



CSRS 46th Annual Meeting
December 6-8
Scottsdale, AZ

Program Co-Chairs – Christopher P. Ames, MD
 Robert A. Hart, MD
President – Jeffrey C. Wang, MD

Thursday, Dec. 6, 2018
Ballroom DEFG

7:00–7:10 am	<p>Welcome and Announcements <i>Christopher P. Ames, MD and Robert A. Hart, MD, Program Co-Chairs</i></p>
7:11–7:48 am	<p>Session I: Outcomes I Moderators: <i>Paul M. Arnold, MD and Bradford L. Currier, MD</i></p>
7:11–7:16 am Presentation #1	<p>Does the Duration of Cervical Radicular Symptoms Impact Outcomes Following Anterior Cervical Discectomy and Fusion? 15664 <i>Bryce A. Basques, MD; Philip K. Louie, MD; Michael Nolte, MD; Jannat M. Khan, BS; Deven Carroll, MS; Justin C. Paul, MD; Arya Varthi, MD; Edward J. Goldberg, MD; Howard S. An, MD</i></p>
7:17–7:22 am Presentation #2	<p>Does Duration of Preoperative Radiculopathy Symptoms Impact Postoperative Outcomes and Reoperations After an ACDF? 15954 <i>Daniel Tarazona, MD; Kerri Bell, BS; Taolin Fang MD; I. David Kaye, MD; Christopher K. Kepler, MD; MBA; Mark F. Kurd, MD; Alan S. Hilibrand, MD; Barrett I. Woods, MD; Kris E. Radcliff, MD; Jeffrey A. Rihn, MD; D. Greg Anderson, MD; Alexander R. Vaccaro, MD, PhD, MBA; Gregory D. Schroeder, MD</i></p>
7:23–7:28 am Presentation #3	<p>Effect of Postoperative Increase in Disc Height on Clinical Outcomes in Anterior Cervical Discectomy and Fusion Patients 15957 <i>Thomas Toole, BS; Swamy Kurra, MBBS; Pierce D. Nunley, MD; Richard A. Tallarico, MD; William F. Lavelle MD</i></p>
7:29–7:34 am Presentation #4	<p>Disparities in Outcomes By Payer Groups for Patients Undergoing Anterior Cervical Discectomy and Fusion 15911 <i>Jonathan J. Rasouli, MD; Sean N. Neifert, BS; Daniel J. Snyder, BS; Jonathan S. Gal, MD; Jeremy Steinberger, MD; Brian C. Deutsch, BS; John M. Caridi, MD</i></p>
7:35–7:48 am	<p>Discussion</p>
7:49–8:26 am	<p>Session II: Surgical Technique Moderators: <i>Regis W. Haid, Jr., MD and Michael P. Kelly, MD</i></p>
7:49–7:54 am Presentation #5	<p>Posterior Foraminotomy vs. Anterior Decompression and Fusion in Patients with Cervical Degenerative Disc Disease with Radiculopathy – Five-Year Outcomes from the National Swedish Spine Register 15656 <i>Anna MacDowall, MD, PhD; Marek Holy, MD; Claes Olerud, MD, PhD</i></p>
7:55–8:00 am Presentation #6	<p>In-Situ Decompression to Spinal Cord During Anterior Controllable Antedisplacement Fusion Treating Degenerative Kyphosis with Stenosis: Surgical Outcomes and Analysis of C5 Nerve Palsy Based on 49 Patients 15895 <i>Haisong Yang, MD; Jiangang Shi, MD</i></p>
8:01–8:06 am Presentation #7	<p>Subgroup Analysis on the Efficacy of Anterior Cervical Discectomy with or without Interbody Fusion or Arthroplasty in the Treatment of Cervical Radiculopathy: Combined Clinical Results of Two Randomised Controlled Trials 16037 <i>Caroline M.W. Goedmakers; Ronald H.M.A. Bartels; Erik W. van Zwet; Carmen L.A. Vleggeert-Lankamp</i></p>
8:07–8:12 am Presentation #8	<p>A Comparison of Three Different Positioning Techniques on Surgical Corrections and Post-Operative Alignment in Cervical Deformity Surgery 16063 <i>Brandon Carlson, MD; Renaud Lafage, MS; Tejbir S. Pannu, MD, MS; Peter G. Passias, MD; Christopher P. Ames, MD; Robert A. Hart, MD; Christopher I. Shaffrey, MD; Gregory Mundis, MD;</i></p>

Themistocles Protopsaltis, MD; Munish Gupta, MD; Eric O. Klineberg, MD; Douglas C. Burton, MD; Justin Smith, MD; Virginie Lafage, PhD; Han Jo Kim, MD

8:13–8:26 am

Discussion

8:27–9:10 am

Session III: Risk Stratification/Complications

Moderators:

R. Alden Milam, MD and Eric W. Nottmeier, MD

8:27–8:32 am
Presentation #9

The Effect of Local Versus Intravenous Steroids on Dysphagia and Dysphonia Following Anterior Cervical Discectomy and Fusion (ACDF): 1-Year Data from a Single-Blinded, Prospective, Randomized Control Trial 15503

Tyler J. Jenkins, MD; Reuben Nair, MD; Surabhi A. Bhatt, BS; Brett D. Rosenthal, MD; Jason W. Savage, MD; Wellington K. Hsu, MD; Alpesh A. Patel, MD

8:33–8:38 am
Presentation #10

What are the Important Predictors of Postoperative Functional Recovery in Patients with Cervical OPLL? Results of a Multivariate Analysis 15618

Hiroaki Nakashima, MD, PhD; Tokumi Kanemura, MD, PhD; Kotaro Satake, MD, PhD; Yoshimoto Ishikawa, MD, PhD; Jun Ouchida, MD; Shiro Imagama, MD, PhD

8:39–8:44 am
Presentation #11

Quantitative Risk Factor Analysis of Post-Operative Dysphagia After Anterior Cervical Discectomy and Fusion (ACDF) Using the Eating Assessment Tool-10 (EAT-10) 15631

Andrew Y. Yew, MD; Matthew Nguyen, BS; Wellington Hsu, MD; Alpesh A. Patel, MD, FACS

8:45–8:50 am
Presentation #12

Reoperation for Late Neurological Deterioration After Laminoplasty in Cases with Degenerative Cervical Myelopathy: Comparison Between Cervical Spondylosis and Ossification of Posterior Longitudinal Ligament 15686

Hiroaki Nakashima, MD, PhD; Tokumi Kanemura, MD, PhD; Kotaro Satake, MD, PhD; Yoshimoto Ishikawa, MD, PhD; Jun Ouchida, MD; Shiro Imagama, MD, PhD

8:51–8:56 am
Presentation #13

Complications After Instrumented Posterior Occipitocervical Fusion for Upper Cervical Spine Trauma 15795

Jacob C. Hoffmann, MD; Aditya Srinivasan, BS; Ryan J. Warth, MD; Shah-Nawaz M. Dodwad, MD; Mark L. Prasarn, MD

8:57–9:10 am

Discussion

9:11–9:41 am

Break

Camelback Ballroom

9:42–10:25 am

Session IV: Deformity/Alignment I

Moderators:

