

## **CURRICULUM VITAE**

**NEEL ANAND, MD**

### **ADDRESS**

444 S. San Vicente Blvd., Suite 901  
Los Angeles, California 90048  
Phone: 310-423-9779 Fax: 310-423-9773  
Email: [anandn@cshs.org](mailto:anandn@cshs.org)  
Website: [www.anandspinegroup.com](http://www.anandspinegroup.com)

### **EDUCATION**

#### **FELLOWSHIPS**

##### **Scoliosis and Spinal Deformities, Mar 1994-Jul 1994**

Hospital for Special Surgery, Cornell University  
New York, New York

**Ohenaba Boachie-Adjei, MD; David Levine, MD**

##### **Trauma, Aug 1994-Jul 1995**

Hospital for Special Surgery, Cornell University  
New York, New York

**David Helfet, MD**

##### **Reconstructive Spinal Surgery, July 1993-Feb 1994**

Spinal Associates of North Central Florida, University of Florida Gainesville,  
Florida

**Chester Sutterlin III, MD; Gary Lowery, MD**

#### **RESIDENCY**

##### **Albert Einstein College of Medicine, 1996-2000**

Orthopaedic Program at The Bronx-Lebanon Hospital Center  
Bronx, New York

##### **Elective Residency Rotation, Nov 1998-Jan 1999**

Texas Back Institute  
Plano, Texas

##### **Royal College of Surgeons of England, Jan 1990-Jun 1993**

Royal Liverpool University Hospital & Royal Liverpool Children's Hospital,  
Liverpool, United Kingdom

##### **University of Bombay, Dec 1983 -Dec 1989**

B.Y.L. Nair Hospital  
Bombay, India

#### **INTERNSHIP**

##### **New York Medical College, 1995-1996**

Lincoln Medical and Mental Health Center &  
Our Lady of Mercy Medical Center, Bronx, New York

#### **MEDICAL SCHOOL**

##### **Doctor of Medicine, 1979-1983**

University of Bombay, T.N. Medical College  
Bombay, India

## **APPOINTMENTS**

July 2013 to Present	Professor of Orthopaedic Surgery Department of Orthopaedics Cedars-Sinai Medical Center Los Angeles, California
April 2012 to Present	Director, Spine Trauma Cedars-Sinai Spine Center Los Angeles, California
2005 to April 2012	Director, Orthopedic Spine Surgery Cedars-Sinai Spine Center Los Angeles, California
2005 to 2007	Director, Spine Fellowship Cedars-Sinai Institute for Spinal Disorders Los Angeles, California
2005 to 2007	Director, Minimally Invasive Spine Surgery Cedars-Sinai Institute for Spinal Disorders Los Angeles, California
2002 to 2005	Director, Spine Trauma Cedars-Sinai Institute for Spinal Disorders Los Angeles, California
2000 to 2001	Attending Physician Cedars-Sinai Institute for Spinal Disorders Los Angeles, California

## **LICENSES AND CERTIFICATIONS**

American Board of Orthopaedic Surgeons	2004, 2013
California Medical License	2000
Nevada Medical License	2000
New York Medical License	1998
Royal College of Surgeons in England	1994
ECFMG Certification (USMLE: 0-461-669-4)	1994
General Medical Council (GMC), UK	1992
Maharashtra Medical Council, India	1984

## PROFESSIONAL ORGANIZATIONS

- Founding Member – Society for Minimally Invasive Spinal Surgery (SMISS)
  - Board of Directors, SMISS
  - Education Committee SMISS 2011/2014
  - Treasurer SMISS 2011/2012
- Founding Member – Society for Lateral Access Surgery (SOLAS)
- National Director – ONE Spine Society
- Charter Member – Society of Nucleus Arthroplasty (SONA)
- Scoliosis Research Society (SRS)
  - Web Site Committee of Scoliosis Research Society (SRS) 2007-2008
  - Instrumentation Committee of Scoliosis Research Society (SRS) 2007-2008
  - Adult Deformity Committee (SRS) 2013-2014, 2015-2016, 2016-2019
- American Academy of Orthopaedic Surgeons (AAOS)
  - Spine Program Committee: 2016-2019
- North American Spine Society (NASS)
- Spine Arthroplasty Society (SAS)/ Int'l Society for the Advancement of Spinal Surgery (ISASS)
  - Publication Committee for ISASS/SAS: 2011,2012,2013,2014,2015,2016
  - Educational Committee for ISASS/SAS: 2011-2012, 2013-2014
  - Program Committee for ISASS/SAS: 2011-2012, 2014-2015, 2017-2018
- Spine Trauma Study Group (STSG)
- Degenerative Spine Study Group
- MAST Deformity Focus Group
- Complex Spine Study Group (CSSG)
- Clinical Academic Promotions and Appointments Council (Clin-APAC) – Cedars-Sinai, 2016-2019

