CONGRATULATIONS to the 2016 Award Recipients!

Nitin Agarwal  
J.A.N.E. Award

Kevin T. Huang  
Mayfield Clinical Science Award

Daniel C. Lu  
Mayfield Basic Science

Joey K. Grochmal  
Kline Peripheral Nerve Top Abstract

Jetan H. Badhiwala  
AANS/CNS Joint Section of the Spine and Peripheral Nerves Research Award (NEW)

Ilyas Eli  
Kline Peripheral Nerve Research Award

Charles Kuntz IV Scholars

Mark Attiah  
Katie Krause  
Nicholas Au Yong  
Darryl Lau  
Yi-Ren Chen  
Jay Nathan  
Lee Onn Chieng  
Imran Noorani  
Michael Cloney  
Eric Sankey  
Shashank Gandhi  
Ganesh Shankar  
Jakub Godzik  
Corey Walker  
Jian Guan  
Vijay Yanamadala  
Allen Ho  
Juneyoung Yi  
Ibrahim Hussain  
Hesham Zakaria
WELCOME TO SPINE SUMMIT 2018!

On behalf of the Section on Disorders of the Spine and Peripheral Nerves Executive Committee, welcome to Spine Summit 2018 at the Loews Royal Pacific Resort at Universal Orlando®, Florida! This promises to be an exciting and thought-provoking exploration of all the latest in innovation and neurosurgical education.

We welcome our 2018 international partner society, the Brazilian Society of Neurosurgery, who will be offering their perspectives at the Brazilian Spine Symposium on Wednesday. We are also thrilled to welcome our special guest speaker, NFL Hall of Fame running back Jerome “The Bus” Bettis, who will share his personal experiences from years as a professional athlete.

This meeting promises to be the most dynamic spine conference of the year as we explore our theme, Restoring Alignment in an Era of Global Change. We’re proud to honor Meritorious Awardees Rick Sasso and Vincent Traynelis, and Meritorious Member Awardees, Paul McCormick and John McGillicuddy, for their contributions to the field. They will be sharing their knowledge along with other illustrious faculty members during educational courses, specialized breakout sessions, award presentations, Happy Hour Debates, and the Cahill Controversies throughout the coming days.

Make sure you take the time to explore all the latest technologies and advancements on display from our industry partners in our vibrant exhibit hall. Then take a break to enjoy, any or all of the three theme parks available at Universal Orlando™.

Thank you again for joining us at Spine Summit 2018. We hope your meeting experience is second to none.

Sincerely,

Chairman’s Biography

Marjorie C. Wang
Section Chair

Marjorie C. Wang, MD, MPH is professor of neurosurgery at the Medical College of Wisconsin. She graduated from Brown University and obtained her MD from Loyola Stritch School of Medicine. Dr. Wang completed neurosurgery residency at the University of Colorado in Denver, then moved to Seattle where she joined the faculty at the University of Washington. She obtained advanced training in public health and health services as a Robert Wood Johnson Clinical Scholar and at the University Of Washington School Of Public Health. In 2005, she moved to Wisconsin to pursue further in-depth clinical training as a spine fellow before joining the faculty at the Medical College of Wisconsin. Dr. Wang then received a three-year Robert Wood Johnson Physician Faculty Scholars Award to study health outcomes after cervical spine surgery. She has served a number of roles at the Medical College, including clinical director of the multidisciplinary SpineCare Center and physician safety and quality officer.

Dr. Wang’s clinical practice and research focuses on spine, patient reported outcomes, quality of care, and health services. She is the co-director of the Spine Service Line for the Froedtert/Medical College of Wisconsin Enterprise, which includes three hospitals and 32 community-based clinics. She is vice chair of Clinical Operations and Quality for the Department of Neurosurgery, and is the chief of the Community Division and the director of the Spine Fellowship program. She is passionate about the role of surgeons in leadership and patient advocacy.

Dr. Wang is a section editor for World Neurosurgery and an active member of the CNS and AANS. She has served on a number of committees including the Joint Guidelines Committee and scientific advisory board for the spine subcommittee of the Quality Outcomes Database. She is a Scholar in Residence for the American Board of Neurological Surgeons was recently elected to the ABNS Board of the Directors.

Sincerely,
Paul C. McCormick
Herbert and Linda Gallen Professor of Neurological Surgery Columbia University College of Physicians and Surgeons New York, New York

Dr. McCormick is the Herbert and Linda Gallen Professor of Neurological Surgery at Columbia University College of Physicians and Surgeons and attending neurosurgeon at New York Presbyterian Hospital. He is Director of The Spine Hospital at the Neurological Institute of New York.

Dr. McCormick graduated from Columbia University in 1978 where he played varsity baseball and was captain of the Columbia football team. Dr. McCormick received his medical degree from Columbia University College of Physicians and Surgeons in 1982. After a research year at the National Institutes of Health he trained in neurological surgery at the prestigious Neurological Institute of New York from 1984–1989. He then performed a one-year spine surgery fellowship at Medical College of Wisconsin and returned to Columbia University Medical Center in 1990 as the first neurosurgeon to dedicate his practice to the evaluation and treatment of patients with spinal disorders.

Dr. McCormick has published over 200 peer reviewed scientific papers and book chapters, authored or edited 11 books, presented as an invited speaker at over 230 scientific meetings, and been selected as an honored lecturer at 35 institutions throughout North and South America, Europe, and the Middle East.

Dr. McCormick has held numerous leadership positions in organized neurosurgery and spine surgery including serving on the Executive Committee and as vice president of the Congress of Neurological Surgeons (CNS), chairman of the AANS/CNS Joint Section on Disorders of the Spine and Peripheral Nerves, director and vice chair of the American Board of Neurological Surgery (ABNS), and on the Executive Committee and as president of the American Association of Neurological Surgeons (AANS).

John E. McGillicuddy
Emeritus Professor of Neurosurgery and Orthopaedic Surgery The University of Michigan Ann Arbor, Michigan

John McGillicuddy was born in Worcester, Massachusetts, and raised in the small town of Ashland. He attended the College of the Holy Cross, in Worcester, graduating with honors in 1962. His medical education began at Dartmouth Medical School, where he graduated in 1964 with a Bachelors in Medical Science, and continued at Harvard Medical School where he received his MD in 1966.

Planning a career in general surgery, he completed an internship and a year of residency at the Medical College of Virginia when his interest turned strongly to neurosurgery. Service in the US Navy Medical Corps from 1968 to 1970 included a year in Vietnam in combat with the First Marine Division. Following discharge, he began neurological training at the University of Michigan in 1970 under Richard C. Schneider and finished in 1974. He then joined the faculty at Michigan progressing to professor of neurosurgery in 1990. He also received an appointment as professor of orthopaedic surgery in 2003. He is currently an active emeritus professor of neurosurgery and orthopaedic surgery at Michigan.

Dr. McGillicuddy has been active on a number of local and national committees and served in leadership capacities. He was president of the Society of University Neurosurgeons in 2000 and vice president of the Neurosurgical Society of America in 1999. He served on the Executive Committee of the Joint Section on Diseases of the Spine and Peripheral Nerves from 1994 to 1999. He was chosen as the David Kline Lecturer for the AANS meeting in 2011. He was awarded the University of Michigan Medical School’s Outstanding Clinician Award in 2005. He has written and spoken extensively on peripheral nerve issues. His principal interest has been teaching and mentoring residents on patient care, diagnosis, surgical technique and leadership. He married Bridget Cantwell in 1970. They have four children and now have the joy of watching and spoiling seven grandchildren.
Meritorious Award Recipient, Orthopedics

Rick Sasso
Chief of Spine Surgery
Indiana University School of Medicine
Bloomington, Indiana

Rick Sasso, MD, is professor and chief of spine surgery in the department of orthopaedic surgery at the Indiana University School of Medicine. He is also founder and president of the Indiana Spine Group.

Dr. Sasso holds 19 United States patents and numerous more international patents. His academic area of interest is in disorders of the cervical spine. He designed and developed a universal posterior cervical screw/rod system that has been the world-wide market leader for over a decade. This type of device has revolutionized our ability to stabilize the craniocervical and cervicothoracic junctions, which are areas of passion for Dr. Sasso.

Dr. Sasso implanted the first cervical artificial disc in the United States over a decade ago. He continues to study the long-term outcomes of cervical arthroplasty.

Dr. Sasso has also been intimately involved in intraoperative image navigation technology and the development of minimally invasive surgical techniques.

Meritorious Award Recipient, Neurosurgery

Vincent C. Traynelis
Director, Neurosurgery Spine Fellowship Program & Professor Rush University
Chicago, Illinois

Vincent C. Traynelis, MD, received his medical degree from West Virginia University School of Medicine in Morgantown, where he also completed an internship in general surgery and a residency in neurosurgery. Dr. Traynelis is a board-certified neurosurgeon who specializes in complex spine surgery, spinal deformity, spinal arthroplasty, spinal reconstruction, spinal tumors, spinal cord tumors, and minimally invasive spine surgery.

He is a past president of the Congress of Neurological Surgeons and the Cervical Spine Research Society, and past chairperson of the Joint Section of Disorders of the Spine and Peripheral Nerves.

Dr. Traynelis is a regularly invited speaker at continuing medical education programs and is a frequent guest lecturer in this country as well as abroad. He has published more than 150 papers in peer-reviewed journals, more than 80 chapters, four books and almost 200 editorials.

He was a director of the American Board of Neurological Surgery for six years and served as the vice chair of the ABNS in 2014–2015. Dr. Traynelis’ research interests include cervical spine surgery, spinal infections, operative monitoring and spinal biomechanics. He has received grants from the National Institutes of Health and the US Army.
DSPN WELCOMES OUR PARTNER SOCIETIES!

International Partner
Brazilian Society of Neurosurgery (SBN)
Asdrubal Falavigna—President

North American Spine Society (NASS)
Daniel Resnick—President

Women in Neurosurgery (WINS)
Ann M. Parr—Chairperson

Wednesday
March 14, 2018

11:00 am – 5:30 pm
Registration North Desk

Special Course 1
Timor Sea 1/2
1:30 – 5:30 pm

MIS/Navigation and Robotics
Procedural Solutions

Directors: Roger Hartl, Paul Park
Faculty: Roger Hartl, J. Patrick Johnson, Ronald A. Lehman, Jean-Pierre Mobasser, Paul Park, Eric A. Potts, Michael P. Steinmetz, Laura A. Snyder, Khoi D. Than, Nicholas Theodore, Juan S. Uribe

Course Description: This course will cover the latest advances in spinal navigation with an emphasis on minimally invasive surgery, and a detailed review of the present and future role of robotics in spinal surgery. The premise of the course is to maximize efficiency and accuracy in using navigation and to discuss novel applications for image guidance. This course will cover essential topics, including optimal workflow for integration of intra-operative image acquisition, positioning, frame placement, and instrumentation use. It will also review strategies for complex cases and complication avoidance.

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

- Understand current evidence supporting the use of spinal navigation in minimally invasive surgery.
- Learn the role of robotics in spinal surgery.
- Describe navigation techniques for minimally invasive surgery, including applications in trauma, tumor, and spinal deformity surgery.

1:30 – 1:35 pm
Introduction
Paul Park

1:35 – 1:50 pm
Applications and Evidence for Spinal Navigation in Minimally Invasive Spine Surgery
Laura A. Snyder

1:50 – 2:00 pm
Navigation—MIS TLIF (Technique)
Roger Hartl

2:00 – 2:10 pm
Navigation—Percutaneous Screw Fixation (Technique)
Jean-Pierre Mobasser

2:10 – 2:20 pm
Navigation—Spinal Tumor (Technique)
Khoi D. Than
**Course Description:** This course is designed to provide all the basics in diagnosis and management of adult spinal deformity. It will cover the latest innovations on deformity, including fundamentals in diagnosis and planning, as well as surgical strategies and different technical options ranging from open to hybrid and minimally invasive techniques. While this course is designed for non-deformity surgeons, it will have content that will apply to deformity surgeons.

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

- Understand the basic fundamentals of adult spinal deformity.
- Learn when to apply different deformity surgical techniques.
- Differentiate the use of open hybrid versus minimally invasive surgery for adult spinal deformity.

**Special Course 2**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:30 – 1:40 pm</td>
<td>Introduction</td>
</tr>
<tr>
<td>1:40 – 2:00 pm</td>
<td>Thoracolumbar Deformity Classification and Optimal Treatment Paradigms</td>
</tr>
<tr>
<td>2:00 – 2:20 pm</td>
<td>For Which Lumbar Degenerative States Should Sagittal Balance be a Priority</td>
</tr>
<tr>
<td>2:20 – 2:40 pm</td>
<td>Spondylolisthesis—Low-grade and High-grade Options</td>
</tr>
<tr>
<td>2:40 – 3:00 pm</td>
<td>Break</td>
</tr>
<tr>
<td>3:00 – 3:20 pm</td>
<td>How to Build the Ideal Spinal Deformity Team</td>
</tr>
<tr>
<td>3:20 – 3:40 pm</td>
<td>Deformity and its Effect on PROS</td>
</tr>
<tr>
<td>3:40 – 4:00 pm</td>
<td>Less Invasive Techniques for Deformity Correction</td>
</tr>
<tr>
<td>4:00 – 4:20 pm</td>
<td>Break</td>
</tr>
<tr>
<td>4:20 – 4:40 pm</td>
<td>Minimally Invasive Considerations and Case Presentations</td>
</tr>
<tr>
<td>4:40 – 5:00 pm</td>
<td>Case Presentations from the Participants</td>
</tr>
<tr>
<td>5:00 – 5:30 pm</td>
<td>Questions and Discussion</td>
</tr>
</tbody>
</table>

**Directors:** Kai-Ming G. Fu, Lawrence Lenke, Praveen V. Mummaneni

**Faculty:** Todd Albert, Neel Anand, Shay Bess, John R. Dimar, Munish C. Gupta, Adam S. Kanter, Lawrence Lenke, Praveen V. Mummaneni, Justin S. Smith
Special Course 3 Pacifica Ballroom 8/9
1:30 – 5:30 pm Surgical Treatment of Peripheral Pain $200

Directors: Line G. Jacques, Mark A. Mahan
Faculty: Allan J. Belzberg, Nicholas M. Boulis, Aaron G. Filler, Amgad S. Hanna, Zaman Mirzadeh, Julie G. Pilitsis, Konstantin V. Slavin, Robert J. Spinner, 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.

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.
- Describe risks and a tiered approach for salvage options.

1:30 – 1:35 pm Introduction
Line G. Jaques, Mark A. Mahan

1:35 – 1:50 pm Reconstruction for Pain
Robert J. Spinner

1:50 – 2:05 pm Ablative Surgery: DREZotomy, Neuroma Resection
Nicholas M. Boulis

2:05 – 2:20 pm Decompression Surgery for Upper Extremity Pain Syndromes
Allan J. Belzberg

2:20 – 2:35 pm Decompression Surgery for Lower Extremity Syndromes
Aaron G. Filler

2:35 – 2:50 pm Medical Management: New Options
Christopher J. Winfree

2:50 – 3:05 pm Cancer Pain: Cordotomies, Myelotomy and Pumps
Zaman Mirzadeh

3:05 – 3:30 pm Case Discussion: Brachial Plexus Avulsion
Allan J. Belzberg, Robert J. Spinner, Nicholas M. Boulis

3:30 – 3:45 pm Beverage Break

3:45 – 4:00 pm Dorsal Root Ganglion Stimulation
Line G. Jacques

4:00 – 4:20 pm Epidural Stimulation: High Frequency Versus Traditional
Julie G. Pilitsis

4:20 – 4:40 pm Peripheral Nerve Stimulation: New Technologies
Konstantin V. Slavin

4:40 – 5:00 pm No One’s Favorites: Meralgia Paresthetica and Occipital Neuralgia
Amgad S. Hanna, Mark A. Mahan

5:00 – 5:15 pm Case Discussion: Dorsal Root Ganglion Versus Peripheral Nerve Stimulation Versus Epidural Stimulation for CRPS
Line G. Jacques, Julie G. Pilitsis, Konstantin V. Slavin

5:15 – 5:30 pm Questions and Discussion

Special Course 4 Pacifica Ballroom 10
1:30 – 5:30 pm Spinal Tumoral Pathology Made Easy (DX-Management) $200

Directors: John E. O’Toole, Daniel M. Sciubba

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:

- Implement the most appropriate treatment approach for patients with symptomatic metastatic spinal lesions.
- Explain to patients the differences in morbidity and outcomes between en bloc resection versus surgery plus radiation therapy for primary spinal malignancies.
- Select the most appropriate patients for minimally invasive resection of intradural spinal tumors.

1:30 – 1:35 pm Introduction
John E. O’Toole, Daniel M. Sciubba

1:35 – 1:45 pm Illustrative Cases
John E. O’Toole

1:45 – 2:00 pm Case Discussion: Dorsal Root Ganglion Versus Epidural Stimulation for CRPS
Line G. Jacques, Julie G. Pilitsis, Konstantin V. Slavin

2:00 – 2:15 pm Questions and Discussion
1:45 – 3:10 pm
Debate: Management of Vertebral Column Metastasis (Case Presentation)

1:45 – 2:00 pm
Overview of Management Principles
Michael S. Virk

2:00 – 2:15 pm
Open Surgical Decompression, Anterior Column Reconstruction
John H. Shin

2:15 – 2:30 pm
Open Separation with Focused Radiation
Ilya Laufer

2:30 – 2:45 pm
Minimally Invasive Surgery with Radiation
Dean Chou

2:45 – 3:00 pm
Percutaneous Stabilization with LITT
Claudio E. Tatsui

3:00 – 3:10 pm
Questions and Discussion

3:10 – 3:15 pm
Break

3:15 – 4:10 pm
Debate: Management of Solitary Primary Malignant Spine Lesion (Case Presentation)

3:15 – 3:30 pm
Overview of Diagnosis and Management Principles
Charles Fisher

3:30 – 3:45 pm
En Bloc Resection and Instrumented Fusion (Multiple Resection and Stabilization Techniques)
Ziya L. Gokaslan

3:45 – 4:00 pm
Combination of Surgery with High Dose Radiation (Planning of Surgery with Photon/Proton/Carbob Ion)
Joseph H. Schwab

4:00 – 4:10 pm
Questions and Discussion

4:10 – 4:15 pm
Break

4:15 – 4:45 pm
Debate: Sacral Destructive Lesion (Case Presentation)

4:15 – 4:25 pm
Intralesional Debulking with Adjuvant Management (Including SBRT, Denosumab, Embolization)
Laurence D. Rhines

4:25 – 4:35 pm
En Bloc Surgical Resection with Sacro-pelvic Reconstruction
Ehud Mendel

4:35 – 4:45 pm
Questions and Discussion

4:45 – 5:30 pm
Case Presentation: Intradural Spinal Tumor

4:45 – 4:55 pm
Patient Selection and Technical Aspects of Sage Intramedullary Tumor Resection
Paul C. McCormick

4:55 – 5:05 pm
Minimally Invasive Resection of Intradural, Extramedullary Tumors
John E. O’Toole

5:05 – 5:15 pm
Molecular Profiling, Detection and Targeting of Spine Tumors
Chetan Bettegowda

5:15 – 5:25 pm
Patient Report Outcomes Following Spine Tumor Surgery
Justin E. Bird

5:25 – 5:30 pm
Questions and Discussion

Special Course 5 Pacifica Ballroom 11

1:30 – 5:30 pm
Spinal Trauma: A Global Perspective in a World of Change (Brazilian Spine Symposium)

Directors: Asdrubal Falavigna, Cristiano M. Menezes
Moderators: Alécio CES Barcelos, Asdrubal Falavigna, Ronald de Lucena Farias, Cristiano M. Menezes, Jerônimo Buzetti Milano
Faculty: Alécio Barcelos, Ricardo Botelho, Luis E. Carelli, Murilo Tavares Daher, Andrew T. Dailey, Fernando Dantas, Asdrubal Falavigna, Ricardo B.V. Fontes, Ronald de Lucena Farias, Udaya K. Kakarla, Noojan Kazemi, Marcos Masini, Cristiano M. Menezes, Jerônimo Buzetti Milano, Michael S. Virk
Course Description: This special course is designed to overview and provide the required tools to perform spinal procedures using conventional and emerging surgical techniques. This course will cover essential topics including fundamentals of spinal alignment and optimal workflow from planning to postoperative care. At the end of the course the participants will be confident evaluating and managing the full spectrum of spinal pathologies including degenerative, trauma, tumor and deformity.
Learning Objectives: Upon completion of this course, participants will be able to:

- Understand the full spectrum of spinal pathologies and surgical indications.
- Describe the ideal candidate for open and minimally invasive surgical techniques.
- Learn the pathways to manage adverse surgical outcomes.