K. Daniel Riew, MD and Daniel M. Sciubba, MD

9:42–9:47 am
Presentation #14

Predicting the Occurrence of Post-Operative Distal Junctional Kyphosis in Cervical Deformity Patients 15628

Peter G. Passias, MD; Samantha R. Horn, BA; Virginie Lafage, PhD; Renaud Lafage, MS; Justin S. Smith MD; Themistocles S. Protopsaltis, MD; Cole A. Bortz, BA; Frank A. Segreto, BS; Alan H. Daniels, MD; Daniel M. Sciubba, MD; Robert A. Hart, MD; Shay Bess, MD; Christopher I. Shaffrey, MD; Christopher P. Ames MD; International Spine Study Group

9:48–9:53 am
Presentation #15

Therapeutic Outcomes for Dropped Head Syndrome 16133

Hiroshi Miyamoto, MD; Terumasa Ikeda, MD; Masao Akagi, MD

9:54–9:59 am
Presentation #16

Postoperative Cervical Kyphosis After Correction of Adult Thoracolumbar Deformity: Is it Permanent? 15900

Kyung-Chung Kang, MD; Jung-Hee Lee, MD; Won-Ju Shin, MD

10:00–10:05 am
Presentation #17

Surgical Outcomes in Rigid vs. Flexible Cervical Deformities 16094

Themistocles S. Protopsaltis, MD; Nicholas Stekas, BS; Justin S. Smith, MD, PhD; Alexandra Soroceanu, MD; Renaud Lafage, MS; Alan Daniels, MD; Han Jo Kim, MD; Peter G. Passias, MD; Gregory Mundis, MD; Eric O. Klineberg, MD; D. Kojo Hamilton, MD; Munish Gupta, MD; Virginie Lafage, PhD; Robert A. Hart MD; Frank Schwab, MD; Douglas C. Burton, MD; Shay Bess, MD; Christopher I. Shaffrey, MD; Christopher P. Ames, MD; International Spine Study Group

10:06–10:11 am
Presentation #18

Cervical and Cervicothoracic Sagittal Alignment by Roussouly Thoracolumbar Subtypes in Asymptomatic Volunteers 16454

Alekos A. Theologis, MD; Sravisht Iyer, MD; Lawrence G. Lenke, MD; Han Jo Kim, MD; Michael P. Kelly, MD, MSc

10:12–10:25 am	Discussion
10:26–10:30 am	Introduction of Presidential Guest Speaker <i>Jeffrey C. Wang, MD, President</i>
10:31–11:20 am	Henry H. Bohlman Presidential Guest Lecture <i>Helen Turnbull, PhD, CSP; CEO Human Facets</i>
11:21–11:30 am	Discussion
11:30 am	Adjourn to Industry Workshops – Lunch Available for Workshop Attendees Only, <i>Prior Registration Not Required, No CME Credits</i>
11:30 am–1:30 pm	Workshop 1: DePuy Synthes Spine, Room 18 Innovation in Complex Cervical Reconstruction: What the Research Evidence Tells Us About Alignment, Deformity, Revision and Complications <i>Faculty: Christopher P. Ames, MD</i>
11:30 am–1:30 pm	Workshop 2: Globus Medical, Inc., Room 15 Treatment of Severe Stenosis: Anterior v. Posterior v. 360 <i>Faculty: Timothy Moore, MD</i>
11:30 am–1:30 pm	Workshop 3: Medtronic, Room 16 Posterior Cervical Fixation with Infinity: Techniques & Technologies <i>Faculty: John G. Heller, MD and Blake Staub, MD</i>
11:30 am–1:30 pm	Workshop 4: NuVasive, Room 17 Challenges of Cervical Surgery Discussion topics include evaluation and management of cervical malalignment, nuances of dysphagia prevention, and posterior infection and treatment. <i>Faculty: Christopher I. Shaffrey, MD; Rick C. Sasso, MD; Vincent C. Traynelis, MD</i>
11:30 am–1:30 pm	Workshop 5: Stryker, Room 19 A Clinical Update on Tritanium – A Novel, Highly Porous Material Designed for Bone In-Growth and Biological Fixation 3D printed interbody devices have flooded the market but most lack evidence. Stryker's proprietary Tritanium In-Growth Technology, used to build the Tritanium PL, TL and C Cages, was designed for bone in-growth and biological fixation. Join us as our distinguished surgeon faculty, Clinton J. Devin, MD, shares the science behind Tritanium In-Growth Technology. <i>Faculty: Clinton J. Devin, MD</i>
11:30 am–1:30 pm	Workshop 6: Zimmer Biomet, Room 21 Cervical Disc Replacement, Why We're Undertreating Patients and How to Solve the Problem <i>Faculty: Woosik M. Chung, MD; John M. Rhee, MD; Stephen I. Ryu, MD; Neill M. Wright, MD</i>
1:30–2:49 pm	Symposium I: Scoliosis Research Society
Moderator:	Robert A. Hart, MD
1:30–1:40 pm	Background and History of Development of the Schwab Clinical Impact Based ASD Classification and Osteotomy Classification Systems in Collaboration with the SRS Frank J. Schwab, MD
1:41–1:51 pm	History of the Development, Validation and Modifications of the SRS-22r Outcomes Questionnaire Douglas C. Burton, MD
1:52–2:02 pm	Initiation and Completion of the Scolio-Risk 1 as a Collaborative Effort Between SRS and AOSpine Christopher I. Shaffrey, MD
2:03–2:13 pm	History of the SRS from Inception to 2018 David W. Polly Jr., MD
2:14–2:24 pm	Development and Management of the HSG and Use of Benchmarking for Quality Improvement, Including the History of SRS Initiatives with Respect to Pediatric Patients Peter O. Newton, MD

