PRELIMINARY SCIENTIFIC PROGRAM

ADVANCE REGISTRATION DEADLINE: FRIDAY, FEBRUARY 7, 2020

LAS VEGAS
MARCH 5-8

Learn more about Spine Summit 2020 at CNS.ORG/SPINE
Dear Colleague,

We would like to invite you to join us for Spine Summit 2020, the 36th annual meeting of the Joint Section on Disorders of the Spine and Peripheral Nerves. The meeting will be held March 5–8, 2020 in Las Vegas, Nevada, at The Cosmopolitan of Las Vegas. Industry leaders from around the world will be gathering to discuss topics under our 2020 theme, Focus on Data-driven Innovation.

The most exciting spine meeting of the year will deliver can’t miss scientific sessions, relevant special courses, compelling breakouts, and spirited debates on controversial topics in our field. You’ll also have the opportunity to collaborate with spine and peripheral nerve surgeons at the forefront of the field, discover new technology and innovations, and discuss strategies to find balance and direction in a time of rapid and meaningful change in health care.

This year, we are proud to honor Neurosurgery Honored Guest, Daniel K. Resnick; Orthopedics Honored Guest, K. Daniel Riew; and Peripheral Nerve Meritorious Awardee, Robert J. Spinner. These outstanding leaders in the field will be sharing their knowledge during award presentations, Happy Hour debates, and at the Cahill Controversies.

In addition to oral presentations showcasing the best ongoing research in our field, we continue to showcase residents’ scientific contributions with the Charlie Kuntz Scholarship Awards, the J.A.N.E. Award, the Mayfield Awards, and the Kline Peripheral Nerve Top Abstract Award.

Be sure to visit our cutting-edge Exhibit Hall to see the latest in technology, products, and services. As always, you’ll enjoy a lively Opening Reception and Young Neurosurgeons’ Reception and Dinner. Don’t forget to carve out time to visit the bustling entertainment and nightlife on the Las Vegas strip.

The 36th Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves provides you an unparalleled opportunity to stay on the leading edge of spine and peripheral nerve surgery, while enjoying the world-class atmosphere and accommodations in Las Vegas.

Make your arrangements and register today at cns.org/spine.

Sincerely,

Zoher Ghogawala  
Section Chair

Domagoj Coric  
Annual Meeting Chair

Luis M. Tumialán  
Scientific Program Chair

Important Dates to Remember

**FEBRUARY 7, 2020**
- Advance registration and housing deadline.

**FEBRUARY 17, 2020—CANCELLATION DEADLINE**
- $100 processing fee will be charged for written cancellations received by this date, regardless of cause.
- Special Course and Dinner Seminar tickets will be refunded in full until this date.
  
  Absolutely no refunds will be given after February 17, regardless of cause.

Meeting Highlights

- Eight Special Courses
- Hands on Cadaver Session (Non-CME)
- Cahill Controversies Session
- Beer and Wine Happy Hour Debates: Orthopedics versus Neurosurgery
- Oral Presentations, Charles Kuntz Scholars, Mayfield Awards, and J.A.N.E. Award
- APRN/PA Seminar offered complimentary for PAs and RNs who register for the Spine Summit 2020
- *NEW* Dinner Seminar
## PRELIMINARY SCIENTIFIC PROGRAM

### THURSDAY
**MARCH 5, 2020**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>11:00 am–5:30 pm</td>
<td>Registration</td>
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<tr>
<td>12:30–1:30 pm</td>
<td>Non-CME Pre-Meeting Luncheon Seminar</td>
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<tr>
<td>1:30–3:30 pm</td>
<td>Seminar for APRN and PAs</td>
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<tr>
<td>1:30–5:30 pm</td>
<td>Special Course 1: Novel and Emerging Technologies in Spine Surgery</td>
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<tr>
<td>6:30–8:30 pm</td>
<td>Opening Reception</td>
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<tr>
<td>9:00–11:00 pm</td>
<td>Dinner Seminar</td>
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### FRIDAY
**MARCH 6, 2020**

<table>
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<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>6:30 am–6:30 pm</td>
<td>Registration</td>
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<tr>
<td>6:30–7:30 am</td>
<td>Continental Breakfast</td>
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<tr>
<td>7:00–7:45 am</td>
<td>Challenging Cases 1: Oral Board-style Challenging Cases: Cervical</td>
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<tr>
<td>7:45–8:00 am</td>
<td>Opening Remarks</td>
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<tr>
<td>8:00–9:30 am</td>
<td>Scientific Session 1: Focus on Data Driven Innovation</td>
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<tr>
<td>9:30–10:15 am</td>
<td>Beverage Break and What’s New Session in the Exhibit Hall</td>
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<tr>
<td>10:15 am–12:00 pm</td>
<td>Scientific Session 2: The Trajectory of Spinal Surgery</td>
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<tr>
<td>12:00–1:00 pm</td>
<td>Non-CME Sponsored Lunch Symposia</td>
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<tr>
<td></td>
<td>Lunch in the Exhibit Hall</td>
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<tr>
<td>1:00–2:30 pm</td>
<td>Scientific Session 3: Innovative Technology Special Session: Operative Video Segments</td>
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<tr>
<td>2:30–3:15 pm</td>
<td>Beverage Break and What’s New Session in the Exhibit Hall</td>
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<tr>
<td>2:30–4:30 pm</td>
<td>Case-based Approaches to Peripheral Nerve Trauma and Other Conditions</td>
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<tr>
<td>3:15–4:25 pm</td>
<td>Top Abstracts Concurrent Session 1</td>
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<tr>
<td>3:30–5:30 pm</td>
<td>Top Abstracts Concurrent Session 2</td>
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<tr>
<td>4:30–6:30 pm</td>
<td>Beer and Wine Happy Hour Debates: Orthopedics versus Neurosurgery</td>
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### SATURDAY
**MARCH 7, 2020**

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<th>Time</th>
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<tr>
<td>6:30 am–5:30 pm</td>
<td>Registration</td>
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<tr>
<td>6:30–7:30 am</td>
<td>Continental Breakfast</td>
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<tr>
<td>7:00–8:00 am</td>
<td>Challenging Cases 2: Oral Board-style Challenging Cases: Lumbar Degenerative</td>
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<tr>
<td>8:00–9:30 am</td>
<td>Scientific Session 4: Opioids and Spine Surgery</td>
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<tr>
<td>9:30–10:15 am</td>
<td>Beverage Break and What’s New Session in the Exhibit Hall</td>
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<tr>
<td>10:15 am–12:15 pm</td>
<td>The Cahill Controversies</td>
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<td>Non-CME Sponsored Lunch Symposia</td>
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<td>Lunch in Exhibit Hall</td>
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<tr>
<td>12:15–1:15 pm</td>
<td>Special Course 5: Spine Summit Grand Rounds: Difficult Cases- The Decision-Making Dilemma</td>
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<tr>
<td>1:30–3:30 pm</td>
<td>Special Course 6: Treatment and Complication Avoidance in the Management of Spinal Tumors</td>
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<td>Special Course 7: Causes and Treatments for Neurologic Loss Associated with Spine Surgery</td>
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<tr>
<td>1:30–5:30 pm</td>
<td>Special Course 8: Spine Specialty Specific Oral Board Review Course</td>
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<tr>
<td>1:30–5:30 pm</td>
<td>Non-CME Hands-on Cadaver Lab</td>
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<tr>
<td>6:00–8:00 pm</td>
<td>Young Neurosurgeons’ Reception and Dinner</td>
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### SUNDAY
**MARCH 8, 2020**

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<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>6:30 am–12:30 pm</td>
<td>Registration</td>
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<tr>
<td>6:30–7:30 am</td>
<td>Continental Breakfast</td>
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<tr>
<td>7:00–7:30 am</td>
<td>Challenging Cases 3: Oral Board-style Challenging Cases: Peripheral Nerve</td>
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<tr>
<td>7:30–9:30 am</td>
<td>General Spine Surgery 1 Breakout</td>
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<td>General Spine Surgery 2 Breakout</td>
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<td>Peripheral Nerve/Basic Science/General Spine 3 Breakout</td>
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<td></td>
<td>Spinal Deformity Breakout</td>
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<tr>
<td>9:30–11:10 am</td>
<td>Scientific Session 5: A Focus on Innovation to Improve Spine Care</td>
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<tr>
<td>11:15 am–12:15 pm</td>
<td>Special Session: Business of Neurosurgery</td>
</tr>
<tr>
<td>12:15–12:30 pm</td>
<td>DSPN Business Meeting</td>
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<tr>
<td>12:30 pm</td>
<td>Meeting Adjourns</td>
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11:30–11:50 am  
**Special Speaker: Data Driven Innovation**  
*Irfan Essa*

Irfan Essa is a Distinguished Professor in the School of Interactive Computing (iC) and an Associate Dean of Research in the College of Computing (CoC), at the Georgia Institute of Technology (GA Tech), in Atlanta, Georgia, USA. He is serving as the Director of the new Interdisciplinary Research Center for Machine Learning at Georgia Tech (ML@GT). He also serves as a Research Scientist at Google Inc. Professor Essa works in the areas of Computer Vision, Machine Learning, Computer Graphics, Computational Perception, Robotics, Computer Animation, and Social Computing, with potential impact on Autonomous Systems, Video Analysis, and Production (e.g., Computational Photography & Video, Image-based Modeling and Rendering, etc.) Human Computer Interaction, Artificial Intelligence, Computational Behavioral/Social Sciences, and Computational Journalism research. He has published over 150 scholarly articles in leading journals and conference venues on these topics and several of his papers have also won best paper awards. He has been awarded the NSF CAREER and was elected to the grade of IEEE Fellow. He has held extended research consulting positions with Disney Research and Google Research and also was an Adjunct Faculty Member at Carnegie Mellon’s Robotics Institute. He joined GA Tech Faculty in 1996 after his earning his MS (1990), Ph.D. (1994), and holding research faculty position at the Massachusetts Institute of Technology (Media Lab) [1988-1996].

8:57–9:27 am  
**Special Speaker: America’s Opioid Dilemma: Responsible Pain Medicine During an Epidemic**  
*Travis N. Rieder*

Travis N. Rieder, PhD, is a bioethicist, philosopher and author, currently serving as Director of the Master of Bioethics degree program and a Research Scholar at the Johns Hopkins Berman Institute of Bioethics.

