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<th>Time</th>
<th>Session</th>
<th>Topic</th>
<th>Presenters</th>
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<tr>
<td>7:00–7:10 am</td>
<td>Welcome and Announcements</td>
<td>Alpesh A. Patel, MD, FACS</td>
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<tr>
<td>7:11–7:59 am</td>
<td>Session I: Surgery Techniques I</td>
<td>Erica F. Bisson, MD and Clinton J. Devin, MD</td>
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<tr>
<td>7:11–7:17 am</td>
<td>Presentation #1</td>
<td>Is Cervical Bracing Necessary After Single and Multi-Level Anterior Cervical Discectomy and Fusion? A Prospective Randomized Study</td>
<td>Samuel C. Overley, MD; Robert Kent Merrill, BS; Evan Baird, MD; Samuel Kang-Wook Cho, MD; Andrew C. Hecht, MD; Sheeraz Qureshi, MD</td>
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<tr>
<td>7:18–7:24 am</td>
<td>Presentation #2</td>
<td>The Effect of Local Versus Intravenous Steroids on Dysphagia And Dysphonia Following Anterior Cervical Discectomy and Fusion (ACDF): A Single-Blinded, Prospective, Randomized Control Trial</td>
<td>Tyler James Jenkins, MD; Rueben Nair, MD; Brett D Rosenthal, MD; Marco Mendoza, MD; Wellington K Hsu, MD; Alpesh A Patel, MD; Jason W Savage, MD</td>
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<td>7:25–7:31 am</td>
<td>Presentation #3</td>
<td>The Impact of Local Steroid Application on Dysphagia Following an Anterior Cervical Discectomy and Fusion: Preliminary Results of a Prospectively, Randomized, Single Blind Trial</td>
<td>Kern Singh, MD; Dustin H. Massel, BS; Benjamin C. Mayo, BA; Junyoung Ahn, BS; Daniel D. Bohl, MD, MPH; Krishna Modi; William W. Long Jr, BA</td>
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<td>7:32–7:38 am</td>
<td>Presentation #4</td>
<td>A Prospective Comparative Study in Skin Antiseptic Solutions for Posterior Spine Surgeries: Chlorhexidine-Gluconate Ethanol Vs. Povidone-Iodine</td>
<td>Toshitaka Yoshii, MD, PhD; Takashi Hitai, MD, PhD; Kenichiro Sakai, MD, PhD; Atsushi Okawa: Kenichi Shinomiya MD, PhD</td>
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<td>7:39–7:45 am</td>
<td>Presentation #5</td>
<td>Prospective Study of Deep Vein Thrombosis in Patients Associated with Degenerative Cervical Spine Surgery</td>
<td>Katsuhisa Yamada, MD; Kota Suda, MD; Satoko Matsumoto Harmon, MD; Miki Komatsu, MD, PhD; Chikara Ushiku, MD; Masahiko Takahata, MD</td>
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<td>7:46–7:59 am</td>
<td>Discussion</td>
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<td>8:00–8:48 am</td>
<td>Session II: Motion Preservation I</td>
<td>Sheeraz Qureshi, MD, MBA and D. Greg Anderson, MD</td>
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<td>8:00–8:06 am</td>
<td>Presentation #6</td>
<td>Long-Term Clinical Outcomes of Cervical Disc Arthroplasty: A Prospective, Randomized, Controlled Trial</td>
<td>Joseph D. Smucker, MD; Willa R. Sasso; Rick C. Sasso, MD; Maria P. Sasso</td>
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<td>8:07–8:13 am</td>
<td>Presentation #7</td>
<td>Similar Outcomes of Hybrid TDR/ACDF and Multi-Level ACDF at 5 Year Follow-Up</td>
<td>Glenn R. Buttermann, MD</td>
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<td>8:14-8:20 am</td>
<td>Presentation #8</td>
<td>Prestige Cervical Disc Arthroplasty Vs. Cervical Discectomy/Fusion: 84 Month Ide Outcomes of Two Level, Prospective, Randomized Clinical Trial.</td>
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<td>Scott D. Hodges, DO; Matthew F. Gornet, MD; Todd H. Lanman, MD; J. Kenneth Burkus, MD; Randall F. Dryer, MD; Jeffrey Ross McConnell, MD</td>
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<td>8:21–8:27 am</td>
<td>Presentation #9</td>
<td>Elevated Risk for Repeated Surgery After ADR Compared to ACDF in a Cohort of 715 Patients – A Retrospective Study with Minimum Five-Year Follow-Up</td>
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<td>Martin Skeppholm, MD, PhD</td>
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<td>8:28–8:34 am</td>
<td>Presentation #10</td>
<td>Artificial Disc Replacements Do Not Prevent Adjacent Segment Degeneration in the Cervical Spine</td>
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<td>Anna MacDowall, MD; Nuno Maria Canto-Moreira, MD, PhD; Martin Skeppholm, MD, PhD; Catarina Marques, MD; Yohan Robinson, MD; Claes Olerud, MD</td>
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<td>8:35–8:48 am</td>
<td>Presentation #11</td>
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<td>8:49–9:37 am</td>
<td>Session III: Cervical Myelopathy I</td>
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<td>Moderators: Themistocles S. Protopsaltis, MD and Masatoshi Sumi, MD</td>
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<td>8:49–8:55 am</td>
<td>Presentation #11</td>
<td>Tobacco Smoking and Outcomes of Decompressive Surgery in Patients with Symptomatic Degenerative Cervical Myelopathy</td>
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<td>Paul M. Arnold, MD; Branko Kopjar, MD; Lindsay A. Tetreault, PhD; Hiroaki Nakashima, MD; Michael G. Fehlings, MD, PhD</td>
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<td>8:56–9:02 am</td>
<td>Presentation #12</td>
<td>Comparative Effectiveness Between Laminectomy with Fusion and Laminoplasty for the Treatment of Multi-level Cervical Spondylotic Myelopathy</td>
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<td>Colin Haines, MD; Heath Gould, BS; Emily Hu, BA; Jacob A. Miller, BS; Roy Xiao, BA; Thomas E. Mroz, MD; Don K. Moore, MD</td>
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<td>So Kato, MD; Aria Nouri, MD, MSc; Dongjin Wu; Satoshi Nori, MD, PhD; Lindsay Tetreault, PhD; Michael G. Fehlings, MD, PhD</td>
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<td>9:10–9:16 am</td>
<td>Presentation #14</td>
<td>Postoperative Walking Ability of Non-Ambulatory Cervical Myelopathy Patients</td>
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<td>Yoshiki Takeoka, MD; Shuichi Kaneyama, MD, PhD; Masatoshi Sumi, MD, PhD; Koichi Kasahara, MD, PhD; Aritetsu Kanemura, MD, PhD; Masato Takabatake; Akihiro Koh, MD; Hiroaki Hirata, MD, PhD; Masanori Tsubosaka</td>
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<td>9:17–9:23 am</td>
<td>Presentation #15</td>
<td>Impact of Preoperative Cervical Sagittal Balance on Surgical Treatment for Cervical Spondylotic Myelopathy Caused by Ossification of the Posterior Longitudinal Ligament</td>
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<td>Kenichiro Sakai, MD, PhD; Toshitaka Yoshii, MD, PhD; Takashi Hitai, MD, PhD; Yoshiyasu Arai; Yu Matsukura, MD, PhD; Atsushi Okawa, MD, PhD</td>
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<td>9:24–9:37 am</td>
<td>Presentation #16</td>
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<td>9:38–10:03 am</td>
<td>Break</td>
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<td>10:04–10:52 am</td>
<td>Session IV: Healthcare Economics/Value I</td>
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<td>Moderators: Serena S. Hu, MD and Timothy A. Moore, MD</td>
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<td>10:04–10:10 am</td>
<td>Presentation #16</td>
<td>A Health Economic and Patient-Centered Analysis on the Value of Surgery for Degenerative Cervical Myelopathy: Strong Support for Surgical Intervention</td>
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<td>Christopher D. Witte, MD; Lindsay Tetreault, PhD; Fabrice Smieliauskas; Branko Kopjar, MD; Eric Massicotte, MD; Michael G. Fehlings, MD, PhD</td>
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<td>10:11–10:17 am</td>
<td>Presentation #17</td>
<td>Resource Utilization for Anterior Compared to Posterior Surgical Approaches for Cervical Spondylotic Myelopathy: An Analysis of Private Payer and Medicare Databases</td>
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<td>Sohrab Virk, MD; Frank M. Phillips, MD; Safdar N. Khan, MD</td>
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10:18–10:24 am  Presentation #18  Trends in Resource Utilization and Rate of Cervical Disc Arthroplasty and Anterior Cervical Discectomy and Fusion Throughout the United States from 2006 to 2013
Comron Saifi; Arielle Wendy Fein, BA; Alejandro Cazzulino, BA; Alex Ha, MD; Ronald A. Lehman, MD; K Daniel Riew, MD