1:30 – 2:10 pm
Odontoid Fracture on the Elderly
Moderator: Ronald de Lucena Farias

3:30 – 3:45 pm
Break

3:45 – 4:25 pm
Burst Fracture without Neurological Deficit
Moderator: Asdrubal Falavigna

1:30 – 1:35 pm
Case Presentation
Andrew T. Dailey

1:35 – 1:50 pm
Discussion
Ronald de Lucena Farias

1:50 – 2:05 pm
How to Select the Best Treatment? Brace or Surgery?
Asdrubal Falavigna

2:05 – 2:10 pm
Case Resolution Andrew T. Dailey

2:10 – 2:50 pm
Unilateral Cervical Facet Dislocation
Moderator: Alecio CES Barcelos

3:05 – 3:20 pm
Case Presentation
Ricardo V. Botelho

3:20 – 3:35 pm
Discussion
Alecio CES Barcelos

3:35 – 3:50 pm
Tips and Tricks for Reduction and Fixation: Anterior Versus Posterior
Michael S. Virk

3:50 – 4:05 pm
Case Resolution
Ricardo V. Botelho

2:10 – 2:50 pm
Unilateral Cervical Facet Dislocation
Moderator: Alecio CES Barcelos

3:30 – 3:45 pm
Case Presentation
Ricardo V. Botelho

3:45 – 3:50 pm
Discussion
Alecio CES Barcelos

3:50 – 4:05 pm
Tips and Tricks for Reduction and Fixation: Anterior Versus Posterior
Michael S. Virk

4:05 – 4:20 pm
Case Resolution
Ricardo V. Botelho

4:25 – 5:05 pm
Thoracolumbar Fractures—Fixation with Fusion Versus Non-fusion
Moderator: Asdrubal Falavigna

5:05 – 5:30 pm
Post-traumatic Deformities Correction
Moderator: Cristiano M. Menezes

6:30 – 8:00 pm
Opening Reception Wantilan Pavilion
Kick off the Annual Meeting over a delicious array of food and beverages. Network with old friends and new, while you listen to live music set in a secluded, tropical location.
Thursday
March 15, 2018

6:30 am – 6:15 pm    Registration North Desk
Registration

6:30 – 7:30 am    Pacifica Ballroom Foyer
Complimentary Continental Breakfast

7:00 – 7:45 am    Pacifica Ballroom 7
Challenging Cases 1
Speakers: David J. Hart, Bradley Jacobs, Justin Slavin

7:45 – 8:00 am    Pacifica Ballroom 7
Opening Remarks
Speaker: Juan S. Uribe

8:00 – 9:30 am    Pacifica Ballroom 7
Scientific Session 1
Spine in an Era of Global Change

Moderators: Daniel J. Hoh, R. John Hurlbert

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

- Analyze the findings of novel neurosurgical studies, critique the design and methodology of these studies.
- List important areas for further knowledge development and research.
- Describe past and current innovations that are transforming spine surgery today.

8:00 – 8:02 am
Introduction of J.A.N.E and Mayfield Award Winners
Daniel C. Lu

8:02 – 8:07 am
J.A.N.E. Award Presentation
100 Lateral Lumbar Interbody Fusion in the Elderly: A 10-year Experience
Nitin Agarwal, Andrew M. Faramand, Nima Alan, Zachary J. Tempel, D. Kojo Hamilton, David O. Okonkwo, Adam S. Kanter

The J.A.N.E. award honors the legacy of Dr. John Anthony Jane Sr., 1931-2015. Dr. Jane was a world-renowned neurosurgeon, scientist, and teacher. Exceptionally influential in neurosurgery, he held leadership positions in the ABNS and the Senior Society, and served as editor of the Journal of Neurosurgery for more than 20 years.

8:07 – 8:12 am
J.A.N.E. Award Discussant
D. Kojo Hamilton

8:12 – 8:17 am
Mayfield Basic Science Award
101 Engaging Cervical Spinal Cord Circuitry with Non-invasive Transcutaneous Electrical Stimulation and a Serotonin Agonist to Re-enable Volitional Control of Hand Function in Tetraplegic Patients
Nicholas Au Yong, Yevgeniy Freyvert, Tianyi Niu; Erika Morikawa, Sharon Zudnowski, Melanie Sarino, Yury Gerasimenko, Reggie Edgerton, Daniel C. Lu

8:17 – 8:23 am
Mayfield Basic Science Award Discussant
Michael W. Groff

8:23 – 8:28 am
Mayfield Clinical Award
102 Crossing the Cervicothoracic Junction in Posterior Cervical Decompression and Fusion: A Cohort Analysis
Kevin T. Huang, Maya Harary, Muhammad M Abd-El-Barr, Yi Lu, Michael W. Groff, John H. Chi

8:28 – 8:33 am
Mayfield Clinical Award Discussant
Adam S. Kanter

8:40 – 8:45 am
Introduction of DSPN Chair
Shekar N. Kurpad

8:45 – 9:00 am
DSPN Chair
Marjorie C. Wang

9:00 – 9:05 am
Introduction Meritorious Award Recipient—Neurosurgery
John E. O’Toole
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:05 – 9:15 am</td>
<td><strong>Meritorious Award—Neurosurgery</strong> Vincent C. Traynelis</td>
</tr>
<tr>
<td>9:15 – 9:20 am</td>
<td><strong>Introduction Meritorious Award Recipient—Orthopedics</strong> Praveen V. Mummaneni</td>
</tr>
<tr>
<td>9:20 – 9:30 am</td>
<td><strong>Meritorious Award—Orthopedics</strong> Rick Sasso</td>
</tr>
</tbody>
</table>
| 9:00 am – 4:30 pm | **Exhibit Hall Open**  
Visit for the latest product and technology information! |
| 9:30 – 10:15 am | **Demo Theater**  
**A Novel Technology to Reduce Radiation Exposure in Spine Surgery** Isaac Karikari  
**Expanding your ALIF Options - Role of Expandability in ALIF** Domagoj Coric  
**Minimally Invasive Posterior Cervical Fusions - Fad or Future?** Paul Arnold  
**Prestige LP™ Cervical Disc System: New Streamlined Instruments/Surgical Technique** Richard Chua |
| 10:15 am – 12:00 pm | **Pacific Ballroom 7**  
**Scientific Session 2**  
**Sports-related Spine Trauma**  
**Moderators:** Gerald E. Rodts, Jr., Juan S. Uribe  
**Speakers:** Michael G. Fehlings, Regis W. Haid, Allan D. Levi, Joseph C. Maroon, Gerald E. Rodts, Jr., Alexander R. Vaccaro  
**Learning Objectives:** Upon completion of this session, participants will be able to:  
- Identify management of spine injuries in athletes.  
- Describe recent advances in basic and clinical spinal cord injury research.  
- Evaluate return-to-play after spinal injury and surgery.  
**10:15 – 10:25 am** | **Introduction of Jerome Bettis (NFL Hall of Fame)** Joseph C. Maroon  
**Jerome A. Bettis**  
Pro Football Hall of Fame inductee Jerome “The Bus” Bettis is one of the best running backs in NFL history. A three-year standout at University of Notre Dame under legendary coach Lou Holtz, he finished his collegiate career with 1,912 rushing yards. He was drafted in 1993, and he was selected in the first round of the NFL draft as the 10th overall pick by the Los Angeles Rams.  
In 2005, Bettis capped his legendary career by helping the Steelers win Super Bowl XL in his hometown of Detroit. Bettis was enshrined in the Pro Football Hall of Fame in Canton, Ohio in August 2015.  
In 1997, he founded The Bus Stops Here Foundation to help underprivileged children improve their overall quality of life through initiatives like The Cyber Bus Computer Engineering Program, the Asthma and Sports Camp, and by providing mentoring and tutoring. In 2001, he was acknowledged by the league for his charitable work and named “NFL Walter Payton Man of the Year.”  
**10:25 – 10:55 am** | **Special Lecture: From Injury to the Field** Jerome Bettis  
**10:55 – 11:15 am** | **Question and Answer with Jerome Bettis** Regis W. Haid |
11:15 – 11:25 am  
Advances in SCI with Clinical Application  
Allan D. Levi

11:25 – 11:35 am  
Return to Play after Spinal Injuries  
Alexander R. Vaccaro

11:35 – 11:45 am  
Fuse or Not to Fuse After Cervical Traumatic HNP on Athletes  
Michael G. Fehlings

11:45 – 11:55 am  
Cervical “Stingers” and Return to Normal with Stenotic Canal  
Eric Truumees

11:55 am – 12:00 pm  
Questions and Discussion

Scientific Session 3  
Pacifica Ballroom 7
1:00 – 2:30 pm
SRS–Critical Knowledge Needed for Adult Deformity Surgery: MIS and Open

Moderators: Munish C. Gupta, Praveen V. Mummaneni
Speakers: John R. Dimar, Kai-Ming G. Fu, Steven D. Glassman, Ronald A. Lehman, Gregory M. Mundis, Christopher I. Shaffrey, Michael Y. Wang

Learning Objectives: Upon completion of this session, participants will be able to:
- Educate the audience regarding indications and contraindications for adult spinal deformity surgery.
- Educate the audience on complication avoidance for spinal deformity surgery.
- Improve understanding of MIS applications to adult deformity surgery and the current limits of MIS techniques.

1:00 – 1:09 pm
What Scoliosis Measurements Should I Use and When?  
John R. Dimar

1:09 – 1:18 pm
Indications and Contraindications for Adult Deformity Surgery  
Christopher I. Shaffrey

1:18 – 1:27 pm
Optimizing Bone Health in the Adult Deformity Patient  
Ronald A. Lehman

1:27 – 1:36 pm
How to Avoid PJK  
Steven D. Glassman

1:36 – 1:46 pm
Questions and Discussion

1:46 – 1:55 pm
MISDEF Algorithm  
Kai-Ming G. Fu

1:55 – 2:04 pm
Anterior and Lateral MIS Correction Strategies  
Gregory M. Mundis

2:04 – 2:13 pm
Posterior MIS Correction Strategies: Is there a Limit to Extent of Correction?  
Michael Y. Wang

2:13 – 2:30 pm
Questions and Discussion
**Beverage Break and What’s New Session 2**

2:30 – 3:15 pm  
Pacifica Ballroom 1-6
Demo Theater

2:30 – 2:52 pm  
Mazor X-Align™ Pre-operative Planning Software and ARTiC-L™ 3D Ti Spinal System with TiONIC™ Technology  
Ron Lehman  
Sponsored by: Medtronic

2:52 – 3:02 pm  
Elevating MIS TLIF Outcomes using Expandable Interbody: Luna 3D  
Richard G. Fessler  
Sponsored by: Benvenue Medical

3:04 – 3:14 pm  
Topic TBD  
Faculty TBD  
Sponsored by: Globus Medical

**Peripheral Nerve Course: Case-based Approaches to Peripheral Nerve Trauma and Other Conditions**

2:30 – 4:30 pm  
Timor Sea 1/2

**Course Director:** Holly Gilmer  

**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 course, 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.

2:30 – 2:38 pm

**Introduction—Peripheral Nerve History and Physical Exam**  
Allan J. Belzberg, Holly Gilmer

2:38 – 2:48 pm  
**Introduction—Fundamentals of Nerve Injury and Regeneration**  
Rajiv Midha

2:48 – 2:58 pm  
Brachial Plexus Trauma  
Allan J. Belzberg

2:58 – 3:03 pm  
**Discussant**  
John E. McGillicuddy

3:03 – 3:11 pm  
Upper Extremity Nerve Trauma  
Eric L. Zager

3:11 – 3:14 pm  
**Discussant**  
Wilson Z. Ray

3:14 – 3:22 pm  
Lower Extremity Nerve Trauma  
Mark A. Mahan

3:22 – 3:25 pm  
**Discussant**  
Shaun T. O’Leary

3:25 – 3:35 pm  
Break and Discussion

3:35 – 3:43 pm  
Upper Extremity Entrapment  
Amgad S. Hanna

3:43 – 3:46 pm  
**Discussant**  
Justin M. Brown

3:46 – 3:54 pm  
Lower Extremity Entrapment  
Marie-Noelle Hebert-Blouin

3:54 – 3:57 pm  
**Discussant**  
Robert J. Spinner

3:57 – 4:07 pm  
Nerve Tumors  
Zarina S. Ali

4:07 – 4:17 pm  
Neuropathic Pain Management  
Line G. Jacques

4:17 – 4:20 pm  
**Discussant**  
Nicholas M. Boulis

4:20 – 4:30 pm  
Conclusion and Questions
Learning Objectives: Upon completion of this session, participants will be able to:

- Analyze the findings of novel neurosurgical studies, critique the design and methodology of these studies.
- List important areas for further knowledge development, and research.
- Discuss ongoing innovative clinical and basic science studies, and how they may impact current practice.

Kuntz Scholars—Top Abstracts
Concurrent Session 1

3:15 – 4:25 pm  Pacifica Ballroom 8/9
Moderator: John H. Chi

3:15 – 3:20 pm  Kline Top Peripheral Nerve
103 Lipid-rich Vesicular Transport in Myelinating Schwann Cells In-vitro
Joey K. Grochmal

3:20 – 3:25 pm  Kline Top Peripheral Nerve
Discussant: Mark A. Mahan

3:25 – 3:30 pm  104 Early Kyphoplasty is Associated with Reduced Risk of Persistent Opioid Prescribing for Nearly 12,000 Privately-insured Patients with Osteoporotic Vertebral Fractures
Jay Kiran Nathan, Mitchell A Johnson, Jennifer Waljee, Nicholas J. Szerlip, Paul Park, Mark E. Oppenlander

3:30 – 3:35 pm  Discussant: Frank La Marca

3:35 – 3:40 pm  105 Natural History of the Aging Spine: A Cross-sectional Analysis of Radiographic Sagittal Alignment in Asymptomatic Patients

3:40 – 3:45 pm  Discussant: Charles A. Sansur

Tianyi Niu, Nicholas Au Yong, Yevgeniy Freyvert, Daniel C. Lu, Monzurul Alam, Guillermo Garcia-Alias, Benita Jin, Jonathan Keyes, Hui Zhong, Roland R Roy, Yury Gerasimenko, Reggie Edgerton

3:50 – 3:55 pm  Discussant: Ali A. Baaj

3:55 – 4:00 pm  107 Misdiagnosis is a Prevalent Cause of Inappropriate Lumbar Spine Surgery
Anna Wright, Vijay Yanamadala, Jean-Christophe A. Leveque, Rajiv Sethi

4:00 – 4:05 pm  Discussant: Robert F. Heary

4:05 – 4:10 pm  108 Patient Satisfaction and Press Ganey Scores for Spine versus Non-spine Neurosurgery Clinics

4:10 – 4:15 pm  Discussant: Isaac O. Karikari

4:15 – 4:20 pm  109 Mesenchymal Stem Cell-seeded High-density Collagen Gel For Annular Repair: Six-week Results From In Vivo Sheep Models
Ibrahim Hussain, Christoph Wipplinger, Stephen Sloan, Rodrigo Navarro-Ramirez, Eliana Kim, Micaella BS Zubkov, Gernot Lang, Lawrence J Bonassar, Roger Hartl

4:20 – 4:25 pm  Discussant: Victor W. Chang

Kuntz Scholars—Top Abstracts
Concurrent Session 2

3:15 pm – 4:25 pm  Pacifica Ballroom 10
Moderator: Michael P. Steinmetz

3:15 – 3:20 pm  110 Genome-wide Transposon Mutagenesis Screening Identifies Novel Genetic Drivers and Oncogenic Networks in Spinal Gliomas
Imran Noorani

3:20 – 3:25 pm  Discussant: Bradley Jacobs
3:25 – 3:30 pm
111 Decreasing Radiation Exposure in Minimally Invasive Spinal Surgery with Ultra-low Radiation Imaging and Image Enhancement: A Prospective Cohort Study of Consecutive Patients
Jakub Godzik, Gautam Nayar, William D. Hunter, Luis M. Tumialan

3:30 – 3:35 pm
Discussant: Anand Veeravagu

3:35 – 3:40 pm
112 The Applicability of Cervical Sagittal Vertical Axis, Lordosis, and T1-slope on Pain and Disability Outcomes after Anterior Cervical Discectomy and Fusion
Darryl Lau, Anthony Digorgio, Andrew Kai-Hong Chan, Michael S. Virk, Dean Chou, Erica Fay Bisson, Praveen V. Mummaneni

3:40 – 3:45 pm
Discussant: Kurt M. Eichholz

3:45 – 3:50 pm
113 Development of Proximal Junctional Kyphosis After Minimally Invasive Lateral Anterior Column Realignment for Adult Spinal Deformity
Shashank V. Gandhi, Jacob Januszewski, Konrad Bach, Andrew C. Vivas, Jason M. Paluzzi, Adam S. Kanter, David O. Okonkwo, Zachary J. Tempel, Nitin Agarwal, Juan S. Uribe

3:50 – 3:55 pm
Discussant: Todd D. Vogel

3:55 – 4:00 pm
114 Factors Associated with Venous Thromboembolic Events in Spine Surgery Patients in the Intensive Care Setting: A Single-institution Experience with 1,269 Consecutive Patients
Michael Cloney, Jack Goergen, Benjamin Hopkins, Jonathan T. Yamaguchi, Nader S. Dahdaleh

