

## 2023 LSRS Instructional Course – May 10, 2023 – Chicago, IL

2:00PM Welcome and Introduction Zorica Buser, PhD, MBA, and Rakesh Patel, MD, MBA

### Section 1: Patient Selection and Optimization Moderator: Zorica Buser, PhD, MBA

2:05PM-2:21PM **Debate:** Self-promotion via social media for patient acquisition vs let your skills speak for themselves *Cara L. Sedney, MD, MA, FAANS*  
2:13 PM *Scott D. Daffner, MD*  
2:22PM-2:38PM **Debate:** Have virtual physical exams have replaced in person visits? *Rakesh D. Patel, MD, MBA*  
14:30 *Bruce V. Darden, III, MD, FAOA*  
2:38PM – 2:48PM Discussion  
  
2:48PM – 2:58PM **AI/Predictive as a tool to select ideal patients** *Nitin Agarwal, MD*  
2:58PM – 3:08 PM **Effectiveness of comprehensive rehab programs** *Michael J. Lee, MD*  
3:08PM – 3:18PM Discussion

### Section 2: Surgical Techniques Moderator: Victor W. Chang, MD

3:18PM – 3:34PM **Debate:** Robot TLIF vs open posterior fusion L4-5 spondy *Osama Kashlan, MD*  
3:26 PM *Thomas A. Zdeblick, MD*  
3:35PM – 3:51PM **Debate:** Endoscopic surgery is superior to miniopen: discectomies *Michael C. Gerling, MD*  
3:43 *Paul A. Anderson, MD*  
  
3:52PM – 4:08PM **Debate:** All spine cases are deformity cases vs treat the problem- *Raymond J. Hah, MD*  
4:00 PM deformity *Dean Chou, MD*  
4:08PM – 4:18PM Discussion  
  
4:18PM – 4:28PM **Advances in intra-op visualization** *Zorica Buser, PhD, MBA*  
4:28PM – 4:38PM **Burden of proof prior to adapting technology** *Wellington K. Hsu, MD*  
4:38PM – 4:48PM **Appropriate training for new tech, what do we need?** *Jason W. Savage, MD*  
4:48PM – 5:00PM Discussion  
  
5:00PM – 5:20PM BREAK

### Section 3: Postoperative Care Moderator: Rakesh D. Patel, MD, MBA

5:20PM – 5:36PM **Debate:** Surgery center vs in hospital surgery *Addisu Mesfin, MD*  
5:28 *Dominic Pelle, MD*  
5:37PM – 5:53PM **Debate:** Routine x-rays vs no imaging – is it worth it? *Jeremy D. Shaw, MD*  
5:45 *Andrew T. Dailey, MD*  
  
5:54PM – 6:10PM **Debate:** Standard follow-up vs app based assessment – are they *Hemil Maniar, MD*  
6:02 PM useful in person, do we measure right outcomes? *Daniel S. Yanni, MD, FAANS*  
6:10PM – 6:20PM Discussion  
  
6:20 Closing Remarks  
  
6:30 Adjourn

LUMBAR SPINE RESEARCH SOCIETY 16TH ANNUAL MEETING PROGRAM

Thursday, May 11, 2023

7:00 Intro **Announcements** Jason W. Savage, MD and Andrew T. Dailey, MD

**Session 1: Degenerative Spondylolisthesis 1**  
Moderators: Bruce V. Darden II, MD and Thomas A. Zdeblick, MD

ABSTRACT ID	Abstract Title	Author List
7:05 Paper 1 #79	Decompression With or Without Fusion for Grade 1 Degenerative Lumbar Spondylolisthesis: 60-Month Outcomes From the QOD	<b>Andrew Chan, MD</b> ; Erica Bisson, MD,MPH; Mohamad Bydon, MD; Steven Glassman, MD; Kevin Foley, MD; Christopher Shaffrey, MD; Eric Potts, MD; Mark Shaffrey, MD; Domagoj Coric, MD; John Knightly, MD; Paul Park, MD; Michael Wang, MD; Kai-Ming Fu, MD,PhD; Jonathan Slotkin, MD; Anthony Asher, MD; Michael Virk, MD, PhD; Vivian Le, MPH; Dean Chou, MD; Praveen Mummaneni, MD,MBA
7:10 Paper 2 #140	Early Compensatory Segmental Angle Changes at L3-4 and L4-5 Following a L5-S1 Anterior versus Transforaminal Lumbar Interbody Fusion	<b>Bailey O'Connor, BS</b> ; Gina Canlas, BS; Caroline Drolet, PhD; Jesse Shen, MD; Venu Nemani, MD,PhD; Eric Varley, DO; Jean-Christophe Leveque, MD; Rajiv Sethi, MD; Philip Louie, MD
7:15 Paper 3 #184	Analyzing Relationships Between Slippage and Clinical Outcomes Following Surgical Treatment of Lumbar Degenerative Spondylolisthesis	Michael Rogalski, BS; <b>Rebecca Sullivan, BS</b> ; Saharsh Mehta, MD; Celestine Warren, MD; Emily Adams, BS; Michael Stauff, MD

7:20-7:28 DISCUSSION

**Session 2: Surgical Outcomes 1**  
Moderator: Shah Dodwad, MD and R. Douglas Orr, MD

ABSTRACT ID	Abstract Title	Author List
7:30 Paper 4 #164	TLIF is Associated with Lower Rates of Adjacent Segment Disease and Complications Compared to ALIF: A Propensity Matched Study	<b>Xu Tao, BS</b> ; Abhijith Matur, MD; Syed Khalid, MD; Rebecca Garner, MD; Kyle McGrath, BS; Bryce Owen, MD; Phillip Vorster, BS; Geet Shukla, BS; Louisa Onyewadume, MD; Andrew Wu, BS; Benjamin Motley, MD; Joseph Cheng, MD; Owoicho Adagwa, MD
7:35 Paper 5 #70	The Impact of Foraminal Osteophytes on PROMs Following L5-S1 ALIF and TLIF	Eric Zhao, BS; <b>Tejas Subramanian, BE</b> ; Andrew Kim, BA; Kasra Araghi, BS; Jerry Du, MD; Mitchell Fourman, MD; Sheeraz Qureshi, MD; Sravisht Iyer, MD
7:40 Paper 6 #170	What is the Early Fate of Adjacent Segmental Lordosis Compensation at L3-4 and L5-S1 Following a Lateral versus Transforaminal Lumbar Interbody Fusion at L4-5?	<b>Mary Kim, BS</b> ; Caroline Drolet, PhD; Thomas Hanks, BS; Karissa Yamaguchi, BS; Jesse Shen, MD; Katie Krause, MD,PhD; Venu Nemani, MD,PhD; Jean-Christophe Leveque, MD; Philip Louie, MD

7:45-7:53 DISCUSSION

**Session 3: Spinal Oncology**  
Moderator: Michael P. Steinmetz, MD and Ahmad Nassr, MD

ABSTRACT ID	Abstract Title	Author List
7:55 Paper 7 #276	The Spinal Instability Neoplastic Score (SINS) is Predictive of Instability Necessitating Surgical Intervention: An External Validation Study	<b>Zachariah Pinter, MD</b> ; Breydan Wright, MD; Mikaela Sullivan, MD; Brandon McMaster, MD; Brian Goh, MD; James Bernatz, MD; Giorgos Michalopoulos, MD; Ahmad Nassr, MD; Brett Freedman, MD; Benjamin Elder, MD,PhD; Mohamad Bydon, MD; Jeremy Fogelson, MD; Peter Rose, MD; Arjun Sebastian, MD
8:00 Paper 8 #269	Percutaneous Versus Open Pedicle Screw Fixation for the Management of Metastatic Spine Disease: A Matched-Cohort Study	<b>Mina Botros, MD</b> ; Clark Cady-McCrea, MD; Mark Lawlor, MD; Takaki Shimizu, MD; Addisu Mesfin, MD,
8:05 Paper 9 #142	Incidence of Postoperative VTE Complications following Spine Instrumentation in Patients Treated for Oncologic Spinal Pathology	Khaled Taghlabi, MD; Takashi Hirase, MD; Jesus Cruz Garza, PhD; Amir Faraji, MD, PhD; <b>Comron Saifi, MD</b>