2:25–2:35 pm	The Evolution in Thinking about Cervical Deformity over the Past 25 Years: Touchpoints Between SRS and CSRS Todd J. Albert, MD
2:36–2:49 pm	Discussion
2:50–3:20 pm	Break Camelback Ballroom
3:21–3:59 pm	Session V: Predictive Analytics/Shared Decision Making Moderators: Thomas E. Mroz, MD and Leo R. Spector, MD
3:16–3:21 pm Presentation #19	Can the American College of Surgeons Risk Calculator Predict 30-Day Complications After Cervical Spine Surgery? 15809 <i>Michael H. McCarthy, MD, MPH; Tyler J. Jenkins, MD; Joseph P. Maslak, MD; Wellington K. Hsu, MD; Alpesh A. Patel, MD</i>
3:22–3:27 pm Presentation #20	Difference in Patient Cohorts for Cervical Disc Arthroplasty (CDA) and Anterior Cervical Discectomy and Fusion (ACDF) 15496 <i>W. Ryan Spiker, MD; Darrel S. Brodke, MD; Nicholas Spina, MD; Brandon Lawrence, MD; Vadim Goz, MD; Brook I. Martin, PhD</i>
3:28–3:33 pm Presentation #21	Does Payer Type Affect Patient Satisfaction Scores? 15408 <i>Michael P. Silverstein, MD; Susan Odum, PhD; Michael Conti Mica, MD; Bruce Darden, MD; Eric Laxer, MD; Alden Milam, MD; Alfred Rhyne, MD; P. Bradley Segebarth, MD; Leo R. Spector, MD</i>
3:34–3:39 pm Presentation #22	Development of a Novel Cervical Deformity Surgical Invasiveness Index 15918 <i>Peter G. Passias, MD; Samantha R. Horn, BA; Alexandra Soroceanu, MD; Cheongeun Oh, PhD; Tamir Ailon, MD, MPH; Brian J. Neuman, MD; Virginie Lafage, PhD; Renaud Lafage, MS; Justin S. Smith, MD; Cole A. Bortz, BA; Frank A. Segreto, BS; Shay Bess, MD; Christopher I. Shaffrey MD; Christopher P. Ames, MD; International Spine Study Group</i>
3:40–3:45 pm Presentation #23	A Clinical and Radiologic Study on Patients of Cervical Spondylotic Myelopathy with Anterior Cervical Spondylolisthesis Treated by Posterior Decompression Surgery: Retrospective Multicenter Study of 867 Cases 15724 <i>Ken Ninomiya, MD, PhD; Narihito Nagoshi, MD, PhD; Ryoma Aoyama, MD, PhD; Satoshi Suzuki, MD, PhD; Yuta Shiono, MD, PhD; Yuichiro Takahashi, MD, PhD; Nobuyuki Fujita, MD, PhD; Eijirou Okada, MD, PhD; Osahiko Tsuji, MD, PhD; Mitsuru Yagi, MD, PhD; Takahito Iga, MD; Masaya Nakamura, MD, PhD; Morio Matsumoto MD, PhD; Kota Watanabe, MD, PhD; Ken Ishii, MD, PhD; Junichi Yamane, MD, PhD</i>
3:46–3:59 pm	Discussion
4:00–4:37 pm	Session VI: Diagnostics/Imaging Moderators: Alexander J. Ghanayem, MD and James S. Harrop, MD
4:00–4:05 pm Presentation #24	1ST PLACE CLINICAL RESEARCH AWARD Effect of Cervical Decompression Surgery on Spine and Lower Extremity Biomechanics in Adult Cervical Spondylotic Myelopathy Patients 15659 <i>Ram Haddas, PhD; Isador Lieberman, MD; Raj Arakal, MD; Akwasi Boah, MD; Theodore Belanger, MD; Kevin Ju, MD</i>
4:06 pm–4:11 pm Presentation #25	3rd PLACE CLINICAL RESEARCH AWARD The Impact of K-Line (-) in the Neck-Flexion Position on Patient-Based Outcomes After Cervical Laminoplasty for Patients with Ossification of the Posterior Longitudinal Ligament 15844 <i>Atsushi Kimura, MD, PhD; Yasuyuki Shiraishi, MD; Ryo Sugawara, MD; Hirokazu Inoue, MD, PhD; Teruaki Endo, MD, PhD; Katsushi Takeshita, MD, PhD</i>
4:12 pm–4:17 pm Presentation #26	Brain Functional Connectivity Predicts for Neurological Improvement in Patients with Cervical Myelopathy – A Resting-State fMRI Study 15761 <i>Takashi Kaito, MD, PhD; Shota Takenaka, MD, DMSc; Takahiro Makino, MD, DMSc; Yusuke Sakai, MD; Junichi Kushioka, MD; Hisashi Tanaka, MD; Yoshiyuki Watanabe, MD, PhD; Shigeyuki Kan, PhD; Masahiko Shibata, MD</i>

4:18 pm–4:23 pm Presentation #27	Multiparametric Quantitative Magnetic Resonance Imaging of the Cervical Spine to Measure Microstructure and Tissue Injury 15742 Muhammad Ali Akbar, MD; Allan R. Martin, MD, PhD; Jetan H. Badhiwala, MD; Michael G. Fehlings, MD, PhD, FRCSC, FACS
4:24–4:37 pm	Discussion
4:38-6:30 pm	Welcome Reception Camelback Ballroom
Friday, Dec. 7, 2018 Ballroom DEFG	
7:00–7:10 am	Welcome and Announcements <i>Christopher P. Ames, MD and Robert A. Hart, MD, Program Co-Chairs</i>
7:11–7:48 am Moderators:	Session VII: Outcomes II Alpesh A. Patel, MD and John M. Rhee, MD
7:11–7:16 am Presentation #28	Minimal Clinically Important Difference and Substantial Clinical Benefit Using PROMIS CAT in Cervical Spine Surgery 16045 Sravisht Iyer, MD; Benjamin Khechen, BA; Daniel Stein, BS; Michael Steinhaus, MD; Thomas Ross, RN; Jingyan Yang, PhD; Kern Singh, MD; Todd Albert, MD; Darren Lebl, MD; Russel Huang, MD; Harvinder Sandhu, MD; Bernard Rawlins, MD; Frank Schwab, MD; Virginie Lafage, PhD; Han Jo Kim MD
7:17–7:22 am Presentation #29	Discordance Between Functional Outcome and Self-Reported Ratings of Health Status After Surgery for Degenerative Cervical Myelopathy 16119 Jefferson R. Wilson, MD, PhD; Lindsay Tetreault, PhD; Michael Fehlings, MD, PhD, FRCSC, FACS
7:23–7:28 am Presentation #30	Does Severity of Preoperative Myelopathy Symptoms Impact Health-Related Quality of Life in Cervical Spondylotic Myelopathy? 15764 Daniel Tarazona, MD; Gregory D. Schroeder, MD, Emily Pflug, BS; I. David Kaye, MD; Christopher K. Kepler, MD, MBA; Mark F. Kurd, MD; Alan S. Hilibrand, MD; Barrett I. Woods, MD; Jeffrey A. Rihn MD; D. Greg Anderson, MD; Alexander R. Vaccaro MD, PhD, MBA; Kristen E. Radcliff, MD
7:29–7:34 am Presentation #31	Risk Factors Associated with Failure to Reach Minimal Clinically Important Difference in Patient-Reported Outcomes Following Anterior Cervical Discectomy and Fusion 15781 Benjamin Khechen, BA; Brittany E. Haws, MD; Dil V. Patel, BS; Ankur S. Narain, BA; Fady Y. Hijji, MD; Daniel D. Bohl, MD, MPH; Jordan A. Guntin, BS; Kaitlyn L. Cardinal, BS; Kern Singh, MD
7:35–7:48 am	Discussion
7:49–8:38 am Moderators:	Session VIII: Motion/Motion Preservation Frank M. Phillips, MD and Vincent C. Traynelis, MD
7:49–7:54 am Presentation #32	Evaluating Range of Motion During In-Vivo Dynamic Cervical Spine Motions in Spondylosis Patients 16242 Thomas D. Cha, MD, MBA; Kamran Z. Khan, MS; Tao Guo; Yan Yu; Guoan Li, PhD
7:55–8:00 am Presentation #33	The Rate of Heterotopic Ossification Following Cervical Disc Arthroplasty: A Systematic Review and Comparison of Data 15998 Sam C. Overley, MD; Jay Levin; Jun Sup Kim, MD; James E. Dowdell III, MD; Steve McAnany, MD; Thomas E. Mroz, MD; Andrew C. Hecht, MD
8:01–8:06 am Presentation #34	Comparing Range of Motion in Follow Up of Anterior Cervical Discectomy with or without Interbody Fusion and Arthroplasty 15879 Xiaoyu Yang, MD; Mark P. Arts, MD, PhD; Carmen Vleggeert-Lankamp, MD, MSc, PhD
8:07–8:12 am Presentation #35	Timing of Tracheostomy After Anterior Cervical Discectomy and Fusion 15811 Shah-Nowaz Dodwad, MD; Mark L. Prasarn, MD; Jason W. Savage, MD, Charles E. Wade, PhD; Sasha D. Adams, MD
8:13–8:18 am Presentation #36	Clinical Adjacent Segment Pathology Risk is Less Following Cervical Disc Arthroplasty Compared to Anterior Cervical Discectomy and Fusion at 7 Years Postop 16100