Travis has published widely in both the academic and popular literature on a variety of issues. In recent years, however, virtually all of his attention has turned to the ethical and policy issues raised by pain, opioids, and America’s problem with the two. On this subject, he has written for the medical, health policy, and bioethics literature; he has co-authored a Special Publication by the National Academy of Medicine; he advises many hospitals and healthcare systems; and he speaks around the country to clinicians and various members of the public. His TED talk on opioid withdrawal and physician responsibility has been viewed well over two million times.

In 2019, Travis published *In Pain: A Bioethicist’s Personal Struggle with Opioids*, in which he combines narrative from his own experience as a pain and opioid therapy patient with his expertise in philosophy and bioethics to identify, explain, and attempt to solve some of the most profound questions raised by pain and addiction medicine. In Pain has received significant positive attention, including a review in *Science* and an author interview by Terry Gross on NPR’s *Fresh Air.*
THURSDAY | March 5, 2020

11:00 am–5:30 pm
Registration

12:30–1:30 pm
Pre-meeting Non-CME Sponsored Lunch Symposia

Seminar for APRN and PAs
1:30–3:30 pm
Complimentary for Registered Nurses & PAs

Course Directors: Megan Bellman, Eric A. Potts
Speakers: Robert Evans, Erin Harrison, Maria Ines Oliviera, Sara M. McEvoy, Emma Schulte, Andrea L. Strayer
Course Description: Neurosurgery Advanced Providers and Physician Assistants are the target audience for this course which will cover the preoperative evaluation, perioperative management and postoperative management of neurosurgical spine patients. Special emphasis will be on teamwork, non–narcotic pain control, communication and use of order sets.
Learning Objectives: Upon completion of this course, participants will be able to:
– Identify a differential diagnosis for leg and arm pain
– Identify the impact of comorbidities on patient outcomes
– Describe the impact of preoperative and postoperative patient communication and setting

1:30–1:44 pm
Overview of MRI Imaging Basics in the Cervical, Thoracic and Lumbar Spine
Eric A. Potts

1:45–1:59 pm
Management of Medical Comorbidities (DM, Anticoagulation, Nutrition)
Sara M. McEvoy

2:00 - 2:14 pm
Advanced Perioperative Management: Support Staff, Patient Education
Emma Schulte

2:15 - 2:29 pm
Intraoperative Challenges
Megan Bellman

2:30 - 2:44 pm
Post–operative Pain Management
Erin Harrison

2:45 - 2:59 pm
Essential Surgical Spine Anatomy for Advanced Providers: How to be the Ideal Surgical Assistant
Robert Evans

3:00–3:14 pm
Preoperative Optimization for Postoperative Success
Andrea L. Strayer

3:15–3:29 pm
The Future of Spine Surgery without Opioids: The ERAS Effect
Maria Ines Oliviera

3:30 pm
Seminar Concludes

Special Course 1 $200
1:30–5:30 pm
Novel and Emerging Technologies in Spine Surgery
*Attendees to this course are offered discounted registration of $300 (from $500) for the Saturday Non-CME cadaver lab to apply the techniques described in this course
Course Directors: Paul Park, Juan S. Uribe
Course Description: This course will cover the latest technological advances in the field of spinal surgery including surface technology, new biologics for fusion, expandable cages, new applications for navigation, robotics, among others. Many of these innovations have the potential to improve surgical efficiency, safety, and outcomes. Attendees will gain a better understanding of the basis for the technology, its applications clinically, evidence for the technology, outcomes and costs.
Learning Objectives: Upon completion of this course, participants will be able to:
– Identify current evidence supporting newer technologies such as expandable cages and surface technology
– Identify the role of robotics and its integration into spinal surgery
– Identify new applications for spinal navigation in minimally invasive and deformity surgery
– Evaluate the potential benefits of new imaging technology such as exoscopes

1:30–1:35 pm
Introduction
Paul Park, Juan S. Uribe

1:36–1:45 pm
Navigation in Minimally Invasive Surgery
Roger Härtl

1:46–1:55 pm
Navigation–Spinal Deformity
J. Patrick Johnson

1:56–2:05 pm
Navigation–Lateral Applications
Paul Park

2:06–2:15 pm
Pitfalls and Complication Avoidance with Navigation
Juan S. Uribe
MEETING AGENDA

2:16–2:25 pm  
Robot–assisted Pedicle Screw Placement  
Jay D. Turner

2:26–2:35 pm  
Future Robotic Applications in Spinal Surgery  
Michael Y. Wang

2:36–2:45 pm  
Cost Effectiveness of Navigation/Robotics  
Eric W. Nottmeier

2:45–2:50 pm  
Questions and Discussion

2:50–3:20 pm  
Hands–on Workshop (Navigation)

3:20–3:40 pm  
Break

3:41–3:50 pm  
Expandable Cage Technology–Worth the Cost?  
Victor W. Chang

3:51–4:00 pm  
Surface Technology–Hype or Not?  
Khoi D. Than

4:01–4:10 pm  
Cellular Allograft—the next BMP?  
William R. Taylor

4:11–4:20 pm  
Novel Screw Technologies (“One–step MIS Pedicle Screw, Fenestrated Screws, Etc.)  
David S. Xu

4:21–4:30 pm  
Exosscopes and Virtual Reality: Moving Beyond Traditional Loupes and Microscopes  
W. Christopher Fox

4:31–4:40 pm  
How to Advocate for New Technology at Your Hospital  
Michael P. Steinmetz

4:41–4:50 pm  
Questions and Discussion

4:50–5:30 pm  
Hands–on Workshop (Robotics)

Special Course 2  
$200

1:30–5:30 pm  
Spinal Deformity: Applying Current Deformity Concepts to Your Practice, a Cased Based Approach

Course Directors:  
Kai–Ming G. Fu, Praveen V. Mummaneni

Speakers:  
Shay Bess, Dean Chou, Adam S. Kanter, David W. Polly, Christopher I. Shaffrey, Juan S. Uribe, Michael S. Virk, Michael Y. Wang

Course Description:  
Through an interactive case–based format, this course will address deformity concerns commonly encountered by the practicing spine surgeon.

Learning Objectives:  
Upon completion of this course, participants will be able to:

– Identify deformity principles in regards to degenerative pathology
– Analyze the current state of less invasive techniques and deformity
– Identify the current operative options for managing deformity

1:30–1:35 pm  
Welcome and Explanation of Course Format  
Kai–Ming G. Fu, Praveen V. Mummaneni

1:36–1:57 pm  
Applying Deformity Principles to Patients with Degenerative Cervical Disease  
Dean Chou

1:58–2:19 pm  
Indications for MIS versus Open Deformity Surgery: MISDEF2 Algorithm  
Michael Y. Wang

2:20–2:41 pm  
Multi–rod Solutions for Deformity: When to Consider?  
Christopher I. Shaffrey

2:42–3:03 pm  
Sacro–pelvic Considerations in Deformity Surgery  
David W. Polly

3:04–3:19 pm  
Break

3:20–3:41 pm  
Using Navigation in Spinal Deformity  
Michael S. Virk

3:42–4:03 pm  
Minimally Invasive Approach Selection in Adult Deformity (Anterior, Lateral, and Posterior)  
Juan S. Uribe

4:04–4:25 pm  
Complication Avoidance an Optimizing Long Term Outcomes in MIS Adult Deformity Surgery  
Adam S. Kanter
## THURSDAY

### 4:26–4:47 pm
**Complication Management in Open Adult Deformity Surgery**  
Shay Bess

### 4:48–5:09 pm
**Case Discussion**  
Steven Glassman

### 5:10–5:30 pm
**Discussion and Participant Cases**

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### Special Course 3  
$200

#### 1:30–5:30 pm
**Challenges in the Surgical Treatment of Pain**

**Course Directors:** Steven M. Falowski, Line G. Jacques, Mark A. Mahan, Jason M. Schwalb, William S. Rosenberg  
**Speakers:** Allan J. Belzberg, Nicholas M. Boulis, Justin M. Brown, Jonathan Miller, Zaman Mirzadeh, Konstantin V. Slavin, Robert J. Spinner, Jennifer A. Sweet, Christopher J. Winfree

**Course Description:** This course will explore the diverse surgical options for treatment of pain including decompression, neurologic reconstruction, ablative and stimulation procedures, including up-to-date research findings on clinical evaluation, patient reported outcomes, procedural options and outcomes. New and emerging technologies will be discussed, including the rational use and expectations of developing therapies, especially for the non-narcotic treatment of pain.

**Learning Objectives:** Upon completion of this course, participants will be able to:

- Define appropriate patient characteristics for surgical treatment of pain
- Discuss the differential benefits of treatment options within reconstructive, ablative, and stimulation surgeries, for the non-narcotic management of pain
- Describe risks and a tiered approach for salvage options

#### 1:30–1:35 pm
**Introduction**  
Mark A. Mahan, William S. Rosenberg

#### 1:36–1:50 pm
**Reconstruction for Pain: New Surgical Treatments for Neuromas**  
Mark A. Mahan

#### 1:51–2:05 pm
**Ablative Surgery: DREZotomy, Cordotomy**  
William S. Rosenberg

#### 2:06–2:20 pm
**Decompression Surgery: Can it Work for Pain?**  
Allan J. Belzberg

#### 2:21–2:35 pm
**Medical Management: Non-narcotic Regimens**  
Christopher J. Winfree

#### 2:36–2:50 pm
**Pre-operative Decisions: How to Manage the Psychiatric Difficulties**  
Jennifer A. Sweet

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### Special Course 4  
$200

#### 1:30–5:30 pm
**Introduction to Spinal Coding: From Decompression to Deformity**

**Course Directors:** Mark E. Oppenlander, John K. Ratliff  
**Speakers:** Owoicho Adogwa, Kurt M. Eichholz, Kristopher T. Kimmell, Cheera D. Upadhyaya, Anand Veeravagu

**Course Description:** What every graduating resident, spine fellow or young attending needs to know about coding spinal procedures in the first few years of practice. Origins of CPT and RVU will be presented along with the fundamentals of spinal coding. The course then transitions to case-based coding. The entire spectrum of spine cases from simple decompression to complex deformity will be presented and the correct coding reviewed.