8:10-8:18 DISCUSSION

8:18 **Symposium 1 What is the role of SI joint fusion in 2023?**  
**Moderator: David W. Polly, MD**  
Is the SI joint a pain generator? (Evaluation & diagnosis of SI joint pathology)  
8:19-8:30 What does the data show about "MIS SI joint fusion" in 2023  
8:30-8:41 The role of SI joint fusion in TL deformity correction  
8:41-8:52 DISCUSSION  
8:52-9:03

Boyle C. Cheng, PhD  
Jean-Christophe Leveque, MD  
Jad G. Khalil, MD

LUMBAR SPINE RESEARCH SOCIETY 16TH ANNUAL MEETING PROGRAM

Thursday, May 11, 2023

9:03 - 9:30 B R E A K

**POSTER BREAK OUT 1 - Moderator: Andrew J. Pugley, MD, MHCDS**

9:15	Poster 28 #277	Osteoporosis is Underdiagnosed and Undertreated in Patients with Fragility Femoral Neck and Vertebral Compression Fractures	<i>Philip Zakko, MD; Lauren Eberhardt, BS; Madeleine DeClercq, BS; Ahyoung Park, PharmD; Megan Audet, MD; Daniel Park, MD</i>
9:18	Poster 29 #139	Percutaneous Lumbopelvic Fixation Without Fusion is Effective in the Management of U shaped Sacral Fractures	<i>Mark Lawlor, MD; Addisu Mesfin, MD; Mina Botros, MD; Clark Cady-McCrea, MD</i>
9:21	Poster 30 #272	Validation of the MISDEF2 Algorithm for Adult Spinal Deformity: Analysis of 2-Year Clinical and Patient Reported Outcomes	<i>Ibrahim Hussain, MD; Andrew Chan, MD; Nitin Agarwal, MD; Christopher Shaffrey, MD; Paul Park, MD; Juan Uribe, MD; Richard Fessler, MD,PhD; Adam Kanter, MD; David Okonkwo, MD,PhD; Gregory Mundis, Jr., MD; Robert Eastlack, MD; Michael Virk, MD,PhD; Jacob Goldberg, MD; Neel Anand, MD,FAOS; Pierce Nunley, MD; Vivian Le, MPH; Shay Bess, MD; Michael Wang, MD; Dean Chou, MD; Praveen Mummaneni, MD,MBA; Kai-Ming Fu, MD,PhD</i>

DISCUSSION

**Rapid Fire Presentations 1**

**Session 4:**

9:30 Moderator: Alpesh A. Patel, MD, MBA, FACS and Douglas Orndorff, MD

ABSTRACT ID	Abstract Title	Author List
9:30 RF01 #205	Access Denied: Minimally Invasive SI Joint Fusion Patient Reported Outcomes in Obese Patients	<i>David Polly, Jr., MD; Daniel Cher, MD; Kari Odland, DAT, ATC, LAT</i>
9:33 RF02 #36	Nerve Root Retraction Time During Lumbar Endoscopic Discectomy Surgery: Association with Post-Operative Radiculitis	<i>Michael Gerling, MD; Melissa Baker, BS; Evan Chaladoff, Undergrad; Eloise Stanton, BS; Zorica Buser, PhD,MBA</i>
9:36 RF03 #27	Inflammatory Bowel Disease a Risk Factor for Post-Surgical Infections Following Lumbar Fusion: A Large Database Study	<i>Sean Esmende, MD; Matthew Solomito, PhD; Regina Kostyun, MS; Heeren Makanji, MD</i>
9:39 RF04 #208	Understanding the Impact of Social Determinants of Health on 90-Day Readmission Rates Following Posterolateral Fusion: A Machine Learning Approach	<i>Samuel Reyes, BS; Pranav Bajaj, BA; Steven Kurapaty, MD; Austin Chen, BA; Mark Plantz, MD; Erik Gerlach, MD; Anitesh Bajaj, BS; Rushmin Khazanchi, BA; Wellington Hsu, MD; Alpesh Patel, MD,MBA; Srikanth Divi, MD</i>
9:42 RF05 #302	Machine Learning and Deep Learning Algorithms Outperform ASA Benchmark in Prediction of Health Resource Utilization Metrics Following Lumbar Spine Surgery	<i>Rushmin Khazanchi, BA; Anitesh Bajaj, BS; Rohan Shah, BA; Austin Chen, BA; Robert Oris, BS; Pranav Bajaj, BA; Samuel Reyes, BS; Alpesh Patel, MD,MBA; Wellington Hsu, MD; Srikanth Divi, MD</i>
9:45 RF06 #177	MIS vs. Open Lumbo-Pelvic Fixation: Is There a Difference in Distal Junctional Failure Rates? A Propensity Score-Matched Analysis.	<i>Vardhaan Ambati, MS; Timothy Chryssikos, MD,PhD; Michael Tawil, BS; Abraham Dada, BA; Ryan Sadjadi, BA, MPH; Alma Rechav Ben-Natan, BA; Youssef Sibih, BS; Mohamed Macki, MD; Andrew Chan, MD; Sigurd Berven, MD; Dean Chou, MD; Aaron Clark, MD; Praveen Mummaneni, MD,MBA</i>

9:49-9:59 DISCUSSION

**Session 5: Basic Science**

9:59 Moderator: Zorica Buser, PhD, MBA and Wellington K. Hsu, MD

ABSTRACT ID	Abstract Title	Author List
10:00 Paper 10 #270	Impact of Interbody Implant Material on Early Outcomes in a Prospective Multicenter Study of Lumbar Interbody Fusion	<i>Tyler Jenkins, MD; Khoi Than, MD; Justin Smith, MD; Thomas Buell, MD; David Hamilton, MD</i>
10:05 Paper 11 #212	Analysis of Peri-operative NSAID use and Spinal Fusions	<i>James Rizkalla, MD; Brook Martin, PhD,MPH; Joseph Weiner, MD; Brian Karamian, MD; Nicholas Spina, MD; W. Ryan Spiker, MD; Brandon Lawrence, MD; Darrel Brodke, MD</i>
10:10 Paper 12 #129	Fatty infiltration of the paraspinal muscle is an independent risk factor of lumbar degenerative disc disease - a retrospective cross-sectional study	<i>Lukas Schönnagel, MD; Jiaqi Zhu, MS; Thomas Caffard, MD; Soji Tani, MD; Gaston Camino-Willhuber, MD; Henryk Haffer, MD; Maximilian Muellner, MD; Erika Chiapparelli, MD; Artine Arzani, MD; Krizia Amoroso, MD; Jennifer Shue, MS; Ek-Tsoon Tan, MD; John Carrino, MD; Andrew Sama, MD; Frank Cammisa, MD; Federico Girardi, MD; Alexander Hughes, MD</i>
10:15 Paper 13 #173	The impact of carriers and bone fibers in surgical outcomes and fusion rates after posterolateral lumbar decompression and fusion	<i>Jeremy Heard, BS; Yunsoo Lee, MD; Mark Lambrechts, MD; Nicholas D'Antonio, BS; John Paulik, BS; John Bodnar, BS; Emily Berthiaume, MD; Jose Canseco, MD,PhD; Alan Hilibrand, MD; Alexander Vaccaro, MD,PhD,MBA; Chris Kepler, MD; Gregory Schroeder, MD</i>

