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## **CROUSE HOSPITAL:** Taking an Anatomical Cue from Spinal Surgery



# Crouse Hospital:

## Taking an Anatomical Cue from Spinal Surgery

BY MAGGIE BEHRINGER

CROUSE HOSPITAL HAS ESTABLISHED A COMPREHENSIVE SPINE PROGRAM THAT LEVERAGES THE EXPERTISE OF SPINE SPECIALISTS FROM MULTIPLE PROGRAMS THROUGHOUT THE SYRACUSE AREA. THE PARTNERSHIP EXEMPLIFIES A PATIENT-CENTERED PHILOSOPHY THAT OPTIMIZES THE DELIVERY OF SPINE CARE IN THE REGION.

**THE SPINAL CORD** and column are among the human body's most sophisticated structures. Thirty-three bones compose the spine, and a network of nerves and tissue constitute the spinal cord — all connected by an intricate system of ligaments, muscles and tendons. Critical information passing through the spine's neural network makes treating conditions affecting the anatomy extraordinarily complex. During the past four years, Crouse Hospital has worked to establish a collaborative spine surgery program designed to enhance patient outcomes by unifying treatment protocols throughout the surgical process.

Led by Ross Moquin, MD, FAANS, Chief of the Department of Neurosurgery and Director of Spinal Surgery at Crouse Hospital, the collaborative group of 10 Crouse-affiliated surgical specialists blends the orthopedic emphasis on the spine's structural elements with the neurosurgical concentration on the spine's

neurological components. Melding the knowledge and skill of leading area specialists permits the team to treat all pathologies of the axial skeleton and the spinal cord and is advancing the science of spine care and disease management.

The cooperative arrangement has led to standardized pre-, intra- and postoperative protocols, which have resulted in decreased risk of complications during surgery, hospitalization duration, blood loss and rates of infection.

"What I enjoy most at Crouse Hospital is the never-ending, constant process of improvement," Dr. Moquin says. "Even though more and more physicians are referring their patients to Crouse for spine surgery, we are always thinking about how we can enhance the treatment process."

"What we've developed at Crouse is a unique collaboration between our spine and orthopedic specialists that blends the two disciplines with surgeon

expertise and the latest technology to deliver excellent care and outcomes to spine patients in our region," adds Crouse's Chief Medical Officer, Seth Kronenberg, MD.

### IN PRE-OP

Any patient whose physician participates in the collaborative can be evaluated by the spinal surgery group. When surgical intervention is required, neurosurgeons and orthopedic surgeons complement each other in the surgical planning and activity in the OR at Crouse's state-of-the-art Witting Surgical Center. For example, during the delicate removal of spinal cord tumors and the correction of major spinal deformities, the spine must be taken apart and reconstructed without damaging the spinal cord and nerves. Expertise and experience in the most recent spinal surgery techniques and the collaborative planning and execution of the plan result in better patient outcomes.

The patient's case is first discussed in detail at the monthly complex case conference, where neurosurgeons and orthopedic surgeons are joined by nurses, pain psychologists and physical therapists, all of whom contribute to the treatment plan. The assessment considers all barriers to a successful surgery, focusing primarily on the major risk factors related to higher than normal surgical complication rates: diabetes, smoking and obesity.

Currently, the group requires patients be nicotine free for four to six weeks before surgery. The resolution, which was part of the group's first cooperative efforts, is



Ross Moquin, MD, FAANS, Chief of the Department of Neurosurgery and Director of Spinal Surgery at Crouse Hospital



Raman Dhawan, MD

in line with national recommendations. The American Academy of Orthopaedic Surgeons cites research demonstrating an 81 percent success rate for nonsmokers who underwent cervical spinal fusion as compared to a 62 percent success rate in smokers. The spinal surgery program at Crouse Hospital is now investigating diabetes and obesity, first gathering and analyzing data and then moving through the process of working groups and recommendations toward a final resolution.

As Dr. Moquin explains, the program is deeply involved in helping patients become nicotine free and will be similarly active in patients' weight loss and diabetes control when those standards are established.