10:25–10:31 am  Presentation #19  Impact of Type of Graft on Patient Reported Outcomes and Costs Following Anterior Cervical Discectomy and Fusion
Silky Chotai, MD; Scott L. Parker, MD; Elliott J. Kim, MD; Ahilan Sivaganesan, MD; Matthew J. McGirt, MD; Clinton J. Devin, MD; J. Alex Sielatycki, MD

10:32–10:38 am  Presentation #20  Factors Associated with Financial Relationships Between Spine Surgeons and Industry: An Analysis of the Open Payments Database
Wellington Hsu, MD; Joseph Arnold Weiner, BS; Ralph Cook, BS; Sohaib Zafar Hashmi, MD; Michael S. Schallmo, BS; Danielle Chun, BA; Kathryn A. Barth BA; Sameer Kumar Singh, BA; Alpesh A. Patel, MD; Wellington K. Hsu, MD

10:39–10:52 am  Discussion

10:53 – 11:13 am  History of CSRS: On the Shoulders of Giants, the CSRS Early Years - Edward J. Dunn, MD

11:14 -11:20 am  Introduction of CSRS President – Darrel S. Brodke, MD

11:21 am-12:00 pm  PRESIDENTIAL ADDRESS - Robert F. Heary, MD

12:00 pm  Adjourn

COMPLIMENTARY WORKSHOPS
REGISTRATION REQUIRED ~ LUNCH INCLUDED
Optional Workshops – No CME Credits

12:00 - 3:30 pm  Workshop 1 LDR – Cervical Disc Arthroplasty I
12:00 - 3:30 pm  Workshop 2  DePuy Synthes – Biologics and Biomaterials
12:00 - 3:30 pm  Workshop 3 Medtronic – Cervical Disc Arthroplasty II
12:00 - 3:30 pm  Workshop 4 NuVasive – Cervical Spinal Deformity and Complex Osteotomies
12:00 - 3:30 pm  Workshop 5 Zimmer-Biomet – Cervical Myelopathy I
12:00 - 3:30 pm  Workshop 6 Globus - Cervical Myelopathy II