10:20-10:29 DISCUSSION

**LUMBAR SPINE RESEARCH SOCIETY 16TH ANNUAL MEETING PROGRAM**

**Thursday, May 11, 2023**

**Session 6: Health Care Economics**

10:29 Moderator: Don Moore, MD and Robert F. Heary, MD

ABSTRACT ID

Abstract Title

Author List

10:30	Paper 14 #180	Significant Variability Exists in Negotiated Rates for Lumbar Spinal Fusion Procedures in the United States	<b>Tariq Issa, BS</b> ; Yunsoo Lee, MD; Aditya Mazmudar, MD,MBA; Richard Padovano, BS; Jose Canseco, MD,PhD; Alan Hilibrand, MD; Alexander Vaccaro, MD,PhD,MBA; Chris Kepler, MD; Gregory Schroeder, MD
10:35	Paper 15 #210	Social Determinants of Health Play a Role in Determining Health Utilization following Lumbar Posterolateral Fusion.	<b>Steven Kurapaty, MD</b> ; Samuel Reyes, BS; Pranav Bajaj, BA; Austin Chen, BA; Erik Gerlach, MD; Mark Plantz, MD; Wellington Hsu, MD; Alpesh Patel, MD,MBA; Srikanth Divi, MD
10:40	Paper 16 #267	Comparing Patient-Reported Outcomes, Opioid Use, and Healthcare Resource Utilization between Patients Undergoing Elective Lumbar Decompression and Fusion versus Decompression Procedures Alone for Degenerative Pathology	<b>Erik Gerlach, MD</b> ; Jeremy Marx, MD; Jason Tegethoff, MD; Mark Plantz, MD; Peter Swiatek, MD; Srikanth Divi, MD; Wellington Hsu, MD; Alpesh Patel, MD,MBA
10:45	Paper 17 #122	Anxiety and Morbid Obesity are Associated with Significantly Increased Healthcare Utilization Following Single-Level Lumbar Fusion	<b>Darren Nin, PhD</b> ; Ya-Wen Chen, MD,MPH; Andrew Powers, MD; Ruijia Niu, MPH; Raymond Hwang, MD,MEng, MBA; David Chang, PhD,MPH, MBA; David Kim, MD

10:50-11:00 DISCUSSION

11:00	<b>Transfer of Presidents</b> <b>Tribute to President</b> <i>Plaque Ceremony</i>	<b>Moderator: Paul Arnold, MD</b>
11:05	<b>Presidential Update</b>	Bruce V. Darden, II, MD
11:25	<b>Incoming President</b> <i>Pin Ceremony</i>	Bruce V. Darden, II, MD // Wellington K. Hsu, MD
11:30	<b>Tribute to LSRS Founder</b> <i>Thomas A. Zdeblick, MD</i>	Wellington K. Hsu, MD

11:35	<b>Symposium 2 The T10-Pelvis "Epidemic"</b> The importance of spinopelvic parameters for degenerative spine pathology	<b>Moderator: Jason W. Savage, MD</b>
11:37	Not every curve needs a deformity operation (the role of short segment fusion in degenerative scoliosis)	Andrew J. Pugley, MD, MHCDS
11:47	MIS approaches may "save levels" in ASD	Clifford B. Tribus, MD
11:57	When should we "go big or go home"	Raymond J. Hah, MD
12:07	DISCUSSION	Michael W. Daubs, MD

12:17-12:30

12:30-1:20	<b>Attendees Luncheon</b> <b>Members Business Luncheon</b>	Paris Foyer Cannes/LeBar
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1:20 **Announcements**

**Session 7: Rapid Fire Presentation 2**

1:22 Moderator: Dominic Pelle, MD and David Casper, MD

ABSTRACT ID

Abstract Title

Author List

## LUMBAR SPINE RESEARCH SOCIETY 16TH ANNUAL MEETING PROGRAM

Thursday, May 11, 2023

1:24	RF07	#15	Does Weight Loss Make the Difference? Outcomes Following Posterior Lumbar Fusion in Patients With and Without a History of Bariatric Surgery	<b>Meera Dhodapkar, BA</b> ; Scott Halperin, BS; Peter Joo, MD,MPH; Gwyneth Maloy, BA; Seongho Jeong, MD; Daniel Rubio, MD; Jonathan Grauer, MD
1:26	RF08	#223	Psychological Distress Does Not Predict Decisional Regret in Adult Spinal Deformity	Jesse Shen, MD; Caroline Drolet, PhD; Jean-Christophe Leveque, MD; Venu Nemani, MD,PhD; <b>Philip Louie, MD</b> ; Rajiv Sethi, MD
1:28	RF09	#298	Management of Lumbopelvic Dissociation With Triangular Osteosynthesis: A Comparison of Percutaneous and Open Techniques	<b>Connor Wathen, MD</b> ; Najib Muhammad, BS; Yohannes Ghenbot, MD; Dmitry Petrov, MD; Ali Ozturk, MD; Samir Mehta, MD; James Schuster, MD,PhD; David Casper, MD
1:30	RF10	#191	Postoperative Use and Early Discontinuation of Intravenous Lidocaine in Spine Patients	David Polly, Jr., MD; Joseph Resch, MD; Gwyneth Fischer, MD; Paul Brian Soriano, MD; <b>Jason Haselhuhn, DO</b> ; Kenneth Holton, MD
1:32	RF11	#42	Factors Influencing Patient Satisfaction With Postoperative Follow-up After Spinal Fusion	Alexander Akoto, MD; Bilal Butt, MD; <b>Aditya Muralidharan, MD</b> ; Muhammad Waheed, MD; Rakesh Patel, MD; Ilyas Aleem, MD
1:34	RF12	#274	Transforaminal Lumbar Interbody Subsidence: Postoperative CT Analysis Defining Incidence and Associated Risk Factors	Zachariah Pinter, MD; <b>Hannah Levy, MD</b> ; Ryder Reed, MD; Joshua Harmer, MD; Konstantinos Katsos, MD; Giorgos Michalopoulos, MD; Mohamad Bydon, MD; Ahmad Nassr, MD; Brett Freedman, MD; Arjun Sebastian, MD
1:36- 1:45			DISCUSSION	

### Session 8: Imaging

1:45 Moderator: Paul A. Anderson, MD and Cara L. Sedney, MD, MA, FAANS

	Abstract ID	Abstract Title	Author List
1:45	Paper 18 #12	Projected Lifetime Cancer Risk Associated with Intraoperative Computed Tomography for Lumbar Spine Surgery	<b>Alexander Crawford, MD</b> ; Brendan Striano, MD; Carew Giberson-Chen, MD; Grace Xiong, MD; Harry Lightsey, MD; Andrew Schoenfeld, MD; Andrew Simpson, MD
1:50	Paper 19 #192	Spine Surgeon versus AI Algorithm - Full Length Radiographic Measurements Validation Study	Jason Haselhuhn, DO; Paul Brian Soriano, MD; Priyanka Grover, MS; Janine Huertgen, MS; Marcel Dreischarf, PhD; Nathan Hendrickson, MD,MS; Kristen Jones, MD; Christopher Martin, MD; Jonathan Sembrano, MD; <b>David Polly, Jr., MD</b>
1:55	Paper 20 #203	Trabecular bone score predicts screw pull-out strength better than DXA bone mineral density, CT hounsfield units, and cortical density	<b>James Bernatz, MD</b> , Kevin Sandhu, Diane Krueger, Neil Binkley, Josh Roth, Paul Anderson, MD
2:00	Paper 21 #182	Intraoperative Computed Tomography for the Assessment of Bone Quality	<b>Aamir Kadri, MD</b> ; Ryan Cassidy, MD
2:05-2:14			DISCUSSION