## CLINICAL INVESTIGATION

Principal Investigator: **National Institute on Aging R21 Grant:** Using Behavioral Science to Improve the Appropriateness of Surgery for Degenerative Lumbar Scoliosis, 2019-2021.

Co-Investigator: FDA Clinical Study: A Multi-Center, Prospective, Randomized Controlled Trial Comparing the Safety and Effectiveness of **prodisc® C SK and prodisc® C Vivo to Mobi-C® Cervical Disc** in the Treatment of Two-Level Symptomatic Cervical Disc Disease (SCDD); Centinel Spine

Principal Investigator: FDA Clinical Study: A Prospective, Randomized, Multi-Center Study of Intraosseous Basivertebral Nerve Ablation for the Treatment of Chronic Low Back Pain. **Intrasept® Intraosseous Nerve Ablation System**; Relieva Medsystems

Principal Investigator: Pivotal FDA Clinical Study - Investigational Device Exemption Application for the Clinical Investigation of the **TOPS™ System**

Principal Investigator: FDA Clinical Study; Efficacy And Safety Of **Tranexamic Acid** In Spinal Fusion Surgery

Principal Investigator: FDA Clinical Study; A Multicenter, Randomized, Double-blind, Sham-controlled, Comparative Study of **SI-6603** in Subjects with Lumbar Disc Herniation (Phase III)

Co-Investigator: FDA Clinical Study; A Phase 2b, Randomized, Double-Blind, Placebo-Controlled Study To Evaluate The Safety And Efficacy Of **Staphylococcus Aureus 4-Antigen Vaccine (SA4Ag)** In Adults Undergoing Elective Open Posterior Spinal Fusion Procedures With Multilevel Instrumentation

Principal Investigator: Pivotal FDA IDE Clinical Study – A Clinical Study to evaluate the **Acadia Facet Replacement System (AFRS)**, Facet Solutions, Hopkinton, MA/Globus Medical, Audubon, PA; 2009-2017

Principal Investigator: A Phase II, Randomized, Double Blind, Placebo Controlled Study Evaluating the Treatment of Degenerative Lumbar Discs with Allogeneic Cultured Chondrocytes (**NuQu**), ISTO Technologies, Inc, St. Louis, MO; 2013

Principal Investigator: **Stabilimax NZ** Study Participants Collection of Addt'l Follow up Data, Clinical Investigational Plan, R-001; Rachiotek, LLC, Wellesley, MA, 2012

Principal Investigator: Trial Evaluating the Safety and Effectiveness of **NUBAC™ Disc Arthroplasty**, Pioneer Surgical Technology, Inc, Marquette, MI, 2009 to 2010

Principal Investigator: Pivotal FDA IDE Clinical Study - A Clinical Study Comparing Dynamic Stabilization of the Lumbar Spine with the **STABILIMAX NZ™** Dynamic Spine Stabilization System to Posterolateral Instrumented Fusion, Applied Spine Technologies, New Haven, CT, 2007 to 2010

Principal Investigator: Pivotal FDA IDE Clinical Study – A Prospective Randomized Controlled Clinical Investigation of **DIAM Spinal Stabilization System** in Patients with Lumbar Degenerative Disc Disease, Medtronic Inc, Memphis, TN, 2007 to 2008

Principal Investigator: Pivotal FDA IDE Clinical study – A Pivotal Multi-Center Randomized Controlled Trial Evaluating the Safety and Effectiveness of **NeoDisc** versus Instrumented Anterior Cervical Discectomy and Fusion (ACDF) in Subjects with Single Level Cervical Disc Disease, Nuvasive, San Diego, CA, 2006 to 2009

Co-Investigator: Pivotal IDE clinical Study - **PCM Artificial Cervical Disc Replacement**, Cervitech Inc., Rockaway, NJ, 2006 to 2008.