4:00 – 4:05 pm
Discussant: Langston T. Holly

4:05 – 4:10 pm
115 Patient Demographic Factors Which Affect Patient Reported Outcomes (PRO) Completion One Year After Spine Surgery: Analysis from the Michigan Spine Surgery Improvement Collaborative (MSSIC)
Hesham M. Zakaria, Michael Bazydlo, Shujie Xiao, Lonni Schultz, David Nerenz, Muwaffak Abdulhak, Jason M. Schwalb, Victor W. Chang, For the MSSIC Investigators

4:10 – 4:15 pm
Kuntz 12
Discussant: Hesham M. Soliman

4:15 – 4:20 pm
116 Development of a Frailty Index for Primary Spinal Tumors

4:20 – 4:25 pm
Discussant: Sanjay S. Dhall

Kuntz Scholars—Top Abstracts Concurrent Session 3

3:15 – 4:25 pm Pacifica Ballroom 11
Moderator: Rishi K. Wadhwa

3:15 – 3:20 pm
117 Preliminary Return to Work Data from the Multi-center Prospective, Randomized CSM-S Study: Approach Matters

3:20 – 3:25 pm
Discussant: Bernhard Meyer

3:25 – 3:30 pm
118 Effect of Body Mass Index as a Continuous Variable on 30-Day Postoperative Complications in Posterior Lumbar Fusion: An Analysis of the American College of Surgeons National Surgical Quality Improvement Program
Juneyoung L Yi, Ali Jalali, Bornali Kundu

3:30 – 3:35 pm
Discussant: Lee A. Tan

3:35 – 3:40 pm
119 Analysis of Outcomes and Cost of Inpatient and Ambulatory Anterior Cervical Disk Replacement Using a State-level Database
Allen Ho, David Arnold Purger, Arjun Vivek Pendharkar, Eric S Sussman, Anand Veeravagu, John K. Ratliff, Atman Desai

3:40 – 3:45 pm
Discussant: Sun H. Lee
3:45 – 3:50 pm
120 Implementation of a Standardized Multimodal Analgesia Protocol Improves Pain-related Outcomes, Decreases Hospital Stay and Reduces Opioid Consumption After Posterior Lumbar Spinal Fusion Surgery
Corey T. Walker, Tyler S. Cole, David Gullotti, Virginia Prendergast, Jakub Godzik, Alex Whiting, Jay D. Turner

3:50 – 3:55 pm
Discussant: Paul K. Kim

3:55 – 4:00 pm
121 Preoperative Narcotic Consumption — Does It Affect Outcome?
Lee Onn Chieng, Karthik Madhavan, Michael Y. Wang, Steven Vanni

4:00 – 4:05 pm
Discussant: Charles L. Branch

4:05 – 4:10 pm
122 Use of Polyetheretherketone Interbody Devices for One-level Anterior Cervical Discectomy and Fusion Results in a Five-fold Higher Rate of Pseudarthrosis Compared to Structural Allograft
Katie L Krause, James T Obayashi, Kelly Bridges, Ahmed M.T. Raslan, Khoi D. Than

4:10 – 4:15 pm
Discussant: Christopher E. Wolfla

4:15 – 4:20 pm
123 Modern Targeted Adjuvant Therapies Improves Postoperative Outcomes in Metastatic Renal Cell Carcinoma to the Spine
Ganesh Shankar, Laura Van Beaver, Bryan D. Choi, Vijay Yanamadala, Kevin Oh, John H. Shin

4:20 – 4:25 pm
Discussant: Zachary J. Tempel

Learning Objectives:
Upon completion of this course, participants will be able to:
- Learn to differentiate different points of view while practicing on the spine field.
- Understand different models of spinal surgical practices.
- Discuss advantages and disadvantages of single surgeon versus multiple surgeons performing complex spinal procedures.
- Develop an understanding of the complexity of surgeon/industry relationship.

4:30 – 4:45 pm
Grab a beverage and join us for this exciting debate session with lively presentations and discussions!

4:45 – 4:48 pm
Introduction
Daniel J. Hoh, Adam S. Kanter

4:48 – 5:17 pm
Spine Practice Model
4:48 – 4:54 pm
Private Practice is Still Sustainable
John J. Knightly
4:54 – 5:00 pm
Modified Academic and Entrepreneurial MSO Model Works
Todd Albert
5:00 – 5:06 pm
Privademics is the Way to Go
Alexander R. Vaccaro
5:06 – 5:12 pm
Academic Practice: Give Away Money for Glory
Christopher I. Shaffrey
5:12 – 5:17 pm
Discussion and Verdict
Paul C. McCormick
Friday March 16, 2018

6:30 am – 6:30 pm  Registration North Desk
Registration

6:30 – 7:30 am  Pacifica Ballroom Foyer
Complimentary Continental Breakfast

7:00 – 8:00 am  Pacifica Ballroom 7
Challenging Cases 2

Minimally Invasive/Motion Preservation Breakout
8:00 – 9:30 am  Timor Sea 1/2

Moderators: Victor W. Chang, Khoi D. Than, Eve C. Tsai
Learning Objectives: Upon completion of this course, participants will be able to:

- Analyze the findings of novel neurosurgical studies, critique the design and methodology of these studies.
- List important areas for further knowledge development and research.
- Compare indications and clinical outcomes for various minimally invasive and motion preservation techniques.

8:00 – 9:24 am  Abstract Presentations

8:00 – 8:02 am  200 The Impact of Adding Posterior Instrumentation to Trans-psoas Lateral Fusion: A Systematic Review and Meta-analysis
Mohmed Ali Alvi, Redab Alkhataybeh, Waseem Wahood, Panagiotis Kerezoudis, Sandy Goncalves, M. Hassan Murad, Mohamad Bydon

8:02 – 8:04 am  201 Predictive Factors in Achieving Indirect Decompression in Minimally-invasive Lateral Lumbar Interbody Fusion
Noojan Kazemi, Arunprasad Gunasekaran, Reem Elwy, Manoj Kumar

8:04 – 8:06 am  202 Surgical Feasibility and Results of Oblique Lateral Interbody Fusion at L5-S1 Level
Alisson R. Teles, W. Bradley Jacobs, Fred Nicholls, Peter Lewkonia, Roger Cho, Kenneth Thomas, Ganesh Swy
203 Normative Study of the Intervertebral Disk Measurement in Young Healthy Adults
San Shabani, Arash Razmjoo, Nicholas DeVogel, Yoganadan Narayan, Jie Baisden

204 Economic Performance of Oblique Lateral Lumbar Interbody Fusion (OLLIF) with a Focus on Hospital Throughput Efficiency
Hid R. Abbasi

205 Minimally Invasive Far Lateral Lumbar Microdiscectomy with Intraoperative Imaging and Neuronavigation
David B. Choi, Hesh M. Soliman, Jared Fridley, Michael Galgano, Thomas Kosztowski, Albert Edward Telfeian, Ziya L. Gokaslan, Adetokunbo A. Oyelese

206 Minimally Invasive Transforinal Lumbar Interbody Fusion Using a Novel Autograft Bone Collector is a Cost-Saving Alternative Method for Spinal Fusion Surgery
Mick J. Perez-Cruet, Es A Elkhatab, Katie Mansour, Ratnesh Mehra

207 Anterior Lumbar, Oblique Lateral, and Transforinal Lumbar Interbody Fusions: A Comparison of Perioperative Complications
Caleb S. Edwards, Anthony Michael DiGiorgio, Darryl Lau, Praveen V. Mummaneni, Dean Chou

208 Propensity Matched Comparison of Outcomes and Cost after Macroscopic and Microscopic Lumbar Discectomy Using a National Longitudinal Database
Allen Ho, Arjun V. Pendharkar, Paymon Rezaei, Eric S Sussman, David A. Purger, Anand Veeravagu, John K. Ratliff, Atman Desai

209 Assessment of Individual Radiation Dose to Operating Room Staff during Minimally Invasive Spinal Surgery: Prospective Series Using a Personal Device
Jakub Godzik, Gaut Nayar, S. Harrison Farber, Willi D. Hunter, Luis M. Tumialan

210 Mini-open Lateral En Bloc Corpectomy: Cadaveric Feasibility and Early Clinical Experience
Jay D. Turner, Hasan A. Zaidi, Jakub Godzik, Felipe Albuquerque, Juan S. Uribe

211 Success and Failure of Minimally Invasive Direct Pars Repair: Does Fracture Morphology Matter?
Isl Fayed, Anthony G. Conte, Jean-Marc Voyadzis
35

221 Utilization Trends of Cervical Disk Replacement in the United States: A Population-based Study
Panagiotis Kerezoudis, Mohmed A. Alvi, Anshit Goyal, Daniel S. Ubl, Sandy Goncalves, Jenna Meyer, Elizabeth B. Habermann, Mohamad Bydon

222 Biomechanical Implications of Unilateral Facetectomy, Bilateral Facetectomy, and Partial Bilateral Facetectomy in Minimally Invasive Transforaminal Interbody Fusions
Laura A. Snyder, Jennifer Lehrman, Rkumar Menon, Anna Newcomb, Brian P. Kelly

223 Minimally Invasive Lumbar Pedicle Screw Fixation Using Cortical Bone Trajectory: A Prospective Cohort Study on Postoperative Pain, Functional Outcome, and Fusion Rates
Yi-Ren Chen, Rashad Jabarkheel, Sayantan Deb, Thu Lan Ph, Mahesh Patel, Harminder Singh

224 Analysis of Complications with Staged Surgery for Less Invasive Treatment of Adult Spinal Deformity

225 Fusion and Quality of Life Outcomes in Two Consecutive Level Non-segmental Minimally Invasive Transforaminal Lumbar Interbody Fusion (MiTLIF): A Feasibility Study
Sina Rajand, Matthew Bahoura, Jake Jasinski, Ratnesh Mehra, Doris Tong, Teck-Mun Soo

226 The Effects of Spine Class on Length of Stay After Minimally Invasive Lumbar Fusion: Prospective Longitudinal Cohort Study
Dejan Slavnic, Matthew Bahoura, Doris Tong, Sina Rajand, Teck-Mun Soo

227 Role of Minimally Invasive Lateral Interbody Fusion Surgical Technique in Thoracolumbar Fusion Revision Surgery
Karina Bach, Konrad Bach, Jacob Januszewski, Juan S. Uribe

228 Assessment of Clinical Outcomes and Efficacy of Minimally Invasive Transforaminal Lumbar Interbody Fusion (TLIF) in Degenerative Lumbar Scoliosis with Debilitating Back Pain
Mick J. Perez-Cruet, Esam A. Elkhhatib, Elizabeth Abel

229 Posterior Open-wedge Anterior Longitudinal Ligent Release: Cadaveric Technique and Early Clinical Experience
Michael Bohl, Randy Hlubek, David S. Xu, Claudio Cavallo, Mark C. Preul, Steve W. Chang, Jay D. Turner, Juan S. Uribe, Udaya K. Kakarla

230 The Minimally Invasive Transpsoas Lateral Lumbar Interbody Fusion: Determining Optimal Patient Positioning to Reduce Risk of Femoral Nerve Injury
Mena G. Kerolus, Anthony Frisenda, Anthony Serici, Ricardo B. V. Fontes, Richard G. Fessler

231 The Effect of Preoperative Opioid Use on Patients Undergoing Stand-alone Lateral Interbody Fusion for Lumbar Degenerative Disc Disease
Alp Ozpinar, Nima Alan, David O. Okonkwo, Adam S. Kanter, D. Kojo Hilton

232 A New Minimally Invasive Device to Deliver Stem Cells to the Spinal Cord of Patients with ALS
J. Patrick Johnson, Pablo Avalos, Doniel Drazin, Harish Babu, Chirag G. Patil, Margaret Allred, Robert Lewis, Robert Baloh, Clive Svendsen

233 The Role of Minimally Invasive Techniques in Scoliosis Correction Surgery
Jack Goergen, Michael Cloney, Angela M. Bohnen, Zachary A. Smith, Tyler R. Koski, Nader S. Dahdaleh

234 Which Cervical Artificial Disc Should We Choose? An In Vivo Study
Hoon Choi, Jie Baisden, Narayan Yoganandan

235 Quantity and Quality of Motion of a Mobile-core Cervical Disc Prosthesis in Two-level Arthroplasty

236 Cost-effectiveness Analysis of Minimally Invasive (MI) Versus Open Transforaminal Lumbar Interbody Fusion (TLIF) for Grade I Degenerative Spondylolisthesis
Juneyoung L. Yi, Brandon K. Bellows, Erica F. Bisson, Praveen V. Mummaneni, Panagiotis Kerezoudis, Steven D. Glassman, Kevin T. Foley, Jonathan Slotkin, Eric A. Potts, Mark E. Shaffrey, Christopher I. Shaffrey, Domagoj Coric, John J. Knightly, Paul Park
9:18 – 9:20 am
237 Incidence of Femoral Nerve Palsy Following Stand-alone L4-5 Minimally Invasive Lateral Lumbar Interbody Fusion
Nima Alan, Nitin Agarwal, David J. Salvetti, Balzer Jeffrey, D. Kojo Hilton, David O. Okonkwo, Adam S. Kanter

9:20 – 9:22 am
238 Minimally Invasive Versus Open Fusion for Grade I Degenerative Lumbar Spondylolisthesis: Analysis Of the Quality Outcomes Database

9:22 – 9:24 am
239 The Impact of Revision Surgery on Patients Undergoing MIS Correction of Adult Spinal Deformity: A Multicenter Study

9:24 – 9:30 am
Questions & Discussion

Spinal Trauma/General Spine 1 Breakout

8:00 – 9:30 am  Pacifica Ballroom 8/9

Moderators: Beejal Y. Amin, Daniel C. Lu, Wilson Z. Ray

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

- Analyze the findings of novel neurosurgical studies, critique the design and methodology of these studies.
- List important areas for further knowledge development and research.
- Compare indications and clinical outcomes for various management approaches to spinal trauma.

8:00 – 9:24 am
Abstract Presentations

8:00 – 8:02 am
240 Limitations of the Patient Experience Reports in Spine Surgery: Analysis of Seven Thousand Four Hundred and Eighty Five (7,485) Surveys
Nitin Agarwal, Andrew M. Farand, Johanna Bellon, Jeffrey Borrebach, D. Kojo Hilton, David O. Okonkwo, Adam S. Kanter
8:18 – 8:20 am
249 Endplate Deformation Due to Open Versus Strutted Intervertebral Devices
Antonio Valdevit, Anna Kedzierska, Michelle B. Gallagher, Jennifer M. Schneider, Peter Ullrich

8:20 – 8:22 am
250 Minimally Invasive Surgery: Bertolotti’s Syndrome Retrospective Chart Review
Arthur L. Jenkins III, Ryan Adams

8:22 – 8:24 am
251 Stereotactic Navigation for the Pre-psoas Oblique Lateral Lumbar Interbody Fusion
Anthony M. DiGiorgio, Caleb S. Edwards, Michael S. Virk, Praveen V. Mummaneni, Dean Chou

8:24 – 8:26 am
252 Impact of Mindfulness-based Stress Reduction on Postoperative Patient Reported Pain, Disability, Quality of Life, and Prescription Opioid Use in Adult Degenerative Lumbar Surgery Patients: A Pilot Study
Juneyoung L Yi, Christina A Porucznik, Lisa H. Gren, Jian Guan, Andrew T. Dailey, Mark A. Mahan, Robert S. Hood, Darrel S. Brodke, Brandon Lawrence, Willi R. Spiker, Nicholas T Spina, Erica F. Bisson

8:26 – 8:28 am
253 Patient-Reported Allergies are Associated with Preoperative Psychological Distress and Less Satisfying Patient Experience in a Lumbar Spine Surgery Population
Jay M. Levin, Spencer Boyle, Robert Winkelmann, Joseph E. Tanenbaum, Kalil G. Abdullah, Michael P. Steinmetz, Thomas E. Mroz

8:28 – 8:30 am
254 BMP Versus Alternatives: Cost Savings and Clinical Outcomes Data in 137 ALIF Patients with Two-year Follow-up
Paul J. Slosar, Paul J. Holman, Jes Reynolds, Sarah Martineck, Sydney Slosar, Zain Boghani, Willi Steele

8:30 – 8:32 am
255 The Effect of Female Body Habitus on Patient Reported Outcomes Following Spinal Intervention
Lara W. Massie, Hesham M. Zakaria, Kelly Tundo, Lonni Schultz, Victor W. Chang

8:32 – 8:34 am
256 Should Physical Therapy be Incorporated in Patient Care Post 1-2 Level Lumbar Fusions for Degenerative Lumbar Instability? A Comparative Outcome Analysis
Devender Singh, Eeric Truumees, Marcella A. Madera, Trent McGinty, Jeremy Brady

8:34 – 8:36 am
257 Nonsurgical Management of Occipital Condyle Fractures
Adam A. Khan, Molly E. Hubbard

8:36 – 8:38 am
258 Surgical Management of Unstable Traumatic Upper Thoracic (T1-T6) Fractures: Prospective Case Series
Domenico A. Gattozzi, Paul M. Arnold

8:38 – 8:40 am
259 Comparative Analysis of Radiologic Outcomes of C1-2 Fusion Spine Surgery Between Intraoperative CT Image Based Navigation Guided Operation and Fluoroscopy Guided Operation
Dong Wuk Son, Geun Sung Song, Sang Weon Lee, Jun Seok Lee

8:40 – 8:44 am
Questions and Discussion

8:44 – 8:46 am
260 Occipital Condyle Fractures: Is A Collar Necessary? A Pilot Study
James L. West, Lukas Vilella, Stacey Q. Wolfe

8:46 – 8:48 am
261 Does the Coexistence of Multiple Segmental Rib Fractures in Polytrauma Patients Presenting with “Major” Vertebral Fracture Affect Care and Acute Outcomes?
Joseph R. Kapurch, II, Mohamed A. Alvi, David V. Ivanov, Panagiotis Kerezoudis, Sandy Goncalves, Brett A. Freedman, Mohamad Bydon

8:48 – 8:50 am
262 Contract-enhanced Ultrasound to Visualize and Quantify Local Blood Flow and Perfusion after Traumatic Spinal Cord Injury
Zin Khaing, Matthew Bruce, Lynn B. McGrath, Jr., Lindsay Cates, Christoph P. Hofstetter

8:50 – 8:52 am
263 Natural History of Neurological Improvement Following Complete (AIS A) Thoracic Spinal Cord Injury Across Available Registries to Guide Acute Clinical Trial Design and Interpretation
James D. Guest, Steven Kirshblum, Armin Curt, Trey Mobley, Robert G. Grossman, Alex Aimetti

8:52 – 8:54 am
264 Posterior-only Stabilization for Traumatic Thoracolumbar Burst Fractures
Omid R. Hariri, Ariel Takayanagi, Hmad Ghanchi, Quang Ma, Dan Miulli