**Learning Objectives:** Upon completion of this course, participants will be able to:

- Identify the origins of CPT, RVU and the RUC process
- Demonstrate knowledge in the correct application of CPT codes for a variety of spinal procedures
- Identify elements of practice management with an emphasis on spine

#### 1:30–1:35 pm
**Introduction**  
John K. Ratliff
MEETING AGENDA

THURSDAY

1:36–1:50 pm
Medicare, RVUs, CPT: How We Got Here
John K. Ratliff

1:51–2:05 pm
Basic Spine Coding: Cervical
Mark E. Oppenlander

2:06–2:20 pm
Basic Spine Coding: Lumbar
Owoicho Adogwa

2:21–2:35 pm
Anand Veeravagu

2:36–2:50 pm
Kurt M. Eichholz

2:51–3:05 pm
Cheerag D. Upadhyaya

3:06–3:30 pm
Anand Veeravagu

3:30–3:45 pm
Break

3:46–4:00 pm
Case Based Spinal Deformity Coding
John K. Ratliff

4:01–4:20 pm
Case Based Cervical Trauma Coding
Anand Veeravagu

4:21–4:40 pm
Case Based Thoracolumbar Trauma Coding
Cheerag D. Upadhyaya

4:41–5:00 pm
Obtaining an Authorization for Surgery and the Peer to Peer Process
Kristopher T. Kimmell

5:01–5:15 pm
Survival Guide for Your First Year in Practice: ABNS, Running Clinic, Scheduling Surgery, Academics & Life Balance
Mark E. Oppenlander

5:16–5:30 pm
Questions and Conclusion

Opening Reception

6:30–8:30 pm
Thursday, March 5, 2020
The Cosmopolitan of Las Vegas
Chelsea Pool

Attend an unforgettable Opening Reception with dazzling Cirque-style entertainment, classic rock and roll music, and more, as we bring the best of Las Vegas entertainment straight to you.
MEETING AGENDA

**Dinner Seminar** *(includes three–course dinner and beverages)*  
$175

9:00–11:00 pm  
**Moderators:** Domagoj Coric, Zoher Ghogawala  
**Faculty:** Sigurd Berven, Yoon Ha, Jesus Lafuente, Daniel K. Resnick, K. Daniel Riew, Jeffrey C. Wang

Dinner held at Estiatorio Milos. Touted as one of North America’s finest Greek restaurants, Estiatorio Milos features Mediterranean cuisine at its best and has a long-standing reputation for serving the freshest, most pristine seafood. This unique Greek restaurant spares no effort in finding the most delicious fish from around the world and preparing it in the subtlest, most flavorful ways.

**Course Description:** An opportunity to interact with the 2020 Spine Summit Honored Guests, Daniel K. Resnick and K. Daniel Riew and the president of the European Association of Neurological Surgeons, Jesus LaFuente will present the future of spine from a European perspective.

**Learning Objectives:** Upon completion of this course, participants will be able to:
- Identify the various trajectories that technology may lead the future of spinal surgery
- Recognize how the future of healthcare will affect the practice of spinal surgery in years to come
- Identify those characteristics needed to remain relevant in the future world of spine care.

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**FRIDAY | March 6, 2020**

6:30 am–6:30 pm
Registration

6:30–7:30 am
Complimentary Continental Breakfast

**Challenging Cases 1**

7:00 am–7:45 am  
**Oral Board–style Challenging Cases: Cervical**  
**Moderators:** Marcus D. Mazur, Laura A. Snyder, Hesham M. Soliman

7:45–8:00 am
Opening Remarks

7:45–7:55 am
Welcome  
Luis M. Tumialán

7:55–8:00 am
Introduction  
Zoher Ghogawala

**Scientific Session 1**

8:00–9:30 am  
**Focus on Data Driven Innovation**

**Moderators:** John J. Knightly, Michael Y. Wang  
**Floor Moderator:** Regis W. Haid  
**Speakers:** Steven D. Glassman, Roger Härtl, Praveen V. Mummaneni, Laurence D. Rhines, Christopher I. Shaffrey

**Learning Objectives:** Upon completion of this session, participants will be able to:
- Analyze critically the impact that data registries have on management of spinal conditions such as spondylolisthesis and adult deformity
- Describe the natural history of cervical myelopathy and the timing of intervention
- Describe how technological advances in spine surgery can positively impact patient care

8:00–8:10 am
**Management of Metastatic Disease to the Spine in Community Settings: You Can Do Separation Surgery**  
*Laurence D. Rhines*

8:11–8:16 am
Discussion

8:17–8:27 am
**Developing Competencies in Minimally Invasive Spinal Surgery**  
*Roger Härtl*

8:28–8:33 am
Discussion

8:34–8:44 am
**The Data of Adult Deformity Correction: Age Appropriate Correction**  
*Christopher I. Shaffrey*

8:45–8:50 am
Discussion
8:51–9:01 am  
Spondylolisthesis and QOD: Data Driven Innovation in Clinical Decision Making  
Praveen V. Mummaneni

9:02–9:07 am  
Discussion

9:08–9:18 am  
Evolution of Big Data in Spinal Surgery: The AANS/AAOS Spinal Registry  
Steven D. Glassman

9:19–9:30 am  
Discussion and Summary of Scientific Session 1

9:30–10:15 am  
Beverage Break and What’s New Session in the Exhibit Hall

Scientific Session 2  
10:15 am–12:00 pm  
The Trajectory of Spinal Surgery

Moderators: Michael W. Groff, John K. Ratliff  
Floor Moderator: Christopher E. Wolfla  
Learning Objectives: Upon completion of this session, participants will be able to:
- Identify the evolution of the management of lumbar degenerative disc disease
- Discuss the progress and current trajectory of the current management of the degenerating cervical spine
- Recognize the importance of big data in the realm of spinal surgery

10:15–10:18 am  
Introduction of Neurosurgery Honored Guest  
Zoher Ghogawala

10:19–10:34 am  
Neurosurgery Honored Guest Presentation  
Daniel K. Resnick

10:35–10:38 am  
Introduction of Orthopedics Honored Guest  
Michael S. Chang

10:39–10:54 am  
Orthopedics Honored Guest Presentation  
K. Daniel Riew

10:55–10:58 am  
Introduction of DSPN Chair  
Edward C. Benzel

10:59–11:14 am  
DSPN Chair’s Address  
Zoher Ghogawala

11:15–11:25 am  
Round Table Discussion with Zoher Ghogawala, Daniel K. Resnick, and K. Daniel Riew

11:26–11:29 am  
Introduction of Irfan Essa–Google Medical Analytics  
Zoher Ghogawala

11:30–11:50 am  
Special Lecture: Data Driven Innovation  
Irfan Essa

11:51 am–12:00 pm  
Discussion and Summary of the Session

12:00–1:00 pm  
Lunch with Exhibitors or Attend a Non–CME Sponsored Lunch

Scientific Session 3  
1:00–2:30 pm  
Innovative Technology Special Session: Operative Video Segments

Moderators: Marjorie C. Wang, Michael P. Steinmetz  
Floor Moderator: Praveen V. Mummaneni  
Speakers: Giuseppe Barbagallo, Roger Härtl, Larry T. Khoo, Daniel K. Resnick, K. Daniel Riew, Christopher I. Shaffrey  
Learning Objectives: Upon completion of this session, participants will be able to:
- Express a greater understanding of a variety of surgical techniques for the management of the degenerating spine
- Identify those patients who are ideal candidates for minimally invasive cervical and lumbar procedures
- Discuss limitations of deformity correction in a particular age group

1:00–1:08 pm  
Minimally Invasive Posterior Cervical Foraminotomy: Nuances of an Operative Technique  
Roger Härtl

1:09–1:14 pm  
Discussion

1:15–1:23 pm  
Image Guided Minimally Invasive Lumbar Laminectomy: Anatomical Basis and Rationale  
Larry T. Khoo

1:24–1:29 pm  
Discussion

1:30–1:38 pm  
The Pearls of the Lumbar Microdiscectomy  
Daniel K. Resnick

1:39–1:44 pm  
Discussion

1:45–1:53 pm  
Operative Management of High–Grade Spondylolisthesis  
Christopher I. Shaffrey

1:54–1:59 pm  
Discussion

2:00–2:08 pm  
Operative Nuances of C1–2 Fixation  
Giuseppe Barbagallo
MEETING AGENDA

2:09–2:14 pm
Discussion

2:15–2:23 pm
Cervical Laminoplasty: Complication Avoidance
K. Daniel Riew

2:24–2:30 pm
Discussion and Summary of the Session

2:30–3:15 pm
Beverage Break and What’s New Session in the Exhibit Hall

Peripheral Nerve Session
2:30–4:30 pm
Case–based Approaches to Peripheral Nerve Trauma and Other Conditions

Course Directors: Line G. Jacques, Mark A. Mahan

Course Description: This course will cover management of various peripheral nerve disorders. Using a case–based format, faculty will review indications, timing of intervention, and surgical approaches. Relevant anatomy, clinical presentation, and outcomes will be discussed. This course is an excellent review for oral board and maintenance of certification.