Principal Investigator: Pivotal FDA IDE clinical Study of the **Dynesys Spinal System** as a Non-Fusion for Spinal Stabilization, Zimmer Spine, Minneapolis, MN, 2003 to 2006

Co-Investigator: Pivotal IDE study of the **Bryan Cervical Disc Prosthesis** in the Treatment of Degenerative Disc, Medtronic Inc, Memphis, TN, 2003 to 2004.

Co-Investigator: Pivotal IDE study of the **SBIII Charité Lumbar Disc Prosthesis**, Johnson and Johnson, Raynham, MA, 2001-2004.

## HONORS AND AWARDS

2019            **John Moe Visiting Professor**, Twin Cities Spine Center, St-Paul-Minneapolis, Minnesota

2017            **Andrew N. Swanson, M.D., Memorial Award**, Hospital for Special Surgery, New York

2015            **Best Paper, SMISS 2015:** Analysis of the 10 best and 10 worst functional outcomes to Circumferential Minimally Invasive Surgical (CMIS) correction of Adults Spinal Deformity

(ASD)

- 2012      **Orthopedics This Week Spine Technology Awards:** Category: Minimally Invasive Care. SMISS
- 2011      **Leon Wiltse Award for Best Clinical Paper:** Las Vegas, SAS 2011: “Long Term 2 to 4 year Clinical and Functional Outcomes of Minimally Invasive Surgery (MIS) for Adult Spinal Deformity”
- 1992      **Khazenifar Gold Medal:** Best overall clinical performance at the Mch. Orth. Examinations, University of Liverpool, UK
- 1988      **Dr H.D. Dastur Gold Medal:** (1st Rank), FCPS Orth. Examinations, Bombay, India
- 1980      **Honors in Human Anatomy:** University of Bombay / Bombay, India
- 1987 – 1988      **Best Resident:** B.Y.L. Nair Charitable Hospital / Bombay, India

## EXPERIENCE

April 2012 – Present

### **Director, Spine Trauma**

Spine Center, Cedars-Sinai Medical Center, Los Angeles, California

2005 –April 2012

### **Director, Orthopaedic Spine Surgery**

Spine Center, Cedars-Sinai Medical Center, Los Angeles, California

2005 - 2007

### **Director, Spine Fellowship**

Cedars-Sinai Institute for Spinal Disorders, Cedars-Sinai Medical Center, Los Angeles, California

2004 – 2007

### **Director, Minimally Invasive Spinal Surgery**

Cedars-Sinai Institute for Spinal Disorders, Cedars-Sinai Medical Center, Los Angeles, California

January 2002 – April 2005

### **Director, Spine Trauma**

Cedars-Sinai Institute for Spinal Disorders, Cedars-Sinai Medical Center, Los Angeles, California

September 2000 – Present

### **Orthopaedic Spine Surgeon**

Cedars-Sinai Institute for Spinal Disorders, Cedars-Sinai Medical Center, Los Angeles, California

July 1996 – June 2000

### **Orthopaedic Residency**

Albert Einstein College of Medicine, Orthopaedic Program at Bronx Lebanon Hospital Center  
Bronx, New York

November 1998 – January 1999  
**Elective Spine Surgery Rotation**  
Texas Back Institute, Plano, Texas

July 1995 – July 1996  
**Surgical Internship**  
New York Medical College, Lincoln Medical & Mental Health Center, Bronx, New York

March 1994 – July 1995  
**Staff Orthopaedic Surgeon**  
New York Hospital, Cornell University, New York, New York

August 1994 – July 1995  
**Trauma Fellowship**  
Hospital for Special Surgery, Cornell University, New York, New York

March 1994 – July 1994  
**Scoliosis Fellowship**  
Hospital for Special Surgery, Cornell University, New York, New York

August 1993 – February 1994  
**Reconstructive Spinal Surgery Fellowship**  
University of Florida, Gainesville, Florida

January 1993 – June 1993  
**Orthopaedic Residency**  
Royal Liverpool University Hospital, Liverpool, United Kingdom

January 1990 – December 1992  
**Orthopaedic Residency**  
Royal College of Surgeons of England, London, United Kingdom

February 1985 – December 1989  
**Orthopaedic Residency**  
B.Y.L.Nair Ch. Hospital, Bombay, India

## **PUBLICATIONS**

1. **Anand N**, DeLima DF, Tanna DD: Internal Fixation of Pott's Fractures. *Clinical Orthopedics India* 3:113-119, 1988.
2. **Anand N**, DeLima DF, Rao AA, Tanna DD: Harrington Rod versus Segmental Spinal Instrumentation for Traumatic Spines. *Clinical Orthopedics India* 4:33-38, 1989.
3. **Anand N**, Agrawal VA, Laheri VJ, Tanna DD: Intramedullary Fixation of Fracture of Shaft Femur with K-Nail. *Bombay Hospital Journal* 31 (3):63-68, 1989.