Pierce D. Nunley, MD; Eubulus J. Kerr, MD; David A. Cavanaugh, MD; Andrew Utter, MD; Peter Campbell, MD; Kelly A. Frank, MS; Kyle E. Marshall, MS; Marcus B. Stone, PhD

8:19–8:24 am
Presentation #37 Analysis of Re-Operations After Cervical Total Disc Replacement in a Consecutive Series of 504 Patients Receiving the Same Device Type 15529
Jack E. Zigler, MD; Richard D. Guyer, MD; Scott L. Blumenthal, MD; Donna D. Ohnmeiss, PhD

8:25–8:38 am Discussion

8:39–8:44 am Preview CSRS 2019 Annual Meeting in New York, NY
Andrew C. Hecht, MD; Local Host

8:45–8:50 am Preview CSRS Asia Pacific Section 2019 Annual Meeting
Takachika Shimizu, MD; President CSRS Asia Pacific Section

8:51–8:56 am Preview CSRS European Section 2019 Annual Meeting
Björn Zoëga, MD, PhD; President CSRS European Section

8:57–9:27 am **BREAK** **Camelback Ballroom**

9:28–10:33 am **Session IX: FOCUSED PODIUM PRESENTATIONS**
Moderators: Wellington P. Hsu, MD and Michael P. Steinmetz, MD

OUTCOMES

9:28–9:30 am
Presentation #38 Are Outcomes of ACDF Influenced by Presurgical Depressive Symptoms on the Mental Component Score of the Short Form 12 Survey? 15789
Taolin Fang, MD; Daniel Tarazona, MD; Kristen J. Nicholson, PhD; I. Matthew S. Galetta, BS; I. David Kaye, MD; Christopher K. Kepler, MD, MBA; Mark F. Kurd, MD; Alan S. Hilibrand, MD; Barrett I. Woods, MD; Kristen E. Radcliff, MD; Jeffrey A. Rihn, MD; D. Greg Anderson, MD; Alexander R. Vaccaro, MD, PhD, MBA; Gregory D. Schroeder, MD

9:31–9:33 am
Presentation #39 Crossing the Cervicothoracic Junction in Cervical Spine Fusion Surgery Involves Higher Operative Risks, but Superior Long-Term Outcomes 15832
Alvaro Ibaseta, MS; Rafa Rahman, BS; Richard L. Skolasky, ScD; Jay S. Reidler, MD, MPH; Lee H. Riley III, MD; Daniel M. Sciubba, MD; David B. Cohen, MD, MPH; Brian J. Neuman, MD

9:34–9:36 am
Presentation #40 Metabolic Syndrome and 30-Day Outcomes Following Elective Anterior Cervical Discectomy and Fusion (ACDF) 15817
Azeem Tariq Malik, MBBS; Nikhil Jain, MD; Jeffery Kim, MD; Elizabeth Yu, MD; Safdar N Khan, MD

9:37–9:39 am
Presentation #41 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 Trial 15873
Michael Fehlings, MD, PhD, FRCSC, FACS; Jetan H. Badhiwala, MD; Branko Kopjar, MD, PhD; Henry Ahn, MD; Francis Farhadi, MD, PhD; Christopher I. Shaffrey, MD; Ahmad Nassr, MD; Praveen Mummaneni, MD; Paul M. Arnold, MD; W. Bradley Jacobs, MD; K. Daniel Riew, MD; Darrel S. Brodke, MD; Alexander R. Vaccaro, MD, PhD; Alan Hilibrand, MD; Jason D. Wilson, MD; James Harrop, MD; S. Tim Yoon, MD, PhD; Kee Kim, MD; Daryl Fourney, MD, FRCSC, FACS; Carlo Santiguada, MD

9:40–9:46 am Discussion

INNOVATION AND ECONOMICS

9:47–9:49 am
Presentation #42 Use of Recombinant Human Bone Morphogenetic Protein-2 at the C1-2 Lateral Articulation in Posterior Atlantoaxial Fusion in Adult Patients with or without Conventional Structural Bone Graft 15933
Wataru Ishida, MD; Seba Ramhmdani, MD; Yuanxuan Xia, BS; Thomas A. Kosztowski, MD; Rafael De la Garza Ramos, MD; John Choi, BS; Benjamin D. Elder, MD, PhD; Nicholas Theodore, MD; Ziya L. Gokaslan, MD; Jean-Paul Wolinsky, MD; Daniel M. Sciubba, MD; Ali Bydon, MD; Timothy F. Witham, MD; Sheng-Fu L. Lo, MD

9:50–9:52 am
Presentation #43 Functional Integration of a Tissue Engineered Intervertebral Disc and Translation to a Large Animal Cervical Spine Model 15818
Sarah E. Gullbrand, PhD; Beth G. Ashinsky, Edward Bonnevie; Dong Hwa Kim; Lachlan J. Smith, PhD; Thomas P. Schaer, DVM; Dawn M. Elliott, PhD; Harvey E. Smith, MD; Robert L. Mauck, PhD

9:53–9:55 am Correlating Radiologic Signs of Disc Degeneration with Changes in Cervical Spine Biomechanics 16122

