<table>
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<th>Time</th>
<th>Session</th>
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<tr>
<td>7:00–7:10 am</td>
<td>Welcome and Announcements&lt;br&gt;Alpesh A. Patel, MD, FACS</td>
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<tr>
<td>7:11–7:59 am</td>
<td>Session I: Surgery Techniques I&lt;br&gt;Moderators: Erica F. Bisson, MD and Clinton J. Devin, MD</td>
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<td>7:11–7:17 am</td>
<td>Is Cervical Bracing Necessary After Single and Multi-Level Anterior Cervical Discectomy and Fusion? A Prospective Randomized Study&lt;br&gt;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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<td>7:18–7:24 am</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&lt;br&gt;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>The Impact of Local Steroid Application on Dysphagia Following an Anterior Cervical Discectomy and Fusion: Preliminary Results of a Prospectively, Randomized, Single Blind Trial&lt;br&gt;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>A Prospective Comparative Study in Skin Antiseptic Solutions for Posterior Spine Surgeries: Chlorhexidine-Gluconate Ethanol Vs. Povidone-Iodine&lt;br&gt;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>Prospective Study of Deep Vein Thrombosis in Patients Associated with Degenerative Cervical Spine Surgery&lt;br&gt;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&lt;br&gt;Moderators: Sheeraz Qureshi, MD, MBA and D. Greg Anderson, MD</td>
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<td>8:00–8:06 am</td>
<td>Long-Term Clinical Outcomes of Cervical Disc Arthroplasty: A Prospective, Randomized, Controlled Trial&lt;br&gt;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>Similar Outcomes of Hybrid TDR/ACDF and Multi-Level ACDF at 5 Year Follow-Up&lt;br&gt;Glenn R. Buttermann, MD</td>
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8:14–8:20 am Presentation #8
Prestige Cervical Disc Arthroplasty Vs. Cervical Discectomy/Fusion: 84 Month Ide Outcomes of Two Level, Prospective, Randomized Clinical Trial.
Scott D. Hodges, DO; Matthew F. Gornet, MD; Todd H. Lanman, MD; J. Kenneth Burkus, MD; Randall F. Dryer, MD; Jeffrey Ross McConnell, MD

8:21–8:27 am Presentation #9
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
Martin Skeppholm, MD, PhD

8:28–8:34 am Presentation #10
Artificial Disc Replacements Do Not Prevent Adjacent Segment Degeneration in the Cervical Spine
Anna MacDowall, MD; Nuno Maria Canto-Moreira, MD, PhD; Martin Skeppholm, MD, PhD; Catarina Marques, MD; Yohan Robinson, MD; Claes Olerud, MD

8:35–8:48 am Discussion

8:49–9:37 am Session III: Cervical Myelopathy I
Moderators: Themistocles S. Protopsaltis, MD and Masatoshi Sumi, MD

8:49–8:55 am Presentation #11
Tobacco Smoking and Outcomes of Decompressive Surgery in Patients with Symptomatic Degenerative Cervical Myelopathy
Paul M. Arnold, MD; Branko Kopjar, MD; Lindsay A. Tetreault, PhD; Hiroaki Nakashima, MD; Michael G. Fehlings, MD, PhD

8:56–9:02 am Presentation #12
Comparative Effectiveness Between Laminectomy with Fusion and Laminoplasty for the Treatment of Multilevel Cervical Spondylotic Myelopathy
Colin Haines, MD; Heath Gould, BS; Emily Hu, BA; Jacob A. Miller, BS; Roy Xiao, BA; Thomas E. Mroz, MD; Don K. Moore, MD

9:03–9:09 am Presentation #13
Comparisons of Anterior and Posterior Surgery for Cervical Spondylotic Myelopathy – A Propensity Score Matched Analysis Using Aospine Csm North America and International Database
So Kato, MD; Aria Nouri, MD, MSc; Dongjin Wu; Satoshi Nori, MD, PhD; Lindsay Tetreault, PhD; Michael G. Fehlings, MD, PhD

9:10–9:16 am Presentation #14
Postoperative Walking Ability of Non-Ambulatory Cervical Myelopathy Patients
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

9:17–9:23 am Presentation #15
Impact of Preoperative Cervical Sagittal Balance on Surgical Treatment for Cervical Spondylotic 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