4. **Anand N**, DeLima DF, Tanna DD: Isolated Posterior Dislocation of the Radial Head in an Adult. *Bombay Hospital Journal* 32 (4):115-116, 1990.
5. Agrawal VA, Maniar RN, **Anand N**, Talwalkar CA: Papineau Bone Grafting in cases of Infected Bony Cavities and Infected Non-Unions. *Bombay Hospital Journal* 32 (2):25-28, 1990.
6. **Anand N**, Klenerman L: Ankle Fractures in the Elderly - MUA v/s ORIF. *Injury* 24 (2):116-120, 1993.
7. **Anand N**, Tanna DD. Unconventional Pedicle Spinal Instrumentation - The Bombay Experience (A study of 90 patients - Late Results). *Spine* 19:2150-2158, 1994.
8. **Anand N**, Levine DL, Burke S, Bansal M: Neuropathic (Charcot) Spinal Arthropathy in Charcot-Marie-Tooth Disease. *J Bone and Joint Surg.* 79-A (8):1235-1239, August 1997.
9. **Anand N**, Helfet DL, Malkani AL, Quinn TJ, Green DST, Burga S: Intraoperative Monitoring of Motor Pathways during Operative Fixation of Acute Acetabular Fractures. *The Journal of Orthopedic Trauma* 11(1):2-6, 1997.
10. **Anand N**, Idio Jr. FG, Remer S, Hoppenfeld S: The Effects of Perioperative Blood Salvage and Autologous Blood Donation on Transfusion Requirements in Scoliosis Surgery. *Journal of Spinal Disorders* 11(6):532-534, December 1998.
11. **Anand N**, Helfet DL: Acute Both Column Fractures of the Acetabulum, Orthopaedic Grand Rounds-Trauma, AAOS CD ROM Publications, 2000.
12. **Anand N**, Regan JJ, Bray RS: Cervical Spine Disability Questionnaire and Treatment Intensity Questionnaire-Objective Outcome Measures of Cervical Spine Functional Status. An Analysis of Psychometric Properties, December 2001.
13. **Anand N**, Regan JJ, Bray RS: Posterior Cervical Foraminotomy - Long-term Results and Functional Outcome of a Consecutive Series of Patients with Minimum 2-year Follow-Up. *The Spine Journal* 2(2):5, March 2002.
14. **Anand N**, Regan JJ: Video-Assisted Thoracoscopic Surgery for Thoracic Disc Herniation – Classification and Outcome Study of 100 Consecutive Cases with Min. 2-year Follow-up. *Spine* 27 (8): 871-879, 2002.
15. **Anand N**, Helfet DL, Kloen P, Rosen, HS: Open Reduction and Internal Fixation of Delayed Unions and Nonunions of Fractures of the Distal Part of the Humerus. *J Bone and Joint Surg.* 85-A(1):33-40, Jan 2003.
16. **Anand N**, Helfet DL, Kloen P, Rosen HS: ORIF of Delayed Unions and Nonunions of Distal Humeral Fractures Surgical Technique. *J Bone and Joint Surgical Techniques*, 86-A (1):18-29, March 2004.
17. Johnson JP, Lauryssen C, Cambron HO, **Anand N**, Pashman RS, Regan JJ, Bray R: Sagittal alignment and the Bryan cervical artificial disc. *Neurosurg Focus* 17(6): E14, Dec 15, 2004.
18. Johnson JP, Pashman RS, Lauryssen C, **Anand N**, Regan JJ, Bray RS: The Changing Role for Neurosurgeons and the Treatment Spinal Deformity. *J Neurosurg Spine* 2:233-242, March 2005.
19. Harrop JS, Vaccaro AR, Hurlbert RJ, Wilsey JT, Baron EM, Shaffrey CI, Fisher CG, Dvorak MF, Oner FC, Wood KB, **Anand N**, Anderson DG, Lim MR, Lee JY, Bono CM, Arnold PM, Rampersaud YR,