Presentation #44	Vijay Permeswaran, PhD ; Anup Gandhi, PhD; Vikas Patel, MD; John Wanebo, MD; Ripul Panchal, MD
9:56–9:58 am Presentation #45	Cost-Utility of Revisions for Cervical Deformity Correction Warrants Minimization of Reoperations 15622 <i>Samantha R. Horn, BA; Peter G. Passias, MD; Renaud Lafage, MS; Virginie Lafage PhD; Hamid Hassanzadeh, MD; Jason A. Horowitz, BA; Cole A. Bortz, BA; Frank A. Segreto, BS; Justin S. Smith, MD; Daniel M. Sciubba, MD; Alan H. Daniels, MD; Christopher I. Shaffrey, MD; Richard A. Hostin, MD; Christopher P. Ames, MD; International Spine Study Group</i>
9:59–10:01 am Presentation #46	Economic Impact of Older Age on the Initial Spine Care of Individuals with Acute Spine Trauma 16130 Julio C. Furlan, MD, LLB, MBA, MSc, PhD, FRCPC ; Michael G. Fehlings, MD, PhD, FRCSC, FACS; Catharine Craven, BA, MD, MSc, FRCPC
10:02–10:08 am	Discussion
	PREDICTIVE ANALYTICS AND SHARED DECISION MAKING
	2nd PLACE RESIDENT/FELLOW RESEARCH AWARD
10:09–10:11 am Presentation #47	30-Day Preoperative Opioid Dosage Predicts 12-Month Satisfaction in Cervical Spine Surgery 15862 Jeffrey Hills, MD ; Joseph Wick, BA; Jacquelyn Pennings, PhD; Inamullah Khan, MD; Ahilan Sivaganesan, MD; Kristin R. Archer, PhD, DPT; Clinton J. Devin, MD
10:12–10:14 am Presentation #48	Impact of Neck Disability Index on 12-Months Satisfaction After Elective Surgery for Cervical Radiculopathy 16235 Inamullah Khan, MD ; Ahilan Sivaganesan, MD; Anthony L. Asher, MD; Panagiotis Kerezoudis, MD; Hui Nian, PhD; Frank E. Harrell Jr., PhD; Mohamad Bydon, MD; Kristin R. Archer, PhD, DPT; Clinton J. Devin, MD
10:15–10:17 am Presentation #49	Thirty-Day Readmission Risk Following Cervical Spine Surgery: Derivation and Validation of a Predictive Model 16223 Piyush Kalakoti, MD; Alexander J. Volkmar, BS; Alan Shamrock, BS; Yubo Gao, PhD; Nathan R. Hendrickson, MD ; Andrew J. Pugely, MD
10:18–10:20 am Presentation #50	Using a Machine Learning Approach to Predict Outcome After Surgery for Degenerative Cervical Myelopathy 16218 Zamir Merali, MD ; Christopher D. Witiw, MD, MSc; Jetan Badhiwala, MD; Jefferson Wilson, MD, PhD, FRCSC; Michael G. Fehlings, MD, PhD, FRCSC, FACS
10:21–10:23 am Presentation #51	Model for 90-Day and 1-Year Outcome Prediction After Cervical Spine Arthrodesis: A Web-Based Clinical Utility Tool 16318 Piyush Kalakoti, MD; Nicholas A. Bedard, MD; Alan Shamrock, BS ; Alexander J. Volkmar, BS; Nathan R. Hendrickson, MD; Andrew J. Pugely, MD
10:24–10:26 am Presentation #52	The Predictor of Patients Who Failed to Achieve the Minimum Clinically Important Differences Following Laminoplasty for Cervical Spondylotic Myelopathy 15551 Koji Tamai, MD ; Akinobu Suzuki, MD, PhD; Akito Yabu; Hidetomi Terai, MD, PhD; Masatoshi Hoshino, MD, PhD; Hiromitsu Toyoda; Shinji Takahashi; MD; Shoichiro Ohyama; MD; Yusuke Hori; MD; Hiroaki Nakamura, MD
10:27–10:33 am	Discussion
10:34–11:29 am Moderator:	SESSION X: RESEARCH SESSION Zoher Ghogawala, MD, FACS
10:34–10:37 am	Announcement—2018 Research Grant Winners
10:38–10:39 am	Introduction—2017 Research Grant Updates
10:40–10:45 am	2017 Medtronic Randomized, Controlled Trial of Posterior C1-2 Fusion vs. Bracing Alone for Treatment of Type II Odontoid Process Fractures in the Elderly Christopher K. Kepler, MD, MBA
10:46–10:51 am	2017 CSRS 21st Century Research and Education Grants Biodegradable Microspheres and Hydrogel Drug Delivery System of Anti-Inflammatory Therapeutics for the Treatment of Chronic Degenerative Disc Disease Anna Chee, PhD

10:52-10:57 am	2017 Seed Starter Grants Exosomes from Hypoxic Pre-conditioned Bone Marrow Stem Cell Media for Acute Spinal Cord Injury <i>Ankit I. Mehta, MD</i>	
10:58-11:03 am	Development of an Innovative Diagnostic Tool for Cervical Spondylotic Myelopathy Using Somatosensory Evoked Potentials Elicited by Proprioceptive Stimulation: A Proof-of-Concept Pilot Study <i>Julio C. Furlan, MD, LLB, MBA, MSc, PhD, FRCPC</i>	
11:04-11:09 am	Effect of Cervical Decompression Surgery on Neuromuscular Control and Kinematics During Gait in Adult Patients with Cervical Spondylotic Myelopathy <i>Ram Haddas, PhD</i>	
11:10-11:11 am	Introduction-2016 and 2015 Resident Fellow Research Grant Updates	
11:12-11:17 am	In Situ Tissue Engineering Approach to Intervertebral Disc Regeneration <i>Sapan Gandhi, MD</i>	
11:18-11:23 am	Omega 3 Fatty Acid Supplementation to Reduce Intervertebral Disc Degeneration <i>Zachary NaPier, MD</i>	
11:24-11:29 am	Improvement in Grip and Pinch Strength Following Anterior Cervical Discectomy and Fusion Procedures <i>Brittany E. Haws, MD</i>	
11:30-11:34 am	Introduction of CSRS President <i>Alexander R. Vaccaro, MD, PhD</i>	
11:35-12:00 pm	PRESIDENTIAL ADDRESS <i>Jeffrey C. Wang, MD</i>	
12:00-12:55 pm	Non-Member Lunch	Camelback Ballroom
12:00-12:55 pm	Member Lunch (CSRS Members Only)	Ballroom AB
1:00-3:23 pm	Symposium II: International Collaborative Approaches to Complex Cervical Surgery <i>Moderators: Christopher P. Ames, MD</i>	
1:00-1:15 pm	Surgical Approaches to CVJ <i>Luis Carelli, MD; Brazil</i>	
1:16-1:31 pm	Primary Bone Tumors of Cervical Spine <i>Stefano Boriani, MD; Italy</i>	
1:32-1:47 pm	Management of High Cervical Defects After Tumor Resections: Approaches and Biomechanics <i>Dezoe Jeszensky, MD, PhD; Switzerland</i>	
1:48-2:03 pm	Correction Techniques for CT Deformity <i>Ibrahim Obeid, MD, MSc; France</i>	
2:04-2:19 pm	Anterior vs. Posterior Approach to OPLL <i>Yoon Ha, MD, PhD; Korea</i>	
2:20-2:35 pm	Posterior Correction Techniques with Pedicle Screws <i>Kuniyoshi Abumi, MD; Japan</i>	
2:36-2:51 pm	The Surgical Challenge of Cervical Sagittal Balance <i>William Sears, FRACS; Australia</i>	
2:52-3:07 pm	<i>The Value and Application of Pre-operative Correction in the Treatment of Severe Cervical Kyphosis</i> <i>Yu Sun, MD; China</i>	
3:08-3:23 pm	Discussion	
3:24-3:40 pm	BREAK	EAST FOYER
3:41-4:30 pm	Session XI: Deformity/Alignment II <i>Moderators: Erica F. Bisson, MD and Robert F. Heary, MD</i>	