4:30 – 6:30 pm  Welcome Reception

Friday, Dec 2, 2016
Frontenac Ballroom

Program is tentative; times & topics may change
7:18–7:24 am  Presentation #22  
A Novel Score Predicting Spine Sagittal Imbalance Based on a Lateral Cervical Plain Radiograph
Ezequiel Goldschmidt, MD, PhD; Federico Angriman Sr.; Bruno Ferreyro; Nitin Agarwal, MD; Zachary J. Tempel, MD; Peter Gerszten, MD; Adam Kanter, MD; David Okonkwo, MD, PhD; Peter G. Passias, MD; Justin K. Scheer, BS; Themistocles S. Protopsaltis, MD; Virginie Lafage, PhD; Frank J. Schwab, MD; Robert Shay Bess, MD; Christopher Ames, MD; Christopher I. Shaffrey, MD; D. Kojo Hamilton

7:25–7:31 am  Presentation #23  
Relationship Between T1 Slope and Cervical Alignment Following Multi-Level Posterior Cervical Fusion Surgery: Impact of T1 Slope Minus Cervical Lordosis
Seung-Jae Hyun, MD, PhD; Kim Ki-Jeong

7:32–7:38 am  Presentation #24  
Outcomes of Operative Treatment for Adult Cervical Deformity: A Prospective Multicenter Assessment with 1-Year Follow-Up
Justin S. Smith, MD, PhD; Christopher I. Shaffrey, MD; Han Jo Kim, MD; Gregory M. Mundis, MD; Munish C. Gupta, MD; Eric O. Klineberg, MD; Frank J. Schwab, MD; Virginie Lafage, PhD; Renaud Lafage, MS; Peter G. Passias, MD; Themistocles S. Protopsaltis, MD; Brian J. Neuman, MD; Alan H. Daniels, MD; Tamir Ailon, MD, MPH; Justin K. Scheer, BS; Alexandre Soroceanu, MD; Khaled M. Kebaish, MD; Robert A. Hart, MD; Michael F. O’Brien, MD; Douglas C. Burton, MD; Vedat Deviren, MD; Todd J. Albert, MD; K. Daniel Riew, MD; Robert Shay Bess, MD; Christopher Ames, MD; International Spine Study Group

7:39–7:45 am  Presentation #25  
Postoperative Cervical Sagittal Realignment After Debridement and Reconstruction in Cervical Spinal Tuberculotic Kyphosis
Kai Cao, MD, PhD; Jiaquan Luo; Zhimin Pan, MD; Junlong Zhong; Yiwei Chen; Pingguo Duan; Li Zhiyun, MD

7:46–7:59 am  Discussion

8:00–8:43 am  Session VI: TRAUMA I
Moderators: Jeffrey C. Wang, MD and TBD

8:00–8:06 am  Presentation #26  
Management of Hangman Variant Fractures of the Axis
Thomas E. Niemeier, MD; Sakthivel Rajan Manoharan, MD; Steven M. Theiss, MD

8:07–8:13 am  Presentation #27  
Risk Factors for Failure of Non-Operative Treatment of Unilateral Cervical Facet Fractures
Amir Michael Abtahi, MD; Carola F. Van Eck, MD; Mitchell Fourman, MD; Amir Abtahi, MD; Louis Alarcon, MD; William F. Donaldson III, MD; Joon Yung Lee, MD

8:14–8:20 am  Presentation #28  
An Economic Case for the Surgical Treatment of Type II Odontoid Fractures in the Elderly: A Markov Cost-Utility Analysis Based on the Prospective Aospine Geriatric Odontoid Fracture Study
Jefferson R. Wilson, MD, PhD; James S. Harrop, MD; Gregory D. Schroeder, MD; Alexander Vaccaro, MD, PhD; Jens R. Chapman, MD; Srinivas K. Prasad, MD; Justin S. Smith, MD, PhD; Christopher Kepler, MD; Paul M. Arnold, MD; Michael G. Fehlings, MD, PhD

8:21–8:27 am  Presentation #29  
Minimally Clinically Important Difference (MCID) of a Clinical Impairment Measure Specific for Traumatic Tetraplegia: A Multi-Centre Assessment of the Grassp Version 1.0
Sukhvinder Kalsi-Ryan, PhD; Michael G. Fehlings, MD, PhD

8:28–8:43 am  Discussion

8:44–8:49 am  Preview CSRS 2017 Annual Meeting in Hollywood, Florida
Frank J. Eismont, MD

8:50–8:55 am  Preview CSRS Asia Pacific Section 2017 Annual Meeting in Kobe, Japan
Masatoshi Sumi, MD, PhD

8:56–9:01 am  Preview CSRS European Section 2017 Annual Meeting in Salzburg, Austria
Ronald HMA Bartels, MD, PhD

9:02–9:32 am  Break

Metropolitan Ballroom

Program is tentative; times & topics may change
9:33–10:35 am  
**Session VII: HIGHLIGHT POSTER PRESENTATIONS**

*Todd Albert, MD and Alexander R. Vaccaro, MD, PhD, MBA*

**Moderators:**

**Diagnostics/Imaging**

**9:34–9:36 am**

Presentation #30

*Principal Radiographic Characteristics for Cervical Spinal Deformity: A Health-Related Quality of Life Analysis*

*Virginie Lafage, PhD; Hongda Bao, MD, PhD; Jeffrey J. Varghese, BS; Renaud Lafage; Barthelemy Liabaud, MD; Bassel Diebo, MD; Subaraman Ramchandran, MBBS, MS; Louis Day; Cyrus Jalai, BA; Dana Cruz, MD; Thomas J. Errico, MD; Themistocles S. Protopsaltis, MD; Peter G. Passias, MD; Aaron Buckland; Frank J. Schwab, MD*