Learning Objectives: Upon completion of this session, participants will be able to:
– Describe a systematic approach to patients with a wide range of peripheral nerve disorders
– Develop a non–operative or operative management strategy for these conditions
– Discuss advantages and disadvantages and expected outcomes of various surgical approaches

3:15–4:25 pm
Oral Abstract Presentations

Learning Objectives: Upon completion of this session, participants will be able to:
– Analyze the findings of contemporary neurosurgical studies, critically evaluate the design and methodology of these studies
– List areas of future research and critical investigation
– Compare indications, relative contraindications and clinical outcomes for various minimally invasive and motion preserving techniques

Kuntz Scholar Oral Abstract Presentations
Concurrent Session 1
Moderators: Erica F. Bisson, Michael S. Virk

Kuntz Scholar Oral Abstract Presentations
Concurrent Session 2
Moderators: Victor W. Chang, Yi Lu, Eve C. Tsai

Kuntz Scholar Oral Abstract Presentations
Concurrent Session 3
Moderators: Sanjay S. Dhall, Kristen E. Jones, John H. Shin

Minimally Invasive/Motion Preservation Abstract Breakout Session
Moderators: Hesham M. Soliman, Neill M. Wright
### Beer and Wine Happy Hour Debates: Orthopedics versus Neurosurgery

**4:30–6:30 pm**

**Moderators:** Domagoj Coric, Luis M. Tumialán

**Orthopedic Speakers:** Neel Anand, Hyun Bae, Rolando Garcia, K. Daniel Riew, Alexander R. Vaccaro

**Neurosurgery Speakers:** Zoher Ghogawala, James S. Harrop, Daniel K. Resnick, Christopher I. Shaffrey, Juan S. Uribe, Michael Y. Wang

#### Learning Objectives:
Upon completion of this session, participants will be able to:
- Demonstrate an understanding of the limitations of minimally invasive spinal surgery in the management of deformity
- Describe the advantages and limitations of available technology in the management of the post-operative spine patient
- Identify those patients who would be ideal candidates for lumbar arthroplasty and those patients who would benefit more from arthrodesis than motion preservation

### 4:30–5:00 pm
**Topic 1: MIS for Deformity is Feasible, Cost Effective and Sustainable**

<table>
<thead>
<tr>
<th>Time</th>
<th>Speech</th>
<th>Duration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:30–4:38 pm</td>
<td>PRO: Minimally Invasive Deformity Results in a Lower Incidence of PJK</td>
<td>Neel Anand</td>
<td>PRO: Minimally Invasive Deformity Results in a Lower Incidence of PJK</td>
</tr>
<tr>
<td>4:48 pm–4:53 pm</td>
<td>Summary of Points Made by the Debaters and Questions from the Audience</td>
<td>Sigurd Berven</td>
<td>Summary of Points Made by the Debaters and Questions from the Audience</td>
</tr>
<tr>
<td>4:54–4:56 pm</td>
<td>PRO: Rebuttal</td>
<td>Neel Anand</td>
<td>PRO: Rebuttal</td>
</tr>
<tr>
<td>4:57–4:59 pm</td>
<td>CON: Rebuttal</td>
<td>Christopher I. Shaffrey</td>
<td>CON: Rebuttal</td>
</tr>
</tbody>
</table>

### 5:00–5:30 pm
**Topic 2: 21st Century Rounds for a 21st Century Surgeon**

<table>
<thead>
<tr>
<th>Time</th>
<th>Speech</th>
<th>Duration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5:00–5:08 pm</td>
<td>PRO: Virtual Rounding on Spine Patients Improves Patient Care and Patient Experience</td>
<td>Alexander R. Vaccaro</td>
<td>PRO: Virtual Rounding on Spine Patients Improves Patient Care and Patient Experience</td>
</tr>
<tr>
<td>5:09–5:17 pm</td>
<td>CON: Technology Will Only Take You so Far. Be a Doctor, Round on Your Patients in Person</td>
<td>James S. Harrop</td>
<td>CON: Technology Will Only Take You so Far. Be a Doctor, Round on Your Patients in Person</td>
</tr>
<tr>
<td>5:18–5:23 pm</td>
<td>Summary of Points Made by the Debaters and Questions from the Audience</td>
<td>Zoher Ghogawala</td>
<td>Summary of Points Made by the Debaters and Questions from the Audience</td>
</tr>
<tr>
<td>5:27–5:29 pm</td>
<td>CON: Rebuttal</td>
<td>James S. Harrop</td>
<td>CON: Rebuttal</td>
</tr>
</tbody>
</table>

### 5:30–6:00 pm
**Topic 3: Preservation of Motion at the Lumbosacral Junction is a Good Thing**

<table>
<thead>
<tr>
<th>Time</th>
<th>Speech</th>
<th>Duration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5:30–5:38 pm</td>
<td>PRO: Lumbar Arthroplasty is Alive and Well and Underutilized</td>
<td>Rolando Garcia</td>
<td>PRO: Lumbar Arthroplasty is Alive and Well and Underutilized</td>
</tr>
<tr>
<td>5:39–5:47 pm</td>
<td>CON: Fusion of the Lumbosacral Spine is Part of the Natural Aging Process, Just Fuse It</td>
<td>Juan S. Uribe</td>
<td>CON: Fusion of the Lumbosacral Spine is Part of the Natural Aging Process, Just Fuse It</td>
</tr>
<tr>
<td>5:48–5:53 pm</td>
<td>Summary of Points Made by the Debaters and Questions from the Audience</td>
<td>Hyun Bae</td>
<td>Summary of Points Made by the Debaters and Questions from the Audience</td>
</tr>
<tr>
<td>5:54–5:56 pm</td>
<td>PRO: Rebuttal</td>
<td>Rolando Garcia</td>
<td>PRO: Rebuttal</td>
</tr>
<tr>
<td>5:57–5:59 pm</td>
<td>CON: Rebuttal</td>
<td>Juan S. Uribe</td>
<td>CON: Rebuttal</td>
</tr>
</tbody>
</table>

### 6:00–6:30 pm
**Topic 4: Spine Surgery Should Be Its Own Specialty**

<table>
<thead>
<tr>
<th>Time</th>
<th>Speech</th>
<th>Duration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:00–6:08 pm</td>
<td>PRO: Merge Orthopedic Spine and Neurosurgery Spine into One Spine</td>
<td>K. Daniel Riew</td>
<td>PRO: Merge Orthopedic Spine and Neurosurgery Spine into One Spine</td>
</tr>
<tr>
<td>6:18–6:23 pm</td>
<td>Summary of Points Made by the Debaters and Questions from the Audience</td>
<td>Daniel K. Resnick</td>
<td>Summary of Points Made by the Debaters and Questions from the Audience</td>
</tr>
<tr>
<td>6:27–6:29 pm</td>
<td>CON: Rebuttal</td>
<td>Michael Y. Wang</td>
<td>CON: Rebuttal</td>
</tr>
</tbody>
</table>

6:30 pm
Debates Conclude
SATURDAY | March 7, 2020

6:30 am–5:30 pm
Registration
6:30–7:30 am
Complimentary Continental Breakfast

Challenging Cases 2
7:00–8:00 am
Oral Board–style Challenging Cases: Lumbar Degenerative
Moderators: Oren N. Gottfried, Jeffrey P. Mullin, Corinna C. Zygourakis

Scientific Session 3
8:00–9:30 am
Opioids and Spine Surgery

Moderators: Praveen V. Mummaneni, Gerald E. Rodts
Speakers: Steven M. Falowski, Richard G. Fessler, Jean–Pierre Mobasser, Jennifer A. Sweet, Michael Y. Wang

Learning Objectives: Upon completion of this session, participants will be able to:

1. Analyze the impact that data registries have on management of spinal conditions such as spondylolisthesis and adult deformity
2. Describe the natural history of cervical myelopathy and the timing of intervention
3. Describe how technological advances in spine surgery can positively impact patient care

10:15 am–12:15 pm
The Cahill Controversies

Moderators: Ziya L. Gokaslan, Robert F. Heary

Learning Objectives: Upon completion of this session, participants will be able to:

1. Discuss the difference that a payor model has on the delivery of spine care in a country
2. Identify the role and limitations of separation surgery in the management of metastatic disease
3. Identify the benefits of a spine practice in academics as compared to private practice
### Special Course 5

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45–11:15 am</td>
<td>Topic 2: The Data is Unequivocal: A Posterior Approach at L4–5 has Less Risk and Better Outcomes than A Lateral Approach</td>
</tr>
<tr>
<td>10:45–10:52 am</td>
<td>PRO: The Decade of the Transpsoas is Over and the Decade of the MIS TLIF has Just Begun</td>
</tr>
<tr>
<td>Praween V. Mummaneni</td>
<td></td>
</tr>
<tr>
<td>10:53–11:00 am</td>
<td>CON: The Decade of the Transpsoas Continues: The Data and the Lessons Learned</td>
</tr>
<tr>
<td>Adam S. Kanter</td>
<td></td>
</tr>
<tr>
<td>11:01–11:06 am</td>
<td>Summary of Points Made by the Debaters and Questions from the Audience</td>
</tr>
<tr>
<td>Edward C. Benzel</td>
<td></td>
</tr>
<tr>
<td>11:07–11:09 am</td>
<td>PRO: Rebuttal</td>
</tr>
<tr>
<td>Praween V. Mummaneni</td>
<td></td>
</tr>
<tr>
<td>11:10–11:12 am</td>
<td>CON: Rebuttal</td>
</tr>
<tr>
<td>Adam S. Kanter</td>
<td></td>
</tr>
<tr>
<td>11:13–11:14 am</td>
<td>Vote and Summary</td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>11:15–11:44 am</td>
<td>Topic 3: Thermal Ablation of Spinal Tumors</td>
</tr>
<tr>
<td>11:15 am–11:22 am</td>
<td>PRO: Newer Technology Promises to Decrease the Need for Surgery</td>
</tr>
<tr>
<td>Lawrence D. Rhines</td>
<td></td>
</tr>
<tr>
<td>11:23–11:30 am</td>
<td>CON: Definitive Intervention Once and For All is Better for the Patient</td>
</tr>
<tr>
<td>Mark H. Bilsky</td>
<td></td>
</tr>
<tr>
<td>11:31–11:36 am</td>
<td>Summary of Points Made by the Debaters and Questions from the Audience</td>
</tr>
<tr>
<td>Ziya L. Gokaslan</td>
<td></td>
</tr>
<tr>
<td>11:37–11:39 am</td>
<td>PRO: Rebuttal</td>
</tr>
<tr>
<td>Lawrence D. Rhines</td>
<td></td>
</tr>
<tr>
<td>11:40–11:42 am</td>
<td>CON: Rebuttal</td>
</tr>
<tr>
<td>Mark H. Bilsky</td>
<td></td>
</tr>
<tr>
<td>11:43–11:44 am</td>
<td>Vote and Summary</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>11:45 am–12:15 pm</td>
<td>Topic 4: Spinal Cord Stimulation versus Further Surgery</td>
</tr>
<tr>
<td>11:45–11:52 am</td>
<td>PRO: Addressing the Underlying Structural Issue Will Help the Patient the Most</td>
</tr>
<tr>
<td>Gerald E. Rodts</td>
<td></td>
</tr>
<tr>
<td>11:53 am–12:00 pm</td>
<td>CON: Enough Surgery, Spinal Cord Stimulation Offers the Greatest Relief at the Lowest Risk</td>
</tr>
<tr>
<td>Joshua M. Rosenow</td>
<td></td>
</tr>
<tr>
<td>12:01–12:06 pm</td>
<td>Summary of Points Made by the Debaters and Questions from the Audience</td>
</tr>
<tr>
<td>Domagoj Coric</td>
<td></td>
</tr>
<tr>
<td>12:07–12:09 pm</td>
<td>PRO: Rebuttal</td>
</tr>
<tr>
<td>Gerald E. Rodts</td>
<td></td>
</tr>
<tr>
<td>12:10–12:12 pm</td>
<td>CON: Rebuttal</td>
</tr>
<tr>
<td>Joshua M. Rosenow</td>
<td></td>
</tr>
<tr>
<td>12:13–12:15 pm</td>
<td>Vote and Summary</td>
</tr>
</tbody>
</table>

