch and one inch apiece.

"It's like being inside the patient, in miniature," said Intuitive Surgical western area director of sales Christopher Sells. Based in Sunnyvale, Calif., Intuitive Surgical, da Vinci's manufacturer, is in the process of merging with their only competitor in this field.



PHOTO COURTESY OF INTUITIVE SURGICAL

In the coming months, University Medical Center surgeons may adopt a new surgical procedure using a robot to perform invasive operations.

The robot's 3-D imaging system gives the surgeon a true left and right eye, exactly how the brain expects to see them, and the machine's motion is modeled after the human wrist, Sells said. The robot boasts scale motion that mimics what the surgeon's hands are doing, and it filters out hand tremor, making both hands equally dominant.

"You become almost immediately ambidextrous," he said.

Benefits to the patient include reduced bleeding, less pain, shorter hospital stay, and faster recovery.

For instance, a normal, open prostatectomy causes 600 to 1,000 cubic centimeters of blood loss and requires four to five days in the hospital. A recent da Vinci prostatectomy patient went home the day after surgery, having lost only 50 cubic centimeters of blood, Sells said.

There are 161 da Vinci robots in use worldwide, with 106 of them in the U.S. More than 16,000 procedures have been done using a da Vinci.

As the da Vinci continues to be upgraded, it will become more commonplace and the price will gradually come down, Sells said. The robot has undergone 27 upgrades in the past year alone.

"It's going to be exactly like computers," Hamilton said of the ever-changing technology.

Initially, one robot would be a shared resource within the hospital, he said. Eventually there would be one in every operating room. The robot has been used in multiple disciplines, including cardiothoracic, general, gynecological, urologic and neurological surgeries.

"Technology moves ahead. It's irresistible," Hamilton said.

Da Vinci made history when doctors used it in cardiac surgery without breaking open the breastbone, inserting instead the robot's long, narrow instruments between the patient's ribs and repairing the heart that way, as featured on the Discovery Health Channel in 2001.

Surgical robots are descendants of robots used in the auto and aviation industries for the past 20 years, Hamilton said. In the mid-1980s, the Pentagon began funding a project that took the technology into the medical realm, intending to do battlefield medicine from afar, Sells added.