**9:37–9:39 am**

Presentation #31

*Diffusion Tensor Imaging Can Predict Surgical Outcomes of Patients with Cervical Compression Myelopathy*

*Mitsuhiro Kitamura; Satoshi Maki, MD; Takeo Furuya, MD, PhD; Yasushi Iijima; Junya Saito; Masashi Yamazaki, MD, PhD; Masao Koda, MD, PhD*

**9:40–9:42 am**

Presentation #32

*Posterior Cervical Spinal Cord Shift Following Posterior Decompression and Prediction of Persistent Anterior Spinal Cord Compression Using K-Plane; A Three Dimensional Modification of K-Line on MRI*

*Sang-Hun Lee, MD, PhD; Ki-Tack Kim, MD; Jung-Hee Lee, MD, PhD; Kyung-Chung Kang, MD*

**9:43–9:45 am**

Presentation #33

*Modular Organization of Whole-Brain Resting-State Functional Connectivity in Spinal Cord Injury: A Comparative Study*

*Mayank Kaushal; Akinwunmi Oni-Orisan, MD; Gang Chen, PhD; Wenjun Li, PhD; John Leschke; Benjamin T Kalinosky, PhD; Matthew Budde, Brian Schmit, PhD; Vaishnavi Muqeet, MD; Shekar N Kurpad, MD, PhD*

**9:46–9:48 am**

Presentation #34

*Prospective Clinical and Radiographic Assessment of the Cervical Spine in Professional Rodeo Riders After Exposure to Greater than 10G Linear Acceleration*

*Jeremie Larouche; Robert Trigg McClellan, MD; Alexander Theologis, MD; Jeremy Dewitt Shaw, MD, MS; Jeffrey Mulvihill, MD; Musa Zaid, MD; Safa Herfat, PhD; Christopher Hess; Jared Narvid, MD; Alisa Gean; Jeremie Larouche, MD*

**9:48 – 9:53 am**

**Discussion**

**Surgical Techniques/ACD**

**9:54–9:56 am**

Presentation #35

*Anterior Cervical Discectomy and Fusion with Stand-Alone Peek Cages with Integrated Screws Compared to an Allograft And Plate Construct*

*Grant Daniel Shifflett, MD; Jahanzeb Kaikaus; Melissa G. Goczalk; Bryce A. Basques, MD; Philip Louie, MD; Frank M. Phillips, MD*

**9:57–9:59 am**

Presentation #36


*Eduardo C. Beauchamp, MD; Timothy A. Garvey, MD*

**10:00–10:02 am**

Presentation #37

*Ambulatory Versus Inpatient Anterior Cervical Discectomy and Fusion Outcomes in Three US States*

*Atman Desai, MD; Arjun Vivek Pendharkar MD; David A. Purger, PhD*

**10:03–10:05 am**

Presentation #38

*Longitudinal Effects of Intraoperative Neurophysiological Monitoring on Costs and Clinical Outcomes for Single Level Cervical Spine Surgery*

*John P. Ney, MD, MPH; Daniel P. Kessler, PhD*

**10:06–10:08 am**

Presentation #39

*Surgical and Functional Outcomes after Multi-Level Cervical Fusion for Degenerative Disc Disease Compared to Fusion for Radiculopathy: A Study of Workers’ Compensation Population*

*Nicholas Ahn, MD; Mhamad Faour, MD; Joshua T. Anderson, BS*

**10:08 – 10:13 am**

**Discussion**

**Health Care Economics/Value**
10:14–10:16 am Presentation #40
An Analysis of Conflicts of Interest in Cervical Spine Surgery: The Effects of Industry Payments on Practice Patterns and Complication Rates
Wellington K. Hsu, MD; Ralph Cook, BS; Joseph Arnold Weiner, BS; Michael S. Schallmo, BS; Danielle Chun, BA; Sameer Kumar Singh, BA; Kathryn Barth, BA; Alpesh A Patel, MD

10:17–10:19 am Presentation #41
The Effect of Surgeon Volume on Complications, Length of Stay, and Costs Following Anterior Cervical Fusion
Bryce A. Basques, MD; Philip Louie, MD; Grant Shifflett, MD; Dustin H. Massel, BS; Benjamin C. Mayo, BA; Daniel D. Bohl, MD, MPH; Kern Singh, MD

10:20–10:22 am Presentation #42
Defining Health Utility Following One- or Two-level ACDF or CDR at Five Years
Steve McAnany, MD; Samuel Overley, MD; Jun Sup Kim, MD; Robert Brochin, MD; Sheeraz Qureshi, MD

10:23–10:25 am Presentation #43
Patient Reported Outcomes and Costs in Revision Cervical Surgery
Elliott J. Kim, MD; Silky Chotai, MD; Joseph Bradley Wick, BA; David Stonko, BS, MS; Ahilan Sivaganesan, MD; Clinton J. Devin, MD

10:26–10:28 am Presentation #44
Anterior Cervical Discectomy (ACDF): A More Exact, Non-Traditional Activity and Resource Cost Accounting at a University Center Shows $16,500 Cost Differential
Barton L. Sachs, MD, MBA; John A. Glaser, MD; Thomas S. Brehmer

10:29 – 10:34 am Discussion

10:35–10:50 am Special Projects Committee Report/Other Reports (TBD)

10:51 am–11:50 am Introduction of Henry H. Bohlman Presidential Guest Speaker – Robert F. Heary, MD
Henry H. Bohlman Presidential Guest Lecture – Paul Deegan

11:51–12:01 pm Discussion

12:02–1:00 pm Non-Member Lunch
12:02–1:00 pm Member Lunch

1:06–1:44 pm Session VIII: Basic Science
Brain K. Kwon MD, PhD and Louis G. Jenis MD