- Fehlings MG; Spine Trauma Study Group: Intrarater and interrater reliability and validity in the assessment of the mechanism of injury and integrity of the posterior ligamentous complex: a novel injury severity scoring system for thoracolumbar injuries. Invited submission from the Joint Section Meeting on Disorders of the Spine and Peripheral Nerves, March 2005. *J Neurosurg Spine* 4(2):118-122, Feb 2006.
20. James S. Harrop, M.D., Alexander R. Vaccaro, M.D., R. John Hurlbert, M.D., Ph.D., Jared T. Wilsey, Ph.D., Eli M. Baron, M.D., Christopher I. Shaffrey, M.D., Charles G. Fisher, M.D., Marcel F. Dvorak, M.D., F. C. Öner, M.D., Kirkham B. Wood, M.D., **Neel Anand, M.D.**, D. Greg Anderson, M.D., Moe R. Lim, M.D., Joon Y. Lee, M.D., Christopher M. Bono, M.D., Paul M. Arnold, M.D., Y. Raja Rampersaud, M.D., Michael G. Fehlings, M.D., Ph.D., and The Spine Trauma Study Group Intrarater and interrater reliability and validity in the assessment of the mechanism of injury and integrity of the posterior ligamentous complex: a novel injury severity scoring system for thoracolumbar injuries Invited submission from the Joint Section Meeting on Disorders of the Spine and Peripheral Nerves, March 2005. *WSJ*. 2006;1(2):40-44
  21. **Anand N**, Vaccaro AR, Lim MR, Lee JY, Arnold P, Harrop JS, Ratliff J, Rampersaud R, Bono CM, Spine Trauma Group: Evolution of Thoracolumbar Trauma Classification Systems: Assessing the conflict between mechanism and morphology of injury. *Top Spinal Cord InjRehabil* 2006;12 (1): 70-78
  22. Rampersaud YR, **Anand N**, Dekutoski MB.: Use of minimally invasive surgical techniques in the management of thoracolumbar trauma: current concepts. *Spine*. 2006 May 15;31(11 Suppl):S96-102; discussion S104. Review
  23. Bono CM, Vaccaro AR, Hurlbert RJ, Arnold P, Öner FC, Harrop J, **Anand N**: Validating a Newly Proposed Classification System for Thoracolumbar Spine Trauma: Looking to the Future of the Thoracolumbar Injury Classification Injury Classification and Severity Score (TLICS), *J Orthop Trauma*. 2006 Sep;20 (8): 567-572
  24. **Anand N**, Hamilton JF, Perri BR, Miraliakbar H, Goldstein T: Cantilever TLIF with structural allograft and rhBMP2 for correction and maintenance of segmental sagittal lordosis: clinical, radiographic and functional outcome. *Spine*. 2006 Sep 15;31(20):E748-53
  25. Raja Rampersaud Y, Fisher C, Wilsey J, Arnold P, **Anand N**, Bono CM, Dailey AT, Dvorak M, Fehlings MG, Harrop JS, Öner FC, Vaccaro AR.: Agreement between Orthopedic and Neurosurgeons regarding a new algorithm for the treatment of thoracolumbar injuries: a multi-center reliability study. *J Spinal Disord Tech*. 2006 Oct;19(7):477-482
  26. Perri BR, Cooper M, Lauryssen C, **Anand N**: Adverse swelling associated with use of rh-BMP-2 in anterior cervical discectomy and fusion: a case study. *The spine journal* 2007;7:235-239.
  27. **Anand N**, Ratliff J, Vaccaro AR, Lim MR, Lee JY, Arnold P, Harrop JS, Rampersaud YR, Bono CM, and the Spine Trauma Study Group: Regional Variability in Use of a Novel Assessment of Thoracolumbar Spine Fractures: United States versus International Surgeons. Neurosurgery (in review)
  28. John Ratliff, **Neel Anand** , Alexander Vaccaro , Moe Lim , Joon Lee , Paul Arnold , James Harrop , Raja Rampersaud , Christopher Bono , Ralf Gahr: Regional Variability in Use of a Novel Assessment of Thoracolumbar Spine Fractures: United States versus International Surgeons. *World J Emerg Surg*. 2007 Sep 7;2 (1):24 17825106
  29. **Anand, N**, Baron, EM, Bray, RS. Benefits of Paraspinal muscle-sparing approach versus the conventional Midline approach for Posterior NonFusion Stabilization – Comparative analysis of clinical and functional