9:24–9:37 am Discussion

9:38–10:03 am Break
Metropolitan Ballroom

10:04–10:52 am Session IV: Healthcare Economics/Value I
Moderators: Serena S. Hu, MD and Mark L. Prasarn, MD

10:04–10:10 am Presentation #16
A Health Economic and Patient-Centered Analysis on the Value of Surgery for Degenerative Cervical Myelopathy: Strong Support for Surgical Intervention
Christopher D. Witiw, MD; Lindsay Tetreault, PhD; Fabrice Smieliauskas; Branko Kopjar, MD; Eric Massicotte, MD; Michael G. Fehlings, MD, PhD

10:11–10:17 am Presentation #17
Resource Utilization for Anterior Compared to Posterior Surgical Approaches for Cervical Spondylotic Myelopathy: An Analysis of Private Payer and Medicare Databases
Sohrab Virk, MD; Frank M. Phillips, MD; Safdar N. Khan, MD
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  DePuy Synthes – Biologics and Biomaterials in Cervical Spine Surgery

12:00 - 3:30 pm  Workshop 2  LDR Spine and Zimmer Biomet – Cervical Disc Arthroplasty I & Cervical Myelopathy I

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  Globus - Cervical Myelopathy II

4:30 – 6:30 pm  Welcome Reception  
Metropolitan Ballroom  
Friday, Dec 2, 2016  
Frontenac Ballroom

7:00–7:10 am  Welcome and Announcements  
Alpesh A. Patel, MD, FACS

7:11–7:59 am  Session V: Cervical Deformity  
Moderators:  
Clifford B. Tribus, MD and Jean-Paul Wolinsky, MD

7:11–7:17 am  Presentation #21  Cervical Sagittal Imbalance is Associated with a Higher Rate of Reoperation for Adjacent Segment Disease Following Anterior Cervical Discectomy and Fusion  
Matthew Colman, MD; Dustin H. Massel, BS; Benjamin C. Mayo, BA; William W. Long Jr., BA; Krishna Modi; Kern Singh, MD

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; Alexandra 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 Michael P. Kelly, MD

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 Clinical Important Difference (MCID) of a Clinical Impairment Measure Specific for Traumatic Tetraplegia: A Multi-Centre Assessment of the Gripps 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

Program is tentative; times & topics may change
Metropolitan Ballroom
Session VII: HIGHLIGHT POSTER PRESENTATIONS

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

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

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
Anterior Cervical Decompression and Fusion (ACDF)- Why do Patients Proceed to Surgery? Does it Matter? Is it Neck Pain, Arm Pain or Neurological Change that Motivates the Patient?

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

10:00–10:02 am Presentation #37
Withdrawn

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

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<tr>
<td>10:23–10:25 am</td>
<td>Presentation #43</td>
<td>Patient Reported Outcomes and Costs in Revision Cervical Surgery</td>
<td><em>Elliott J. Kim, MD;</em> Silky Chotai, MD; Joseph Bradley Wick, BA; David Stonko, BS, MS; Ahilan Sivaganesan, MD; Clinton J. Devin, MD</td>
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<td>10:26–10:28 am</td>
<td>Presentation #44</td>
<td>Anterior Cervical Discectomy (ACDF): A More Exact, Non-Traditional Activity and Resource Cost Accounting at a University Center Shows $16,500 Cost Differential</td>
<td><em>Barton L. Sachs, MD, MBA;</em> John A. Glaser, MD; Thomas S. Brehmer</td>
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<td>10:29 – 10:34 am</td>
<td>Discussion</td>
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<td>10:35–10:50 am</td>
<td>Special Projects Committee Report/Other Reports (TBD)</td>
<td>Donation</td>
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| 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

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<td>12:02–1:05 pm  Non-Member Lunch</td>
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<td>12:02–1:05 pm  Member Lunch</td>
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1:06–1:44 pm  Session VIII: Basic Science  
*Moderators:* Addisu Mesfin, MD 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; Mohamad Khazaei, PhD; Morio Matsumoto, MD; Masaya Nakamura, MD; Cindi Morshead; Michael G. Fehlings, MD, PhD