3:41–3:46 pm Presentation #53	Selective Surgical Treatment Strategies for Severe Cervical Kyphosis 15891 Huaijiang Chen, MD; Jianxi Wang
3:47–3:52 pm Presentation #54	Successful Clinical Outcomes Following Surgery for Severe Cervical Deformity are Dependent Upon Achieving Sufficient Cervical Sagittal Alignment 16097 Themistocles S. Protopsaltis, MD; Nicholas Stekas, BS; Justin S. Smith MD, PhD; Alexandra Soroceanu, MD; Renaud Lafage, MS; Alan Daniels, MD; Han Jo Kim, MD; Peter G. Passias, MD; Gregory Mundis, MD; Eric O. Klineberg, MD; D. Kojo Hamilton, MD; Munish Gupta, MD; Virginie Lafage, PhD; Robert A. Hart, MD; Frank Schwab, MD; Douglas C. Burton, MD; Shay Bess, MD; Christopher I. Shaffrey, MD; Christopher P. Ames MD; International Spine Study Group
3:53–3:58 pm Presentation #55	Effect of Correction Surgery for Cervical Kyphosis on Compensatory Mechanisms in Overall Spinopelvic Sagittal Alignment 15880 Hiroshi Miyamoto MD; Terumasa Ikeda, MD; Masao Akagi, MD
3:59–4:04 pm Presentation #56	Validation of a Cervical Spine Deformity Classification System Using a Long-Term Follow-Up Data After Multilevel Posterior Cervical Fusion Surgery 15420 Seung-Jae Hyun, MD, PhD; Jong-myung Jung, MD; Ki-Jeong Kim, MD, PhD
4:05–4:10 pm Presentation #57	Changes in Cervical Sagittal Alignment in Adolescent Idiopathic Scoliosis Following Posterior Spinal Instrumented Fusion 15379 Ryan J. Berger, MD; William A. Cantrell, BS; Joseph Tanenbaum, BA; David P. Gurd, MD; Thomas E. Kuivila, MD; Thomas E. Mroz, MD; Michael P. Steinmetz, MD; Ryan C. Goodwin, MD
4:11–4:16 pm Presentation #58	Recovery Kinetics: Comparison of Patients Undergoing Primary or Revision Procedures for Adult Cervical Deformity Using a Novel Area Under the Curve Methodology 15563 Frank A. Segreto, BS; Virginie Lafage, PhD; Renaud Lafage, MS; Justin S. Smith, MD, PhD; Breton G. Line, BS; Justin K. Scheer, MD; Dean Chou, MD; Nicholas J. Frangella, BS; Cole A. Bortz, BA; Bassel G. Diebo, MD; Themistocles S. Protopsaltis, MD; Han Jo Kim, MD; Christopher P. Ames, MD; Brian J. Neuman, MD; Peter G. Passias, MD; International Spine Study Group
4:17–4:30 pm	Discussion
4:30 pm	Adjourn

**Saturday, Dec. 8, 2018
Ballroom DEFG**

7:00–7:05 am	Welcome and Announcements <i>Christopher P. Ames, MD and Robert A. Hart, MD, Program Co-Chairs</i>
7:06–7:49 am Moderators:	Session XII: Outcomes III Douglas G. Orndorff, MD and W. Ryan Spiker, MD
7:06–7:11 am Presentation #59	Characteristics of Residual Symptoms Following Laminoplasty in Elderly Patients with Cervical Spondylotic Myelopathy: A Prospective Comparative Study of Clinical Outcomes for 1025 Patients 15359 Masaaki Machino, MD; Shiro Imagama, MD, PhD; Kei Ando, MD; Naoki Ishiguro, MD, PhD
7:12–7:17 am Presentation #60	How Does Everyone Stack Up? A Risk-Adjusted Ranking Scheme for Surgeons Performing ACDF for Radiculopathy 15704 Ahilan Sivaganesan, MD; Anthony Asher, MD; Mohamad Bydon, MD; Inamullah Khan, MBBS, MD; Hui Nian, PhD; Frank E. Harrell Jr., PhD; Kristin Archer, PhD; Clinton J. Devin, MD
7:18–7:23 am Presentation #61	Health Outcomes and Patient Satisfaction After Elective Cervical Spine Surgery for Cervical Spondylotic Myelopathy: A Prospective 24-Month Study 15528 Marjorie C. Wang, MD MPH; Jianing Li, PhD
7:24–7:29 am Presentation #62	Preoperative Promis Score Is Not Predictive of Postoperative Pain or Narcotics Consumption After Anterior Cervical Discectomy and Fusion 15669 Brittany E. Haws, MD; Benjamin Khechen, BA; Dil V. Patel, BS; Ankur S. Narain, BA; Jordan A. Guntin, BS; Kaitlyn L. Cardinal, BS; Kern Singh, MD
7:30–7:35 am Presentation #63	Limited Morbidity and Radiographic Benefit of C2 vs. Subaxial Cervical Upper-Most Instrumented Vertebrae 15596

*Peter G. Passias MD; Cole Bortz, BA; Renaud Lafage, MS; **Virginie Lafage, PhD**; Justin S. Smith, MD, PhD; Breton Line, BS; Samantha R. Horn, BA; Frank A. Segreto, BS; Eric O. Klineberg, MD; Alexandra Soroceanu, MD; Frank J. Schwab, MD; Shay Bess, MD; Christopher I. Shaffrey, MD; Christopher P. Ames, MD; International Spine Study Group*

7:36–7:49 am

Discussion

7:50–9:42 am

Symposium III: Managing Difficult Complications

Moderators:

Christopher P. Ames, MD and Robert A. Hart, MD

7:50–8:00 am

Complication Classification: Surgeon, Patient and Payor and Limitations of Society MM Registries
Justin S. Smith, MD

8:01–8:11 am

Risk Stratification and Invasiveness
Peter G. Passias, MD

8:12–8:22 am

Loss of Fixation in Cervical Spine
Sang-Hun Lee, MD

8:23–8:33 am

Distal Junctional Failure
Themistocles S. Protopsaltis, MD

8:34–8:44 am

Anterior CSF Leak
Christopher I. Shaffrey, MD

8:45–8:55 am

Dural Involvement in Tumor Surgery
Ziya L. Gokaslan, MD, FAANS, FACS

8:56–9:06 am

Oesophagus Fistula After Anterior Cervical Spine Approach, How to manage this Complication?
Philippe Bancel, MD

9:07–9:17 am

MEP Loss, C5 and C8 Weakness
Lee Tan, MD

9:18–9:28 am

Intraoperative Vertebral Artery Injuries: The Uncertainty Continues
Jens R. Chapman, MD

9:29–9:42 am

Discussion

9:43–10:20 am

Session XIII: Diagnostics/Imaging

Moderators:

Darrel S. Brodke, MD and Brian K. Kwon, MD

9:43–9:48 am
Presentation #64

Quantitative Analysis of Cervical Spinal Cord Pulsation - Sonographic Evaluation in Anterior Intervertebral Decompression 16141
Yohei Ito, MD; Hisanori Mihara, MD; Yasunori Tatara, MD

9:49–9:54 am
Presentation #65

Cervical Myelopathy Presenting Without Symptoms in the Upper Extremities: Incidence and Presenting Characteristics 15737
Robert P. Norton, MD; Jordan Pasternack, MD; John K. Houten, MD, FAANS