Once a surgery date is set, all patients, accompanied by a friend or family member, participate in the hospital's spine class. Led by physician assistants and senior nurses from the spinal and orthopedic floors, the

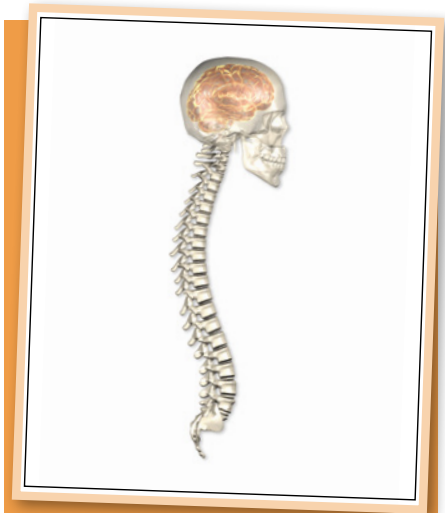
three-hour informational session provides an overview of the spinal anatomy and the patients' surgeries. Patients also receive in-depth education about what to expect before, during and after surgery, with specific discussion around pain levels. A portion of the time is also reserved for questions.

"At these formal presentations, patients receive all the information from one person, who acts as the unified voice of all participants on the spine team," says Thomas Haher, MD, orthopedic surgeon at Syracuse Orthopedic Specialists. "It's an effective program, demonstrated by the reduction of patients' anxiety we achieved after the program launched."

#### IN THE OR

When it comes to surgical intervention, Dr. Haher explains, two minds are better than one. A neurosurgeon and an orthopedic surgeon working side by side are able to address the procedure effectively while efficiently decreasing operative time. As a result, the team can reduce rates of blood loss, complication and infection.

The standardizations put in place by the co-management arrangement further help the OR team, which is also comprised of nurses and anesthesiologists, anticipate next steps and increase patient safety. In the event that a complication, such as an injury to the spinal vasculature, does arise, the surgical team responds rapidly. Opened in 2010, the Witting Surgical Center equips surgeons with essential and advanced technologies for



## From Lumbar to Cervical, From Root to Cord

ACCORDING TO Ross Moquin, MD, FAANS, Chief of the Department of Neurosurgery and Director of Spinal Surgery at Crouse Hospital, degenerative spine disease constitutes one of the most common cases he and his colleagues treat. In fact, a recent article published in the *Global Spine Journal* notes that with more than 11 million baby boomers entering their senior years, the occurrence of lumbar deformity is on the rise.

However, with its members' immense range of expertise, the spinal surgery program at Crouse Hospital treats the full spectrum of spinal disease, deformity and injury, including:

- + Abscess of the spine
- + Carpal tunnel
- + Cauda equina syndrome
- + Compression fracture
- + Conditions related to the aging spine
- + Degenerative disc disease
- + Failed back syndrome
- + Herniated discs
- + Intra- and extradural tumors
- + Neoplasm of the spine
- + Neurofibromatosis
- + Scoliosis
- + Spinal fracture
- + Spinal stenosis
- + Spondylolisthesis
- + Spondylosis
- + Traumatic spine injury



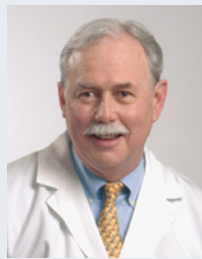
Dr. Dhawan and ortho team leader Kathy Bruno, RN



Gregory Canute, MD, neurosurgeon at Crouse Neuroscience Institute



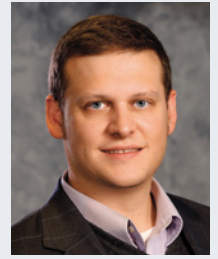
William Lavelle, MD, orthopedic spine surgeon at Upstate Bone & Joint Center



