



# neuroreport

spine edition

The latest insights from Carolina HealthCare System Neurosciences Institute



## Early Results in Study for Complete Spinal Cord Injury



**Domagoj Coric, MD**  
Medical Director, Neurosurgery and Spine Division  
Carolina HealthCare System Neurosciences Institute  
Chief, Department of Neurosurgery, Carolina Medical Center

Thanks to a new investigational technology currently being studied at Carolina HealthCare System Neurosciences Institute, patients with an acute, complete (AIS A), thoracic traumatic spinal cord injury have a surgical intervention that may help facilitate neurologic recovery.

Carolina Medical Center, part of Carolina HealthCare System, is one of 15 sites in North America taking part in the first in-human INSPIRE study evaluating the benefits of the Neuro-Spinal Scaffold from InVivo Therapeutics.

Following an operation to stabilize the spinal column, the bioresorbable polymer scaffold is surgically implanted in the injury epicenter of the spinal cord, providing structural support that can potentially promote healing. There are currently no FDA-approved surgical treatments available for AIS A spinal cord injuries.

While the study is ongoing, researchers have been encouraged by initial results showing improvements in motor and sensory scores.

"This is the beginning of a pathway to attempt to improve functioning – not just by stabilizing the spine but getting to the underlying cord injury itself," says Domagoj Coric, MD, chief of neurosurgery and spine at Carolina Medical Center and a member of the INSPIRE study steering committee.

As the nation's top-enrolling site for this study, Carolina Medical Center was selected to participate based on the high volume of spinal cord injury patients it treats and its track record as a clinical research leader. The INSPIRE study joins a list of cutting-edge trials at the Neurosciences Institute that may give new hope to patients with catastrophic injuries, including one that will also study stem cell injections into the damaged spinal cord.

## Measuring Quality Is Defining the Future of Neurological Care



**Anthony Asher, MD**  
Medical Director and Chief of Clinical Operations  
Carolina HealthCare System Neurosciences Institute

With two-thirds of the costs of all neurological care driven by spine care, a select group of researchers felt compelled to ask: Are these procedures delivering the patient outcomes and value our healthcare system demands?

Questions like this guided the creation of the Quality Outcomes Database (QOD), a continuous national clinical registry for neurosurgical procedures and practice patterns. Co-founded by Anthony L. Asher, MD, FACS, medical director and chief of clinical operations at Carolina HealthCare System Neurosciences Institute, the QOD has helped the profession define, measure and improve the quality of care over the past five years.

This mission is not expected to end anytime soon and is already expanding into neurovascular and tumor registries.

"The future of medicine depends on the objective assessment of quality and safety," says Dr. Asher, who continues to lead the QOD and established some of its data collection methods right here at the Neurosciences Institute. "The QOD is intended as a toolkit to enable systematic and scalable approaches to patient-centered, evidence-based care."

The QOD is also currently working with the Institute for Healthcare Improvement (IHI) to look at other factors of spine care that could lead to new best practices, including:

- How outpatient surgery may demonstrate comparable quality at reduced costs
- Proactive methods to reduce readmission and length of stay

Growing to a 100-center program across 38 states, the QOD is always looking for new participants. Contributing practices receive not only data collection tools and access to outcomes reports, but also the opportunity to transform the course of neurosurgical care nationally. To join the QOD or to learn more, visit [neuropoint.org](http://neuropoint.org).

## An Entire Trauma System Works as One to Transform a Life



**Matthew McGirt, MD**  
Neurosurgeon  
Carolina HealthCare System Neurosciences Institute

Less than nine months after a severe thoracic spinal cord injury (AIS B), Dean Otto started prepping for a half-marathon. The credit goes to an integrated trauma system working at its full potential.

In September 2016, while cycling early on a Saturday morning, Otto was struck from behind by a truck. EMS immediately transferred Otto to Carolina Medical Center, where he was diagnosed with no motor function and minimal sensory function below the waist. Only five hours after his injury, his neurosurgical team successfully performed a complex procedure to realign and rebuild his spinal column.

"Every hour of delay would have translated into more permanent function loss," says Matthew McGirt, MD, the neurosurgeon who performed Otto's surgery at Carolina HealthCare System Neurosciences Institute. "Given Dean's injury, if he hadn't been able to get into surgery for 12 more hours – which is not uncommon for many hospital systems – I am certain he would have spent the rest of his life with far greater neurological impairment."

A member of the nation's largest neurosurgical practice, Dr. McGirt adds, "This is a great example of the strong coordination between the Neurosciences Institute and its trauma partners and how that relationship is benefiting the community."

After a successful surgery, two weeks of inpatient rehabilitation and ongoing outpatient rehab, Otto has regained normal functioning. He doesn't even experience residual back pain.

Achieving these outcomes is not typical, says Dr. McGirt, who, along with his colleagues, performs dozens of complex spinal surgeries for acute spinal cord injury every year. He attributes Otto's success to the way an entire healthcare system – from EMS to the ER doctors to the surgery team to the post-acute facility – worked in unison to deliver world-class care.

The day after surgery, Otto – who has battled his condition with a fierce optimism – challenged Dr. McGirt to running a half-marathon with him if he could simply wiggle his big toe for the first time. Otto managed to move his toe, and the two will run together this September – just one year after the accident.

Grateful for his care team, Otto is now helping raise money for The LIFE (Living Fit and Engaged) Program at Carolina Rehabilitation, an innovative outpatient day program for patients with spinal cord injury. To learn more about Otto's inspiring story, visit [deanosback.com](http://deanosback.com).



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