1:07–1:13 pm Presentation #45
Directly Reprogrammed Human Neural Precursor Cells – A Novel and Translationally Relevant Source for Cell Replacement Therapy in Spinal Cord Injury
Narihito Nagoshi, MD, PhD; Jan-Eric Ahlfors, BS, MBA, MSc; Mohammad Khazaeei, PhD; Morio Matsumoto, MD; Masaya Nakamura, MD; Cindi Morshead; Michael G. Fehlings, MD, PhD

1:14–1:21 pm Presentation #46
Therapeutic Impact of Human Induced Pluripotent Stem Cell Derived Neural Progenitor Cells for the Treatment of Cervical Spinal Cord Injury
Hiroaki Nakashima, MD; Mohammed Khazaeei; Anna Badner; Jonathon Chio; James Hong, BS, PhD; Narihito Nagoshi, MD, PhD; Kajana Satkundrarajah, PhD; Christopher Ahuja, MD; Balazs Varga; Andras Nagy; Michael G. Fehlings, MD, PhD

1:22–1:28 pm Presentation #47
Delayed Surgical Decompression for Degenerative Cervical Myelopathy Correlates with Reperfusion and Excessive Activation of the Immune System
Pia M. Vidal, PhD; Spyridon Karadimas, MD, PhD; Antigona Uldreaj; Alex M. Laliberte, MSc; Lindsay Tetreault, PhD; Jian Wang; Michael G. Fehlings, MD, PhD

1:29–1:35 pm Presentation #48
Time-Dependent Vascular Remodeling and Inflammation Following Decompression in Cervical Myelopathy
Wenru Yu, MD; Anna Badner; Tim-Rasmus Kiehl; Michael G. Fehlings, MD, PhD

1:36–1:44 pm Discussion
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<td>1:45–2:30 pm</td>
<td>Session IX: Patient Reported Outcomes</td>
<td>Darrel S. Brodke, MD and Justin S. Smith MD, PhD</td>
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<td><em>Moderators:</em></td>
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<td>1:46–1:51 pm</td>
<td>Are Patient Reported Outcomes Predictive of Patient Satisfaction Five Years After Anterior Cervical Spine Surgery</td>
<td>Gregory Schroeder, MD; Han Jo Kim, MD; Todd J Albert, MD; Kristen E. Radcliff, MD</td>
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<td>1:52–1:58 pm</td>
<td>Diminished Mental Health Prior to Cervical Fusion Can Have a Profound Effect on Patient Derived Outcomes Depending on Presenting Diagnosis: Results of a Prospective Surgeon Driven Cervical Database at 2 Years</td>
<td>Peter G. Passias, MD; Cyrus Jalai, BA; Bassel Diebo, MD; Michael C. Gerling, MD, PhD; Gregory W. Poorman, BA; Kristen E. Radcliff, MD; Paul M. Arnold, MD, FACS; Jeffrey A. Rihn, MD; Eli M. Baron, MD; Robert E. Isaacs, MD; Paul A. Anderson, MD; Alexander Vaccaro, MD, PhD</td>
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<td>1:59–2:05 pm</td>
<td>Which Domains of the NDI Improve Most after Surgery for Cervical Myelopathy?</td>
<td>Paul W. Millhouse, MD, MBA; Kristen Nicholson, PhD; Emily Pflug, BS; Barrett Ivory Woods, MD; Gregory D. Schroeder, MD; D. Greg Anderson, MD; Christopher Kepler, MD; Mark F. Kurd, MD; Jeffrey A. Rihn, MD; Alexander Vaccaro, MD, PhD; Alan S. Hilibrand, MD; Kristen E. Radcliff, MD</td>
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<td>2:06–2:12 pm</td>
<td>Concurrent Validity and Responsiveness of PROMIS Health Related Quality of Life Assessment in Patients with Cervical Spine Disease</td>
<td>Richard L. Skolasky, ScD; Shalini Selvarajah MD, MPH; Brian J. Neuman, MD</td>
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<td>2:13–2:19 pm</td>
<td>A Comparison of Patient Centered Outcome Measures to Evaluate Dysphagia and Dysphonia After Anterior Cervical Discectomy and Fusion (ACDF)</td>
<td>Alpesh A. Patel, MD; Surabhi A. Bhatt, BS; Junyoung Ahn, BS; Jason W. Savage, MD; Wellington K. Hsu, MD; Kern Singh, MD</td>
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<td>2:19–2:30 pm</td>
<td>Discussion</td>
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<td>2:31 pm–3:18 pm</td>
<td>Session X: RESEARCH SESSION</td>
<td>John M. Rhee, MD</td>
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<td>2:31–2:47 pm</td>
<td>Announcement of 2016 ~ Research Grant Winners</td>
<td>Medtronic CSRS Research Grant</td>
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<td>21st Century Research and Education Grants</td>
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<td>Seed Starter Research and Education Grants</td>
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<td>Resident Fellow Grants</td>
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<td>2:48–2:49 pm</td>
<td>Introduction – Research Grant Updates</td>
<td>21st Century Research and Education Grant</td>
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<td>2:50–2:55 pm</td>
<td>Therapeutic Approaches to Protect against Ischemia/reperfusion Injury Following Surgical Decompression for Cervical Spondylotic Myelopathy (CSM): A Potential Solution to Attenuate Perioperative Neurological Complications following Decompressive Surgery</td>
<td>Michael G. Fehlings, MD, PhD, Pia M. Vidal, BS, PhD, Spyridon K. Karadimas, MD, PhD, Joannis K. Kallitsis</td>
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<td>2:56–3:01 pm</td>
<td>PLA2-Responsive Multifunctional Micelles for the Targeted Treatment of Painful Radiculopathy</td>
<td>Beth A. Winkelstein, PhD, Zhilang Cheng, Andrew Tsourkas, PhD</td>
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<td>Seed Starter Grants</td>
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<td>3:02–3:07 pm</td>
<td>Elucidating Metabolite Changes in the Spinal Cord of Cervical Spondylotic Myelopathy (CSM) Patients using Magnetic Resonance Spectroscopy</td>
<td>Izabela Aleksanderek, Michael G. Fehlings, MD, PhD, Allan R. Martin, MD</td>
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*Program is tentative; times & topics may change*
A Randomized Trial of Early Home Exercise versus Usual Care After Anterior Decompression and Fusion for Degenerative Cervical Spine Conditions
Rogelio A. Coronado, PT, PhD; Kristin R. Archer, DPT, PhD; Clinton J. Devin, MD; Joseph S. Cheng, MD, MS; Oran S. Aaronson, MD