### Session 09: Advancing Technologies/MIS

2:15 Moderator: Andrew T. Dailey, MD and Seth Williams, MD

	Abstract ID	Abstract Title	Author List
2:15	Paper 22 #204	Two-Year Outcomes of Full-endoscopic versus Open Discectomy for Sciatica	<b>Pravesh Gadjradj, MD,PhD</b> ; Biswadjet Sanjay Harhangi, MD,PhD
2:20	Paper 23 #30	Adverse Events Associated with Robotic-Assisted Spine Surgery: An Analysis of the U.S. Food and Drug Administration MAUDE Database	<b>Joshua Proal, BS</b> ; Andrew Moon, MD; Nicholas Coccoluto, MD; Nicholas Pagani, MD; Michael Moverman, MD; Brian Kwon, MD
2:25	Paper 24 #32	Which is Better: Percutaneous or Open Robot-Assisted Spine Surgery? Prospective, Multicenter Study of 2,524 Screws in 336 Patients	Nathan Lee, MD,BS; Lindsay Orosz, MS,PA-C; Jeffrey Gum, MD; <b>Gregory Poulter, MD</b> ; Ehsan Jazini, MD; Colin Haines, MD; Christopher Good, MD; Ronald Lehman, MD
2:30	Paper 25 #321	Comparative Analysis of Prone Lateral versus Single-Position Lateral Decubitus Positioning in Achieving Optimal Outcomes and Reducing Complication Rates in Minimally-Invasive Spine Surgery	<b>Peter Passias, MD</b> ; Peter Tretiakov, BS; Rachel Joujon-Roche, BS; Oscar Krol, BA; Tyler Williamson, MS; Bailey Imbo, BA; Pooja Dave, BS; Jamshaid Mir, MD; Shaleen Vira, MD; Bassel Diebo, MD; Dean Chou, MD; Andrew Chan, MD
2:35-2:45			DISCUSSION

2:45-3:04 **BREAK**

POSTER BREAK OUT 2- Moderator: Jonathan Grauer, MD

2:50	Poster 31 #130	Relationship between lumbar spinal stenosis and axial muscle wasting - a retrospective cross-sectional study	<b>Lukas Schönagel, MD</b> ; Maximilian Muellner, MD; Thomas Caffard, MD; Soji Tani, MD; Gaston Camino-Willhuber, MD; Henryk Haffer, MD; Artine Arzani, MD; Erika Chiapparelli, MD; Krizia Amoroso, MD; Jiaqi Zhu, MS; Jennifer Shue, MS; Ek Tsoon Tan, MD; John Carrino, MD; Andrew Sama, MD; Frank Cammisa, MD; Federico Girardi, MD; Alexander Hughes, MD
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## LUMBAR SPINE RESEARCH SOCIETY 16TH ANNUAL MEETING PROGRAM

Thursday, May 11, 2023

2:53 Poster 32 # 195 Persistent Low Back Pain Following Lumbar Surgery: Is The Sacroiliac Joint to Blame? *Stephan Aynaszyan, BS; Jacob Linker, BA; Bencha Boualam, BS; Michael Pheasant, MD; Matthew Parry, BS; Christopher SanCraint, BS; Siddharth Badve, MD; Hemil Maniar, MD; Edward DelSole, MD*

2:56 Poster 33 #315 Decreased Hip Motion is Associated with Inferior Spine Outcomes *Emily Mills, MD; Jennifer Wang, BS; Joshua Sanchez, BS; Gabriel Bouz, MD; Andy Ton, BS; Annabel Kim, BS; Jeffrey Wang, MD; Ram Alluri, MD; Nathanael Heckmann, MD; Raymond Hah, MD*

DISCUSSION

### Session 10 Degenerative Spondylolisthesis 2

3:04 Moderator: Leo Spector, MD and Landon Bulloch, MD

Abstract ID Abstract Title Author List

3:05 Paper 26 #271 Is Fusion Always Necessary in the Setting of Degenerative Spondylolisthesis with Stenosis? A Prospective Randomized Controlled Trial of Decompression and Fusion versus Decompression and Facet Arthroplasty *Zachariah Pinter, MD; Arjun Sebastian, MD; Domagoj Coric, MD; Brett Freedman, MD; Michael Steinmetz, MD; Ahmad Nassr, MD*

3:10 Paper 27 #252 A Prospective, Randomized Clinical Trial of Pedicle Lengthening Osteotomy Versus Open Decompression with Transforaminal Lumbar Interbody Fusion for Lumbar Degenerative Spondylolisthesis with Stenosis *Bradley Anderson, BS; Jonathan Ledesma, BS; Greg Anderson, MD*

3:15 Paper 28 #81 Minimally Invasive Versus Open Transforaminal Lumbar Interbody Fusion for Grade 1 Lumbar Spondylolisthesis: 60-Month Follow-Up from the QOD Multi-Center Prospective Registry *Andrew Chan, MD; Mohamad Bydon, MD; Erica Bisson, MD,MPH; Steven Glassman, MD; Kevin Foley, MD; Christopher Shaffrey, MD; Eric Potts, MD; Mark Shaffrey, MD; Domagoj Coric, MD; John Knightly, MD; Michael Wang, MD; Paul Park, MD; Kai-Ming Fu, MD,PhD; Jonathan Slotkin, MD; Anthony Asher, MD; Michael Virk, MD, PhD; Giorgos Michalopoulos, MD; Nitin Agarwal, MD; Christine Park, BS; Dean Chou, MD; Praveen Mummaneni, MD,MBA*

3:20 - 3:30 DISCUSSION

### Symposium 3 Degenerative Spondylolisthesis: Common problem without consensus treatment

3:30 Moderator: Darrel S. Brodke, MD

3:35 What defines instability in degenerative spondylolisthesis? Nicholas Spina, MD

3:45 When is decompression alone a good treatment option for degenerative spondylolisthesis? Matthew Colman, MD

**Case debate: 65 y/o M with a grade 1 degen spondy**

3:55 MIS TLIF Wellington K. Hsu, MD

4:05 OLIF with perc screws Dominic Pelle, MD

4:15 Prone lateral is the wave of the future Ashish Patel, MD

4:25 Open posterior decompression and fusion (+/- interbody) is still the gold standard Alpesh A. Patel, MD, MBA, FACS

4:25-4:35 **DISCUSSION** Faculty Panel

4:35 CLOSING REMARKS

4:40 ADJOURN

## LUMBAR SPINE RESEARCH SOCIETY 16TH ANNUAL MEETING PROGRAM

Friday, May 12, 2023

7:00 **Announcements: Jason W. Savage, MD and Andrew Dailey, MD**

### Session 11: Opioid Epidemic

Moderator: Nicholas Spina, MD and Jose Canseco, MD, PhD

	Abstract ID	Abstract Title	Author List
7:05 Paper 29	#144	The Potential Role of Intraoperative Ketamine Administration in Reducing Postoperative Opioid Consumption among Chronic Opioid Users after Spine Surgery	<i>Jennifer Liu, MD; Thomas Sullivan, BS; Kevin Bondar, MD; Bradley Lambert, PhD; <b>Comron Saifi, MD</b></i>
7:10 Paper 30	#6	What Perioperative Factors are Associated with High-Risk Daily Morphine Milligram Equivalent Totals in Spinal	<i><b>Ashley Duncan, RN,MBA</b>; Devender Singh, PhD; Sophia Stokes, BS; Matthew Geck, MD; John Stokes, MD; Eric Truumees, MD</i>
7:15 Paper 31	#24	Cannabis Use is Associated with Decreased Opioid Prescription Fulfillment Following Single Level Lumbar Fusion: A Large	<i><b>Sean Esmende, MD</b>; Matthew Solomito, PhD; Regina Kostyun, MS; Heeren Makanji, MD</i>
7:20-7:27		DISCUSSION	