9:55–10:00 am
Presentation #66

Assessment of Standing Balance in Normal vs. Cervical Spondylotic Myelopathy Patients 15661
Mikhail Lew P. Ver, MD; Jeffrey L. Gum, MD; Steven D. Glassman, MD; Portia A. Steele, APRN; Leah Y. Carreon, MD, MSc

10:01–10:06 am
Presentation #67

Clinically Predictive Value of Gray Matter Volume Loss in Cervical Spondylotic Myelopathy (CSM): A Prospective Case-Control Study Utilizing 3T MRI and Volumetric Mapping 16169
Benjamin Hopkins, BS; Kenneth A. Weber, PhD; Alex Barry, MS; Todd B. Parrish, PhD

10:07–10:20 am

Discussion

10:21–10:26 am

Presentation of CSRS Medallion to Alexander R. Vaccaro, MD, PhD

10:27–10:48 am

BREAK

EAST FOYER

10:49–11:26 am

Session XIV: Biology and Fusion

Moderators:

Jens R. Chapman, MD and Timothy A. Garvey, MD

3rd PLACE BASIC SCIENCE RESEARCH AWARD

- 10:49–10:54 am
Presentation #68
NF- κ B Inhibitor Reduces the Inflammatory Response and Improves Bone Formation in rhBMP-2-Mediated Spine Fusion 15650
Juliane D. Glaeser, PhD; Phillip H. Behrens, MD; Khosrowdad Salehi, BS; Linda E.A. Kanim, MA; Dmitriy Sheyn, PhD; Zachary NaPier, MD; Jason M. Cuéllar, MD, PhD; Hyun W Bae, MD
- 10:55–11:00 am
Presentation #69
A Thienoinazole Derivative Small Compound Prevented and Regenerated Intervertebral Disc Degeneration by Enhancing Extracellular Matrix Production 15790
Junichi Kushioka, MD; Takashi Kaito, MD, PhD; Ryota Chijimatsu; Rintaro Okada, MD; Hiroyuki Ishiguro; Joe Kodama; Yuichiro Ukon; Hideki Yoshikawa, MD
- 11:01–11:06 am
Presentation #70
Usage Patterns of Intraoperative Neuromonitoring During Degenerative, Non-Deformity, Cervical Spine Surgery: A Survey of the Cervical Spine Research Society 15572
Jeffrey A. Konopka, MD; Zachary J. Grabel, MD; John M. Rhee, MD
- 11:07–11:12 am
Presentation #71
Posterior Instrumented Fusion Suppresses the Progression of Ossification of the Posterior Longitudinal Ligament: A Comparison of Laminoplasty with and without Instrumented Fusion by 3-Dimensional Analysis 16470
Keiichi Katsumi, MD, PhD; Toru Hirano, MD; Kei Watanabe, MD, PhD; Masayuki Ohashi, MD, PhD; Naoto Endo, MD
- 11:13–11:26 am
Discussion

11:27 am–12:56 pm
Moderators: **Session XV: FOCUSED PODIUM PRESENTATIONS**
Alexander R. Vaccaro III, MD and Jeffrey C. Wang, MD

EPIDEMIOLOGY AND OUTCOMES

- 11:27–11:29 am
Presentation #72
Chronic Obstructive Pulmonary Disease (COPD) is an Independent Predictor for 30-Day Complications and Readmissions Following 1-To-2 Level Anterior Cervical Discectomy and Fusion 15820
Azeem Tariq Malik, MBBS; Nikhil Jain, MD; Jeffery Kim, MD; Safdar N. Khan, MD; Elizabeth Yu, MD
- 11:30–11:32 am
Presentation #73
Epidemiology of C5 Palsy After Cervical Spine Surgery: 21 Multicenter Studies 15752
Jaе Keun Oh, MD, PhD; Dong Ho Kang, MD, PhD; Ki-Jeong Kim, MD, PhD; Young Jin Kim, MD, PhD; Chi Heon Kim, MD, PhD; Seong Yi, MD, PhD; Jun Ho Lee, MD; Chang-Hyun Lee, MD; Yong Jun Jin, MD, PhD; Jae Taek Hong, MD, PhD
- 11:33–11:35 am
Presentation #74
Age Is Not a Significant Predictor of Adverse Events After Cervical Spine Surgery: Analysis from the Michigan Spine Surgery Improvement Collaborative (MSSIC) 15751
Jad G. Khalil, MD; Hesham Mostafa Zakaria; Daniel Possley, DO; Daniel Park, MD; Victor Chang, MD
- 11:36–11:38 am
Presentation #75
Frequency of Typical Myelopathic Symptoms in a Large Surgical Cohort of Cervical Myelopathy Patients: Association with the Level of Maximal Cord Compression and MRI T2 Signal Change 16227
Shuo Niu, MD, PhD; Thomas M. Neustein, MD; Albert T. Anastasio, BA; Samuel D. Maidman, BA; Razan R. Faraj, MS; John M. Rhee, MD
- 11:39–11:41 am
Presentation #76
Effect of Modified Japanese Orthopedic Association Scores on Satisfaction with Outcomes 12 Months After Elective Surgery for Cervical Spine Myelopathy 15902
Benjamin Weisenthal, MD; Ahilan Sivaganesan, MD; Silky Chotai, MD; Inamullah Khan, MBBS, MD; Hui Nian, PhD; Frank E. Harrell Jr., PhD; Kristin Archer, PhD; Jacquelyn S. Pennings, PhD; Mohamad Bydon, MD; Praveen V. Mummaneni, MD; Anthony Asher, MD, FACS; Kevin T. Foley, MD; Clinton J. Devin, MD
- 11:42–11:48 am
Discussion

CRANIO-CERVICAL JUNCTION AND ALIGNMENT

- 11:49–11:51 am
Presentation #77
Increasing Incidence of Non-Rheumatic Retro-Odontoid Pseudotumor with Varied Etiology in Elderly 16249
Ryouta Hyakkan, MD; Masahiko Takahata, MD
- 11:52–11:54 am
Presentation #78
The Impact of Cervical Sagittal Balance and Cervical Spine Alignment on Craniocervical Junction Kinematic: An Analysis Using Upright Kinematic MRI 16196
Permsak Paholpak, MD; Blake Formanek; Andrew Vega, BS; Koji Tamai, MD; Kittipong Sessumpun, MD; Zorica Buser, PhD; Jeffrey C. Wang, MD