8:54 – 8:56 am
265 Diffusion Tensor Imaging Evaluation of Cervical Spinal Cord Injury
Nikolay L. Martirosyan, Jennifer Becker, Elizabeth Krupinski, William Erly, Wayne Kubal, R. John Hurlbert

8:56 – 8:58 am
266 Perioperative Thromboembolism and Longer Construct Length are Associated with Wound Reoperation in Patients with Vertebral Metastases
8:58 – 9:00 am
267 Functional Outcome After Thoracic Spinal Cord Injury: Analysis of Risk Factors in the NACTN Longitudinal Prospective Cohort Study
Blessing N.R. Jaja, Jefferson R. Wilson, Mario Ganau, Michael G. Fehlings

9:00 – 9:02 am
268 Intra-operative Computed Tomography (O-ARM) Guided Anterior Odontoid Screw Fixation in Odontoid Fractures
Dattaraj Sawarkar, Pankaj K. Singh, Deepak Agrawal, Deepak Kumar Gupta, G.D. Satyarthee, P. Sarat Chandra, Shashank S. Kale, Ashok K. Mahapatra

9:02 – 9:04 am
269 Venothrombolic Events Following Spinal Fractures: A Single Center Experience
Michael Cloney, Jonathan T. Yamaguchi, Benjin Hopkins, Zachary Ad Smith, Tyler R. Koski, Nader S. Dahdahle

9:04 – 9:06 am
270 Patterns of Neurological Deficit and Recovery of Postoperative C5 Nerve Palsy
John K. Houten, Colin Niezgoda

9:06 – 9:08 am
271 Worldwide Steroid Prescription for Acute Spinal Cord Injury

9:08 – 9:10 am
272 Rehabilitation of Hand Function After Spinal Cord Injury Using A Novel Handgrip Device: A Pilot Study
Tianyi Niu, Daniel C. Lu, Yevgeniy Freyvert, Nicholas Au Yong

9:10 – 9:12 am
273 Early Chemical DVT Prophylaxis After SCI is Safe and Effective: Pilot Prospective Data
Anthony M. DiGiorgio, Rachel Tsolinias, Mohanad Alazzeh, Jenny Haefeli, Jason Talbott, Ad Ferguson, Jacqueline Bresnahan, Michael Beattie, Geoffrey T. Manley, William Whetstone, Praveen V. Mummaneni, Sanjay S. Dhall

9:12 – 9:14 am
274 In Vivo Quantitative T2 and Free Water Elimination Diffusion MRI Remote from the Lesion Site in Rat Spinal Cord Injury
Olesya Motovylyak, Brian Schmit, Shekar N. Kurpad, Matthew Budde

9:14 – 9:16 am
275 Decreased Segregation of Whole-brain Resting-state Network in Spinal Cord Injury: A Graph Theoretical Analysis

9:16 – 9:18 am
276 Efficacy and Safety of Riluzole in Acute Spinal Cord Injury (SCI). Rationale and Design of AOSpine Phase III Multi-center Double Blinded Randomized Controlled Trial (RISCIS).
Michael G. Fehlings, Branko Kopjar, Robert G. Grossman

9:18 – 9:20 am
277 AOSpine Subaxial Cervical Spine Injury Classification System: The Relationship Between Morphology, Admission and Long-term Asia Motor Score
Harry M. Mushlin, Matthew J Kole, Timothy Chryssikos, Gregory Cannarsa, Bizan Aarabi

9:20 – 9:22 am
278 A Preclinical Study of Advanced Diffusion MRI as a Prognostic Marker of Acute Spinal Cord Trauma
Nathan Skinner, Antje Kroner-Milsch, Brian Schmit, Shekar N. Kurpad, Matthew Budde

9:22 – 9:24 am
279 Safety of Autologous Human Schwann Cell Transplantation in Chronic Spinal Cord Injury (SCI)
Stephen S. Burks, Kim D. Anderson, Jes D. Guest, Dalton Dietrich, Barth A. Green, Allan D. Levi

9:24 – 9:30 am
Questions and Discussion

Making a Difference: Spine Surgeons Improving Healthcare and Patient Outcomes Breakout
8:00 – 9:30 am Pacifica Ballroom 10

Moderators: Nathaniel P. Brooks, Aruna Ganju, Sarah Woodrow

Learning Objectives: Upon completion of this course, participants will be able to:
- Analyze the findings of novel neurosurgical studies, critique the design and methodology of these studies.
- List important areas for further knowledge development and research.
- Discuss implications of current and future healthcare policy changes on spine care.

8:00 – 9:24 am
Abstract Presentations

8:00 – 8:02 am
280 Cost-utility Analysis of Cervical Deformity Surgeries Using One-year Outcomes

8:02 – 8:10 am
275 Early Chemical DVT Prophylaxis After SCI is Safe and Effective: Pilot Prospective Data
Anthony M. DiGiorgio, Rachel Tsolinias, Mohanad Alazzeh, Jenny Haefeli, Jason Talbott, Ad Ferguson, Jacqueline Bresnahan, Michael Beattie, Geoffrey T. Manley, William Whetstone, Praveen V. Mummaneni, Sanjay S. Dhall

8:10 – 8:14 am
276 Efficacy and Safety of Riluzole in Acute Spinal Cord Injury (SCI). Rationale and Design of AOSpine Phase III Multi-center Double Blinded Randomized Controlled Trial (RISCIS).
Michael G. Fehlings, Branko Kopjar, Robert G. Grossman

8:14 – 8:16 am
277 AOSpine Subaxial Cervical Spine Injury Classification System: The Relationship Between Morphology, Admission and Long-term Asia Motor Score
Harry M. Mushlin, Matthew J Kole, Timothy Chryssikos, Gregory Cannarsa, Bizan Aarabi

8:16 – 8:18 am
278 A Preclinical Study of Advanced Diffusion MRI as a Prognostic Marker of Acute Spinal Cord Trauma
Nathan Skinner, Antje Kroner-Milsch, Brian Schmit, Shekar N. Kurpad, Matthew Budde

8:18 – 8:20 am
279 Safety of Autologous Human Schwann Cell Transplantation in Chronic Spinal Cord Injury (SCI)
Stephen S. Burks, Kim D. Anderson, Jes D. Guest, Dalton Dietrich, Barth A. Green, Allan D. Levi

8:20 – 8:24 am
Questions and Discussion

Making a Difference: Spine Surgeons Improving Healthcare and Patient Outcomes Breakout
8:00 – 9:30 am Pacifica Ballroom 10

Moderators: Nathaniel P. Brooks, Aruna Ganju, Sarah Woodrow

Learning Objectives: Upon completion of this course, participants will be able to:
- Analyze the findings of novel neurosurgical studies, critique the design and methodology of these studies.
- List important areas for further knowledge development and research.
- Discuss implications of current and future healthcare policy changes on spine care.

8:00 – 9:24 am
Abstract Presentations

8:00 – 8:02 am
280 Cost-utility Analysis of Cervical Deformity Surgeries Using One-year Outcomes
8:02 – 8:04 am
281 Knowledge and Attitude of Spine Surgeons Regarding Radiation Exposure
Asdrubal Falavigna, Miguel B. Ramos, Alexandre S. Lutaka, Cristiano M. Menezes, Nestor Taboada

8:04 – 8:06 am
282 Unified Workforce Analysis of Spine Faculty in Neurological and Orthopedic Surgery Residency Programs
Alexander F. Post, Tanvir Choudhri

8:06 – 8:08 am
283 Beyond Biology: Impact of Marital Status and Socio-economic-index on Outcomes of Spinal Cord Tumors, Analysis from A National Cancer Registry
Mohmed A. Alvi, Waseem Wahood, Panagiotis Kerezoudis, F.M Moinuddin, Sandy Goncalves, Yagiz U. Yolcu, Mohed Elminawy, Anshit Goyal, Redab Alkhataybeh, Mohamad Bydon

8:08 – 8:10 am
284 Social Factors Associated with Surgical Utilization by Patients Evaluated for Degenerative Spine Pathologies
Zachary Pennington, Daniel Lubelski, Joseph E Tanenbaum, A. Karim Ahmed, Marissa Rosato, Daniel M. Sciubba

8:10 – 8:12 am
285 Alcohol Use on Complication and Readmission Rates After Elective Spinal Fusion (≥2 Levels) for Adult Spine Deformity
Aladine A. Elsadicy, Owoicho Adogwa, Victoria D Vuong, Amanda Sergesketter, Joseph S. Cheng, Carlos A. Bagley, Isaac O. Karikari

8:12 – 8:14 am
286 Cost and Effectiveness of Allogenic Bone Substrate for Spinal Arthrodesis
Stephen L. Reintjes, Jr., Elliot Pressman, Alex Niefert, Quan Tran, Fernando L. Vale

8:14 – 8:16 am
287 Ranking Spine Surgeons and Practices By Patient-reported Outcomes
Ahilan Sivaganesan, Anthony L. Asher, Mohamad Bydon, Inullah Khan, Panagiotis Kerezoudis, Hui Nian, Frank Harrell, Clinton J. Devin

8:16 – 8:18 am
288 Timeline of Quality of Life Improvements Post-decompression for Cervical Spondylitic Myelopathy at a Single Tertiary Center
Joey K. Grochmal

8:18 – 8:20 am
289 Minimum Clinically Important Difference in SF-36 Scores for Use in Degenerative Cervical Myelopathy
Jetan H. Badhiwala, Christopher D. Witw, Farshad Nassiri, Jefferson R. Wilson, Michael G. Fehlings

8:20 – 8:22 am
290 The Epidemiology of Spinal Schwannoma in the United States Between 2006–2014
Ghaith Haboub, Min Lang, Shahed Tish, Quinn T. Ostrom, Santha Colby, Jaes C. Jones, Josie Volovetz, Alex M. Witek, Louis Ross, Pablo F. Recinos, Richard P. Schlenk, Carol Kruchko, Varun Kshetry, Jill Barnholtz-Sloan

8:22 – 8:24 am
291 Morphometrics Predicts Overall Survival in Patients with Lung, Breast, Prostate, or Myeloma Spine Metastases, Independent of Cancer Histology or Spine Metastatic Burden

8:24 – 8:26 am
Jay I. Kumar, Vijay Yanadala, Ganesh Shankar, Bryan D. Choi, John H. Shin

8:26 – 8:28 am
293 Evidence from the Epidemiology, Process, and Outcomes of Spine Oncology (EPOSO) Cohort: Surgical Versus Radiation Therapy for the Treatment of Cervical Metastases
Michael Bond, Anne Versteeg, Arjun Sahgal, Peter Varga, Daniel M. Sciubba, Michael Weber, Michelle J. Clarke, Laurence D. Rhines, Stefano Boriani, Chetan Bettegowda, Michael G. Fehlings, Paul M. Arnold, Ziya L. Gokaslan, Charles Fisher

8:28 – 8:30 am
294 Predictive Factors for Survival in a Surgical Series of Metastatic Epidural Spinal Cord Compression: A Prospective North American Multicenter Study in 142 Patients

8:30 – 8:32 am
295 Development and Validation of Clinical Prediction Models of Survival and Clinical Outcomes for Patients with Metastatic Epidural Spinal Disease: A Systematic Review
Anick Nater, Jetan H. Badhiwala, James Hong, So Kato, Melanie Anderson, David Choi, Michael G. Fehlings

8:32 – 8:34 am
296 Difference in Independent Patient Factors Associated with 30- and 90-day Unplanned Readmission Rates After Elective Lumbar Spinal Fusion Versus Laminectomy: A National Trend Analysis of 152,426 Patients
Aladine A. Elsadicy, Hanna Kemeny, Xinru Ren, Amanda Sergesketter, Eric W. Sankey, C. Rory Goodwin, Isaac O. Karikari, Jichun Xie, Shivanand P. Lad
8:34 – 8:36 am
297 Predictors of Patient Satisfaction in Spine Surgery: A Systematic Review
Benjin Yao, Richard C Lee, Jay M. Levin, Joseph E. Tanenbaum, Thomas E. Mroz, Michael P. Steinmetz

8:36 – 8:38 am
298 Does Patient Selection Account for the Perceived Cost Savings in Outpatient Spine Surgery?
Benjin Mundell, Marcus J. Gates, Mohammed A. Alvi, Panagiotis Kerezoudis, Brett A. Freedman, Ahmad Nassr, Suel Hohmann, Mohamad Bydon

8:38 – 8:40 am
299 Advanced Practice Provider Clinics Improve Patient Access in Neurosurgery Spine Clinics
Angela M. Jolivette, Stephanie Stroud, Megan Bellman, Marjorie C. Wang, Shekar N. Kurpad

8:40 - 8:44 am
Questions and Discussion

8:44 – 8:46 am
300 Adverse Events and their Risk Factors After Cervical Spine Surgery: Analysis from the Michigan Spine Surgery Improvement Collaborative (MSSIC)
Hesham M. Zakaria, Michael Bazydlo, Shujie Xiao, Lonni Schultz, David Nerenz, Muwaffak Abdulhak, Jason M. Schwab, Victor W. Chang, For the MSSIC Investigators

8:46 – 8:48 am
301 Predictors of Patient Satisfaction Survey Participation Following Spine Surgery: An Analysis of 17,853 Patients
Benjin Hopkins, Michael Cloney, Tyler R. Koski, Zachary A Smith, Nader S. Dahdaleh

8:48 – 8:50 am
302 A Longitudinal Survey of Adult Spine Case Entries During Neurosurgery Residency Training
Nitin Agarwal, Michael D. White, D. Kojo Hilton

8:50 – 8:52 am
303 Morbidity and Financial Burden Associated with Reoperation After Lumbar Discectomy: Results from a Study Evaluating Annular Closure
Michael W. Groff, Claudius Thome, Wellington Hsu, Joel Batts, Frederic Martens

8:52 – 8:54 am
304 Direct Cost Analysis of a Novel Annular Closure Device
Jared Ament, Bart Thaci, Rakesh Patel, Matthew J. McGirt, Gerrit J. Bouma, Jason Cuellar, Todd Hopkins Lannan, Kee Duk Kim, J. Patrick Johnson

8:54 – 8:56 am
305 Obesity is Associated with Inferior Patient Reported Outcomes Following Surgery for Degenerative Lumbar Spondylolisthesis: An Analysis of the Quality Outcomes Database

8:56 – 8:58 am
306 Reductions in Length of Stay and Blood Loss With Standardized Care by Neuro-anesthesiologists
Ahilan Sivaganesan, Inullah Khan, Letha Matthews, Byron F. Stephens, Clinton J. Devlin

8:58 – 9:00 am
307 High Risk Neurosurgical Spine Patients are Associated with Increased In-hospital Costs
Sasha Vaziri, Joseph Abbatematteo, Paul Kubilis, Daniel J. Hoh

9:00 – 9:02 am
308 Lumbar Spine Fusion: The Influence of Evidence on Decision Making
Daniel Yavin, Steven Casha, Suel Wiebe, Thomas E. Feasby, R. John Hurlbert, Andrew Nataraj, Garnette R. Sutherland, Perry Pawandeep, Singh Dhaliwal, Stephan Jean du Plessis, Nathalie Jette

9:04 – 9:06 am
310 Patient Rated Outcomes — the Difference Between Satisfaction with Care and Perception of Surgical Outcome
Ben Z. Roitberg

9:06 – 9:08 am
311 Clinical Outcomes Research in Lumbar Spine Surgery: Are Two-year Follow-ups Necessary?
Oliver GS Ayling, Charles Fisher, Tir Ailon, Neil Manson, Raja Y. Rpersaud, Nicolas Dea

9:10 – 9:12 am
313 Reduced Impact of Smoking Status On 30-day Complication and Readmission Rates After Elective Spinal Fusion (≥3 Levels) for Adult Spine Deformity: A Single Institutional Study of 839 Patients
Aladine A. Elsadicy, Owoicho Adogwa, Amanda Sergeesketter, Victoria D Vuong, Emily Lydon, Shay Behrens, Joseph S. Cheng, Carlos A. Bagley, Isaac O. Karikari

9:12 – 9:14 am
314 Predictors of Patient Satisfaction following Spine Surgery: An analysis of 2905 Patients from a Single Academic Institution
Benjin Hopkins, Jonathan T. Yamaguchi, Michael Cloney, Zachary A Smith, Tyler R. Koski, Nader S. Dahdaleh

9:14 – 9:16 am
315 Independent Associations with 30- and 90-day Unplanned Readmissions After Elective Lumbar Spine Surgery: A National Trend Analysis of 144,123 Patients
Aladine A. Elsadicy, Xinru Ren, Hanna Kemery, Lefko Charalboous, Shervin Rahimpour, Theresa Willison, C. Rory Goodwin, Muhammad M. Abd-El-Barr, Oren N. Gottfried, Jichun Xie, Shivanand P. Lad
9:16 – 9:18 am
316 Superiority Claims Derived From Investigational Device Trials in the Spine: Grounds for Confidence or Concern?
Michael W. Groff, Joel Batts, Ali Araghi

9:18 – 9:20 am
317 Increased Length of Stay Beyond Expected are Associated with Lower Hospital Consumer Assessment of Healthcare Providers and Systems Scores
Gabriel A. Smith, Jay M. Levin, Robert Winkelman, Joseph E. Tanenbaum, Thomas E. Mroz, Michael P. Steinmetz

9:20 – 9:22 am

9:22 – 9:24 am
319 The Institute for Healthcare Improvement – NeuroPoint Alliance Cooperative Quality Improvement Project: Using National Registries to Design Continuous Quality Improvement Protocols
Vincent Rossi, Scott L. Zuckerman, Clinton J. Devin, Kevin T. Foley, John J. Knightly, Erica F. Bisson, Steven D. Glassman, Anthony L. Asher

9:24 – 9:30 am
Questions and Discussion

8:00 – 9:30 am
General Spine 2 Breakout Pacifica Ballroom 11

Moderators: Jesus Lafuente, Bernhard Meyer, Daniel Refai

Learning Objectives: Upon completion of this course, participants will be able to:
- Analyze the findings of merging spinal studies, critique the design and methodology of these studies.
- List important areas for further knowledge development and research.
- Compare indications and clinical outcomes for various management approaches to spinal deformity.