**Learning Objectives:**
- Describe a variety of decision-making approaches in the complex case
- Demonstrate knowledge base in complication management in cervical and lumbar operations
- Discuss complication avoidance strategies for management of complex lumbar and cervical conditions

---

**Course Directors:** John H. Chi, Langston T. Holly, Shekar N. Kurpad

**Speakers:** Sigurd Berven, Daniel K. Resnick, Alexander R. Vaccaro, Jeffrey C. Wang

**Discussants:** Domagoj Coric, Zoher Ghogawala, Jesus Lafuente

**Course Description:** Spine Summit Grand Rounds is a new course with the focus on Spine Section member participation. Spine Section members are encouraged to submit their cases through the Spine Section portal. The course is intended for audience members to bring difficult cases they have managed or are currently managing, where they would like to seek an opinion from the panel of experts. Attendees who submit a case that is accepted for the course will be refunded $200 from their registration. The refund will be made available for the six cases discussed that will be presented. Submitted cases will be reviewed by the course directors who will make the final selection.

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**12:15–1:15 pm**

Lunch with Exhibitors or Attend a Non-CME Sponsored Lunch

---

**Special Course 5**

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:30–3:30 pm</td>
<td>Spine Summit Grand Rounds: Difficult Cases – The Decision-Making Dilemma</td>
<td>$150</td>
</tr>
</tbody>
</table>
## Meeting Agenda

### Saturday

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:09-2:19pm</td>
<td>The Difficult Deformity Case</td>
</tr>
<tr>
<td></td>
<td>Sigurd Berven</td>
</tr>
<tr>
<td>2:20–3:05pm</td>
<td>Case Discussion</td>
</tr>
<tr>
<td></td>
<td>Domagoj Coric, Zoher Ghogawala, Jesus Lafuente</td>
</tr>
<tr>
<td>3:06–3:30pm</td>
<td>Questions and Conclusion</td>
</tr>
</tbody>
</table>

### Special Course 6

- **Time:** 1:30–4:30 pm
- **Cost:** $150

**Treatment and Complication Avoidance in the Management of Spinal Tumors**

**Course Directors:** John E. O'Toole, Daniel M. Sciubba  
**Speakers:** Mark H. Bilsky, Dean Chou, Nicolas Dea, Ziya L. Gokaslan, Ilya Laufer, Paul C. McCormick, Ehud Mendel, Laurence D. Rhines, John H. Shin, Ganesh Rao  
**Course Description:** This seminar is designed to review the myriad presentations of spinal tumors and to discuss the multi-disciplinary management options involving medical, radiation and surgical treatments.  
**Learning Objectives:** Upon completion of this course, participants will be able to:  
- Analyze various treatment approaches to address spinal tumor pathologies  
- Discuss incorporating innovative technologies to facilitate avoidance in spinal tumor surgery  
- Discuss multi-modal treatment of spinal tumors

### 1:30–1:34 pm  
**Introduction**  
John E. O'Toole, Daniel M. Sciubba

### 1:35–2:26 pm  
**Management of Vertebral Column Tumor Metastasis**

### 2:01 pm–2:13 pm  
**When do Metastatic Spine Tumor Patients Require Stabilization (and When Should You Not Instrument)?**  
John H. Shin

### 2:14–2:26 pm  
**Complication Avoidance/Management in Metastatic Spine Tumor Surgery**  
Daniel M. Sciubba

### 2:27–3:05 pm  
**Management of Solitary Primary Malignant Lesion of the Mobile Spine**

- **2:27–2:39 pm**  
  **Pitfalls in the Initial Management of Isolated Spinal Tumors**  
  Laurence D. Rhines

- **2:40–2:52 pm**  
  **For Which Patients is En Bloc Resection and Instrumented Fusion Appropriate?**  
  Ziya L. Gokaslan

- **2:53–3:05 pm**  
  **For Which Patients is Separation Surgery with SRS/SBRT Appropriate?**  
  Mark H. Bilsky

### Desert Pines Golf Club Outing

Desert Pines offers a taste of the Carolina Pines in the middle of the desert! With numerous bunkers and water hazards, Desert Pines rewards a player with good course management skills. Narrow tee shots will challenge you, but find the fairway and you will be rewarded. Not too long by modern standards, Desert Pines is a 2nd shot course with undulating beautiful putting surfaces. The Desert Pines Practice Center is a 20,000 square foot state-of-the-art driving range. The two-tiered, climate-controlled facility includes target greens that are modeled after some famous par 3’s throughout the country.

The outing is on Saturday afternoon. Shuttles will depart the hotel at 12:30pm, and will return at approximately 5:30pm. The cost to play is $99 per player, which includes roundtrip shuttle transportation.

**Buses depart at 12:30 pm.**

$99 per round of golf. Rental clubs are $45.
## MEETING AGENDA

### SATURDAY

#### 3:05–3:20 pm
**Break**

#### 3:21–3:46 pm
**Management of Primary Giant Cell Tumor of the Sacrum**

3:21–3:33 pm  
**Modern Management of Giant Cell Tumor of the Sacrum (Medical, Embolization, Radiation and Surgery)**  
Dean Chou

3:34–3:46 pm  
**Complication Avoidance/Management in Surgery for Primary Sacral Tumors**  
Ehud Mendel

#### 3:47–4:25 pm
**Management of Intradural Spinal Tumors**

3:47–3:59 pm  
**Surgical Approaches to Intradural Extramedullary Spinal Cord Tumors**  
John E. O'Toole

4:00–4:12 pm  
**Patient Selection and Complication Avoidance in Intramedullary Spinal Cord Tumor Resection**  
Paul C. McCormick

4:13–4:25 pm  
**Case Presentation: Resection of Intradural Extramedullary Lesion: How I Do It.**  
Ganesh Rao

#### 4:26–4:30 pm
**Questions and Discussion**

### Special Course 7

1:30–3:30 pm  
**$150**  
**Causes and Treatments for Neurologic Loss Associated with Spine Surgery**

**Course Directors:** Justin M. Brown, Mark A. Mahan  
**Speakers:** Andrew T. Dailey, Wilson Z. Ray, Robert J. Spinner, Nicholas Theodore, Gregory R. Trost, Juan S. Uribe

**Course description:** New weakness, either before or after spine surgery, is a vexing problem and many not have a causal relationship with spine pathology. It is crucial to understand non–spinal causes, intraoperative considerations and potential treatments for these problems. This course will explore the potential causes and remedies for neurologic loss associated with spine surgery. The course will focus on alternative causes of weakness—particularly when the degree of weakness or atrophy is out of proportion to spinal stenosis, intraoperative complication avoidance and algorithmic steps for the management and treatment of post–operative weakness. Newer techniques on neurologic reconstruction for remedy of weakness will be reviewed.

**Learning objectives:** Upon completion of this course, participants will be able to:
- Describe the differential diagnosis of new onset weakness, clinical patterns, and natural histories
- Discuss the intraoperative surgical strategies for complication avoidance, including appropriate use of neurophysiologic studies
- Define the surgical treatment options for neurologic loss and the considerations on timing for neurologic reconstruction

1:30 pm  
**Introduction**  
Mark A. Mahan

1:30–1:39 pm  
**Clinical Work–up of Weakness–Is it a Radiculopathy or Not?**  
Robert J. Spinner

1:40–1:49 pm  
**Electrodiagnostic Work–up of Weakness**  
Justin M. Brown

1:50–1:59 pm  
**Weakness after Cervical Spine Surgery–Avoidance**  
Nicholas Theodore

2:00–2:09 pm  
**Weakness after Cervical Spine Surgery–Evaluation and Management**  
Gregory R. Trost

2:10–2:19 pm  
**Weakness after Cervical Spine Surgery–Treatment Options and Outcomes**  
Wilson Z. Ray

2:20–2:23 pm  
**Case Discussion: Post–operative C5 Palsy**  
Justin M. Brown, Wilson Z. Ray, Gregory R. Trost

2:24–2:34 pm  
**Weakness after Direct Lateral Approach to Lumbar Spine–Avoidance**  
Juan S. Uribe

2:35–2:44 pm  
**Weakness after Posterior Approach to Lumbar Spine–Avoidance**  
Nicholas Theodore

2:45–2:54 pm  
**Weakness after Lumbar Surgery–Avoidance**  
Andrew T. Dailey

3:05–3:14 pm  
**Weakness after Lumbar Surgery–Treatment Options and Outcomes**  
Mark A. Mahan

3:15–3:29 pm  
**Case Discussion: Post–operative Foot Drop**  
Andrew T. Dailey, Mark A. Mahan, Nicholas Theodore, Juan S. Uribe

3:30 pm  
**Course Conclusion**
Special Course 8

1:30–5:30 pm
Spine Specialty Specific Oral Board Review Course $150

Course Directors: Wilson Z. Ray, Yakov Gologorsky

Course Description: This is an interactive case–based format designed to prepare recent graduates or fellow level participants for the new spine specialty specific oral boards. Enrollment will be limited to the first 20 registrants. Limited enrollment allows for dedicated one–on–one mock oral board sessions along with feedback using both submitted cases and cases prepared by the faculty.