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<td>1:14–1:21 pm  Presentation #46</td>
<td>Therapeutic Impact of Human Induced Pluripotent Stem Cell Derived Neural Progenitor Cells for the Treatment of Cervical Spinal Cord Injury</td>
<td><em>Hiroaki Nakashima, MD;</em> Mohammed Khazaei; 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</td>
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<td>1:22–1:28 pm  Presentation #47</td>
<td>Delayed Surgical Decompression for Degenerative Cervical Myelopathy Correlates with Reperfusion and Excessive Activation of the Immune System</td>
<td><em>Pia M. Vidal, PhD;</em> Spyridon Karadimas, MD, PhD; Antigona Uldreaj; Alex M. Laliberte, MSc; Lindsay Tetreault, PhD; Jian Wang; Michael G. Fehlings, MD, PhD</td>
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<td>1:29–1:35 pm  Presentation #48</td>
<td>Time-Dependent Vascular Remodeling and Inflammation Following Decompression in Cervical Myelopathy</td>
<td><em>Wenru Yu, MD;</em> Anna Badner; Tim-Rasmus Kiehl; Michael G. Fehlings, MD, PhD</td>
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<td>1:36–1:44 pm</td>
<td>Discussion</td>
<td>Donation</td>
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1:45–2:30 pm  Session IX: Patient Reported Outcomes  
*Moderators:* Darrel S. Brodke, MD and Justin S. Smith MD, PhD

Program is tentative; times & topics may change
1:46–1:51 pm  Presentation #49

Are Patient Reported Outcomes Predictive of Patient Satisfaction Five Years After Anterior Cervical Spine Surgery

**Gregory Schroeder, MD; Han Jo Kim, MD; Todd J Albert, MD; Kristen E. Radcliff, MD**

1:52–1:58 pm  Presentation #50

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

**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

1:59–2:05 pm  Presentation #51

Which Domains of the Ndi Improve Most after Surgery for Cervical Myelopathy?

**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. Hiliibrand, MD; Kristen E. Radcliff, MD**

2:06–2:12 pm  Presentation #52

Concurrent Validity and Responsiveness of Promis Health Related Quality of Life Assessment In Patients with Cervical Spine Disease

**Richard L. Skolasky, ScD; Shalini Selvarajah MD, MPH; Brian J. Neuman, MD**

2:13–2:19 pm  Presentation #53

A Comparison of Patient Centered Outcome Measures to Evaluate Dysphagia and Dysphonia After Anterior Cervical Discectomy and Fusion (Acdf)

**Alpesh A. Patel, MD; Surabhi A. Bhatt, BS; Junyoung Ahn, BS; Jason W Savage, MD; Wellington K. Hsu, MD; Kern Singh, MD**

2:19–2:30 pm  Discussion

2:31 pm–3:18 pm  Session X: RESEARCH SESSION

*John M Rhee, MD*

2:31–2:47 pm  Announcement of 2016 ~ Research Grant Winners

Medtronic CSRS Research Grant

21st Century Research and Education Grants

Seed Starter Research and Education Grants

Resident Fellow Grants

2:48–2:49 pm  Introduction – Research Grant Updates

**21st Century Research and Education Grant**

2:50–2:55 pm  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

**Michael G. Fehlings, MD, PhD; Pia M. Vidal, BS, PhD; Spyridon K. Karadimas, MD, PhD; Joannis K. Kallitsis**

2:56–3:01 pm  PLA2-Responsive Multifunctional Micelles for the Targeted Treatment of Painful Radiculopathy

**Beth A. Winkelstein, PhD; Zhilang Cheng, Andrew Tsourkas, PhD**

**Seed Starter Grants**


Izabela Aleksanderek, Michael G. Fehlings, MD, PhD, **Allan R. Martin, MD**
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: Douglas G. Orndorff, MD and Andrew C. Hecht, MD

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

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

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

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 tbd

Cervical Deformity Surgery Does Not Result In Post-Operative Dysphagia: A Prospective Cohort Study

Sravish 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. Passias, MD; Brian J Neuman, MD; Eric O. Klineberg, MD; Virginie Lafage, PhD; Christopher Ames, MD; International Spine Study Group

Pseudarthrosis in Patients Undergoing Multilevel Posterior Cervical or Cervical-Thoracic Fusions: Multi-Center Analysis