8:00 – 9:24 am
Abstract Presentations

8:00 – 8:02 am
320 The Effect of Preoperative Opioid Use on Single Level Interbody Fusion for Degenerative Lumbar Spondylolisthesis
Alp Ozpinar, Nima Alan, David O. Okonkwo, Adam S. Kanter, D. Kojo Hilton

8:02 – 8:04 am
321 Preoperative Hemoglobin Level is Independently Associated with Increased Healthcare Utilization After Elective Spinal Fusion (≥3 Levels) in Elderly Male Spine Deformity Patients
Aladine A. Elsadicy, Owoicho Adogwa, Michael Ongele, Amanda Sergesketter, Aaron Tarnasky, Joseph S. Cheng, Carlos A. Bagley, Isaac O. Karikari

8:04 – 8:06 am
322 Correlation Between Anterior Lumbar Interbody Cage Height, and Forinal Height and Area: A CT Analysis
Kai-Yuan Chen, Dean Chou, Rong-Ping MD Zhou, Can Zhang

8:06 – 8:08 am
323 Inpatient Versus Outpatient Venous Thromboembolic Events After Spine Surgery: An Analysis of 6,869 Consecutive Patients Revealing Distinct Risk Factors
Michael Cloney, Connor Driscoll, Jonathan T. Yamaguchi, Benjin Hopkins, Tyler R. Koski, Zachary A. Smith, Nader S. Dahdaleh

8:08 – 8:10 am
324 Computer-assisted Tracking Minimizes Radiation Exposure While Maintaining Localization and Image Guidance for Instrumentation — A Randomized Trial
John Berry-Candelario, Jr., Farah Houda, Juan S. Uribe, Chester Yarbrough
8:10 – 8:12 am
325 Postoperative Complications Following Anterior Lumbar Interbody Fusion in 1,021 Patients

8:12 – 8:14 am
326 Early Bulation Leads to Decreased Length of Hospital Stays in Patients Undergoing Lumbar Linectomy

8:14 – 8:16 am
327 Characterization of Neurologic Injury Using the Area Under the Curve of Somatosensory Evoked Potentials
Ahmed Jorge, James Zhou, Parthasarathy D. Thirumala, Shreya Umredkar, Rohan Krishnan

8:16 – 8:18 am
328 External Validation of the SORG Nomogram and Classic Scoring Algorithm

8:18 – 8:20 am
329 Biomechanical Evaluation of Posterior Cervical Cages as a Supplement to the Anterior Integrated Cage and Comparison with Plated ACDF
Leonard I. Voronov, Robert M. Havey, Saeed Khayatzadeh, Gerard Carandang, Avinash G. Patwardhan

8:20 – 8:22 am
330 Impact of Expandable Versus Static Interbody Cage Devices on Cervical Sagittal Alignment After Corpectomy
Brandon W. Smith, Jacob R. Joseph, Michael Kirsch, Yaan S. Saadeh, Paul Park

8:22 – 8:24 am
331 Incidence and Risk Factors for Superior Facet Joint Violation in Lumbar Fusion
Alisson R. Teles, Michael Paci, Gabriel Gutman, Fahad H. Abduljabbar, Jean Ouellet, Michael Weber, Jeff D. Golan

8:24 – 8:26 am
332 Improved Cosmetic Outcome with Use of Bilateral Paraspinal Muscle Flap Closure following Cervical Linectomy and Fusion
John K. Houten, Neil Haranhalli, Daniel Komlos, Gila R. Weinstein

8:26 – 8:28 am
333 Systematic Review of Neurological Complications Following Surgical Treatment of Lumbar Spondylolisthesis in Adults
Noojan Kazemi, Jerry Lee Walters, II, Arunprasad Gunasekaran, Paul Lee, Taylor A. Wilson

8:28 – 8:30 am
334 Anterior Versus Posterior Approaches for Thoracic Disc Herniation: Association with Postoperative Complications
Mohamed Elminawy, Panagiotis Kerezoudis, Kenan Rajjoub, Mohammed A. Alvi, Sandy Goncalves, Abdullah Aloudi, Mohammed Adee Sebai, Anshit Goyal, Elizabeth B Habermann, Mohamad Bydon

8:30 – 8:32 am
335 Comparing Outcomes of Fusion Versus Discectomy Alone for One-time Recurrent Lumbar Disc Herniation: A Systematic Review and Meta-analysis
Panagiotis Kerezoudis, Sandy Goncalves, Joseph Cesare, Dennis Kurian, Mohammed A. Alvi, Yagiz U. Yolcu, Mohamed Elminawy, Anshit Goyal, Mohamad Bydon

8:32 – 8:34 am
336 The Association of Post-operative Opioids and Pain Management Scores on the HCAHPS Survey in Patients Following Lumbar Spine Surgery
Robert Winkelman, Jay Levin, Gabriel A. Smith, Joseph E. Tanenbaum, Thomas E. Mroz, Michael P. Steinmetz

8:34 – 8:36 am
337 Elective Lumbar Spinal Fusion in Controlled HIV Patients Have Better Outcomes?
Karthik Madhavan, Chester John Donally III, Piyush Kalakoti, Andrew N. Livingstone, Lee O. Chieng, Michael Y. Wang, Steven Vanni

8:36 – 8:38 am
338 Circumferential Correction of Thoracolumbar Deformity Secondary to Bacterial Spondylodiscitis
Mena G. Kerolus, Mazda K. Turel, Ricardo B.V. Fontes

8:38 – 8:40 am
339 Preoperative Radiographic Predictors of Segmental Lordosis Correction After TLIF
Alexander Dru, Ken M. Porche, Daniel J. Hoh

8:40 - 8:44 am
Questions and Discussion

8:44 – 8:46 am
340 Fusion for High-grade Pediatric Lumbar Spondylolisthesis: A Short Case Series with Focus on the Importance of S2 Alar-iliac Screws for Pelvic Fixation as a Salvage Strategy in Revision Spondylolisthesis Cases
Amey R. Savardekar, Richard P. Menger, Devi P. Patra, Anil Nanda, Anthony H. Sin
341 Women Fare Best Following Surgery for Degenerative Lumbar Spondylolisthesis — A Comparison of the Most and Least Satisfied Patients Utilizing Data from the Quality Outcomes Database

342 Defining Usage and Clinical Outcomes Following Perioperative Fresh Frozen Plasma (FFP) Administration in the Spine Surgery Population
Timothy Y. Wang, Taylor E. Purvis, Eric W. Sankey, Cilo A. Molina, Aladine A. Elsadicy, Steven M. Frank, Daniel M. Sciubba, C. Rory Goodwin

343 Operating Microscope Utilization and Outcomes: A Comparison Between Specialties
Allen Ho, Arjun V. Pendharkar, Paymon Rezaii, Eric S. Sussman, Anand Veeravagu, John K. Ratliff, Atman Desai

344 Limited Post-operative Dexamethasone Use Does Not Affect Lumbar Fusion: A Single Institutional Experience
Owoicho Adogwa, Syed I. Khalid, Victoria D. Vuong, Daniel Lilly, Shy Desai, Ryan Khanna, Shahjehan Ahmad, Josha Woodward, Joseph S. Cheng

345 Hemoglobin A1c as a Predictor of Surgical Site Infection Following Single Level Lumbar/Lumbosacral Posterior Fusion in Patients with Diabetes
Jun Seok Lee, Dong-Wuk Son, Sang Weon Lee, Geun Sung Song

346 Neurological Outcomes in Spontaneous Spinal Epidural Abscesses: A Systematic Review and Meta-analysis of Data from 1980 Through 2017

347 A Retrospective Study of Operative Outcomes for Patients with Spinal Epidural Abscess

348 Post-operative Drain Use in Patients Undergoing Decompression and Fusion: Incidence of Complications and Symptomatic Hematoma
Owoicho Adogwa, Aladine A. Elsadicy, Amanda Sergesketter, Victoria D. Vuong, Syed I. Khalid, Joseph S. Cheng, Carlos A. Bagley, Isaac O. Karikari

349 Complications Profile in Patients with Chronic Kidney Disease Undergoing Lumbar Spine Decompression and Fusion
Owoicho Adogwa, Aladine A. Elsadicy, Amanda Sergesketter, Deborah Oyeyemi, Diego Galan, Victoria D. Vuong, Syed I. Khalid, Daniel Lilly, Shy Desai, Joseph S. Cheng, Carlos A. Bagley, Isaac O. Karikari

350 Defining the Minimum Clinically Important Difference for Grade I Degenerative Lumbar Spondylolisthesis: Insights from the Quality Outcomes Database

351 Surgical Factors Which Affect Patient Reported Outcomes (PRO) Completion One Year After Spine Surgery: Analysis from the Michigan Spine Surgery Improvement Collaborative (MSSIC)
Hesham M. Zakaria, Michael Bazydlo, Shujie Xiao, Lonni Schultz, David Nerenz, Muwaffak Abdulhak, Jason M. Schwab, Victor W. Chang, For the MSSIC Investigators

352 Reduced In-patient Narcotic Consumption and Hospital Stay with ERAS® Transforinal Lumbar Interbody Fusion (TLIF): Comparison to Conventional Minimally-invasive TLIF
John Paul G. Kolcun, Karthik Madhavan, Hsuan-Kan Chang, Timur Urakov, Jay Grossman, Michael Y. Wang

353 Posterolateral Fusion (PLF) Versus Transforinal Lumbar Interbody Fusion (TLIF) for Spondylolisthesis: A Systematic Review and Meta-Analysis
Jay M. Levin, Joseph E. Tanenbaum, Michael P. Steinmetz, Thomas E. Mroz, Samuel C. Overley

354 Blood Storage Duration and Perioperative Outcomes in Spine Surgery
Taylor E. Purvis, C. Rory Goodwin, Cilo A. Molina, Steven M. Frank, Daniel M. Sciubba
9:14 – 9:16 am
355 Effect of Percent Change in Blood Hemoglobin Level on Morbidity in Spine Surgery Patients
Taylor E. Purvis, C. Rory Goodwin, Cilo A. Molina, Steven M. Frank, Daniel M. Scuibba

9:16 – 9:18 am
356 Quantification of Computational Geometric Congruence in Surface-based Registration for Spinal Intra-operative Three-dimensional Navigation
Daipayan Guha, Raphael Jakubovic, Victor Xiao Dong Yang

9:18 – 9:20 am
357 Cost-effectiveness of an Adjunctive Bone-anchored Annular Closure Device Versus Conventional Lumbar Discectomy in Treating Lumbar Disc Herniations
Jared Ament, Bart Thaci, Edwin Kulubya, Zhuo Yang, Wellington Hsu, Kee Kim

9:20 – 9:22 am
358 Incidence of Preoperative Motor Weakness and Recovery After Spinal Surgery
Nathan J. Lee, Jeremy Steinberger, Suel K Cho, John M. Caridi

9:22 – 9:24 am
359 Tailoring Selection of Transforimal Interbody Spacer Based on Biomechanical Characteristics and Surgical Goals: Evaluation of an Expandable Spacer
Jakub Godzik, Jennifer Lehrman, Anna Newcomb, Alex Whiting, R Kumar Menon, Brian P. Kelly, Laura A. Snyder

9:24 – 9:30 am
Questions and Discussion

10:20 – 10:30 am
The Risk: Benefit Profile of a Spine Bundle
Scott A. Meyer

10:30 – 10:45 am
How Hospital Efficiency Can Bend the Cost Curve for Spine Care
Daniel Refai

10:45 – 11:00 am
The Single Vendor Model: Should We or Should We Not
Mark E. Shaffrey

11:00 – 11:15 am
CPT Update for 2018
John K. Ratliff

11:15 – 11:20 am
Introduce Paul McCormick
Peter D. Angevine

11:20 – 11:30 am
Meritorious Member Spine Award
Paul C. McCormick

11:30 – 11:35 am
Introduce John McGillicuddy
Holly Gilmer

11:35 – 11:45 am
Meritorious Member Peripheral Nerve Award
John E. McGillicuddy

DSPN Business Meeting

11:45 am – 12:00 pm

Moderator: Juan S. Uribe
Speakers: Adam S. Kanter, John J. Knightly, Scott A. Meyer, Ashwini D. Sharan, Michael Y. Wang, Christopher E. Wolfla

11:45 – 11:48 am
Washington Committee Report
Scott A. Meyer

11:48 – 11:50 am
Secretary’s Report
Adam S. Kanter

11:50 – 11:53 am
Treasurer’s Report
Michael Y. Wang

11:53 – 11:56 am
Future Sites Committee Report
Christopher E. Wolfla

11:56 – 11:58 am
Nominating Committee
John J. Knightly
11:58 am – 12:00 pm  
CNS Update  
Ashwini D. Sharan

Complimentary Lunch in the Exhibit Hall

12:00 – 1:00 pm Pacifica Ballroom 1-6  
No ticket required. Please enjoy lunch with the exhibitors.

Sponsored Lunch  
Topic TBD  
Faculty TBD

Sponsored by: 

DePuySynthes

Companies of Johnson & Johnson

Special Course 6  
Timor Sea 1/2

1:00 – 2:30 pm  
$150

Incorporating the MIS Concept/Techniques in Your Practice

Course Directors: Richard G. Fessler, Paul Park  

Course Description: This course will explore recent advances in the management of spinal trauma, degenerative cervical myelopathy, spinal deformity, and chronic pain. Faculty will overview current research in the area of spinal cord injury and spinal biologics. Novel technology in the field of robotics, navigation, and neuromodulation will be introduced. Strategies for optimizing spine practice in the era of value-based care will be reviewed.

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

- Discuss current concepts regarding management of spinal trauma, degenerative cervical myelopathy, spinal deformity, and chronic pain.
- Describe novel research in spinal cord injury and spinal biologics.
- Review recent advances in robotics, navigation, and neuromodulation.

1:00 – 1:08 pm  
Introduction  
Richard G. Fessler, Paul Park

1:08 – 1:16 pm  
MIS Rationale  
Kevin T. Foley

1:16 – 1:24 pm  
MIS as a Marketing Tool  
William R. Taylor

1:24 – 1:32 pm  
MIS Trauma  
Joshua E. Heller

1:32 – 1:40 pm  
MIS Tumor  
Chun-Po Yen

1:40 – 1:48 pm  
MIS Deformity  
Jay D. Turner

1:48 – 1:56 pm  
Questions and Discussion

1:56 – 2:04 pm  
MIS Posterior  
Larry T. Khoo

2:04 – 2:12 pm  
MIS Anterior  
William D. Smith

2:12 – 2:20 pm  
MIS Lateral  
Rod J. Oskouian

2:20 – 2:30 pm  
Questions and Discussion

Special Course 7  
Pacifica Ballroom 10

1:00 – 2:30 pm  
$150

Optimize Your Surgical Outcomes: Clinical Pathways Working for You. What are You Missing?

Course Directors: Dean Chou, Rajiv Sethi, Robert G. Whitmore  
Faculty: Mohamad Bydon, Dean Chou, Aaron J. Clark, Sanjay S. Dhall, Ricardo B.V. Fontes, Zohar Ghogawala, Rajiv Sethi, Robert G. Whitmore

Course Description: This course demonstrates how modern clinical pathways are useful in improving patient care. Applicable pathways for certain diagnoses and treatments are identified. Implementation of pathways in one’s own clinical practice is discussed.

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

- Identify how clinical pathways improve patient care.
- Identify which pathological diagnoses and treatments are amenable to pathways.

1:00 – 1:08 pm  
Opening Remarks  
Robert G. Whitmore
1:08 – 1:16 pm
Pathways from Non-operative to Operative Care
Dean Chou

1:16 – 1:24 pm
The Role of Pain Interventionalists in a Comprehensive Spine Center: A Balancing Act
Robert G. Whitmore

1:24 – 1:32 pm
Pathways for Outpatient “Simple” Spine Surgery
Aaron J. Clark

1:32 – 1:40 pm
Questions and Discussion
Dean Chou, Rajiv Sethi, Robert G. Whitmore

1:40 – 1:48 pm
Pathways for Degenerative, Inpatient Surgery
Zoher Ghogawala

1:48 – 1:56 pm
Enhanced Recovery After Surgery (ERAS)
Sanjay S. Dhall

1:56 – 2:04 pm
Pathways for Outpatient Lateral Lumbar Surgery
Mohamad Bydon

2:04 – 2:12 pm
Pathways for Adult Deformity, Complex Spine Surgery
Ricardo B. V. Fontes

2:12 – 2:20 pm
Pathways for Frail Elderly Patients Requiring Surgery
Rajiv Sethi

2:20 – 2:30 pm
Questions and Discussion
Dean Chou, Rajiv Sethi, Robert G. Whitmore

Learning Objectives: Upon completion of this course, participants will be able to:
- Understand the mentoring objectives and the main drivers of the field of neurological surgery.
- Learn the expectations required to succeed in professional practice.
- Discuss the importance of getting involved in organized neurosurgery.

1:00 – 1:08 pm
What is a Mentor and How Do I Get One?
Alan M. Scarrow

1:08 – 1:18 pm
If RVU’s and Collections are the Main Drivers, Do Research and Publications Make Sense?
Langston T. Holly

1:18 – 1:26 pm
What is the Ideal Relationship? Chairman/Chief/Junior Faculty/Partner
Robert M. Friedlander

1:26 – 1:34 pm
How to Manage Conflict of Interest and Industry Activity Engagement
Mark E. Shaffrey

1:34 – 1:42 pm
Spine Surgeon as Entrepreneur
Randall W. Porter

1:42 – 1:50 pm
How to Get Involved in Organized Neurosurgery (Tips and Tricks)
Shelly D. Timmons

1:50 – 1:58 pm
Questions to Ask Your Mentor
Alex B. Valadka

1:58 – 2:06 pm
What Do You See That I Don’t See?
Daniel K. Resnick

2:06 – 2:14 pm
Life/Work Balance: How to Achieve It
Allan D. Levi

2:14 – 2:22 pm
What Can I do to Help You? The Role of the Professional Coach
Harry R. van Loveren

2:22 – 2:30 pm
Questions

Special Course 8  Pacifica Ballroom 11

1:00 – 2:30 pm  $150
Mentoring from A to Z: Learning from the Masters (Course for residents/fellows and young neurosurgeons)

Course Director: Regis W. Haid
Course Description: This exclusive course will explore the role of mentoring in neurosurgery. The faculty will overview the different aspects on mentoring and understanding the challenges after the formal residency and fellowship training. Strategies for optimizing spine practice will be reviewed.
Course Directors: Megan Bellman, Eric A. Potts  
Faculty: Gina Connolly, Sara McEvoy, Donna Purviance, Emma Schulte  

Course Description: This course will cover preoperative evaluation, perioperative management, and postoperative management of patients with degenerative spinal conditions. Special emphasis will be on teamwork, communication and use of order sets. 

Learning Objectives: Upon completion of this course, participants will be able to: 
- Differentiate different causes of arm and leg pain. 
- Understand the impact of comorbidities on patient outcomes. 
- Realize the impact of preoperative and postoperative patient communication. 
- Understand the importance of work life balance. 
- Discuss the role of multidisciplinary teams managing spinal conditions. 
- Compare different strategies for preoperative and postoperative management of spinal pathologies. 
- Discuss the role of multimodal approaches and impact on patient outcomes. 