Learning Objectives: Upon completion of this course, participants will be able to:
– Identify the more recent format of the ABNS oral boards
– Demonstrate knowledge base across an array of spine related scenarios
– Describe conveying diagnosis, surgical options and complication management to an examiner

1:30–1:49 pm
Introduction
John J. Knightly

1:50–3:30 pm
All Faculty—1:1 Oral Boards Style Case Presentations

3:30–3:50 pm
Break

3:50–5:30 pm
All Faculty—1:1 Oral Boards Style Case Presentations

Non–CME Cadaver Lab

1:30–5:30 pm $500
Hands–on Cadaver Session with the Masters (Non–CME)

Course Directors: Ajit A. Krishnaney, Mark A. Mahan

Course Description: Participants will engage in hands–on learning of innovative new technologies in spine and peripheral nerve surgery. In this four–hour cadaver lab, participants will learn advanced techniques in minimally invasive deformity spine surgery and peripheral nerve repair. Rotations will include various MIS and deformity approaches and instrumentation, as well as peripheral nerve grafting. One–on–one instruction will be performed with experienced faculty using the latest state–of–the–art devices. Surgeons with limited prior experience will learn practical techniques to introduce into their clinical practice. Those with advanced experience will have the opportunity to share surgical technique refinement with expert faculty, and to survey a variety of new technologies.

Young Neurosurgeons’ Reception and Dinner

6:00–8:00 pm

Description: All residents, fellows, and young neurosurgeons are invited to enjoy a delicious dinner with Neurosurgery Honored Guest, Daniel K. Resnick. RSVP is required, to RSVP please email meetings@cns.org.

Register for Spine and Pain and save $200!
Same Dates, Same Location, More Learning!
Attend the 2020 Joint Section on Pain Annual Meeting

March 5-7, 2020


This meeting provides continuing medical education to neurosurgeons, orthopedic surgeons, pain physicians, fellows, residents, physician extenders, and nurse clinicians involved in the practice of surgery for pain including spine and peripheral nerve surgery. Education is provided in the form of didactic lectures, case presentations and debates, exhibits presenting the newest instruments and techniques, and oral and print poster presentations providing the latest information regarding clinical advances in surgery for pain.

Learning Objectives: Upon completion of this meeting, participants will be able to:
– Adapt one or more pain management/neuromodulation therapies into your spine practice
– Identify strategies to help build your pain practice
– Explain the principles behind patient selection for neuromodulation
– Demonstrate various surgical techniques used in neuromodulation
SUNDAY I  March 8, 2020

6:30 am - 12:30 pm

Registration

6:30–7:30 am

Complimentary Continental Breakfast

Challenging Cases 3

7:00–7:30 am

Board–style Challenging Cases: Peripheral Nerve
Moderators: Line G. Jacques, Robert J. Spinner

Abstract Breakout Sessions

7:30–9:30 am

Learning Objectives: Upon completion of this session, participants will be able to:
– Identify the importance of the spinopelvic parameters in planning surgical interventions
– Describe the science behind surface technology in attempting to achieve an arthrodesis in lumbar and cervical spine surgeries
– Explain the biomechanical principles in fixation and stabilization for long segment constructs

General Spine Surgery 1/Trauma
Moderators: Christopher M. Bonfield, Kee D. Kim, Alexander E. Ropper

General Spine Surgery 2
Moderators: Christopher M. Holland, Charles A. Sansur, Alexander S. Taghva

Peripheral Nerve/Basic Science/General Spine 3
Moderators: Kee D. Kim, Bryan S. Lee, Eve C. Tsai

Spinal Deformity Breakout
Moderators: Kai–Ming G. Fu, Tyler R. Koski, Hasan Aqdas Zaidi

Scientific Session 5

9:30–11:15 am

A Focus on Innovation to Improve Spine Care
Moderators: Daniel J. Hoh, Michael P. Steinmetz

Speakers: Marie-Noelle Hebert-Blouin, Wilson Z. Ray, Volker K. H. Sonntag, Robert J. Spinner, Nicholas Theodore

Learning Objectives: Upon completion of this session, participants will be able to:
– Analyze the design, methodology, and content of basic science and clinical spine studies
– Describe the impact of innovative technologies on the field of spine surgery
– Describe how technological advances in spine surgery can positively impact patient care

9:30–9:35 am

Recognition of Kuntz Scholars and Introduction of J.A.N.E. and Mayfield Award Winners
Wilson Z. Ray

9:36–9:59 am

J.A.N.E. and Mayfield Award Presentations

10:00–10:05 am

Introduction of the DSPN Historian
Nicholas Theodore

10:06–10:16 am

Combining Forces: Orthopedics and Neurosurgery in the Battle for the Pedicle Screw
Volker K. H. Sonntag

10:17–10:20 am

Introduction of the Peripheral Nerve Meritorious Award Winner
Mari-Noelle Hebert-Blouin

10:21–10:33 am

Peripheral Nerve Meritorious Award Winner
Robert J. Spinner

10:34–10:42 am

NFL Update
Nicholas Theodore

10:43 - 10:46 am

WFNS Introduction
Praveen V. Mummaneni

10:47 - 10:55 am

Changing Outcome Using Prognostic Factors for Cervical Trauma
Salman Y. Sharif

10:56 - 11:04 am

Anterior and Posterior Approach to Complex Cervical Diseases
Maurizio Fornari

11:05 - 11:13 am

Should we Correct Geriatric Deformities?
Mehmet Zileli

11:14 - 11:15 am

Discussion and Questions
**Special Session**

**11:15 am–12:15 pm**

**Business of Neurosurgery**

**Moderators:** Joseph S. Cheng, Kurt M. Eichholz  
**Speakers:** Owoicho Adogwa, Mohamad Bydon, Kristopher T. Kimmell, Cheerag D. Upadhyaya, Anand Veeravagu

**Learning Objectives:** Upon completion of this session, participants will be able to:
– Demonstrate an understanding the socioeconomic policies under consideration and the effect that those legislative efforts will have on the practice of spine surgery  
– Discuss the recent activity of the Washington Committee with regards to spinal surgery  
– Identify the changes in the E&M structure and the impact it has on a neurosurgery practice that focuses on spine

**11:15–11:22 am**  
**The Possibility of Medicare for All: The Effect on Spine Surgery**  
**Cheerag D. Upadhyaya**

**11:23–11:30 am**  
**Ambulatory Surgical Centers: Spine Surgeons Need Them Now More Than Ever**  
**Kurt M. Eichholz**

**11:31–11:38 am**  
**Washington Update**  
**Mohamad Bydon**

**11:39–11:46 am**  
**Is the Spine Bundle Our Inevitable Future?**  
**Owoicho Adogwa**

**11:47–11:54 am**  
**Malpractice in Neurosurgery: Understanding its Origins**  
**Anand Veeravagu**

**11:55 am–12:02 pm**  
**The Status of Legislation: Addressing the Preauthorization Conundrum**  
**Kristopher T. Kimmell**

**12:03–12:10 pm**  
**The Changes in E&M Coding Effecting Your Practice**  
**Joseph S. Cheng**

**12:11–12:15 pm**  
**Questions and Summary of Session**

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**DSPN Business Meeting**

**12:15–12:30 pm**

**Moderator:** Luis M. Tumialán  
**Speakers:** Steven N. Kalkanis, Adam S. Kanter, Eric A. Potts, Christopher I. Shaffrey, Michael Y. Wang, Christopher E. Wolfla

**12:15–12:16 pm**  
**Treasurer’s Report**  
**Eric A. Potts**

**12:17–12:19 pm**  
**Secretary’s Report**  
**Adam S. Kanter**

**12:20–12:22 pm**  
**Nominating Committee Report**  
**Michael Y. Wang**

**12:23–12:25 pm**  
**CNS Board Report**  
**Steven N. Kalkanis**

**12:26–12:28 pm**  
**AANS Board Report**  
**Christopher I. Shaffrey**

**12:29–12:30 pm**  
**Future Sites Committee Report**  
**Christopher E. Wolfla**

**12:30 pm**  
**Meeting Adjourns**

*All speakers and topics are subject to change*
Enjoy classic rock and roll music and an unforgettable performance by an Elvis tribute artist.

Experience an electrifying dance sensation as trained dancers and gymnasts get the crowd energized with a choreographed dance performance on land and water.

Gaze up at the Las Vegas skyline, and 20 feet in the air as gymnasts delight the audience from above via an aerial hoop.

Enjoy a view of the beautiful Chelsea Pool, inhabited by magical mermaids and rotating performances via multiple floating stages.

Take a picture with the glamorous, statuesque Tower Showgirls.

See amazing feats of strength as contortionists perform mind and body-bending.

Grab a cocktail from our champagne servers, outfitted in self-serve cocktail dispensing apparatus.

Stay on the edge of your seat as you watch chair balancers stack chairs up to 20 feet high.

You’ve never seen a neurosurgery event like this, and you won’t want to miss out!

One entry ticket included with registration, additional tickets can be purchased in advance.
This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of Congress of Neurological Surgeons and the Section on Disorders of the Spine and Peripheral Nerves. The Congress of Neurological Surgeons is accredited by the ACCME to provide continuing medical education for physicians.

AMA Credit Designation Statement
The CNS designates this live activity for a maximum of 28 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity. This activity meets the criteria for opioid education. Attendees will receive a maximum of 1.5 AMA PRA Category 1 Credits™ for the eligible Scientific Session.

Several states have similar requirements. Please check with your Board to determine if this activity will fulfill your state’s specific requirements.

CME Credit
*A maximum of 18.5 AMA PRA Category 1 Credits™ may be earned for Scientific Sessions only.

Additional CME Credits can be earned by attending the following:

Special Courses
Attendees will receive a maximum of 3.75 AMA PRA Category 1 Credits™ for an eligible half-day Thursday Special Course. Attendees will earn an additional 2 AMA PRA Category 1 Credits™ for attending the Thursday Evening Dinner Seminar. Attendees will receive a maximum of 3.75 AMA PRA Category 1 Credits™ for an eligible Saturday afternoon Special Course. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Nursing Credit
This continuing nursing education activity was submitted to the American Association of Neuroscience Nurses, an accredited approver by the American Nursing Credentialing Center Commission on Accreditation.

