

# Minimally invasive spine surgery using real-time 3-D CT imaging allows patients to recover more quickly

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(Medical Xpress)—With demand for unresolved back pain relief growing as the U.S. population ages, Rush University Medical Center is doing more minimally invasive spine surgery procedures that allow patients to return to normal, day-to-day activities faster than if they undergo conventional surgery.

Demand for this type of surgery is rising. In 2012, 534 patients have undergone minimally invasive lumbar spine surgery through Rush's Spine and Back Program, nearly a 19 percent increase over the previous year.

Unlike traditional open spinal surgery, minimally invasive lumbar spinal surgery is performed by [neurosurgeons](#) and [orthopedic surgeons](#) using small incisions that don't produce as much damage to healthy tissue. Less blood is lost, patients have faster recovery times and with fewer complications. The procedures can range from repairing herniated (bulging) disks to reconstructing bones in the spine that have become misaligned due to [spinal deformity](#).

The surgeons are aided by advanced, real-time 3-D [CT imaging](#) displayed on large flat-screen monitors to guide them during surgery. These large, specially designed operating rooms are at the core of the interventional platform, which is located on three consecutive floors in Rush's new hospital building opened 11 months ago.

"We're performing more of the spinal reconstructive techniques, and we're using minimally invasive techniques more in removing spinal tumors," said Dr. John O'Toole, associate professor of [neurosurgery](#) at Rush. O'Toole is one of three neurosurgeons who perform these procedures.

Nonsurgical treatment options are also offered for back pain, including physical therapy and epidural (spinal) injections of therapeutic steroids, which are administered by an [anesthesiologist](#) in a pain clinic. Approximately 800 spine patients currently are receiving nonoperative care at Rush.

"We've been able to better integrate image-guided navigation into these surgeries," O'Toole said. "It's improved our accuracy, reduces our radiation exposures and enhances the performance of these minimally invasive procedures to the point where we can see inside the body as much as we do in an open body surgery."

"Our approach ensures that all nonsurgical means of addressing the pain will be exhausted before surgery is considered," said Dr. Howard An, orthopedic surgeon and professor of orthopedic surgery at Rush.

"Surgical, nonsurgical and noninvasive therapies are available to treat a full range of conditions, including disc degeneration, osteoporosis, spinal cord injuries, scoliosis and other spine deformities. That approach allows us to maximize the outcome of [surgery](#) while reducing hospital stay with faster postoperative recovery."

O'Toole expects further technological advances to allow him and his colleagues to expand the scope of treatments they can perform using minimally [invasive techniques](#).

"Each passing year brings new techniques and advancements and developments," he said. "It allows us to perform new and different

procedures and open the door to patients who might otherwise have been excluded because of age or infirmity."

As people age, the prevalence of degenerative spinal conditions such as wearing out of the disks and compression of the spinal nerves increases.

"Patients generally are living longer, and we have a lot of older adults who come in," said Andrea Whedon, RN, APN, nurse practitioner at Rush. "Our procedures offer shortened recovery time for these patients, especially those with multiple other medical problems."

Provided by Rush University Medical Center

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