### Session 12: Miscellaneous

7:27 Moderator: Michael McCarthy, MD, MPH and Scott Vincent, MD

	Abstract ID	Abstract Title	Author List
7:28 Paper 32	#320	Impact of Enhanced Recovery After Surgery in Minimally Invasive Spine Surgery	<i><b>Peter Passias, MD</b>; Jamshaid Mir, MD; Peter Tretiakov, BS; Pooja Dave, BS; Andrew Chan, MD; Dean Chou, MD</i>
7:33 Paper 33	#197	Increase Rates of Minimally Invasive SI Joint Fusion by Proceduralists in the Medicare Population	<i><b>Tej Azad, MD</b>; Andrew Hersh, BS; Karolina Pellot, BS; Jungho Gong, BS; Timothy Witham, MD</i>
7:38 Paper 34	#165	Lumbar Arthroplasty is Associated with a Lower Incidence of Adjacent Segment Disease Compared to ALIF: A Propensity Matched Analysis	<i>Syed Khalid, MD; Abhijith Matur, MD; Rebecca Garner, MD; Bryce Owen, MD; Natalie Ivey, MD; Phillip Vorster, BS; <b>Geet Shukla, BS</b>; Louisa Onyewadume, MD; Xu Tao, BS; Andrew Wu, BS; Benjamin Motley, MD; Joseph Cheng, MD; Owoicho Adogwa, MD</i>
7:43-7:50		DISCUSSION	

## 7:50 AWARDS AND GRANTS

**Moderators: Addisu Mesfin, MD and Michael P. Steinmetz, MD**

7:50 **Best Paper Awards**

**Michael P. Steinmetz, MD**

7:52 **Thank you to LSRS grant sponsors**

**Bruce V. Darden, II, MD**

7:55 **Research Grant Awards**

**Addisu Mesfin, MD**

7:57 **2023 LSRS Cerapedics Research Grant Award Winner**

The impact of electronic cigarette vaping extracts on lumbar fusion

**Romie Gibly, MD, PhD**

8:00 **2023 LSRS Young Investigator Grant Award Winner\***

The effect of fluoxetine and duloxetine in a rodent model

**Yunsoo Lee, MD**

8:03 **2022 LSRS Zimmer Biomet Research Grant Award Winner**

Do Cannabinoids Affect Spinal Fusion Rates in an Animal Model

**Harold Fogel, MD**

**Research Update**

8:10 **Research Grant Audit Overview**

**Michael Steinmetz, MD**

\*This Young Investigator Grant was made possible by the LSRS 2nd Decade Fund

LUMBAR SPINE RESEARCH SOCIETY 16TH ANNUAL MEETING PROGRAM

Friday, May 12, 2023

**Session 13: Rapid Fire - Complications**  
 Moderator: Jad G. Khalil, MD and Michael Conti Mica, MD

Abstract ID	Abstract Title	Author List
8:15 RF13 #160	Cannabis Use is Associated with Increased Rates of Pseudoarthrosis Following TLIF: A Propensity Matched Study	Abhijith Matur, MD; Syed Khalid, MD; Rebecca Garner, MD; Kyle McGrath, BS; Xu Tao, BS; <b>Geet Shukla, BS</b> ; Phillip Vorster, BS; Andrew Wu, BS; Louisa Onyewadume, MD; Benjamin Motley, MD; Joseph Cheng, MD; Owoicho Adogwa, MD
8:17 RF14 #7	Assessing the Readmission Rate of Patients Discharged Same-Day After Intra-Operative Durotomy and Subsequent Repair in Lumbar Spinal Surgery	<b>Joshua Proal, BS</b> ; Andrew Moon, MD; Kristen LaHaise, BS; James Taylor, DO; Brian Kwon, MD
8:19 RF15 #214	30 Day Complications Associated with Oral Methylprednisolone Use in the Immediate Post-Operative Period.	<b>Nitin Khanna, MD</b> ; Michael Krzykowski, PA-C; Yazan Altarshan, BS, MS3
8:21 RF16 #216	Bariatric Surgery Prior to Posterior Lumbar Interbody Fusion is Associated with Higher Revision Rate but Lower Medical Complication Rate Compared with Morbidly Obese Patients	<b>Jordan Arakawa, MD</b> ; Clifford Lin, MD; James Wright, MD; Won Hyung A. Ryu, MD; Jung Yoo, MD
8:23 RF17 #25	Association Between Cannabis Use and Complications Following Lumbar Fusion: A Large Database Study	<b>Heeren Makanji, MD</b> ; Matthew Solomito, PhD; Regina Kostyun, MS; Sean Esmende, MD

8:25-8:34 DISCUSSION

**Session 14: Surgical Outcomes - 2**  
 Moderator: Comron Saifi, MD and Serena Hu, MD

Abstract ID	Abstract Title	Author List
8:35 Paper 35 #172	Patient Reported Outcomes of Lumbar Decompression Surgery: Does Foraminal Stenosis Severity Matter?	Jeremy Heard, BS; <b>Yunsoo Lee, MD</b> ; Mark Lambrechts, MD; Khoa Tran, BA; Tariq Issa, BS; Akash Singh, BS; Goutham Yalla, BS; Sydney Somers, BS; Caroline Purtill, BS; Jose Canseco, MD, PhD; Alan Hilibrand, MD; Alexander Vaccaro, MD, PhD, MBA; Chris Kepler, MD; Gregory Schroeder, MD; Ian Kaye, MD
8:40 Paper 36 #105	Early Summative Depressive Burden Affects Patient-Reported Outcomes in Matched Lumbar Decompression Cohorts	Timothy Hartman, MD; James Nie, BS; <b>Omolabake Oyetayo, BS</b> ; Eileen Zheng, BS; Keith MacGregor, BS; Vincent Federico, MD; Dustin Massel, MD; Arash Sayari, MD; Kern Singh, MD
8:45 Paper 37 #167	Rheumatoid Arthritis Patients Are At Increased Risk For Adverse Events Following Lumbar Discectomy	<b>Philip Ratnasamy, BS</b> ; Katelyn Rudisill, BS; Michael Gouzoulis, BA; Jonathan Grauer, MD
8:50 Paper 38 #115	Why didn't you walk yesterday? Factors associated with slow early recovery after adult spinal deformity surgery	<b>Gregory Kazarian, MD</b> ; Francis Lovecchio, MD; Robert Merrill, MD; John Clohisey, MD; Bo Zhang, MD; Jerry Du, MD; Yusef Jordan, MD; Anthony Pajak, BS; Rachel Knopp, MPH; David Kim, BS; Justin Samuel, BS; Jonathan Elysee, BS; Izzet Akosman, BS; Pratyush Shahi, MBBS, MS; Han Jo Kim, MD

8:55-9:04 DISCUSSION

**Symposium 4 Emerging technologies in lumbar spine surgery**  
 Moderator: Andrew T. Dailey, MD

9:05-9:15	The utility of navigation and robotics in 2023	<b>Gregory Schroeder, MD</b>
9:15-9:25	Endoscopic spine surgery: Fad or Future	<b>Mark Mahan, MD</b>
9:25-9:35	Motion sparing techniques: Hype or Here to Stay	<b>Michael P. Steinmetz, MD</b>
9:35-9:45	Exploring the push for "outpatient" spine surgery: Financial considerations and Patient Outcomes	<b>Rick C. Sasso, MD</b>