SESSION XI: Motion Preservation
Moderator: Praveen Mummaneni, MD and TBD

3:51-3:57 pm
Presentation #54
The Seven Year Cost-Effectiveness of Anterior Cervical Discectomy and Fusion Versus Cervical Disc Arthroplasty
Steven J. McAnany; Samuel Overley, MD; Jun Sup Kim, MD; Robert Brochin, MD; Sheeraz Qureshi, MD

3:58-4:04 pm
Presentation #55
Progressive Bone Formation after Cervical Disc Replacement: Minimum of 5-Year Follow-Up
Feifei Zhou, MD; Kevin L. Ju, MD; John G. Heller, MD; Yu Sun, MD

4:05-4:11 pm
Presentation #56
Unintended Fusion in Cervical Artificial Disc Replacement: A Prospective Study on Heterotopic Ossification with 5 Years Follow-Up
Catarina Marques, MD; Anna Marianne MacDowall, MD; Martin Skeppholm, MD, PhD; Nuno Maria Canto-Moreira, MD, PhD; Claes Olerud, MD

4:12-4:18 pm
Presentation #57
Clinical Implications of Heterotopic Ossification after Cervical Disc Arthroplasty at 7 Years
Pierce D. Nunley, MD; Eubulus J. Kerr, MD; David Albert Cavanaugh, MD; Andrew Utter, MD; Kelly Frank, MS; Marcus Stone, PhD

SESSION XII: Complications
Moderator: Ahmad Nassr, MD and Brian W Su MD

4:32-4:38 pm
Presentation #59
Cervical Deformity Surgery Does Not Result In Post-Operative Dysphagia: A Prospective Cohort Study
Sravisht Iyer, MD; Hongda Bao, MD, PhD; Han Jo Kim, MD; Justin S Smith, MD, PhD; Michael P. Kelly, MD; Munish C. Gupta, MD; Todd J Albert, MD; Themistocles S. Protopsaltis, MD; Gregory M Mundis, MD; Peter G. Pasias, MD; Brian J Neuman, MD; Eric O. Klineberg, MD; Virginie Lafage, PhD; Christopher Ames, MD; International Spine Study Group

4:39-4:45 pm
Presentation #60
Pseudarthrosis in Patients Undergoing Multilevel Posterior Cervical or Cervical-Thoracic Fusions: Multi-Center Analysis
Eric Truumees, MD; Devender Singh, PhD; Matthew J. Geck, MD; John K. Stokes, MD

4:46-4:52 pm
Presentation #61
Not All Patients with Diabetes Have the Same Risk: The Association of Perioperative Glycemic Control with Deep Postoperative Infection Following ACDF in Patients with Diabetes
Jourdan M. Cancienne, MD; Brian C. Werner, MD; Anuj Singla, MD; Hamid Hassanzadeh, MD; Francis H. Shen, MD; James Andrew Browne, MD; Adam L. Shimer, MD

4:53-4:59 pm
Presentation #62
Laminoplasty and Wide Decompression Were Risk Factors of C5 Palsy: Analysis of 303 Surgical Cases with Cervical Compression Myelopathy
Satoshi Nori; Ryoma Aoyama, MD, PhD; Ken Ninomiya, MD; Junichi Yamane, MD, PhD; Kazuya Kitamura, MD, PhD; Tateru Shiraishi, MD, PhD

5:00-5:06 pm
Presentation #63
Reoperation Rates Following Open Door Cervical Laminoplasty
John Rodriguez-Feo, MD; Daniel Leas, MD; Susan Marie Odum, PhD; Mark F. Kurd, MD; Bruce V Darden II, MD; R. Alden Milam, IV, MD