Physician’s Assistant Credit
This program is being reviewed for a maximum of 28 AMA PRA Category 1 Credits™ by the AAPA Review Panel. PAs should claim only the credit commensurate with the extent of their participation in the activity.

This program was planned in accordance with AAPA CME Standards for Live Programs and for Commercial Support of Live Programs.

Join us at Spine Summit 2020 to honor our Honored Guests and Meritorious Awardee!

<table>
<thead>
<tr>
<th>Neurosurgery Honored Guest</th>
<th>Orthopedics Honored Guest</th>
<th>Peripheral Nerve Meritorious Award</th>
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</thead>
<tbody>
<tr>
<td>Daniel K. Resnick</td>
<td>K. Daniel Riew</td>
<td>Robert J. Spinner</td>
</tr>
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</table>
Who Should Attend
Educational sessions are geared toward neurosurgeons, orthopedic surgeons, spine care specialists, fellows, residents, physician assistants/physician extenders, and nurse clinicians and are applicable to the practice of spine and peripheral nerve surgery.

Meeting Purpose
The purpose of the 2020 Section on Disorders of the Spine & Peripheral Nerves Annual Meeting is to provide continuing medical education to neurosurgeons, orthopedic surgeons, spine care specialists, fellows, residents, physician extenders and nurse clinicians involved in the practice of spine and peripheral nerve surgery. Education is provided in the form of didactic lectures, special courses demonstrating neurosurgical techniques, exhibits presenting the newest instruments and information, and digital posters providing the latest information regarding clinical advances in neurological surgery.

Hotel Information
Enjoy residential styled living spaces with breathtaking skyline views. Explore one of a kind restaurants featuring the Las Vegas debuts of world-class chefs. The eclectic mix of hand-selected boutiques, and unrivaled pool district, 100,000 square foot casino, and serene Sahra Spa, Salon & Hammam complete an unforgettable luxury experience.

Your ideal destination escape includes three distinct Las Vegas hotel pool experiences, all with views unlike any others. After a day in the sun, experience shows and nightlife that make Las Vegas fabulous. The Cosmopolitan of Las Vegas showcases both artists at the forefront of the touring world, and emerging artists that will inspire the next musical movements, all presented in spectacularly designed, technology drive venues. The Cosmopolitan offers guests the opportunity to see world-class performances of Las Vegas and some of the best shows in Las Vegas, all under one fabulous roof.

Child Care Services
For guests who are interested in Child Care, the Cosmopolitan of Las Vegas offers a variety of options. Guests are able to book these services directly with the Concierge calling 702-698-7475. For more information on services you can also visit https://nahusa.com.

Evaluations
The evaluation process is a key component in providing cutting-edge programming at the Section on Disorders of the Spine and Peripheral Nerves Annual Meeting. Your feedback on the quality and diversity of the program helps to determine future Annual Meeting programming. Your voice is important and your opinions are valued!

Speaker Ready Room
The Speaker Ready Room will be available Thursday, March 5 through Sunday, March 8. All speakers and abstract presenters should visit the Speaker Ready Room at least one hour prior to their presentations.

No Smoking Policy
Smoking is not permitted at any official Section on Disorders of the Spine and Peripheral Nerve Annual Meeting event. Smoking is allowed at the Cosmopolitan of Las Vegas in designated areas only.

Airline Discounts
The Section on Disorders of the Spine & Peripheral Nerves is pleased to offer discounts with the below airlines. Discount codes can only be used when booking directly through the airline website.

<table>
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<tr>
<th>Discount Codes</th>
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<tbody>
<tr>
<td>American Airlines</td>
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<td>March 2–12, 2020</td>
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<td>2930DU</td>
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HOUSING AND TRAVEL INFORMATION

Hotel Accommodations
The Cosmopolitan of Las Vegas offers luxury accommodations and amenities your whole family is sure to enjoy, from fine dining to a host of recreation activities. Smoking is allowed in designated outdoor areas only.

Resort Amenities
• Luxurious on-site spa
• 3 Distinct pool experiences
• 100,000 square foot casino

Hotel Room Rates

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<tr>
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<th>Single</th>
<th>Double</th>
<th>Triple</th>
<th>Quad</th>
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<tbody>
<tr>
<td>Standard Room</td>
<td>$293.65</td>
<td>$293.65</td>
<td>$333.34</td>
<td>$373.02</td>
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</tbody>
</table>

* Above rates include applicable state and local taxes. A portion of the room rate will be utilized to cover the cost of registration and housing services.  
* The above rates do not include an additional $25 per room per night mandatory resort fee

Deposit
A deposit equal to one night’s room and tax is required to hold each guest’s reservation. This payment must be submitted with your registration fees. Credit cards will be charged in mid-February. Please make checks payable to the DSPN Housing Center and mail checks to: DSPN Registration and Housing Center, 6100 W. Plano Parkway, Suite 3500, Plano, TX 75093. All rooms are subject to applicable state and local taxes. Hotel reservations requested without deposit will not be accepted.

Hotel Confirmations, Cancellations, or Changes

Through February 21
• All changes and cancellations must be made through the Section on Disorders of the Spine and Peripheral Nerves Registration and Housing Center.  
• Rooms are not transferable.  
• Refunds for deposits will be issued by the Section on Disorders of the Spine and Peripheral Nerves Registration and Housing Center if registration is cancelled.

Beginning February 22
• All changes and cancellations must be made directly with the hotel.  
• If cancellation notice is not received according to the hotel policy, the deposit may be forfeited.  
• Check your hotel confirmation and contact the hotel directly for information.

Support the Section on Disorders of the Spine and Peripheral Nerves by booking your hotel room for the Annual Meeting by using one of the methods listed on the housing form. In order to obtain the necessary meeting and exhibit space at the hotel, the Section on Disorders of the Spine and Peripheral Nerves must commit to a minimum number of guest rooms. If that commitment is not fulfilled, the Section will incur significant financial penalties and have difficulty obtaining sufficient meeting space in the future. Unfortunately, this can have a major impact on the member services and programs that the Section is able to offer in the future. We appreciate your commitment to the Section by staying at the Cosmopolitan of Las Vegas.

Transportation to the Hotel
The Cosmopolitan of Las Vegas is conveniently located less than three miles from McCarran International airport.

• $15 - $20 average costs for Uber or Lyft  
• $25 approximate taxi fare each way  
• $100 for a private sedan through the Cosmopolitan’s preferred transportation company, ODS limo. For more information and to make a reservation visit https://www.odslimo.com or calling 702-688-7353

Reservations can be made online or via fax, phone or mail. Visit www.spinesection.org to make your reservation today!
Credit Card Payments
- US dollars and drawn on a US bank
- Visa
- MasterCard
- American Express

What’s Included in the Registration Fee?
Medical registration includes the following:
- Daily Continental Breakfast
- Daily Beverage Breaks
- Daily Scientific Sessions
- One ticket to Thursday Opening Reception
- Entry to Friday Lunch with Exhibitors
- Entry to Saturday Lunch with Exhibitors

Spouse/Guest Registration
Includes the Following:
- Daily Continental Breakfast
- Daily Scientific Sessions
- Entrance to the Exhibit Hall
- One ticket to Thursday Opening Reception
- Entry to Friday Lunch with Exhibitors
- Entry to Saturday Lunch with Exhibitors

Child Registration
Although there is no registration fee, children under 18 years of age should register for the 2020 Spine Summit to receive a badge, which includes access to:
- One ticket to Thursday Opening Reception
- Daily Continental Breakfast

Special Note: Children under the age of 18 are not allowed on the exhibit hall floor.

Speaker Registration
Complimentary registration will not be provided for one-day speakers. All speakers must register at the applicable registration rate.

Onsite Registration Hours
Thursday, March 5
11:00 am–5:30 pm
Friday, March 6
6:30 am–6:30 pm
Saturday, March 7
6:30 am–5:30 pm
Sunday, March 8
6:30 am–12:30 pm

Registration Cancellation/Refund Policy
All refund requests must be received in writing by February 17
Requests accepted via:
E-mail: dspn@mcievents.com
Fax: (972) 349-7715
Mail: DSPN Registration and Housing
6100 W. Plano Parkway, Suite 3500
Plano, TX 75093

Americans with Disabilities Act/ Special Needs and Requests
The Section on Disorders of the Spine and Peripheral Nerves wishes to take the necessary steps to ensure that no individual with a disability is excluded, denied services, segregated or otherwise treated differently than other individuals because of the absence of auxiliary aids and services. Please let us know if, under the ADA, you require special accommodations or services in order to attend the Section on Disorders of the Spine and Peripheral Nerves Annual Meeting.

Your requirements should be sent directly to the Section on Disorders of the Spine and Peripheral Nerves Housing and Registration Center by emailing dspn@mcievents.com or calling (866) 931-9543. Please provide any requests at least 30 days prior to the Spine Summit to guarantee accommodation. Scooter and wheelchair rentals are available by contacting ScootAround, Inc. at their toll-free hotline: (888) 441-7575. You can also submit a rental inquiry on the web at www.scootaround.com.
FOUR WAYS TO REGISTER IN ADVANCE:
1. Online: (Credit card only) www.spinesection.org
2. Phone: (800) 931-9543 or (972) 349-5539
3. Fax: (972) 349-7715 (credit card only)
4. Mail: DSPN REGISTRATION AND HOUSING CENTER
   6100 W. Plano Parkway, Suite 3500
   Plano, TX 75093

REGISTRATION INFORMATION
Please print or type legibly using one form per person. The name and address entered below will be used for CME Certificate.

<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Credentials</th>
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<th>Institution/Hospital/Office/Company</th>
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<tr>
<th>Address</th>
<th>City</th>
<th>State/Province</th>
<th>Country</th>
<th>Zip/Postal Code</th>
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<tr>
<th>Telephone (if international please include country code)</th>
<th>Fax</th>
<th>E-mail</th>
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Spouse/Guest Name (if applicable; please print name as it will appear on badge)

Child Name(s) and age

HOTEL RESERVATIONS
Individuals requiring hotel reservations must first register for the Section on Disorders of the Spine and Peripheral Nerves Annual Meeting.