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9:45-9:55 DISCUSSION

**Session 15: Spinal Deformity**

9:55 Moderator: Jason W. Savage, MD and Brandon Lawrence, MD

Abstract ID	Abstract Title	Author List
9:55 Paper 39 #176	Differences in the Rate of Distal Junctional Pathology Between L3 and L4 PSO: Minimum One Year Follow-up for 117 Patients	<b>Vardhaan Ambati, MS</b> ; Saman Shabani, MD; Timothy Chryssikos, MD, PhD; Alma Rechav Ben-Natan, BA; Jeremy Huang, BS; Alysha Jamieson, BA; Mohamed Macki, MD; Nitin Agarwal, MD; Michael Tawil, BS; Jeremy Guinn, BS; Hao-Hua Wu, MD,PGY4; Minghao Wang, MD; Pingguo Duan, MD; Zhuo Xi, MD,PhD; Joshua Rivera, BA; Parishkrita Srivastava, High School; Shane Burch, MD; Sigurd Berven, MD; Praveen Mummaneni, MD,MBA; Dean Chou, MD; Lee Tan, MD
10:00 Paper 40 #324	Maintenance of Pelvic Tilt Normalization following Adult Spinal Deformity Corrective Surgery: Analysis of Prevalence, Timing, and Predictors influencing Occurrence	<b>Peter Passias, MD</b> ; Pooja Dave, BS; Peter Tretiakov, BS; Jamshaid Mir, MD; Dean Chou, MD; Andrew Chan, MD
10:05 Paper 41 #17	Spinopelvic Mismatch after Short Segment Lumbar Fusions Results in Increased Disability at Two Years Following Surgery	Devon LeFever, MD; Caroline Drolet, PhD; Venu Nemani, MD,PhD; Rajiv Sethi, MD; <b>Jean-Christophe Leveque, MD</b> ; Philip Louie, MD
10:10 Paper 42 #275	Lower Hounsfield Units and Severe Semispinalis Cervicis Sarcopenia are Independent Predictors of Increased Risk for Proximal Junctional Kyphosis and Failure following Thoracolumbar Fusions Terminating in the Upper Thoracic Spine	<b>Zachariah Pinter, MD</b> ; Anthony Mikula, MD; Nikita Lakomkin, MD; Zach Pennington, MD; Arjun Sebastian, MD; Ahmad Nassr, MD; Brett Freedman, MD; Mohamad Bydon, MD; Jeremy Fogelson, MD; Benjamin Elder, MD,PhD

10:15 - 10:24 DISCUSSION

10:25-10:50 BREAK

POSTER BREAK OUT 3- Moderator: Jean-Christopher Leveque, MD

10:38 Poster 34 #59	Outcomes and Predictors of Subsidence After Expandable Cage in Minimally Invasive Transforaminal Lumbar Interbody Fusion	<b>Tejas Subramanian, BE</b> ; Pratyush Shahi, MBBS,MS; Omri Maayan, BS; Shane Pathania, BS; Daniel Shinn, BS; Ashley Yeo Eun Kim, BS; Eric Zhao, BS; Kasra Araghi, BS; Michael Steinhaus, MD; Avani Vaishnav, MBBS; Yahya Othman, BS; Andre Samuel, MD; Francis Lovecchio, MD; Evan Sheha, MD; Sravisht Iyer, MD; Sheeraz Qureshi, MD
10:41 Poster 35 #169	Radiographic Evaluation of Spinal Fusion: Does Clinical Practice Align with State-of-the-art?	<b>Michael Steinmetz, MD</b> ; Fotis Souslian, MD; Noojan Kazemi, MD
10:44 Poster 36 #335	Preoperative Calcium Levels are Predictive of Medical Complications and Health Resource Utilization in Patients Undergoing Lumbar Decompression	<b>Anitesh Bajaj, BS</b> ; Rushmin Khazanchi, BA; Rohan Shah, BA; Robert Oris, BS; Austin Chen, BA; Pranav Bajaj, BA; Samuel Reyes, BS; Wellington Hsu, MD; Alpesh Patel, MD,MBA; Srikanth Divi, MD

DISCUSSION

10:50 **Session 16: Degenerative Spondylolisthesis 3**  
Moderator: Srikanth Divi, MD

Abstract ID Abstract Title Author List

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10:50	Paper 43	#72	Patterns of Opioid Use Prior to Single-Level Lumbar Fusion are Associated with Postoperative Opioid Use and Adverse Events	<b>Jayme Koltsov, PhD</b> ; <i>Tanmaya Sambare, MD; John Kleimeyer, MD; Todd Alamin, MD; Kirkham Wood, MD; Eugene Carragee, MD; Serena Hu, MD</i>
10:55	Paper 44	#185	Smoking and Spondylolisthesis: Assessing the Impact of Smoking History on Patient-Reported Outcomes Following Surgical Treatment for Lumbar Degenerative Spondylolisthesis	<i>Michael Rogalski, BS; Rebecca Sullivan, BS; Saharsh Mehta, MD; Celestine Warren, MD; Emily Adams, BS; Michael Stauff, MD</i>
11:00	Paper 45	#337	Decompression and Dynamic Sagittal Tether for Patients with Stenosis and Degenerative Spondylolisthesis: 4 year Comparative Results to TLIF from the US IDE Trial	<b>Todd Alamin, MD</b> ; <i>Eugene Carragee, MD; Sigurd Berven, MD; Serena Hu, MD; Zack Ray, MD; Elizabeth Yu, MD; Richard Guyer, MD; Calvin Kuo, MD; Matthew Mermer, MD; KD Kim, MD; Hyun Bae, MD; Sangwook Yoon, MD, PhD; Louis Fielding, MS; Jeffrey Gum, MD; Harel Deutsch, MD; Michael Stauff, MD; Mick Perez-Cruet, MD; William Lavelle, MD; Adam Shimer, MD; Jens Chapman, MD; Rick Sasso, MD</i>
11:05	Paper 46	#137	Reduction in Post-Operative Opioid Use after Posterior Lumbar Interbody Fusion between 2014-15 and 2018-19: Effect of State Legislation	<i>Jamila Godil, BS; Katrina Rapp, BS; Spencer Smith, BS; Won Hyung A. Ryu, MD; Jung Yoo, MD</i>

11:10-11:17

DISCUSSION

11:17 **Session 17: Lateral Interbody Fusion**  
 Moderator: Matthew Colman, MD and Harold Fogel, MD

	Abstract ID	Abstract Title	Author List
11:18	Paper 47 #13	Transforaminal versus lateral interbody fusions for treatment of adjacent segment disease in the lumbar spine	<b>Prashant Rajan, MD</b> ; <i>Mark Megerian, BS; Ansh Desai, BS; Penelope Halkiadakis, BS; James Showery, MD; Zachary Gabel, MD; Dominic Pelle, MD; Jason Savage, MD</i>
11:23	Paper 48 #29	A Novel Neurovascular Classification System for Lateral Lumbar Surgery	<b>Fernando Villamil, MD</b> ; <i>Jeffrey Moore, MD</i>
11:28	Paper 49 #75	What is the Prevalence and Prognosis of Coronal Malalignment Following LLIF for Adult Spinal Deformity With Qiu Type A Coronal Alignment?	<b>Andrew Chan, MD</b> ; <i>Praveen Mummaneni, MD, MBA; Paul Park, MD; Juan Uribe, MD; Jay Turner, MD, PhD; Vivian Le, MPH; Robert Eastlack, MD; Richard Fessler, MD, PhD; Kai-Ming Fu, MD, PhD; Michael Wang, MD</i>
11:33	Paper 50 #328	The Change in Lordosis from the Standing to Lateral Position: Implications for Lateral Interbody Fusion	<b>Emily Mills, MD</b> ; <i>Jennifer Wang, BS; Brian Chung, MD; Lucas Mayer, MD; Mary Richardson, BS; Andy Ton, BS; Raymond Hah, MD; Nathanael Heckmann, MD</i>

11:38-11:45

DISCUSSION

11:45 **Session 18: Complications**  
 Moderator: Michael J. Lee, MD and Boyle C. Cheng, PhD