Thomas Haher, MD, orthopedic spine surgeon at Syracuse Orthopedic Specialists



Gerard Rodziewicz, MD, neurosurgeon



David Padalino, MD, neurosurgeon at Crouse Neuroscience Institute

## On a Patient's Spine Team

**WHAT BEGAN AS** a vision to bridge the gap between two surgical disciplines has grown to encompass a force of specialists across the Syracuse metropolitan area and throughout the central New York region, all of whom bring to bear dedicated spinal expertise for each patient. The physicians associated with Crouse Hospital's collaborative spine surgery program include:

**Gregory Canute, MD**, neurosurgeon at Crouse Neuroscience Institute  
**Eric Deshaies, MD**, neurosurgeon at Crouse Neuroscience Institute  
**Raman Dhawan, MD**, orthopedic spine surgeon at Crouse Hospital and Geneva General Hospital (Finger Lakes Health)

**Thomas Haher, MD**, orthopedic spine surgeon at Syracuse Orthopedic Specialists  
**Justin Iorio, MD**, orthopedic spine surgeon at Syracuse Orthopedic Specialists. Dr. Iorio joins SOS and Crouse in August 2016.  
**William Lavelle, MD**, orthopedic spine surgeon at Upstate Bone & Joint Center

**Ian Madom, MD**, orthopedic spine surgeon at Upstate Bone & Joint Center  
**Ross Moquin, MD**, neurosurgeon at Crouse Neuroscience Institute  
**David Padalino, MD**, neurosurgeon at Crouse Neuroscience Institute  
**Gerard Rodziewicz, MD**, neurosurgeon in private practice  
**Raghu Ramaswamy, MD**, neurosurgeon at Crouse Neuroscience Institute

performing spinal intervention, including intraoperative neurophysiological monitoring, CT imaging in the operating room and a sophisticated neurosurgery microscope system.

"We also have the advantage of Crouse Hospital's recently added hybrid neuro-interventional operating rooms, which help us deal with any emergent situations that require vascular input during spinal surgery," says Raghu Ramaswamy, MD, neurosurgeon at Crouse Neuroscience Institute who specializes in endovascular neurosurgery. "If a patient should have an arterial injury, we are able to rapidly perform angiogram imaging and a stenting procedure just a few doors away."

The most complex spinal surgeries can take 12 to 16 hours or longer. Crouse Hospital's specialists approach such cases with staged procedures. Rather than exposing patients to unnecessary risks associated with lengthy administration of general anesthesia, the spinal surgery team breaks the procedure into two parts that are scheduled roughly a week apart. Patients remain in Crouse Hospital's Intensive Care Unit or on the hospital's

dedicated orthopedic/spine surgery unit between the operations.

### IN POST-OP

While the spine class prepares patients for recovery from surgery, standardized protocols help physicians and providers prepare for the postsurgical process.

"We follow patients comprehensively through pre-op, post-op and beyond," says orthopedic spine surgeon Raman Dhawan, MD, affiliated with Crouse Hospital and Geneva General Hospital. "To effectively manage the patient and avoid complications, we have established antibiotic protocols that dictate which medication to prescribe and when it should be administered. We also have protocols that guide pain management and thrombosis. Our social workers and case managers, who have important information about patient status and well-being from pre-discharge conversations, are a key part of our program."

While patients recover in the spine unit, dedicated nurses keep careful watch for complications and track their progress. After discharge, Crouse Hospital

physical therapists see patients at either the CNY Medical Building or Crouse Medical Center – Brittonfield locations. Each patient is evaluated for an individualized course of therapy, which can involve specialized postsurgical treatments for cervical and lumbar pain.

Following surgery, surgeons conduct their own statistical tracking. Gathering data pertaining to surgical costs, durations, lengths of hospitalization and rates of infection enables surgeons in the group to compare their performance with others, identifying best practices and quantifying data that might lead to enhanced protocols.

"These are the collaborations that need to be happening in all healthcare environments," says Ian Madom, MD, orthopedic spine surgeon affiliated with Crouse and Upstate Bone and Joint. "We have taken the opportunity to lead by example by instituting such a collaborative program here at Crouse Hospital."

*For more information about the spinal surgery services available at Crouse Hospital, visit [crouse.org/spine](http://crouse.org/spine). ■*