2:30 – 2:42 pm  
Differentiating Causes of Arm and Leg Pain: Cervical Spine Versus Shoulder; Lumbar Spine Versus Hip  
Donna Purviance

2:42 – 2:54 pm  
Management of Medical Comorbidities (DM, Anticoagulation, Nutrition)  
Sara M. McEvoy

2:54 – 3:06 pm  
Advanced Perioperative Management: Support Staff, Patient Education, and Pain Management  
Emma Schulte

3:06 – 3:18 pm  
Intraoperative Challenges  
Megan Bellman

3:18 – 3:30 pm  
Work-life Balance  
Gina Connolly
3:00 – 4:30 pm  Pacifica Ballroom 8/9
The Psychology of Leadership, in Partnership with Women in Neurosurgery (WINS) Spine  $50

Course Director: Ann M. Parr
Special Speaker: Gae Walters
Course Description: In this premier leadership program, participants will explore how to make the most of their natural talents, leverage their strengths, and enhance their leadership capabilities. When leaders know what they do best, they can then seek ways to apply these strengths to the challenges ahead. Leaders who use their strengths every day in the work they do are more productive, effective, and professionally fulfilled. Participants will receive an extensive analysis of their leadership behaviors including any potential blind spots. The Myers Briggs Type Indicator, a widely used and scientifically validated system, has proven highly effective in helping leaders communicate more effectively, set strategic direction, improve decision-making, and build on their strengths. Participants will discover how to build a framework for using different communication styles in different situations, such as meetings with teams, direct reports, support staff, and other professional colleagues.

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

- Gain a clearer understanding of their leadership style and how personality preferences influence how they typically interact with colleagues.
- Enhance awareness of personality preferences based on behavior cues and learn how those preferences affect communication and decision-making.
- Engage with peers to create group chemistry
- Understand and appreciate the contributions of each individual on the team.
- Strengthen team functioning and push performance to the next level.
- Leverage their own strengths and the strengths of colleagues.
- Utilize a wider range of communication and problem solving approaches.
- Establish acceptance for ideas and influence outcomes.
- Recognize the different communication and problem solving approaches of colleagues and team members.

7:30 – 9:30 pm  Promenade Deck
Young Neurosurgeons Reception and Dinner

All residents, fellows, and young neurosurgeons are invited to enjoy a delicious dinner with Meritorious Member Award Recipient, Vincent C. Traynelis. RSVP required. Please RSVP to Karen Garrett at kgarrett@cns.org.
7:23 – 7:25 am
364 A 10-year Analysis of Peripheral Nerve Injuries in High School Sports
Scott L. Zuckerman, Zack Kerr, Lauren Pierpoint, Khoi D. Than, Thomas J. Wilson

7:25 – 7:27 am
365 Targeting Inflammatory Response in Injured Neural Tissue With Novel Localized Polymer-based Steroid Delivery
Timur Urakov, Susana Cerqueira, Jessica Johnson, Tianyu Zhao, Mary Bunge, Rajiv Saigal

7:27 – 7:29 am
366 Management of Chronic Pain Post Neurectomy: A Role for Dorsal Root Ganglion Stimulation
Line G. Jacques

7:29 – 7:31 am
367 Sustained Interleukin-10 Delivery Reduces Inflammation and Improves Motor Function after Spinal Cord Injury
Dan Hellenbrand, Amgad S. Hanna, Mallory Filipp, Benjin Travis

7:31 – 7:33 am
368 Pro-regenerative Macrophages Regulate Schwann Cell Dynamics Following Nerve Injury
Rajiv Midha

7:33 – 7:35 am
369 Guidelines for the Use of Electrophysiological Monitoring for Surgery of the Human Spinal Column and Spinal Cord
Christopher D. Shank, Mark N. Hadley, Curtis J. Rozzelle, Beverly C. Walters

7:35 – 7:37 am
370 Persistent Hyperexcitability of Human Primary Sensory Neurons After Spinal Cord Injury
Robert Y. North, Yan Li, Tejaswi Marri, Haley Rhodes, Ganesh Rao, Laurence D. Rhines, Claudio Esteves Tatsui, Patrick M. Dougherty

7:37 – 7:39 am
371 Role of the Sodium/Glutamate Blocker Riluzole in Enhancing Functional Outcomes in Patient Undergoing Surgery for Degenerative Cervical Myelopathy: Results of the Prospective, Multicentre Double Blind Controlled CSM-protect Randomized Controlled Trial

7:39 – 7:41 am
372 Potential of Human NP-like Cells Derived From Umbilical Cord to Treat Degenerative Disc Disease: Novel Mechanism for Disk Regeneration
Mick J. Perez-Cruet, Esam A. Elkhatab, Naimisha R. Beeravolu, Irfan Khan, Christina M. McKee, Rasul Chaudhry

7:41 – 7:43 am
373 Novel Device to Achieve Intervertebral Disc Regeneration Using Human Stem Cell Generated Nucleus Pulposus Cells
Mick J. Perez-Cruet, Esam A Elkhatab, John Pepper, Naimisha R. Beeravolu, Christina M. McKee, Rasul Chaudhry

7:43 – 7:45 am
374 The Use of Magnetic Resonance Neurography and Fiber Tracking in Peripheral Nerve Sheath Tumors
Megan M. Jack, Kushal Shah, Brian Everist, Phillip D. Hylton

7:45 – 7:47 am
375 One Stage Posterior Minimal Linectomy and Video-assisted Thoracoscopic Surgery (VATS) for Removal of Thoracic Dumbbell Tumor
Kyoung-Hyup Nam, Jun Seok Lee, Dong Wuk Son

7:47 – 7:49 am
376 Relationship Between Opioid Use and Outcomes in Patients Undergoing Basivertebral Nerve Ablation for Chronic Low Back Pain
Alfred L. Rhyne, Rick Sasso, Jeffrey S. Fischgrund, Alpesh Patel, Wellington Hsu, Av Edidin, Peter Vajkoczy

7:49 – 7:51 am
377 Perineural Spread of Melanoma to the Brachial Plexus: Identifying the Anatomic Pathway(s)
Tomas Marek, Ruple S Laughlin, Benjin M. Howe, Robert J. Spinner

7:51 – 7:53 am
378 Comparison of Human and Rat Neural Stem/Progenitor Cell Proliferation and Differentiation: Implications for the Successful Translation of Rodent Stem Cell Therapies to Humans
Eve C. Tsai, Ahmad Galuta, Diana C. Ghinda, Carolyn Lai, Mohmed Alsharden, Mohmed Y. AlGhdi, Mahmoud Bedaiwy, Suzan Chen

7:53 – 7:55 am
379 Piriformis Syndrome After Lumbar Spinal Surgery
Masahiko Akiya

7:55 – 7:59 am
Questions and Discussion

7:59 – 8:01 am
380 Technical Feasibility and Safety of Ultrasound Guided Supraclavicular Nerve Block with Assistance of a Wearable Head-up Display
Jang Yoon, Tito G.M. Vivas-Buitrago, Esther Kim, Robert E Chen, Alfredo Quinones-Hinoj, Jose L Diaz-Gomez, Steven R. Clendenen

8:01 – 8:03 am
381 Voluntary Exercise Leads to Functional Recovery in Mice Following Peripheral Nerve Injury — A Role For Macrophage Polarization?
Megan M. Jack, Janelle Ryals, Douglas E. Wright
8:03 – 8:05 am  
382 Distal Nerve Transfer for Median Thenar Palsy: A Cadaveric Study  
Huss Abou-Al-Shaar, Geoffrey T. Dorius, David A. Morton, Mark A. Mahan

8:05 – 8:07 am  
383 Pathologic Remodeling in Human Neuromas  
Huss Abou-Al-Shaar, Michael Karsy, Cheryl Ann Palmer, Mark A. Mahan

8:07 – 8:09 am  
384 Digital Phenotyping in Patients with Spine Disease: A Novel Approach to Quantifying Mobility and Quality of Life  
David J. Cote, Ian Barnett, Yi Lu, Jukka-Pekka Onnella, Timothy R. Smith

8:09 – 8:11 am  
385 Benign Nerve Sheath Tumors of the Spine: Epidemiology, Demographic Factors, and Rate of Surgical Intervention  
Nader Delavari, Shengyang Wu, Nikhil Sahasrabudhe, Anthony Frempong-Boadu

8:11 – 8:13 am  
386 Fusion for Spinal Instability After Peripheral Nerve Tumors Surgical Resection with Facetectomy  
Mohammed A. Sebai, Jang W. Yoon, Panagiotis Kerezoudis, Mohammed A. Alvi, Sandy Goncalves, Robert J. Spinner, Mohamed Elminawy, Mohamad Bydon

8:13 – 8:15 am  
387 Chronic In Vivo Imaging of Intact Corticospinal Motor Neurons Shows Functional Reorganization During Recovery from Contralateral Spinal Cord Injury  
David A. Gimbel, Cafferty William, Stephen Strittmatter

8:15 – 8:17 am  
388 Neuromodulation in Chronic Cervical Spinal Cord Injury: Electromyogr Features of Stimulation-assisted Upper-limb Volitional Function  
Nicholas Au Yong, Yevgeniy Freyvert, Reggie Edgerton, Morteza Modaber, Erika Morikawa, Sharon Zudnowski, Melanie Sarino, Majid Sarrafzadeh, Marc Nuerer, Roland R. Roy, Yury Gerasimenko, Daniel C. Lu

8:17 – 8:19 am  
389 Lack of Rhomboid Muscle Volume Is Associated with Significantly Decreased Arm Function in Long-term Followup of Neonatal Brachial Plexus Palsy  
Lynnette Rasmussen, Brandon W. Smith, Kate Wan-Chu Chang, Denise Justice, Thomas J. Wilson, Lynda Jun-San Yang

8:19 – 8:21 am  
390 Chronic Nerve Interfacing Utilizing Graft-embedded Regenerative Electrodes  
Amrita Nishtala, Ying Yan, Nikhil Chandra, Nathan Birenbaum, Matthew R MacEwan, Wilson Z. Ray

8:21 – 8:23 am  
391 High Frequency Alternating Current (HFAC) Nerve Block Utilizing Regenerative Macrosieve Electrodes  
Soumyajit Ray, Nathan Birenbaum, Ying Yan, Nikhil Chandra, Matthew R. MacEwan, Wilson Z. Ray

8:23 – 8:25 am  
392 Nerve Deficits After Stab Wounds to the Upper Extremity Due to Compartment Syndrome: A Case Series  
Gabriel C. Tender

8:25 – 8:27 am  
393 The Barrow Biomimetic Spine: Fluoroscopic Analysis of a Synthetic Spine Model Made of Variable 3D-printed Materials and Print Pareters  
Michael Bohl, Michael A. Mooney, Peter Nakaji, Steve W. Chang, Jay D. Turner, Udaya K. Kakarla

8:27 – 8:29 am  
394 Incidence of Durotomy in Lumbar Spinal Surgery: A Barrow Neurological Institute Prospective Data Analysis  
Benjin Hendricks, Aabra Ahmed, Laura A. Snyder

8:29 – 8:31 am  
395 Incidence of C5 Palsy After Posterior Cervical Procedures: Analysis of Risk Factors using Pre-operative Clinical and Radiographic Measurements  
Yi-Ren Chen, Eli Johnson, Katie Shpanskaya, John K. Ratliff, Atman Desai, Maziyar Arya Kalani, Jon Park, Harminder Singh

8:31 – 8:33 am  
396 The Lost Art of Posterior Cervical Microdiscectomy  
Jared Ament, Tejas Karnati, Edwin Kulubya, Harjot Thind, Kee D. Kim, J. Patrick Johnson

8:33 – 8:35 am  
397 Imaging Characteristics Predict Operative Difficulty Mobilizing the Sciatic Nerve for Proximal Hamstring Repair  
Thomas J. Wilson, B. Matthew Howe, Robert J. Spinner, Aaron Krych

8:35 – 8:37 am  
398 Evaluation of Patient-initiated Spontaneous Arm Use in Adults After Nerve Transfer for Brachial Plexus Palsy  
Brandon W. Smith, Kate Wan-Chu Chang, Serena Saake, Lynda Jun-San Yang, Susan Brown

8:37 – 8:39 am  
399 Identifying Diffusion Tensor Imaging Biomarkers in Cervical Spondylotic Myelopathy  
Michael John P Mendoza, Mayank Kaushal, Avinash Rao, Matthew Budde, Shekar N. Kurpad, Marjorie C. Wang

8:39 – 8:45 am  
Questions and Discussion
Spinal Deformity Breakout  Pacifica Ballroom 10
7:15 – 8:45 am


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

- Analyze the findings of novel neurosurgical studies, critique the design and methodology of these studies.
- List important areas for further knowledge, development, and research.
- Compare indications and clinical outcomes for various management approaches to spinal deformity.

7:15 – 8:39 am
Abstract Presentations

7:15 – 7:17 am
400 Home Versus Rehab: Factors That Influence Disposition After MIS Adult Spinal Deformity Surgery?
Justin Ledesma, Robert Eastlack, Stacie Tran, Paul Park, Khoi D. Than, Praveen V. Mummaneni, Dean Chou, Adam S. Kanter, Neel Anand, Pierce D. Nunley, Frank La Marca, Richard G. Fessler, Juan S. Uribe, Gregory M. Mundis, Jr., International Spine Study Group

7:17 – 7:19 am
401 A Prognostic Nomogram for Outcomes Following Correction of Adult Spinal Deformity
Akshay Sharma, Joseph E. Tanenbaum, Olivia Hogue, Syed K. Mehdi, Sagar Vallabh, Emily Hu, Edward C. Benzel, Michael P. Steinmetz, Jason Savage

7:19 – 7:21 am
402 The Safety and Efficacy of CT-guided, Fluoroscopy-free Vertebroplasty in Adult Spinal Deformity Surgery
Corinna Clio Zygocharakis, Anthony Michael DiGiorgio, Clifford Crutcher, Michael Safaee, Fred Nicholls, Cecilia L. Dalle Ore, Vedat Deviren, Christopher P. Ames

7:21 – 7:23 am
403 Combined Lateral Transpsoas Anterior Column Realignment with Pedicle Subtraction Osteotomy: Cadaveric Feasibility and Early Clinical Experience
Jakub Godzik, Randall Hlubeck, David S. Xu, Corey Tyler Walker, Jay D. Turner, Gregory M. Mundis, Jr., Juan S. Uribe

7:23 – 7:25 am
404 Predictive Model for Distal Junctional Kyphosis After Cervical Deformity Surgery

7:25 – 7:27 am
405 Adult Spinal Deformity Patients Demonstrate Impaired Postural Stability and Dynic Balance Compared to Age-matched Controls
Jakub Godzik, Chris Frames, Victoria Smith, Markey C. Olson, Udaya K. Kakarla, Juan S. Uribe, Thurman Lockhart, Jay D. Turner

7:27 – 7:29 am
406 Rate of Instrumentation and Fusion-related Complications After Surgical Treatment for Severe Pediatric Spinal Deformity Within Two-years: A Prospective Multi-center Cohort Study
 Munish C. Gupta, Lawrence Lenke, Jahangir Asghar, Oheneba Boachie-Adjei, Patrick J. Cahill, Mark A. Erickson, Sumeet Garg, Peter O. Newton, Amer F. Sdani, Suken A Shah, Harry Shufflebarger, Brenda A. Sides, Paul Sponseller, Daniel Sucato, Michael P. Kelly

7:29 – 7:31 am
407 Comparison of Segmental Lordosis and Global Spinopelvic Alignment after Single-level Laterial Lumbar Interbody Fusion or Transforinal Lateral Interbody Fusion
Yaan S. Saadeh, Jacob R. Joseph, Brandon W. Smith, Michael Kirsch, Amr M. Sabbagh, Paul Park

7:31 – 7:33 am
408 Death Within One Year After Adult Spinal Deformity Surgery: Incidence and Predictors
Scott L. Zuckerman, Nikita Lakomkin, Justin S. Smith, Christopher I. Shaffrey, Clinton J. Devin

7:33 – 7:35 am
409 Predictive Analytics for Determining Extended Operative Time in Corrective ASD Surgery

7:35 – 7:37 am
410 High Rate of Intraoperative Monitoring (IOM) Alerts in 176 Severe Pediatric Deformity Patients and Its Relationship to the Deformity Angularity Ratio (DAR).
Munish C. Gupta, Lawrence Lenke, Jahangir Asghar, Oheneba Boachie-Adjei, Patrick J. Cahill, Mark Alan Erickson, Sumeet Garg, Peter O. Newton, er F. Sdani, Suken A Shah, Harry Shufflebarger, Brenda A Sides, Paul Sponseller, Daniel Sucato, Elizabeth L Yanik, Michael P. Kelly
7:37 – 7:39 am
411 How Important is the Anterior Column Support in a Long Lumbopelvic Spinal Fixation? An In-silico Biomechanics Analysis
Woojin Cho, Wenhai Wang, Brandon Bucklen, Howard B. Whitman

7:39 – 7:41 am
412 Patient History of Anemia is an Independent Predictor of 30-Day Readmission in Elderly (≥ 60-years-old) Spine Deformity Patients After Elective Spinal Fusion
Aladine A. Elsadicy, Owoicho Adogwa, Victoria D. Vuong, Amanda Sergesketter, Michael Ongele, Joseph S. Cheng, Carlos Antonio Bagley, Isaac O. Karikari

7:41 – 7:43 am
413 Interdisciplinary Are Model Decreases Use of Critical Care Services After Corrective Surgery for Adult Degenerative Scoliosis
Owoicho Adogwa, Aladine A. Elsadicy, Amanda Sergesketter, Michael Ongele, Tarnasky Aaron, Victoria D. Vuong, Syed I. Khalid, Jessica R. Moreno, Joseph S. Cheng, Isaac O. Karikari, Carlos A. Bagley

7:43 – 7:45 am
414 Revision Surgery After T1 Versus T2 as Lowest Instrumented Vertebra in Multilevel Posterior Cervicothoracic Fusion: A Multicenter Study
Rafael De la Garza Ramos, Seba Rhmdani, Jonathan P. Nakhla, Marc E. Comair, Merritt D. Kinon, Timothy F. With, Daniel M. Sciuubba, Reza Yassari, Ali Bydon

7:45 – 7:47 am
415 Two-year SRS-22r and ODI Patient-Reported Outcomes Accurately Correlate with Five-year Patient-Reported Outcomes After Complex Spinal Fusion: A Five-year Single Institutional Study of 118 Patients
Owoicho Adogwa, Isaac O. Karikari, Aladine A. Elsadicy, Amanda Sergesketter, Diego Galan, Keith Bridwell

7:47 – 7:49 am
416 Continuous Activity Tracking Using a Wrist-mounted Device in Adult Spinal Deformity: Proof of Concept
Jakub Godzik, Tyler S. Cole, Corey T. Walker, Alex Whiting, Udaya K. Kakarla, Juan S. Uribe, Jay D. Turner

7:49 – 7:51 am
417 Retrospective Multicenter Assessment of Risk Factors for Rod Fracture Following Minimally Invasive Surgery for Adult Spinal Deformity Correction
Jakub Godzik, Nima Alan, Randall Hlubek, Konrad Bach, Gregory M. Mundis, Jr., Adam S. Kanter, David O. Okonkwo, Jay D. Turner, Juan S. Uribe

7:51 – 7:53 am
418 Alignment Risk Factors for Proximal Junctional Kyphosis and the Effect of Lower Thoracic Junctional Tethers for Adult Spinal Deformity
Thomas Buell, John C. Quinn, Avery L. Buchholz, James Nguyen, Marcus D. Mazur, Shay Bess, Breton G. Line, Christopher P. Ames, Frank Schwab, Virginie Lafage, Christopher I. Shaffrey, Justin S. Smith