Eeric Truumees, MD; Devender Singh, PhD; Matthew J. Geck, MD; John K. Stokes, MD

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

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

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

Discussion
7:00–7:05 am  Welcome and Announcements  
Alpesh A. Patel, MD, FACS

7:06–7:54 am  Session XIII: Healthcare Economics/Value II
Moderators: TBD and Ezequiel Cassinelli MD

7:06–7:12 am  Presentation #64  
Impact of Body Mass Index on Surgical Outcomes, Narcotic Consumption, Costs and Reimbursements Following Anterior Cervical Discectomy and Fusion  
Kern Singh, MD; Benjamin C. Mayo, BA; Dustin H Massel, BS; Krishna Modi; William W. Long Jr., BA; Jonathan S. Markowitz, BS; Jacob Victor Dibattista, BS

7:13–7:19 am  Presentation #65  
Effect of Surgical Setting (Tertiary Versus Community Hospitals) on Hospital Reported Outcomes for Anterior Cervical Spine Procedures  
Eugene Koh, MD, PhD; Ehsan Jazini, MD; Neil Sardesai, MD; Tristan Buchannan Weir, BS; Kelley E. Banagan, MD; Daniel E. Gelb, MD; Steven C. Ludwig, MD

7:20–7:26 am  Presentation #66  
Predictive Models for Patient-Centered Efficacy and Discharge Destination After Elective Cervical Spine Surgery  
Ahilan Sivaganesan, MD; Silky Chotai, MD; Elliott J. Kim, MD; David Stonko, BS, MS; Joseph Bradley Wick, BA; Matthew McGirt, MD; Clinton J. Devin, MD

7:27–7:33 am  Presentation #67  
Reimbursement and Charges Related to a 90-Day Episode of Care for a One- or Two-Level Anterior Cervical Discectomy and Fusion  
Sohrab Virk, MD; Frank M. Phillips, MD; Safdar N. Khan, MD

7:34–7:40 am  Presentation #68  
Is There Value in Retrospective, 90 Day Bundled Payment Models for Cervical Spine Procedures?  
Susan M. Odum, PhD; Bryce Allen Van Doren, MA, MPH; Leo R. Spector, MD

7:41–7:54 am  Discussion

8:05–8:14 am  TBD

8:15–8:24 am  TBD

8:25–8:34 am  TBD

8:35–8:44 am  TBD

8:45–8:55 am  Discussion

8:56–9:53 am  Session XIV: Cervical Myelopathy II
Moderators: Christopher I. Shaffrey, MD and Michael C. Gerling, MD

8:56–9:02 am  Presentation #69  
The Use of A Novel Ipad Application to Quantify Dysfunction on Cervical Myelopathy Patients  
Tyler James Jenkins, MD; Brett D. Rosenthal, MD; Arjun Ranade; Surabhi A. Bhatt, BS; Wellington K. Hsu, MD; Alpesh A. Patel, MD

9:03–9:09 am  Presentation #70  
Association Between Paraspinal Muscle Morphology, Clinical Symptoms and Functional Status in Patients with Degenerative Cervical Myelopathy  
Maryse Fortin, PhD; Octavian Dobrescu; Matthew Courtemanche; Carolyn J. Sparrey PhD; Michael G. Fehlings, MD, PhD; Michael H. Weber, MD; Carlo Santaguida, MD

9:10–9:16 am  Presentation #71  
MRI Analysis of the Combined Aospine North America and International Studies: The Prevalence and Spectrum of Pathologies in a Global Cohort of Patients with Degenerative Cervical Myelopathy  
Aria Nouri, MD; Allan Martin, MD, MD; Lindsay Tetreault, PhD; Anick Nater, MD; So Kato, MD; Hiroaki Nakashima, MD; Narihito Nagoshi, MD, PhD; Hamed Reihani-Kermani, MD; Michael G. Fehlings, MD, PhD
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 Bruce V. Darden, II, 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 ACDF 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

11:01–11:15 pm  Session XVI: HIGHLIGHT POSTERS II  
**Moderators:** Michael G. Fehlings MD, PhD and Michael D. Daubs, MD

Deformity

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; Mitsuuru 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

11:13–11:15 am  Presentation #83  Analysis of Successful Vs. Failed Radiographic Outcomes Following Cervical Deformity Surgery  
Themistocles S Protopsaltis, MD; Subaraman Ramchandran, 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

11:31–11:33am  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; Tanshi 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 Darnley; 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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