5:07-5:17 pm
Discussion
<table>
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<tr>
<th>Time</th>
<th>Session</th>
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<tr>
<td>7:00–7:05 am</td>
<td>Welcome and Announcements</td>
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<td>Alpesh A. Patel, MD, FACS</td>
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<td>7:06–7:54 am</td>
<td>Session XIII: Healthcare Economics/Value II</td>
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<td><em>Moderators:</em></td>
<td>TBD and Ezequiel Cassinelli MD</td>
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<td>7:06–7:07:12 am</td>
<td>Impact of Body Mass Index on Surgical Outcomes, Narcotic Consumption, Costs and Reimbursements Following Anterior Cervical Discectomy and Fusion</td>
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<td><em>Moderators:</em></td>
<td>TBD and Ezequiel Cassinelli MD</td>
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<td>7:13–7:19 am</td>
<td>Effect of Surgical Setting (Tertiary Versus Community Hospitals) on Hospital Reported Outcomes for Anterior Cervical Spine Procedures</td>
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<td><em>Moderators:</em></td>
<td>TBD and Ezequiel Cassinelli MD</td>
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<td>7:20–7:26 am</td>
<td>Predictive Models for Patient-Centered Efficacy and Discharge Destination After Elective Cervical Spine Surgery</td>
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<td><em>Moderators:</em></td>
<td>TBD and Ezequiel Cassinelli MD</td>
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<td>7:27–7:33 am</td>
<td>Reimbursement and Charges Related to a 90-Day Episode of Care for a One- or Two-Level Anterior Cervical Discectomy and Fusion</td>
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<td><em>Moderators:</em></td>
<td>TBD and Ezequiel Cassinelli MD</td>
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<td>7:55–8:55 am</td>
<td>Discussion</td>
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<td>7:55–8:04 am</td>
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<td>8:05–8:14 am</td>
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<td>8:45–8:55 am</td>
<td>Discussion</td>
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<td>8:56–9:43 am</td>
<td>Session XIV: Cervical Myelopathy II</td>
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<td><em>Moderators:</em></td>
<td>Joon Yung Lee MD and TBD</td>
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<td>8:56–9:02 am</td>
<td>The Use of A Novel Ipad Application to Quantify Dysfunction on Cervical Myelopathy Patients</td>
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<td><em>Moderators:</em></td>
<td>Joon Yung Lee MD and TBD</td>
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<td>9:03–9:09 am</td>
<td>Association Between Paraspinal Muscle Morphology, Clinical Symptoms and Functional Status in Patients with Degenerative Cervical Myelopathy</td>
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<td><em>Moderators:</em></td>
<td>Joon Yung Lee MD and TBD</td>
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<td><em>Moderators:</em></td>
<td>Joon Yung Lee MD and TBD</td>
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9:17–9:23 am Presentation #72
High-Resolution Magnetization Transfer (Mt) MRI in Patients with Cervical Spondylotic Myelopathy
Brett D. Rosenthal, MD; Linda Suleiman, MD; Kenneth Weber, DC; Jason W. Savage, MD; Wellington K. Hsu, MD; Todd B. Parrish, PhD; Alpesh A. Patel, MD

9:24–9:30 am Presentation #73
The K-Line Tilt, a Novel Radiographic Parameter of Cervical Sagittal Balance, Is a Predictor of Postoperative Kyphotic Deformity after Laminoplasty for Cervical Myelopathy Caused by Ossification of the Posterior Longitudinal Ligament
Kenichiro Sakai, MD, PhD; Toshitaka Yoshii, MD, PhD; Takashi Hitai, MD, PhD; Yoshiyasu Arai; Yu Matsukura, MD, PhD; Atsushi Okawa, MD, PhD

9:31–9:44 am Discussion

9:45–9:49 am Poster Award Winners Announcement

9:50–9:55 am Presentation of CSRS Medallion to Darrel S. Brodke, MD

9:56–10:11 am Break
Frontenac Ballroom Foyer

10:12–11:00 am Session XV: Surgical Techniques II
Moderators: R. Alden Milam, IV, MD and Lee H. Riley, III, MD

10:12–10:18 am Presentation #74
The Difference in Clinical Outcomes Between Acdf, Total Disc Arthroplasty and Posterior Foraminotomy in Professional Athletes
Harry T. Mai, BS; Andrew Schneider, BA; Sean Michael Mitchell, BS; Jason W. Savage, MD; Alpesh A. Patel, MD; Andrew C. Hecht, MD; Wellington K. Hsu, MD

10:19–10:25 am Presentation #75
The Accuracy and Safety of Subaxial Cervical Pedicle Screw Insertion Using Vertebral Lateral Notch-Referred Technique
Kai Cao, MD, PhD; Chunyang Wu, MD; Qingxiu Leng, MD; Zhimin Pan, MD, MSc; Jiaquan Luo; Pingguo Duan

10:26–10:32 am Presentation #76
Degenerative Cervical Spondylolisthesis: Does Adjacent Level Surgical Stabilization Result in Progressive Listhesis?
Grant D. Shifflett, MD; Jake Emerson; Hollis Johanson; Bryce A. Basques, MD; Jacob Birlingmair, BS; Dennis P. McKinney; Po-Hsin Chou, MD; Philip Louie, MD; Howard S. An, MD

10:33–10:39 am Presentation #77
Should Long Segment Cervical Fusions Be Routinely Carried Into the Thoracic Spine? Multi-Center Analysis
Eric Truumees, MD; Devender Singh, PhD; Matthew J. Geck, MD; John K. Stokes, MD

10:40–10:46 am Presentation #78
Should Asymptomatic Levels with MRI Abnormalities be Included in an ACFD Construct? A Long-Term MRI Analysis
Marcus D. Mazur, MD; Andrew Dailey, MD; Lubdha M. Shah, MD; Joel D. MacDonald MD

10:47–11:00 am Discussion

11:01–12:15 pm Session XVI: HIGHLIGHT POSTERS II
Moderators: Michael Fehlings MD, PhD and Michael Daubs, MD

11:01–11:03 am Presentation #79
Thoraco-Lumbar Reciprocal Changes Following Cervical Reconstruction Surgery for Cervical Kyphosis
Jun Mizutani, MD; Strom Russell; Kenji Endo; Kuniyoshi Abumi, MD; Ken Ishii, MD; Mitsuru Yagi, MD, PhD; Bobby Tay, MD; Vedat Deviren, MD; Christopher Ames, MD