7:53 – 7:55 am
419 A Pilot Study on Posterior Polyethylene Tethers to Prevent Proximal Junctional Kyphosis after Multilevel Spinal Instrumentation for Adult Spinal Deformity
Thomas Buell, Avery L. Buchholz, John C. Quinn, Shay Bess, Breton G. Line, Christopher P. Ames, Frank Schwab, Virginie Lafage, Christopher I. Shaffrey, Justin S. Smith

7:55 - 7:59 am
Questions and Discussion

7:59 – 8:01 am
420 Risk Factors for Pseudarthrosis in Pediatric Neuromuscular Scoliosis
Brandon J. Toll, M. Burhan Janjua, Amer F. Sdani, Joshua M. Pahys, Steven Wei-Hung Hwang

8:01 – 8:03 am
421 Outcomes After Posterior Spinal Fusion in Pediatric Neuromuscular Scoliosis: A Retrospective Analysis of Perioperative Complications & Risk Factors
Brandon J. Toll, M. Burhan Janjua, Amer F. Sdani, Joshua M. Pahys, Steven Wei-Hung Hwang

8:03 – 8:05 am
422 Differences in Presentation and Revision Rates of Unilateral and Bilateral Rod Fractures in Long, Thoracolumbar Fusion for Adult Spinal Deformity
Munish C. Gupta, Throng Lertudomphonwanit, Keith Bridwell, Alekos Theologis, Prachya Punyarat, Brenda A. Sides

8:05 – 8:07 am
423 The Correlation Between Cervical Alignment and Posterior Cervical Muscle Fatty Infiltration at Baseline in Cervical Deformity Patients
Peter G. Passias, Charles Wang, Gregory W. Poorman, Santha R. Horn, Frank Segreto, Cole Bortz, Han Jo Kim, Virginie Lafage, Michael Gerling

8:07 – 8:09 am
424 Risk Factors for Wound Infections After Deformity Correction Surgery in Neuromuscular Scoliosis
M. Burhan Janjua, Brandon J Toll, Shashank V. Gandhi, Joshua M. Pahys, Amer F. Sdani, Steven Wei-Hung Hwang

8:09 – 8:11 am
425 The Predictable Factors of the Postoperative Kyphotic Change of Sagittal Alignment of the Cervical Spine after the Linoplasty
Dong-Wuk Son, Kyoung Hyup Nam, Geun Sung Song, Sang Weon Lee
426 Rod Fracture in Adult Spinal Deformity Surgery Fused to the Sacrum: Prevalence, Risk Factors, and Impact on Health Related Quality of Life in 526 Patients
Munish C. Gupta, Throng Lertudomphonwanit, Michael P. Kelly, Keith Bridwell, Lawrence Lenke, Steven McAnany, Prachya Punyarat, Jacob Buchowski, Tim Bryan, Lukas Zebala, Brenda A. Sides, Karen Steger-May

427 Treatment of the Fractional Curve Only in Adult Scoliosis: Comparison to Lower Thoracic and Upper Thoracic Fusions
Dominic Amara, Sigurd Berven, Christopher P. Ames, Bobby Tay, Vedat Deviren, Shane Burch, Praveen V. Mummameni, Dean Chou

428 Triangle Offense: A Three-surgeon Approach to Reduce Complications in Cervical and Cervical-thoracic Deformity Surgery: A Prospective Cohort Study
Vijay Yanadala, Bryan D. Choi, Ganesh Shankar, Laura Van Beaver, Thomas D. Cha, Kyle Eberlin, John H. Shin

429 Perioperative Transfusion Threshold of Hemoglobin ≥ 9.0mg/dL Results in Better Early Ambulation and Shorter Length of Stay for Patients Undergoing Adult Spinal Deformity Surgery
Vijay Yanadala, Anna Wright, Jean-Christophe A. Leveque, Rajiv Sethi

430 Do Lumbar Lordosis (LL) and Pelvic Incidence (PI) Correlate Am Subjects 4-15 Years of Age, and Can LL Predict PI
Lawrence Lenke, Saumyajit Basu, Fernando Emilio Silva, Dharmesh Patel, Amitava Biswas, Yang Yang

431 A Limited Surgery May Adequately Address Pain and Improve Quality of Life in Patients with Associated Lumbar Scoliosis
Joseph Molenda, Mena G. Kerolus, Ryan M. Glynn, Richard G. Fessler

432 The Comprehensive Anatomical Spinal Osteotomy and Anterior Column Realignment Classification
David S. Xu, Jacob Januszewski, Frank Schwab, Juan S. Uribe

433 Does Prior Spine Surgery or Instrumentation Affect Surgical Outcomes Following Three-column Osteotomy for Correction of Thoracolumbar Deformities?
Darryl Lau, Andrew Kai-Hong Chan, Vedat Deviren, Christopher P. Ames

434 The Utility of Vertebral Column Subtraction Osteotomies For Acquired and Congenital Tethered Cord Syndrome
Shashank V. Gandhi, Ahmad Latefi

435 Perioperative Outcomes Associated with Thoracolumbar Three-column Osteotomies for Adult Spinal Deformity Patients with Rheumatoid Arthritis
Cecilia L. Dalle Ore, Darryl Lau, Vedat Deviren, Christopher P. Ames

436 Changes in Pelvic Incidence after Adult Deformity Surgery
Christian B. Ricks, Adam S. Kanter

437 The Unreimbursed Costs of Preventing Revision Surgery in Adult Spinal Deformity: Analysis of Cost Effectiveness of Pseudoarthrosis and Revision Prevention Strategies in 195 Patients
Michael Sefaee, Cecilia L. Dalle Ore, Corinna C. Zygourakis, Vedat Deviren, Christopher P. Ames

438 Perioperative Outcomes Associated with Posterior Vertebral Column Resection for Severe Thoracic Kyphosis
Cecilia L. Dalle Ore, Darryl Lau, Vedat Deviren, Christopher P. Ames

439 The Relationship of Older Age on Perioperative Outcomes Following Thoracolumbar Three-column Osteotomy for Adult Spinal Deformity: Analysis of 300 Consecutive Cases
Darryl Lau, Joseph A. Osorio, Vedat Deviren, Christopher P. Ames

General Spine 3 Breakout
7:15 – 8:45 am
Pacifica Ballroom 11

Moderators: Kurt M. Eicholz, Asdrubal Falavigna, Daniel J. Hoh

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

- Analyze the findings of novel neurosurgical studies, critique the design and methodology of these studies.
- List important areas for further knowledge development and research.
- Compare indications and clinical outcomes for various management approaches to spine and peripheral nerve disorders.
7:15 – 7:17 am
440 Impact of Perioperative Neurological Deficits on Clinical Outcomes Following Posterior Cervical Fusion
Nitin Agarwal, Sanjana Dayananda, D. Kojo Hilton, Parthasarathy D. Thirumala

7:17 – 7:19 am
441 Risk Factors Associated with 90-day Readmissions after Degenerative Lumbar Fusion: An Examination of the Michigan Spine Surgery Improvement Collaborative (MSSIC) Registry
Paul Park, David Nerenz, Michael Bazydlo, Lonni Schultz, Hesh Mostafa Zakaria, Mark E. Oppenlander, Victor W. Chang

7:19 – 7:21 am
Jang Yoon, Louis J. Kang, Robert E. Chen, Esther Kim, Tay Won Kim, Robert E. Wharen, Mohamad Bydon, Mark A. Pichelmann, Alfredo Quinones-Hinoja

7:21 – 7:23 am
443 Academic Productivity of Spine Faculty in Neurological and Orthopedic Surgery Residency Programs
Alexander F. Post, Tanvir Choudhri

7:23 – 7:25 am
444 Implications of Anesthetic Approach for the Treatment of Spinal Disc Herniation, Spinal Vs. General Anesthesia
Nikhil Sharma, Matthew Piazza, William C. Welch, Neil R. Malhotra

7:25 – 7:27 am
Rajeev D. Sen, Gabrielle A. White-Dzuro, Jacob J. Ruzevick, Choll Kim, Jens-Peter Witt, Albert Edward Telfeian, Michael Y. Wang, Christoph P. Hofstetter

7:27 – 7:29 am
446 Clinical and Radiologic Outcomes of Thoracolumbar Fusions Using Intraoperative CT Guidance (O-Arm) and Stereotactic Navigation (StealthStation): Analysis in Spinal Trauma Populations
Kyle A. Smith, Joseph Domino, Sarah Woodrow, Paul M. Arnold

7:29 – 7:31 am
447 Aggressive Surgical and Intensive Unit Care Correlates with Lower Mortality in Elderly Acute Traumatic Spine Cord Injury
Darryl Lau, Cecilia L. Dalle Ore, Phiroz E. Tarapore, Michael C. Huang, Geoffrey T. Manley, Vineeta Singh, Michael Beattie, Jacqueline Bresnahan, Adam Ferguson, Jason Talbott, William Whetstone, Sanjay S. Dhall

7:31 – 7:33 am
448 Vascularized Spinous Process Graft Rotated on a Paraspinal Muscle Pedicle for Lumbar Fusion: Technique Description and Early Clinical Experience
Michael Bohl, Kaith K. Almefty, Mark C. Preul, Jay D. Turner, Udaya K. Kakarla, Steve W. Chang

7:33 – 7:35 am
449 The Barrow Innovation Center Case Series: Early Clinical Experience with a Novel Surgical Instrument Used to Prevent Intraoperative Spinal Cord Injuries
Michael Bohl, Jacob F. Baranoski, Daniel Sexton, Peter Nakaji, Laura A. Snyder, Udaya K. Kakarla, Randall W. Porter

7:35 – 7:37 am
450 Cortical Trajectory TLIFs Associated with Less Blood Loss and Better Disposition than Pedicle Trajectory and Posterolateral Fusions: A Retrospective Cohort Study
James G. Malcolm, Michael K. Moore, Faiz U. Ahmad, Daniel Refai

7:37 – 7:39 am
451 The History of Neurosurgery at the Medical College of Wisconsin and the Nation’s First Spine Fellowship
Andrew Montoure, Marjorie C. Wang

7:39 – 7:41 am
452 Effect of Surgical Setting (Tertiary Versus Community Hospitals) on the Cost of Posterior Cervical Spine Procedures
Heath P. Gould, Joseph E. Tanenbaum, Kelsey C. Goon, Emily Hu, Colin Haines, Thomas E. Mroz, Michael P. Steinmetz, Don K. Moore

7:43 – 7:45 am
454 Prediction of Anterior Versus Posterior Surgical Approach for Degenerative Cervical Myelopathy Based on MRI Pathology: Analysis of a Global Cohort
Aria Nouri, Allan R. Martin, So Kato, Christopher D. Witwi, Anick Nater, Lindsay Tetreault, Carlo Santaguida, David Gimbel, Rani Nasser, Joseph S. Cheng, Michael G. Fehlings
7:45 – 7:47 am
455 The Relationship Between Improvements in Myelopathy and Sagittal Realignment in Cervical Deformity Surgery Outcomes

7:47 – 7:49 am
456 Identifying Sources of Improvement of Axial Pain in Corrective Cervical Deformity Surgery

7:49 – 7:51 am
457 Predicting the Occurrence of Complications Following Corrective Cervical Deformity Surgery: Analysis of a Prospective Multicenter Database Using Predictive Analytics

7:51 – 7:53 am
458 Propensity Matched Comparison of Outcomes and Cost after Macroscopic and Microscopic ACDF Using a National Longitudinal Database
Allen Ho, Arjun V. Pendharkar, Paymon Rezaii, David A. Purger, Eric S. Sussman, Anand Veeravagu, John K. Ratliff, Atman Desai

7:53 – 7:55 am
459 A Comparison of Clinical Outcome Between Stand-alone Zero-profile Implant Versus Cervical Plate Fixation in Single and Multilevel Anterior Cervical Discectomy and Fusion: An Institutional Analysis of 166 patients
Suel Aris Cornelio Sommaruga, Joaquin Q. Cara-Quintana, Aria Nouri, Justin Virojanapa, Luis Kolb, Kishan Patel, Julio D. Montejo, Jr., Patrick Tomak, Khalid M. Abbed, Joseph S. Cheng

7:55 - 7:59 am
Questions and Discussion

7:59 – 8:01 am
460 T1 Slope is a Potent Predictor of Subsidence in Anterior Cervical Discectomy and Fusion with Stand-alone Cages
Dong-Wuk Son, Geun Sung Song, Sang Weon Lee, Jun Seok Lee

8:01 – 8:03 am
461 Early Decompression is Associated with Significantly Higher Rate of ASIA Impairment Scale Conversion after Cervical Spinal Cord Injury
John F. Burke, Anthony M. DiGiorgio, John K. Yue, Ethan A. Winkler, Laura B. Ngwenya, Phiroz E. Tarapore, Michael C. Huang, Geoffrey T. Manley, Sanjay S. Dhall

8:03 – 8:05 am
462 Complications of Crossing the Cervicothoracic Junction in Patients Undergoing Laminectomy and Fusion
Brooke Kenner, Yakov Gologorsky, Marc Arginteanu, Frank M. Moore, Alfred A. Steinberger, Kevin C. Yao

8:05 – 8:07 am
463 Effect of Cervical Deformity Correction on Spinal Canal Cross-sectional Area and Stenosis
Peter G. Passias, Gregory W. Poorman, Charles Wang, Themistocles Protopsaltis, Christopher I. Shaffrey, Robert Hart, Virginie Lafage, Bassel G. Diebo, Justin S. Smith, Frank Segreto, Santha R. Horn, Cole Bortz, Muhmad Burhan Ud Din Janjua, Christopher P. Ames, Renaud Lafage, Han Jo Kim, ISSG International Spine Study Group

8:07 – 8:09 am
464 Relationship Between Surgical Site Drains and Reoperation for Wound-related Complications Following Posterior Cervical Spine Surgery: A Multicenter Retrospective Study
Daniel Blakeley Herrick, Ron I. Riesenburger, Jeffrey Florman, William F. Lavelle, Joseph Tanenbaum, Thomas Mroz, Shane Burke, Marie Roguski, Swamy Kurra, Sagar Vallabh, Eitan Fleischman, Marc Mankarious

8:09 – 8:11 am
465 Comparative Analysis of Changes in Spinal Canal Dimension and Myelopathy Improvement Between Patients with and without Cervical Deformity
Peter G. Passias, Gregory W. Poorman, Charles Wang, Shaleen Vira, Cyrus M. Jalai, Bassel G. Diebo, Cole Bortz, Frank Segreto, Santha R. Horn, Jared Tishelman, Shenling Wang, Renaud Lafage, Virginie Lafage

8:11 – 8:13 am
466 Interobserver Agreement in the Interpretation of Correct Application of Cervical Orthosis after Cervical Fusion
Chad Claus, Sean D. Krieger, Doris Tong, Sina Rajand, Teck Mun Soo, Clifford M. Houseman

8:13 – 8:15 am
467 Direct Cost Analysis of 38 Cervical Spinal Deformity Operations Across Two Major Spinal Deformity Centers with Implications for Catastrophic Costs and 90-day Cost Bundles
8:15 – 8:17 am
468 Tract-Specific Volume Loss on High-resolution Spinal MR Imaging Predictive of Cervical Spondylotic Myelopathy Symptoms
Benjin Hopkins, Kenneth Weber, Michael Cloney, Monica Paliwal, Todd Parish, Zachary A. Smith

8:17 – 8:19 am
469 Outcomes of Surgical Decompression in Patients with very Severe Degenerative Cervical Myelopathy
Branko Kopjar, Parker Bohm, Joshua H. Arnold, Michael G. Fehlings, Lindsay Tetreault, Paul M. Arnold

8:19 – 8:21 am
470 The Discrepancy between Clinical Measures and Self-reported Ratings of Health Status after Surgery for Degenerative Cervical Myelopathy: An Introduction to Response Shift
Lindsay Tetreault, Mary Zhu, Rachel Howard, Michael G. Fehlings, Jefferson R. Wilson

8:21 – 8:23 am
471 Increase in Spinal Canal Area Following Open-door and Double-door Linoplasty According to Pre-operative Lina Angle: Comparative Simulation Study
Jong-myung Jung, Anthony L. Jahng, Seung-Jae Hyun, Ki-Jeong Kim, Tae-Ahn Jahng, Hyun-Jib Kim

8:23 – 8:25 am
472 Radiographic and CT Evaluation of Recombinant Human Bone Morphogenetic Protein-2-assisted Anterior Cervical Discectomy and Fusion
Luke Weisbrod, Paul M. Arnold, John Leever

8:25 – 8:27 am
473 The Effect of C2-C3 Disc Angle on Postoperative Adverse Events in Cervical Spondylotic Myelopathy

8:27 – 8:29 am
474 Fatty Infiltration of the Cervical Multifidus Musculature is Associated with Clinical Disability in Cervical Spondylotic Myelopathy: A Prospective, Case-control Series
Michael B. Cloney, Andrew C. Smith, Taylor Coffey, Monica Paliwal, Yasin Dhaher, Todd B. Parrish, James M. Elliott, Zachary A. Smith

8:29 – 8:31 am
475 Vascularized Occipital Bone Graft to Supplement C1-C2 Arthrodesis in Patients with Failed Fusion
Aditya Vedant, Sungho Lee, Mohin Bhadkar, Michael Bohl, U. Kumar Kakarla, Nicholas Theodore, Edward Reece, Alexander E. Ropper

8:31 – 8:33 am
476 Quality of Life and Surgical Outcomes of Mild Degenerative Cervical Myelopathy
Jetan H. Badhiwala, Christopher D. Witiw, Farshad Nassiri, Muhammad Akbar, Alireza Mansouri, Jefferson R. Wilson, Michael G. Fehlings

8:33 – 8:35 am
477 Is Fixation Necessary After Linectomy in Ossification of the Posterior Longitudinal Ligent? A Comparative Study Between Linectomy Only and Linectomy and Lateral Mass Screw
Gwangsoo Lee

8:35 – 8:37 am
478 The Utility of Intra-operative Neurophysiological Monitoring for Routine Anterior Cervical Discectomy and Fusion Surgery
Jetan H. Badhiwala, Farshad Nassiri, Christopher D. Witiw, Alireza Mansouri, Saleh A. Almenawer, Leodante da Costa, Michael G. Fehlings, Jefferson R. Wilson

8:37 – 8:45 am
Questions and Discussion

General Spine 4 Breakout

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
</tr>
</thead>
</table>
| 7:15 – 8:45 am| **Moderators:** Adrian Casey, D. Kojo Hamilton, Luke P. Hnenny  
**Learning Objectives:** Upon completion of this course, participants will be able to:  
- Analyze the findings of novel neurosurgical studies, critique the design and methodology of these studies.  
- List important areas for further knowledge, development, and research.  
- Compare indications and clinical outcomes for various management approaches to spine and peripheral nerve disorders. |

