

Operating room radiography to transform surgery

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In a move that could change the way many patients undergo surgery, NewYork-Presbyterian Hospital has installed five state-of-the-art Siemens Artis zeego® medical imaging systems that provide faster, more accurate 3-D images of the body with a quality never before attainable. With more complete information, surgeons can better assess a patient's condition, devise a detailed surgical plan, and provide more targeted surgical treatment.

NewYork-Presbyterian has more of these systems installed than any other hospital in the world and is the country's first to use the technology for neurological and colorectal surgical procedures. The Hospital is also using the Artis zeego to advance heart and vascular surgeries.

According to NewYork-Presbyterian surgeons, the radiographic [imaging technology](#) promises to transform the care of patients, with improved safety and outcomes, while stimulating innovation. The Artis zeego's robotic C-arm "senses" the location of the operating table, giving surgeons extraordinary flexibility to maneuver the [imaging system](#) at almost every angle without moving the patient. As a result, internal organs can be seen from a "fly around" perspective in [three dimensions](#), in minute detail.

"This technology is a major step forward. Previously, to obtain such images, we had to bring patients to a separate radiology suite. Now, high-quality imaging is available right in the operating room, giving us an amazingly clear picture of the patient's anatomy from any angle. This

helps us ensure the highest quality of care," says Dr. Jeffrey Milsom, executive director of the Center for Advanced Digestive Care and chief of Colon and Rectal Surgery at NewYork-Presbyterian Hospital/Weill Cornell Medical Center and the Jerome J. DeCosse, M.D., Professor of Surgery at Weill Cornell Medical College. "Going forward, image procurement and analysis in the operating room will open up new avenues for minimally invasive surgical innovation and improved patient outcomes."

The newly opened Leona M. and Harry B. Helmsley Surgical Suite at NewYork-Presbyterian/Weill Cornell is the first in the country to use an Artis zeego system in conjunction with a BrainLAB VectorVision® navigation system for neurological procedures. The system displays real-time 3-D images of preoperative scans on a touch-screen monitor and is equipped with two infrared cameras that track the patient's position in the OR.

"The Artis zeego allows us to image the cervical and cerebral vessels of the brain at the time of surgery. Additionally, we are able to perform CT scan imaging of the brain where we need the information most -- in the operating room," says Dr. Howard A. Riina, co-director of Interventional Radiology at NewYork Presbyterian Hospital/Weill Cornell Medical Center, and associate professor of neurological surgery in neurology and radiology at Weill Cornell Medical College. "The goal is a more precise and safer surgery."

The Vivian and Seymour Milstein Family Heart Center, which opened in January at NewYork-Presbyterian Hospital/Columbia University Medical Center, features an Artis zeego-equipped operating room that allows surgery and interventional cardiology procedures to be done consecutively in the same room. The Hospital was the first in the New York area to perform this kind of hybrid procedure.

"What previously involved two separate procedures can now be done in one," says Dr. Mathew Williams, surgical director of cardiovascular transcatheter therapies, and a cardiac surgeon and interventional cardiologist at New York-Presbyterian/Columbia; and assistant professor of surgery (in medicine) at Columbia University College of Physicians and Surgeons. "Oftentimes the best approach for a patient involves a combination of coronary artery bypass and stenting. By performing both at the same time, we are not only making it more convenient, but we are reducing the stress of surgery and improving recovery time."

The imaging technology can also be used after a standard bypass to ensure the bypass graft is providing adequate blood flow to the heart. Published research has shown that this approach can reduce the number of complications.

Wall of Knowledge

All of these imaging technologies are coordinated and presented to the surgeon through a "wall of knowledge" -- an array of high-definition video monitors that displays patient medical information along with images from the OR. The Patient-Aware [Operating Room](#) (PAOR), a new patient safety system from LiveData and Karl Storz Endoscopy-America, also allows for videoconferencing between remote areas of the Hospital, such as surgical pathology, and permits broadcast of live video for teaching purposes.

The technology also helps track and anticipate events. For instance, it will display trends in the patient's vital signs and will prompt the surgeon during the operation and notify the anesthesia team as to timing of a drug dose.

Provided by New York- Presbyterian Hospital

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