- 11:55–11:57 am
Presentation #79 Does Target Level Sagittal Alignment Determine Adjacent Level Disc Height Loss? 15624
Ryan Snowden, MD; Justin W. Miller, MD; Tome Saidon, MS; Joseph D. Smucker, MD; K. Daniel Riew, MD; Rick C. Sasso, MD
- 11:58–12:00 pm
Presentation #80 Redefining the Cervical Disability Threshold of T1 Slope Minus Cervical Lordosis 15640
Peter G. Passias, MD; Dennis Vasquez-Montes, MS; Samantha R. Horn, BA; Cole A. Bortz, BA; Frank A. Segreto, BS; Aaron J. Buckland, MD; Themistocles S. Protosaltis, MD; Han Jo Kim, MD; Michael Gerling, MD; Renaud Lafage, MS; Thomas J. Errico, MD; Frank J. Schwab, MD; **Virginie Lafage, PhD**
- 12:01–12:03 pm
Presentation #81 Dynamic Changes in the Reflex Exam of Patients with Sub-Axial Cervical Stenosis 16046
Alexander Tuchman, MD; Lee A. Tan, MD; Jamal N. Shillingford, MD; Xudong J. Li, MD, PhD; K. Daniel Riew, MD
- 12:04–12:10 pm
Discussion
- COMPLICATIONS AND NON-OPERATIVE APPROACHES**
- 12:11–12:13 pm
Presentation #82 Do Preoperative Cervical Epidural Steroid Injections Affect Outcomes After ACDF for Radiculopathy? 15766
Daniel Tarazona, MD; Eric Warner, BS; Michael Motto, BS; Taolin Fang, MD; Matthew Galetta, BS; I. David Kaye, MD; Christopher K. Kepler, MD, MBA; Mark F. Kurd, MD; Alan S. Hilibrand, MD; **Barrett I. Woods, MD**; Kristen E. Radcliff, MD; Jeffrey A. Rihn, MD; D. Greg Anderson, MD; Alexander R. Vaccaro, MD, PhD, MBA; Gregory D. Schroeder, MD
- 12:14–12:16 pm
Presentation #83 Perioperative Anesthesia Lean Implementation Is Associated with Increased Operative Efficiency in Posterior Cervical Surgeries at a High-Volume Spine Center 16135
Simon Ammanuel, BS; **Andrew Chan, MD**; Anthony DiGiorgio, DO; Catherine Miller, MD; Praveen Mummaneni, MD
- 12:17–12:19 pm
Presentation #84 Undergoing Bariatric Surgery Lowers Complication Rates Following Spine Surgery in Morbidly Obese Patients 15604
Peter G. Passias, MD; Samantha R. Horn, BA; Dennis Vasquez-Montes, MS; Frank A. Segreto, BS; Cole A. Bortz, BA; Cyrus M. Jalai, BA; Daniel M. Sciubba, MD; Micheal Raad, MD; Bassel G. Diebo, MD; Shaleen Vira, MD; Jason A. Horowitz, BA; Hamid Hassanzadeh, MD; Renaud Lafage, MS; Virginie Lafage, PhD; **Michael C. Gerling, MD**
- 12:20–12:22 pm
Presentation #85 The Risk of Recurrent Laryngeal Nerve Injury with Laterality of Approach in Anterior Cervical Discectomy and Fusion Procedures: A Randomized, Prospective Study Over 10 Years 15375
Shalin Shah, DO; Manminder Bhatia, DO
- 12:23–12:25 pm
Presentation #86 Perioperative Complications of Anterior Decompression with Fusion vs. Posterior Decompression with Fusion for the Treatment of Cervical Ossification of the Posterior Longitudinal Ligament: Propensity Score Matching Analysis Using a National Inpatient Database 16066
Toshitaka Yoshii, MD; Shingo Morishita, MD; Takashi Hirai, MD; Kenichiro Sakai, MD; Tsuyoshi Yamada, MD; Masato Yuasa, MD; Atsushi Okawa, MD
- 12:26–12:32 pm
Discussion
- SURGICAL TECHNIQUES AND TRAUMA**
- 12:33–12:35 pm
Presentation #87 The Clinical Study on a Minimally Invasive Muscle-Splitting Approach to Posterior C1–C2 Fixation for the Treatment of Fresh Odontoid Fracture 15883
Guohua Xu, MD; Xiaogang Bao
- 12:36–12:38 pm
Presentation #88 Short-Term Outcomes Following Cervical Laminoplasty and Laminectomy and Fusion with Instrumentation 15601
Anthony J. Boniello MD; Samantha R. Horn BA; Frank A. Segreto, BS; Cole A. Bortz, BA; Amrit Khalsa, MD; **Michael C. Gerling, MD**; Peter G. Passias, MD
- 12:39–12:41 pm
Presentation #89 Surgical Treatment for Cervical Spine Trauma in Ankylosing Spine with Diffuse Idiopathic Skeletal Hyperostosis; Surgery within 8-Hours After Injury Affects Prognosis 15786
Osahiko Tsuji, MD; Kota Suda, MD, PhD; Masahiko Takahata, MD; Miki Komatsu, MD, PhD; Norimasa Iwasaki, MD, PhD; Morio Matsumoto, MD; Masaya Nakamura, MD; Kota Watanabe, MD, PhD
- 12:42–12:44 pm
Presentation #90 **3rd PLACE RESIDENT/FELLOW RESEARCH AWARD**
SMaRT Human Neural Stem Cells to Degrade Scar and Optimize Regeneration After Traumatic Cervical Spinal Cord Injury 16232

Christopher S. Ahuja, MD; Mohamad Khazaei, PhD; Priscilla Chan; Jian Wang, MD; Jinil Bhavsar;
Michael G. Fehlings, MD, PhD, FRCSC, FACS

- 12:45–12:47 pm Presentation #91 Radiologic Factors to Predict Injury of Transverse Atlantal Ligament in Unilateral Sagittally Split Fracture of C1 Lateral Mass 15393
Jae Won Lee, MD; Jong-Beom Park, MD, PhD; Han Chang, MD, PhD
- 12:48–12:50 pm Presentation #92 Treatment Algorithm for Dens Fractures 16137
Amelie Kanovsky, MD; Ernst Josef Mueller
- 12:51–12:57 pm **Discussion**
- 12:57 pm **Adjourning Notices**
Alexander Vaccaro, MD, PhD

CSRS 2018 Annual Meeting – Events

Wednesday, December 5

Faculty Appreciation Reception

Open to all registered attendees

Camelback Ballroom, 5:00 pm—6:00 pm

No prior registration required

NuVasive Industry Event

An Evening & Discussion with Cervical Thought Leaders – A Collegial Exchange of Ideas

Prior registration required

6:00 pm—8:00 pm, Grand Ballroom ABC

Hosted by Daniel Riew, MD; Todd Albert, MD; Regis Haid, MD; Christopher Shaffrey, MD; Vincent Traynelis, MD; Rick Sasso, MD; Michael Groff, MD; Alpesh Patel, MD; Trey Crawford, MD; and Tyler Koski, MD

Invitation only event. If you would like to attend this event, please contact Jennica Reeves at

jreeves@nuvasive.com

Thursday, December 6

Welcome Reception

Open to all registered attendees

Camelback Ballroom, 4:30 pm—6:30 pm

No prior registration required

Medtronic Industry Dinner

How to Navigate Posterior Cervical: SynergyPCFSM with InfinityTM OCT System

Live Surgeon Panel Broadcast with Navigated C1-T3 Case Discussion

Faculty: Paul Holman, MD; Taro Kaibara, MD; and Blake Staub, MD

Phoenician Hotel Ballroom A, 6:30 pm dinner; 7:00 pm Case Discussion, Grand Ballroom ABC

If you would like to attend this event, please register through the link provided here: [Medtronic](#).