**Abstract Presentations**

7:15 – 8:35 am

480 Magnetic Resonance Imaging Findings Predict Overall Survival and Local Recurrence in Patients Undergoing En Bloc Resection of Sacral Chordomas
Scott L. Zuckerman, Behrang Amini, Sun-Ho Lee, Claudio Esteves Tatsui, Laurence D. Rhines

7:17 – 7:19 am

481 Brachytherapy in Spinal Tumors: A Systematic Review
Scott L. Zuckerman, Mark H. Bilsky, Yoshiya Josh Yada, Ilya Laufer

7:19 – 7:21 am

482 Spine Metastases Predominantly Localize to the Posterior Aspect of the Vertebral Body
Jonah Yousif, Eleanor Smith, Marissa Guo, Kristen Kolberg, Joseph Raynor Linsey, Greg Clines, Alexandra Calinescu, Spratt Daniel, Brandon W. Smith, Paul Park, Nicholas J. Szerlip
7:21 – 7:23 am
483 Adverse Events Profile in En Bloc Resection for Metastasis and Surgery for Primary Bone Tumor
Shreya Srinivas, Raphaele Charest-Morin, Charles Fisher, Heidi M. Britton, Tir T. Ailon, Michael C. Boyd, Marcel Dvorak, Brian K. Kwon, Scott J. Paquette, John Street, Nicolas Dea

7:23 – 7:25 am
484 Steroid Use Associated with Increased Odds of 30-day Mortality in Surgical Patients with Spinal Tumors in the Setting of Disseminated Cancer: A NSQIP Database Analysis
Jonathan Hobbs, Prateek Kumar, Edwin Ramos, Ankit Indravadan Mehta

7:25 – 7:27 am
485 Intrathoracic Schwannomas and its Surgical Considerations and Approaches
Line G. Jacques

7:27 – 7:29 am
486 Retrospective Analysis of Multimodal Treatment of Spine Tumors in Patients with Neurofibromatosis Type 2
Richard L. Price, Travis CreveCoeur, Brian Chu, Michael R. Chicoine, Wilson Z. Ray

7:29 – 7:31 am
487 Adult Intradural Astrocytomas in Adult Patients
Owoicho Adogwa, Syed I. Khalid, Ryan Kelly, Victoria D Vuong, Ankit Indravadan Mehta, Carlos A. Bagley, Joseph S. Cheng

7:31 – 7:33 am
488 Pediatric Spinal Ependymomas: An Epidemiological Study
Owoicho Adogwa, Syed I Khalid, Ryan Kelly, Victoria D Vuong, Josha Woodward, Shaheen Ahmed, Ryan Khanna, Carlos A. Bagley, Joseph S. Cheng, Sanjit Shah, Ankit Indravadan Mehta

7:33 – 7:35 am
489 Surgical Outcomes and 30-day Complication Rates Associated with Primary Spinal Intradural Ependymoma Resection
Aladine A. Elsadicy, Owoicho Adogwa, Sohrab Vatsia, Victoria D Vuong, Daniel Lilly, Shy Desai, Joseph S. Cheng, Carlos A. Bagley, Isaac O. Karikari

7:35 – 7:37 am
490 Management of Sacral and Vertebral Chordomas: Survival Analysis and Comparison of Treatment Modalities
Mohamad Bydon, Yagiz U. Yolcu, Waseem Wahood, Panagiotis Kerezoudis, Mohamed A. Alvi, Sandy Goncalves, Mohamed Elminawy, Mohammed A. Sebai, Redab Alkhaytbeh, Anshit Goyal

7:37 – 7:39 am
491 Implication of Biomarker Mutations for Predicting Survival in Patients with Metastatic Lung Cancer to the Spine
Bryan D. Choi, Ganesh Shankar, Ahilan Sivaganesan, Vijay Yanadala, Laura Van Beaver, Kevin Oh, John H. Shin

7:39 – 7:41 am
492 Perineural Spread of Prostate Cancer to the Lumbosacral Plexus
Jonathan J. Stone, Ann T. Packard, Stephen M. Broski, Mark A. Nathan, Benjin M. Howe, Robert J. Spinner

7:41 – 7:43 am
493 Visceral Fat Volume from Standard Preoperative CT is an Independent Predictor of Survival in Patients Undergoing Surgery for Metastatic Spine Disease

7:43 – 7:45 am
494 Efficacy of Routine Biopsy at Vertebral Augmentation for Compression Fracture Repair in the Early Detection of Malignancy in Presumed Benign Vertebral Compression Fractures
Avery M. Jackson, III, Kimberly R. Barber

7:45 – 7:47 am
495 Clinical Presentation and Natural History of Intradural Spinal Cord Cavernoform Malformations
Anshit Goyal, Lorenzo Rinaldo, Redab Alkhaytbeh, Kelly D. Flemming, Lindsay N. Willis, Panagiotis Kerezoudis, Sandy Goncalves, Mohammed A. Alvi, Jenna Meyer, Fredric B. Meyer, Mohamad Bydon

7:47 – 7:49 am
Anshit Goyal, Yagiz U. Yolcu, Panagiotis Kerezoudis, Mohammed A. Alvi, Sandy Goncalves, Mohamed Elminawy, Mohammed A. Sebai, Mohamad Bydon

7:49 – 7:51 am
497 Complications Associated with Surgery for Spinal Metastases: A Multivariable Analysis
Jay I. Kumar, Vijay Yanadala, Ganesh Shankar, Bryan D. Choi, John H. Shin

7:51 – 7:53 am
498 Spinal Astrocytoma: Descriptive Epidemiology from the Central Brain Tumor Registry of the United States
James C. Jones, Samantha Colby, Benjin Kring, Alex M. Witek, Ghaith Habboub, Parita Das, Min Lang, Josephine Volovetz, Shahed Tish, Quinn T. Ostrom, Carol Kruchko, Jill Barnholtz-Sloan, Varun Ranjan Kshettry, Pablo F. Recinos

7:53 – 7:55 am
499 Utility of Fenestrated, Cement Augmented, Pedicle Screws for Stabilization of Cancer Related Spinal Instability
Ori Barzilai, Lily McLaughlin, Eric Lis, Mark H. Bilsky, Ilya Laufer

7:55 - 7:59 am
Questions and Discussion

8:01 – 8:03 am
501 Safety and Efficacy of Fenestrated Pedicle Screws with Cement Augmentation for Spinal Metastases: Early Experience with 202 Screws
Myron Rolle, Bryan D. Choi, Ganesh Shankar, Laura Van Beaver, Vijay Yanadala, John H. Shin

8:03 – 8:05 am
502 Initial Experience with Intraoperative Phosphorous-32 Brachytherapy During Resection of Malignant Spinal Tumors
Darryl Lau, Stephen T. Magill, Cecilia L. Dalle Ore, Igor J. Barani, Vedat Deviren, Manish Kumar Aghi, Christopher P. Ames

8:05 – 8:07 am
503 Lumbar En Bloc Spondylectomy for Primary Spinal Tumors: A Systematic Review of the Literature
Cecilia L. Dalle Ore, Darryl Lau, Christopher P. Ames

504 MIS and Body Habitus
Matthew R. Quigley

8:09 – 8:11 am
505 The Unreimbursed Costs of Preventing Revision Surgery in Adult Spinal Deformity: Analysis of Cost Effectiveness of Proximal Junctional Failure Prevention Strategies in 195 Patients
Michael Safaee, Cecilia L. Dalle Ore, Corinna C. Zygourakis, Vedat Deviren, Christopher P. Ames

8:11 – 8:13 am
506 Cost-effectiveness of a Radiofrequency Hemostatic Sealer to Reduce Need for Transfusion in Adult Spinal Deformity Surgery
Gurpreet Surinder Gandhoke, Kenneth J. Smith, Yash Kalpesh Pandya, Nima Alan, David Salvetti, David O. Okonkwo, Adam S. Kanter

8:13 – 8:15 am
507 Diffusion and Cerebrospinal Fluid Flow Magnetic Resonance Imaging in the Evaluation of Cervical Stenosis and Myelopathy: A Prospective Study
Darryl Lau, Cynthia Chin, Philip R. Weinstein, John Engstrom, Christopher P. Ames

8:15 – 8:17 am
508 Best Versus Worst Neurological Outcomes After Surgery for Degenerative Cervical Myelopathy: An Bispective Analysis of A Global AOSpine Cohort of Patients
Rafael De la Garza Ramos, Aria Nouri, Jonathan P. Nakhla, Smruti K. Patel, Merritt D. Kinon, Joseph S. Cheng, Reza Yassari, Michael G. Fehlings

8:17 – 8:19 am
509 Quantitative MRI of the Cervical Spinal Cord to Measure Microstructure and Tissue Injury
Muhammad Akbar, Allan R. Martin

8:19 – 8:21 am
510 Are We Altering the Cervical Spine Biomechanics for the Better or Worse? A Biomechanical Study
Hoon Choi, Jobin D. John, Narayen Yoganandan, Mike Arun, Jamie Baisden

8:21 – 8:23 am
511 Radiographic Outcome After Cervical Disc Arthroplasty: Effect of Implant Sizing on Heterotopic Ossification
W. H. Andrew Ryu, Michael M.H. Yang, R. John Hurlbert

8:23 – 8:25 am
512 Analysis and Temporal Evolution of Extubation Parameters for Patients Undergoing Single Stage Circumferential Cervical Spine Surgery
Ricardo B.V. Fontes, Mena G. Kerolus, Ryan B. Kochanski, Rajeev K. Garg, Anthony DelaCruz, Vincent C. Traynelis

8:25 – 8:27 am
513 Incidence of Re-operation for Posterior Cervical Fusion: A Large-scale Retrospective Analysis
Royce Woodruffe, Logan Helland, Patrick W. Hitchon

8:27 – 8:29 am
514 Risk Factors Associated with Hardware Failure in Patients Undergoing Surgery for Metastatic Spine Disease

8:29 – 8:31 am
515 Kypho-intraoperative Radiation Therapy: A New Treatment Paradigm for Spine Metastasis — A Phase I/II Clinical Trial
Shashank V Gandhi, Ahmad Latefi, Ferney Diaz Molina, Yu Chen, Maged Ghaly

8:31 – 8:33 am
516 Adequacy of California Health Insurance for Patient Access to Neurosurgeons
Catherine Miller, Luis M. Tumialan, Kenneth Blumenfeld, Praveen V. Mummaneni

8:33 – 8:35 am
517 Is Patient Satisfaction Associated with Two-year Outcome After Cervical Spine Surgery for Myelopathy?
Saman Shabani, Shekar N. Kurpad, Matthew Budde, Marjorie C. Wang
Course Director: Douglas Kondziolka
Faculty: Anthony L. Asher, Douglas Kondziolka, Christopher I. Shaffrey
Course Description: This course is dedicated and focused on delivering and discussing the structure of the ABNS and provide an update on the new Oral Board Exam format and MOC process for neurosurgeons. The faculty include current leaders on the ABNS organization. There will be an interactive session with open discussion between faculty and participants.

Learning Objectives: Upon completion of this course, participants will be able to:
- Learn the changes on the Oral and MOC certification process.
- Understand the methodology and fundamentals of the ABNS.
- Discuss the differences between the old and new ABNS certification process.

8:45 – 9:00 am
Overview of the ABNS
Douglas Kondziolka

9:00 – 9:15 am
The “New” Oral Exam: Current Format, Case Collection, Case Selection, Format of the Examination
Anthony L. Asher

9:15 – 9:25 am
Process if a Failure Occurs
Christopher I. Shaffrey

9:25 – 9:35 am
The “New” MOC, Parts 1 Through 4 Explained: Why Everyone Will Want to Do MOC
Anthony L. Asher

9:35 – 9:45 am
Questions and Discussion

Cahill Controversies
10:00 am - 12:30 pm
Pacifica Ballroom 7

Moderators: Edward C. Benzel, Joseph S. Cheng

Learning Objectives: Upon completion of this course, participants will be able to:
- Understand different indications managing spinal burst fractures.
- Differentiate approaches for degenerative conditions on the cervical spine and their surgical procedures.
- Learn surgical and non-surgical indications for the management of the sacroiliac joint pathologies.
- Acquire knowledge of optimal techniques for placement of spinal pedicle screws.

10:00 – 10:04 am
Case Presentation: Burst Fracture TLICS 4

10:04 – 10:12 am
Brace and Conservative Treatment
James S. Harrop

10:12 – 10:20 am
Open Fusion and Instrumentation
Pierce D. Nunley

10:20 – 10:28 am
MIS Internal Bracing
Michele M. Johnson

10:28 – 10:32 am
Discussion and Verdict
Frank La Marca

10:32 – 10:36 am
Case Presentation: Multisegmental Cervical Stenosis

10:36 – 10:44 am
Anterior 4 Level Approach
Vincent C. Traynelis

10:44 – 10:52 am
Posterior Laminectomy and Fusion
Rick Sasso

10:52 – 11:00 am
Posterior Laminoplasty
Allan D. Levi
11:00 – 11:04 am
Discussion and Verdict
R. John Hurlbert

11:04 – 11:08 am
Case Presentation: T/L Pedicle Screw Fixation
11:08 – 11:16 am
Free Hand Pedicle Screw Placement
Michael P. Kelly
11:16 – 11:24 am
Fluoroscopic Pedicle Screw Placement
Luis M. Tumialan
11:24 – 11:32 am
Navigated Pedicle Screw Placement
Tyler R. Koski
11:32 – 11:36 am
Discussion and Verdict
Zoher Ghogawala

11:36 – 11:40 am
Case Presentation: Multisegmental Cervical Stenosis/HNP with Radiculopathy
11:40 – 11:48 am
Monitoring is not Indicated and it is just Protecting from Medicolegal Issues
William Sullivan
11:48 – 11:56 am
Intraoperative Multimodality Monitoring Improves Outcomes and Should be Mandatory
Jeffrey C. Wang
11:56 am – 12:00 pm
Discussion and Verdict
Yong Eun Cho

12:00 – 12:04 pm
Case Presentation: SI Joint Case
12:04 – 12:12 pm
SI Fusion
David W. Polly
12:12 – 12:20 pm
Leave the SI Joint Alone
Michael Y. Wang
12:20 – 12:30 pm Discussion and Verdict
Charles A. Sansur

12:30 pm
Meeting Adjourns

CME INFORMATION

Accreditation
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 providorship of the Congress of Neurological Surgeons and the AANS/CNS 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 23 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

CME Credit
*A maximum of 18 AMA PRA Category 1 Credits™ may be earned for Scientific Sessions only.

Mid-level Practitioners
Attendees will receive a certificate of attendance for the general Scientific Program and for any optional events attended. Please contact your individual membership association and certification board to determine the requirements for accepting credits.

Additional CME Credits can be earned by attending the following:

Special Courses
Attendees will receive a maximum of 3.5 AMA PRA Category 1 Credits™ for an eligible half-day Wednesday Special Course. Attendees will receive a maximum of 1.50 AMA PRA Category 1 Credits™ for an eligible Friday afternoon Special Course. Physicians should claim only the credit commensurate with the extent of their participation in the activity.
Claiming Credit

CME and attendance credits can be claimed through the online credit system at www.cns.org. Log in using your last name and the email address with which you registered. You will need to enter the number of hours you are claiming for each session you attended. Physicians should only claim credit for the learning activities at Spine Summit 2018 in which they actively participated. The tracking system lets you create and email a certificate immediately following Spine Summit 2018, either while you are still in Orlando, or from the convenience of your home or office.

Disclosures

The Accreditation Council for Continuing Medical Education Updated Standards for Commercial Support requires that anyone in a position to control the content of the educational activity has disclosed all financial relationships with any commercial interest. Failure or refusal to disclose, or the inability to satisfactorily resolve the identified conflict, may result in the withdrawal of the invitation to participate in any of the CNS educational activities. The ACCME defines a “commercial interest” as any entity producing, marketing, re-selling, or distributing healthcare goods or services consumed by, or used on, patients.

FDA Statement

Some drugs or medical devices demonstrated at Spine Summit 2018 have not been cleared by the FDA, or have been cleared by the FDA for specific purposes only. The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or medical device he or she wishes to use in clinical practice. The CNS policy provides that “off label” uses of a drug or medical device may be described at the DSPN Spine Summit 2018 so long as the “off label” use of the drug or medical device is also specifically disclosed. Any drug or medical device is “off label” if the described use is not set forth on the products approval label. It is also each speaker’s responsibility to include the FDA clearance status on any device or drug requiring FDA approval discussed or described in their presentation or to describe the lack of FDA clearance for any “off label” uses discussed. Speakers from the audience are also required, therefore, to indicate any relevant personal/professional relationships as they discuss a given topic.

GENERAL INFORMATION

Speaker Ready Room

The Speaker Ready Room is located in Coral Sea 1. The hours are:

- **Wednesday, March 14**: 8:00 am - 6:00 pm
- **Thursday, March 15**: 6:00 am - 6:00 pm
- **Friday, March 16**: 6:00 am - 6:30 pm
- **Saturday, March 17**: 6:00 am - 12:30 pm

All speakers abstract presenters and Scientific Session Faculty must visit the Speaker Ready Room at least two hours prior to their presentation. For a morning Scientific Session please check in the night before.

Exhibit Hall

**Pacifica Ballroom 1-6**

- **Thursday, March 15**: 9:00 am – 4:30 pm
- **Friday, March 16**: 9:00 am – 1:00 pm

Registration

**Registration North Desk**

- **Wednesday, March 14**: 11:00 am – 5:30 pm
- **Thursday, March 15**: 6:30 am – 6:15 pm
- **Friday, March 16**: 6:30 am – 6:30 pm
- **Saturday, March 17**: 6:45 am – 12:30 pm

No Smoking Policy

Smoking is not permitted at any official Section on Disorders of the Spine and Peripheral Nerves Spine Summit 2018 event. The Loews Royal Pacific Resort is a non-smoking hotel.
Opening Reception
Wantilan Pavilion
Wednesday, March 14 6:30 – 8:00 pm
Experience the natural elegance of the islands in a secluded, dramatic setting with a lava-rock fire pit, tiki torches, and exotic foliage. Enjoy a lavish array of food and beverages and listen to live entertainment as you network with old friends and new colleagues at the Opening Reception. Each medical attendee and spouse/guest registered for the meeting will receive one complimentary ticket. Resort casual attire is recommended.

Young Neurosurgeons’ Dinner
Promenade Deck
Friday, March 16 7:30 pm
All residents, fellows, and young neurosurgeons are invited to enjoy a delicious dinner with Meritorious Member Award Recipient, Vincent C. Traynelis. RSVP required. Please RSVP to Karen Garrett at kgarrett@cns.org.

Purpose of the Section on Disorders of the Spine and Peripheral Nerves
Spine Summit 2018
To foster the use of spinal neurosurgical methods for the treatment of diseases of the spinal neural elements, the spine and peripheral nerves. To advance spinal neurosurgery and related sciences, improve patient care, support meaningful basic and clinical research, provide leadership in undergraduate and graduate continuing education and promote administrative facilities necessary to achieve these goals.