Arrival Date: ________________  Departure Date: ________________  □ No Room Required  Staying at/with: ____________________________

Room Preference  □ Standard Room Single/Double $293.65  □ Standard Room Quad $373.02  □ Standard Room Triple $333.34

* Above rates include applicable state and local taxes. A portion of the room rate will be utilized to cover the cost of registration and housing services.

**The above rates do not include a mandatory $25 per room per night Resort Fee

The Cosmopolitan of Las Vegas will make every effort to honor specific requests; however, they reserve the right to provide alternative accommodations when necessary.

Special Requests
□ Handicap Accessible Room  □ Crib (additional fee may apply)  □ Rollaway bed (additional fee of $45 + tax per day applies)

Special requests are subject to availability upon arrival at the hotel.

□ Please check this box if you are interested in reserving a room type not listed above. (Section on Disorders of the Spine and Peripheral Nerves Registration and Housing Center representative will contact you regarding availability and rates. In the meantime, a standard room will be assigned.)

HOTEL CHANGE/CANCELLATION POLICY
Through February 21 – All changes are subject to availability and cancellations may be made online at www.spinesection.org or via e-mail at dspn@mcievents.com.

Beginning February 22 to 72 Hours Prior to Your Scheduled Arrival Date – Please contact the Cosmopolitan of Las Vegas directly with all changes or cancellations. The hotel will retain the deposit for cancellations not made at least 72 hours prior to your confirmed arrival date. This cancellation policy is strictly enforced and no exceptions will be made. Please retain the cancellation information from the Section on Disorders of the Spine and Peripheral Nerves Registration and Housing Center as the hotel cancellation number is proof of the cancellation. This number will be required to resolve any disputes.

MEETING REGISTRATION FEES

<table>
<thead>
<tr>
<th>Registration Category</th>
<th>Received on or before February 7, 2020</th>
<th>Received after February 7, 2020</th>
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<tbody>
<tr>
<td>Advance Rates</td>
<td>Post Advance Registration Rates</td>
<td></td>
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</table>

Spine Section Member  □ $600  □ $800
NASS Member           □ $600  □ $800
Orthopedic Surgeon/ACOS*  □ $600  □ $800
SRS Member            □ $600  □ $800
SMSS Member           □ $600  □ $800
ISASS Member          □ $600  □ $800
AO Spine Member       □ $600  □ $800
CSRS Member           □ $600  □ $800
ACSR Member           □ $600  □ $800
Non-Member            □ $750  □ $950
Non-Physician, Non-Member □ $750  □ $950
Resident              □ $50   □ $100
Resident Non-Member   □ $75   □ $125
Medical Student       □ $50   □ $100
Nurse                 □ $250  □ $400
Physician Assistant   □ $250  □ $400
Spouse/Guest          □ $100  □ $130
Child                 □ $0    □ $0

* Orthopedic Surgeon/ACOS Member Registration Includes One-Year Complimentary Adjunct Membership

Subtotal for Registration Fee Section $________
**SPECIAL COURSES TICKET ORDER**

### Thursday, March 5 1:30–5:30 pm

<table>
<thead>
<tr>
<th>SPECIAL COURSES 1–4</th>
<th>PAYMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Special Course 1: Novel and Emerging Technologies in Spine Surgery</td>
<td>$200</td>
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<tr>
<td>☐ Special Course 2: Spinal Deformity: Applying Current Deformity Concepts to Your Practice, a Cased Based Approach</td>
<td>$200</td>
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<tr>
<td>☐ Special Course 3: Challenges in the Surgical Treatment of Pain</td>
<td>$200</td>
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<tr>
<td>☐ Special Course 4: Introduction to Spinal Coding: From Decompression to Deformity</td>
<td>$200</td>
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<tr>
<th>DINNER SEMINAR</th>
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<tbody>
<tr>
<td>☐ Dinner Seminar/9:00-11:00 pm</td>
<td>$175</td>
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### Saturday, March 7

<table>
<thead>
<tr>
<th>SPECIAL COURSES 5–8</th>
<th>PAYMENT</th>
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</thead>
<tbody>
<tr>
<td>☐ Special Course 5: Spine Summit Grand Rounds: Difficult Cases–The Decision–Making Dilemma/1:30–3:30 pm</td>
<td>$150</td>
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<tr>
<td>☐ Special Course 6: Treatment and Complication Avoidance in the Management of Spinal Tumors/1:30–4:30 pm</td>
<td>$150</td>
</tr>
<tr>
<td>☐ Special Course 7: Causes and Treatments for Neurologic Loss Associated with Spine Surgery/1:30–3:30 pm</td>
<td>$150</td>
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<tr>
<td>☐ Special Course 8: Spine Specialty Specific Oral Board Review Course/1:30 - 5:30 pm</td>
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<tr>
<th>CADAVER LAB</th>
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<tr>
<td>☐ Hands on Cadaver Session with the Masters (Non-CME) 1:30 - 5:30 pm</td>
<td>$500</td>
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<tr>
<th>DESERT PINES GOLF CLUB OUTING</th>
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<tbody>
<tr>
<td>☐ Desert Pines Golf Outing</td>
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**PAYMENT**

| HOTEL TOTAL | $__________ |
| REGISTRATION TOTAL | $__________ |
| GRAND TOTAL | $__________ |

☐ Check: Full payment must accompany your registration form. Please make REGISTRATION check payable to the DSPN Registration Center. Please make HOUSING check payable to the DSPN Housing Center.

Please send both of your checks to: DSPN Registration and Housing Center, 6100 W. Plano Parkway, Suite 3500, Plano, TX 75093. (Any checks received from an overseas bank will be returned. Any checks returned for insufficient funds are subject to additional charges.)

**Credit Card Authorization:** Credit card will be charged immediately.

☐ Visa ☐ MasterCard ☐ American Express

Credit card number    Expiration date    CCV code

Name of Cardholder (print)

Signature (I agree to pay according to the credit card issuer agreement)

**By signing this form:** I authorize the Joint Section on Disorders of the Spine and Peripheral Nerves Registration and Housing Center to charge my credit card for the total payment due, acknowledge that the Joint Section on Disorders of the Spine and Peripheral Nerves registration cancellation policies are in effect and grant the Joint Section on Disorders of the Spine and Peripheral Nerves the right to use photos and video’s taken at the Joint Section on Disorders of the Spine and Peripheral Nerves Annual Meeting which include me in promotional materials for future meetings.

These fees are subject to audit in case of error, the Joint Section on Disorders of the Spine and Peripheral Nerves Registration and Housing Center reserves the right to correct the error and charge the appropriate fees.

Registration Cancellation Policy—Full registration refunds, less a $100 processing fee, will be granted if written requests for cancellation are received by February 17, 2020. No refunds of any kind will be given after this date. Refunds will not be given for no shows. Written requests may be e-mailed to dspn@mcievents.com, faxed to (972) 349-7715 or mailed to DSPN Registration and Housing Center, 6100 W. Plano Parkway, Suite 3500, Plano, TX 75093

**By submitting this form** you agree that the CNS can retain this information for the purposes of communication and service support set out in our Privacy Policy, which can be viewed at https://www.cns.org/privacy-policy. If you do not want your information retained, please email privacy@cns.org.
Find the latest spine and peripheral nerve technology in the Exhibit Hall. Take time to explore the hall and enjoy one-on-one discussions and hands-on demonstrations with our exhibitors. Learn about the devices and new technologies that can advance your practice.

**Exhibit Hall Features**
- Discover state-of-the-art equipment, products, and services.
- Enjoy lunch in the exhibit hall or a corporate sponsored lunch. Corporate partners present the latest cutting-edge technology while providing lunch.
- Participate in What’s New sessions. Join the crowd during daily beverage breaks on Friday and Saturday, as speakers share the latest in cutting-edge research and technology.

### Exhibit Hours

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
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<tbody>
<tr>
<td>Friday, March 6</td>
<td>9:00 am–4:30 pm</td>
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<tr>
<td>Saturday, March 7</td>
<td>9:00 am–1:15 pm</td>
</tr>
</tbody>
</table>

### What’s New and Beverage Break Schedule

<table>
<thead>
<tr>
<th>Day</th>
<th>Morning</th>
<th>Afternoon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friday, March 6</td>
<td>9:30-10:15 am</td>
<td>2:30–3:15 pm</td>
</tr>
<tr>
<td>Saturday, March 7</td>
<td>9:30-10:15 am</td>
<td></td>
</tr>
</tbody>
</table>

### Corporate Sponsored Lunch Schedule

<table>
<thead>
<tr>
<th>Day</th>
<th>Afternoon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thursday, March 5</td>
<td>12:30-1:30 pm</td>
</tr>
<tr>
<td>Friday, March 6</td>
<td>12:00–1:00 pm</td>
</tr>
<tr>
<td>Saturday, March 7</td>
<td>12:15–1:15 pm</td>
</tr>
</tbody>
</table>

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### 2019 EXHIBITORS

- 4WEB Medical
- 7D Surgical
- Additive Implants
- Aesculap
- Alphatec Spine
- Amplify Surgical
- Anchor Orthopedics
- Augmedics
- Baxter Healthcare
- Benvenue Medical
- Biedermann Motech
- Biologica Technologies
- Bioventus
- Brainlab
- Cerapedics
- ChoiceSpine
- CTL Amedica
- DePuy Synthes
- DJO
- Globus Medical
- Hans Biomed
- Integrity Implants
- Intrinsic Therapeutics
- Joimax, Inc
- K2M, Inc.
- Life Instrument Corporation
- Medtech International Group
- Medtronic
- MiRus
- Misonix
- Neuraxis
- NeuroPoint Alliance
- NuVasive
- Olympus America
- Orthofix
- ORTHOReBIRTH USA
- Providence Medical Technology
- RIWO Spine – A Richard Wolf Company
- RTI Surgical
- SeaSpine
- SI-BONE
- Simplify Medical
- SpineCraft
- Spineology
- Spine Wave
- Stimwave
- Stryker
- Surgentec
- Synaptive Medical
- Thompson Surgical Products
- Titan Spine
- Tobra Medical
- Zimmer Biomet
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SPINE SUMMIT 2020

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