	Abstract ID	Abstract Title	Author List
11:45	Paper 51 #112	Statin usage decreases the incidence of pseudarthrosis following posterior lumbar fusion	<b>Monish Lavu, MHM</b> ; <i>Jason Savage, MD; Dominic Pelle, MD</i>
11:50	Paper 52 #143	Preoperative Serum Albumin Level Predicts Length of Stay and Perioperative Complications Following Vertebral Corpectomy and Posterior Stabilization for Oncologic Spinal Pathology	<i>Takashi Hirase, MD; Khaled Taghlabi, MD; Jesus Cruz Garza, PhD; Amir Faraji, MD, PhD; Comron Saifi, MD</i>
11:55	Paper 53 #26	Low BMI Patients Undergoing an Anterior Lumbar Fusion Have an Increased Risk of Post-operative Complications: A Large Database Study	<b>Heeren Makanji, MD</b> ; <i>Mark Gleeson, BS; Matthew Solomito, PhD; Regina Kostyun, MS; Sean Esmende, MD</i>
12:00	Paper 54 #289	Perioperative Hyperglycemia Increases Rates of Infection in Spine Surgery	<i>Ryan Finkel, MD; Evan Nigh, MD; Daniel Farivar, BS; Chris Johnson, MD; Kevin Rezzadeh, MD; Sang Kim, MD</i>

12:05-12:14

DISCUSSION

12:14 **Symposium 5 Considerations in the aging population when performing TL spine fusion procedures**

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**Friday, May 12, 2023**

**Moderator: Arjun Sebastian, MD**

12:15-12:26	Evaluation and management of osteoporosis for elective lumbar fusion procedures	<i>Paul A. Anderson, MD</i>
12:27-12:38	Frailty & Sarcopenia: What is it, how do we measure it, and most importantly, how do we optimize it?	<i>David Casper, MD</i>
12:39-12:50	Osteoporotic spine fractures: Tips and Tricks from experience	<i>John France, MD</i>
12:50-1:00	DISCUSSION	
1:00	Closing Remarks	
1:00	Adjourn	

## LUMBAR SPINE RESEARCH SOCIETY 16TH ANNUAL MEETING PROGRAM

### e POSTER SESSION

ePosters will be available for viewing throughout the annual meeting via monitors and/or online on the LSRS Website, please refer to the Scientific Sessions program for Posters that will be presented live, during the breaks

Poster 01	#325	Predicting Presence of High Resource Utilizers after Adult Spinal Deformity Surgery: Analysis of Patient Outcomes and Cost Effectiveness	<b>Peter Passias, MD</b> ; Pooja Dave, BS; Jamshaid Mir, MD; Peter Tretiakov, BS; Dean Chou, MD; Andrew Chan, MD
Poster 02	#41	The Effect of Preoperative HbA1c on Complications in Pre-Diabetic and Diabetic Patients Undergoing Spine Surgery	Rudy Zambrano, MD; Nima Saboori, BA; <b>Melissa Baker, BS</b> ; Eloise Stanton, BS; Michael Gerling, MD; Zorica Buser, PhD, MBA
Poster 03	#174	Opioid-free versus Traditional Opioid-containing Postoperative Pain Management for Idiopathic Scoliosis	<b>Michael Schallmo, MD</b> ; Kayla Hietpas, MPH; Michael Paloski, DO MBA
Poster 04	#120	Perception of Physical Function, Pain, and Disability Outcomes are Strongly Correlated with Mental Health up to Two Years after Lumbar Decompression	Timothy Hartman, MD; James Nie, BS; <b>Keith MacGregor, BS</b> ; Omolabake Oyetayo, BS; Eileen Zheng, BS; Vincent Federico, MD; Dustin Massel, MD; Arash Sayari, MD; Kern Singh, MD
Poster 05	282	Evaluation of spin in systematic reviews and meta-analyses of minimally invasive surgical techniques and standard microdiscectomies for treating lumbar disc herniation	<b>Maya Abu-Zahra, BA</b> ; Cory Mayfield, MD; Ashley Thompson, BS; Oswaldo Garica, BS; Bryan Bashrum, BS; N. Mina Hwang, MPH; Joseph Liu, MD; Frank Petrigliano, MD; Ram Alluri, MD
Poster 06	196	Acceptance and Commitment Therapy Screening Model for Patients Undergoing Spinal Surgery	<b>Happy Kumar, BS</b> ; Alex Coffman, BS; Natalie Glass, PhD; Valerie Keffala, PhD; Cassim Igram, MD; Andrew Pugely, MD; Catherine Olinger, MD
Poster 07	95	Osteoporosis Is a Risk Factor for Revision Spine Surgery in Patients Undergoing Short Segment Fusions with Lumbar Degenerative Disease	Wesley Durand, BS; <b>Miguel Cartagena-Reyes, BS</b> ; Amit Jain, MD
Poster 08	141	Healthcare Costs Following Lumbar Fusion and Disc Replacement for Discogenic Pain	<b>Darren Nin, PhD</b> ; Ya-Wen Chen, MD, MPH; Raymond Hwang, MD, MEng, MBA; Ruijia Niu, MPH; David Chang, PhD, MPH, MBA; David Kim, MD
Poster 09	242	Prior Year Hospital Admission Predicts Thirty-Day Hospital Readmission and ED Presentation After Surgical Intervention for Lumbar Spinal Stenosis	Yunting Tang, MD; <b>Richard Wawrose, MD</b> ; Jonathan Dalton, MD; Joon Lee, MD; Jeremy Shaw, MD, MS
Poster 10	257	Association of Bariatric Surgery with Adjacent Segment Disease Following TLIF: A Propensity Matched Analysis	<b>Syed Khalid, MD</b> ; Abhijith Matur, MD; Phillip Vorster, BS; Rebecca Garner, MD; Bryce Owen, MD; Natalie Ivey, MD; Geet Shukla, BS; Louisa Onyewadume, MD; Xu Tao, BS; Andrew Wu, BS; Benjamin Motley, MD; Joseph Cheng, MD; Owoicho Adogwa, MD
Poster 11	22	Posterior fixation without debridement for vertebral body osteomyelitis and discitis: a 10-year retrospective review	Sarah Lindsay, MD; Hanne Gehling, BS; Jung Yoo, MD; <b>Travis Philipp, MD</b>
Poster 12	31	90-Day Complication and Revision Surgery Rates Using Navigated Robotics in Thoracolumbar Spine Surgery	Lindsay Orosz, MS, PA-C; Nathan Lee, MD, BS; Tarek Yamout, MD, BS; Jeffrey Gum, MD; Ronald Lehman, MD; <b>Gregory Poulter, MD</b> ; Colin Haines, MD; Ehsan Jazini, MD; Christopher Good, MD
Poster 13	34	A Retrospective Study of Cauda Equina Syndrome: Improving Diagnostic Accuracy and Efficiency	<b>Gautham Chitturu, BA</b> ; Fahim Choudhury, BA; Saharsh Mehta, MD; Emily Adams, BS; Daniel Chen, BS; Andy Wang, BA; Sashrika Saini, BS; Michael Stauff, MD; Irene Say, MD
Poster 14	63	Intraoperative CT for Lumbar Fusion Is Not Associated with Improved Short- or Long-Term Complication Profiles	<b>Alexander Crawford, MD</b> ; Brendan Striano, MD; Harry Lightsey, MD; Jonathan Gong, BS; Andrew Simpson, MD; Andrew Schoenfeld, MD