11:04–11:06 am Presentation #80
Preoperative Global Sagittal Imbalance is a Predictor of Postoperative Neck Pain Following Laminoplasty in Patients with Cervical Spondylotic Myelopathy: Based on the Prospective Analysis of 165 Patients.
Jun Ouchida; Hiroaki Nakashima, MD; Naoki Segi, MD
11:07–11:09 am
Presentation #81
Adult Spinal Deformity Patients with Proximal Junctional Kyphosis Adjust with Cervical Malalignment At Similar Rates But Distinct Characteristics Relative to Those Unaffected
Peter G. Passias; Cyrus Jalai, BA; Han Jo Kim, MD; Justin S. Smith, MD, PhD; Christopher Ames, MD; Kojo Hamilton; Robert K. Eastlack, MD; Douglas C. Burton, MD; Munish C. Gupta, MD; Robert Shay Bess, MD; Virginie Lafage, PhD; Frank J. Schwab, MD; International Spine Study Group

11:10–11:12 am
Presentation #82
The Difference of Spinal Sagittal Alignment and Health-Related Qol Between Males and Females with Cervical Deformity
Shin Oe, MD; Daisuke Togawa, MD; Tomohiko Hasegawa, MD; Yu Yamato, MD, PhD; Sho Kobayashi, MD; Tomohiro Banno, MD; Yuuki Mihara, MD; Kenta Kurosu; Yukihiro Matsuyama, MD, PhD

11:13–11:15 am
Presentation #83
Analysis of Successful Vs. Failed Radiographic Outcomes Following Cervical Deformity Surgery
Themistocles S Protopsaltis, MD; Subaraman Ramachandran, MBBS, MS; D. Kojo Hamilton; Daniel Sciubba, MD; Peter G. Passias, MD; Virginie Lafage, PhD; Renaud Lafage, MS; Robert A. Hart, MD; Douglas C. Burton, MD; Robert Shay Bess, MD; Munish C. Gupta, MD; Justin S. Smith, MD, PhD; Christopher I. Shaffrey, MD; Christopher Ames, MD; International Spine Study Group

11:16–11:21 am
Discussion
Myelopathy

11:22–11:24 am
Presentation #84
Laminoplasty Decreases Postoperative Axial Neck Pain Scores in Myelopathic Patients: A Comparison with Laminectomy and Fusion
Byron Stephens, MD; John M Rhee, MD; Thomas M. Neustein, BA; Salvador Rafael Arceo V

11:25–11:27 am
Presentation #85
The Pa-Mjoa: A Patient-Derived, Self Reported Outcome Instrument for Measuring Myelopathy - Comparison with the Mjoa
John M. Rhee, MD; Weilong Jeffrey Shi, MD; Jin Young Kim, MD; Feifei Zhou, MD; Anuj Patel, MD

11:28–11:30 am
Presentation #86
Accuracy of Post-Operative Recall of Baseline Neurological Function by Patients Undergoing Surgical Decompression for Cervical Spondylotic Myelopathy
Nanfangn Xu; Shaobo Wang, MD

11:31–11:33 am
Presentation #87
What are the Research Priorities for Patients with Degenerative Cervical Myelopathy?
Mark R. Kotter, MD, PhD; Davies M. Benjamin

11:34–11:36 am
Presentation #88
The Impact of Cervical Sagittal Alignment on Axial Neck Pain and Health-Related Qol After Laminoplasty - A Prospective Comparative Study Between Cervical OPLL And CSM -
Hiroyasu Fujiwara, MD; Takenori Oda, MD; Takahiro Makino, MD, MSc; Yu Moriguchi, MD, PhD; Kazuo Yonenobu, MD; Takashi Kaito, MD, PhD

11:37–11:42 am
Discussion
Complications

11:43–11:45 am
Presentation #89
Complications and Readmission After Cervical Spine Surgery in Elderly Patients: An Analysis of 1586 Patients
Ahmed Saleh; Caroline Thirukumaran; Robert W. Molinari, MD; Addisu Mesfin, MD

11:46–11:48 am
Presentation #90
Opioid Use Trends Following Cervical Spine Surgery
Andrew J. Pugely, MD; Nicholas Bedard, MD; Jamal Shillingford, MD; Comron Saifi, MD; Joseph Laratta, MD; K. Daniel Riew, MD; Ronald A. Lehman, MD

11:49–11:51 am
Presentation #91
Adjacent-Level Degeneration After Bryan Cervical Disc Arthroplasty Compared with Anterior Discectomy and Fusion
Justin W. Miller, MD; Rick C. Sasso, MD; Paul A. Anderson, MD; K. Daniel Riew, MD
11:52-11:54 am  Presentation #92  Incidence, Epidemiology, and Treatment Trends for Spinal Epidural Abscesses Involving the Cervical Spine  
Zachary Denham; Antonino Bucca; James Damley; Kari Stammen, ATC; Ryan Rauck, MD; Sohrab Virk, MD; Safdar N Khan, MD

11:55 -11:57 am  Presentation #93  The Posterior Use of Bmp-2 in Cervical Deformity Surgery Does not Result in Increased Peri-Operative Complications: A Prospective Multicenter Study  
Han Jo Kim, MD; Sravisht Iyer, MD; Hongda Bao, MD, PhD; Justin S. Smith, MD, PhD, MD; Munish C. Gupta, MD; Todd J Albert, MD; Themistocles S. Protopsaltis, MD; Gregory M. Mundis, MD; Peter G. Passias, MD; Brian J. Neuman, MD; Eric O. Klineberg, MD; Virginie Lafage, PhD; Christopher Ames, MD; International Spine Study Group

11:58 am-12:04 pm  Discussion

12:15-12:16pm  Closing Remarks - Darrel S. Brodke, MD

12:17pm  Adjourning Notices – Alpesh A. Patel MD FACS

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