Poster 15	158	Lumbar Laminotomy: Variables Affecting Postoperative Reimbursement	<b>Scott Halperin, BS</b> ; Meera Dhodapkar, BA; Michael Gouzoulis, BA; Maxwell Laurans, MD,FAANS; Arya Varthi, MD; Jonathan Grauer, MD
Poster 16	249	Machine Learning-Driven Prediction of Discharge Destination After Instrumented Lumbar Fusion	Akash Shah, MD; <b>Jennifer Kallani, MD</b> ; Sai Devana, MD; Changhee Lee, BS; Don Park, MD
Poster 17	218	Incidence and Risk Factors associated with Spontaneous Vertebral Osteomyelitis and Discitis: Population Study	<b>Luke Channer, BS</b> ; Olivia Krol, BS; Travis Philipp, MD; Christina Wright, MD; Jonathan Kark, MD; Spencer Smith, BS; Jung Yoo, MD
Poster 18		WITHDRAWN	
Poster 19	215	Patient Attributes that Predict Severe Self-Reported Disability with Machine-Learning Algorithm Differs from Regression Analysis	<b>Jung Yoo, MD</b> ; Christina Wright, MD; Spencer Smith, BS
Poster 20	222	Disparities in Access to Timely Spine Surgeon Evaluation for Degenerative Lumbar Pathology	Karissa Yamaguchi, BS; Caroline Drolet, PhD; Thomas Hanks, BS; Mary Kim, BS; Jesse Shen, MD; Venu Nemani, MD,PhD; Jean-Christophe Leveque, MD; <b>Philip Louie, MD</b>
Poster 21	247	An Ensemble Model Predicts Risk of Major Perioperative Complications After Instrumented Lumbar Fusion	Akash Shah, MD; <b>Jennifer Kallani, MD</b> ; Sai Devana, MD; Changhee Lee, BS; Don Park, MD
Poster 22	128	Comparison of Subcutaneous Fat Thickness in the Lumbar Spine Related to BMI Between Males and Females	<b>Landon Bulloch, MD</b>
Poster 23	305	Biportal Endoscopic Spine Surgery for Lumbar Laminectomy and Discectomy: Preliminary Post-Operative Outcomes and Surgical Learning Curve	<b>Matthew Lipphardt, MD</b> ; Philip Zakko, MD; Ali Jawad, MD; Daniel Park, MD; Maximillian Lee
Poster 24	20	Methadone Analgesia and Narcotic Use After Lumbar Spinal Fusion	<b>Keagan Gertz, MD</b> ; Andrew White, MD; Kaeli Samson, MA, MPH; Chris Cornett, MD
Poster 25	86	Characterization of Ion Release from a Novel Biomaterial, Molybdenum-47.5Rhenium, in Physiologic Environments	<b>James Mok, MD</b> ; Kornelis Poelstra, MD,PhD; Kevin Ammar, MD; Matthew McGirt, MD; Robert Hart, MD; Jason Cormier, MD; Jordan Bauman; Pam Cowart, MS,RN; Ishan Sheth; Preet Singh, PhD; Peter Gallagher; Jay Yadav, MD
Poster 26	255	Minimally Invasive Single Position Prone Lateral Corpectomies: A Retrospective Review including Indications and Perioperative Outcomes	Ashish Patel, MD; Michael Conti-Mica, MD; <b>Michael Rogers, BS</b> ; Nika Byrne, BS,MPH; Rebecca Michna, PA-C
Poster 27	#154	Predictive Factors of Symptomatic Lumbar Pseudoarthrosis following Multi-Level Primary Lumbar Fusion	Hania Shahzad, MBBS; <b>Moizzah Ahmad, BS</b> ; Varun Singh, MD; Nazihah Bhatti, BS; Elizabeth Yu, MD; Frank Phillips, MD; Safdar Khan, MD
Poster 28	#277	Osteoporosis is Underdiagnosed and Undertreated in Patients with Fragility Femoral Neck and Vertebral Compression Fractures	<b>Philip Zakko, MD</b> ; Lauren Eberhardt, BS; Madeleine DeClercq, BS; Ahyoung Park, PharmD; Megan Audet, MD; Daniel Park, MD
Poster 29	#139	Percutaneous Lumbopelvic Fixation Without Fusion is Effective in the Management of U shaped Sacral Fractures	Mark Lawlor, MD; Addisu Mesfin, MD; <b>Mina Botros, MD</b> ; Clark Cady-McCrea, MD
Poster 30	#272	Validation of the MISDEF2 Algorithm for Adult Spinal Deformity: Analysis of 2-Year Clinical and Patient Reported Outcomes	Ibrahim Hussain, MD; <b>Andrew Chan, MD</b> ; Nitin Agarwal, MD; Christopher Shaffrey, MD; Paul Park, MD; Juan Uribe, MD; Richard Fessler, MD,PhD; Adam Kanter, MD; David Okonkwo, MD,PhD; Gregory Mundis, Jr., MD; Robert Eastlack, MD; Michael Virk, MD,PhD; Jacob Goldberg, MD; Neel Anand, MD, FAAOS; Pierce Nunley, MD; Vivian Le, MPH; Shay Bess, MD; Michael Wang, MD; Dean Chou, MD; Praveen Mummaneni, MD,MBA; Kai-Ming Fu, MD,PhD
Poster 31	#130	Relationship between lumbar spinal stenosis and axial muscle wasting - a retrospective cross-sectional study	<b>Lukas Schönnagel, MD</b> ; Maximilian Muellner, MD; Thomas Caffard, MD; Soji Tani, MD; Gaston Camino-Willhuber, MD; Henryk Haffer, MD; Artine Arzani, MD; Erika Chiapparelli, MD; Krizia Amoroso, MD; Jiaqi Zhu, MS; Jennifer Shue, MS; Ek Tsoon Tan, MD; John Carrino, MD; Andrew Sama, MD; Frank Cammisa, MD; Federico Girardi, MD; Alexander Hughes, MD

Poster 32	195	Persistent Low Back Pain Following Lumbar Surgery: Is The Sacroiliac Joint to Blame?	<b>Stephan Aynaszyan, BS</b> ; <i>Jacob Linker, BA; Benchaa Boualam, BS; Michael Pheasant, MD; Matthew Parry, BS; Christopher SanCraint, BS; Siddharth Badve, MD; Hemil Maniar, MD; Edward DeSole, MD</i>
Poster 33	#315	Decreased Hip Motion is Associated with Inferior Spine Outcomes	<b>Emily Mills, MD</b> ; <i>Jennifer Wang, BS; Joshua Sanchez, BS; Gabriel Bouz, MD; Andy Ton, BS; Annabel Kim, BS; Jeffrey Wang, MD; Ram Alluri, MD; Nathanael Heckmann, MD; Raymond Hah, MD</i>
Poster 34	#59	Outcomes and Predictors of Subsidence After Expandable Cage in Minimally Invasive Transforaminal Lumbar Interbody Fusion	<b>Tejas Subramanian, BE</b> ; <i>Pratyush Shahi, MBBS,MS; Omri Maayan, BS; Shane Pathania, BS; Daniel Shinn, BS; Ashley Yeo Eun Kim, BS; Eric Zhao, BS; Kasra Araghi, BS; Michael Steinhau, MD; Avani Vaishnav, MBBS; Yahya Othman, BS; Andre Samuel, MD; Francis Lovecchio, MD; Evan Sheha, MD; Sravisht Iyer, MD; Sheeraz Qureshi, MD</i>
Poster 35	#169	Radiographic Evaluation of Spinal Fusion: Does Clinical Practice Align with State-of-the-art?	<b>Michael Steinmetz, MD</b> ; <i>Fotis Souslian, MD; Noojan Kazemi, MD</i>
Poster 36	#335	Preoperative Calcium Levels are Predictive of Medical Complications and Health Resource Utilization in Patients Undergoing Lumbar Decompression	<i>Anitesh Bajaj, BS; Rushmin Khazanchi, BA; Rohan Shah, BA; Robert Oris, BS; Austin Chen, BA; Pranav Bajaj, BA; Samuel Reyes, BS; Wellington Hsu, MD; Alpesh Patel, MD,MBA; Srikanth Divi, MD</i>