- outcomes. *SAS Journal* September 2007 (Vol. 1, Issue 3, Pages 93-99). DOI: SASJ-2007-0006-RR
30. **N. Anand**, E. Baron. Unilateral TLIF with Unilateral Instrumentation: A Consecutive Series of 35 Patients with Minimum 2 Year Follow-up. *The Spine Journal*, Volume 7, Issue 5, Pages 157S-158S
  31. Ali Araghi, **Neel Anand**, Harvinder Sandhu, Hyun Bae; Clinical Symposium I: Pedicle-Based Posterior Non-Fusion Stabilization; *The SAS Journal*; December 2007 (Vol. 1, Issue 4, Pages 147-159)
  32. **Anand, N**, Baron, EM, Thaiyananthan, T, Khalsa, K, Goldstien, TB. Minimally invasive spinal fusion for lumbar degenerative scoliosis: Feasibility Study. *Journal of Spinal Disorders and Techniques*. October 2008, 21(7):459-67.
  33. **Anand, N**, Baron, EM, Bray, RS, Jr. Modified Muscle-Sparing Paraspinal Approach for Stabilization and Interlaminar decompression – A Minimally Invasive Technique for Pedicle Screw-Based Posterior Non-Fusion Stabilization. *SAS Journal*. March 2008 (Vol. 2, Issue 1, Pages 40-42). DOI: SASJ- 2007-0120-MIS
  34. Mark Dekutoski, **Neel Anand**, Ralf Gahr, Laurie Mihalik, Paul Huddleston; Open vs Percutaneous Stabilization of Thoracic and Lumbar Fracture in Ankylosing Spondylitis and DISH. *The Spine Journal*, Volume 8, Issue 5, page 181S (2008)
  35. **Neel Anand**, Harvinder Sandhu: Clinical Symposium II: Interspinous-based Dynamic Stabilization; *The SAS Journal*; September 2008 (Vol. 2, Issue 3, Pages 150-154)
  36. Mark Dekutoski, Paul Huddleston, **Neel Anand**, Joseph Riina, Robert Isaacs, Ralf Gahr; Thoracolumbar Fracture Management with Selective Fusion and Instrumentation Removal Open vs Percutaneous Stabilization of Thoracic and Lumbar Fracture in Ankylosing Spondylitis and DISH. *The Spine Journal*, Volume 9, Issue 5, pages 83-84S (2009)
  37. A Ploumis, R Ponnappan, J Sarbello, M Dvorak, M Fehlings, E Baron, **N. Anand**, D. Okonkwo, A Patel, A Vaccaro: Thromboprophylaxis in Traumatic and Elective Spinal Surgery; *SPINE* Volume 35, Number 3, pp 323–329 (2010)
  38. **N. Anand**, R. Rosemann, B Khalsa, E Baron; Mid-term to long-term clinical and functional outcomes of minimally invasive correction and fusion for adults with scoliosis; *Neurosurg Focus* 28 (3):E6, (2010)
  39. Samudrala S, Vaynman S, Thiayananthan T, Ghostine S, Bergey DL, **Anand N**, Pashman RS, Johnson JP. Cervicothoracic junction kyphosis: surgical reconstruction with pedicle subtraction osteotomy and Smith-Petersen osteotomy. *JNeurosurg Spine*. 2010 Dec;13(6):695-706.
  40. **Anand, N**, Baron, EM; Minimally Invasive Treatment of Adult Scoliosis. *Seminar in Spine Surgery*, 2011
  41. **Anand, N**, Baron, EM; Minimally Invasive Approaches for the Correction of Adult Spinal Deformity. *European Spine Journal*, 2012. Supplement: Innovative concepts in scoliosis treatment
  42. **Anand, N**, Baron, EM. Urologic Injury as a Complication of the Transpsoas Approach for Discectomy and Interbody Fusion – A report of 3 cases. *J Neurosurg Spine*. 2012 Nov 2.
  43. **Anand N**, Baron EM: Role of Dynesys as Pedicle-Based Nonfusion Stabilization for Degenerative Disc Disorders; *Advances in Orthopedics*; 2012;2012:218385. doi: 10.1155/2012/218385

44. O. Boachie-Adjei, **N. Anand**, G. Fleischer, K. Kabaish, M. Melgar, R. Nasca, T. Raley; Neurosurgical forum Letter to the Editor: Lumbar Interbody Fusion; *J Neurosurg: Spine / January 11, 2013*
45. Popovich JM Jr, Welcher JB, Hedman TP, Tawackoli W, **Anand N**, Chen TC, Kulig K; Lumbar facet joint and intervertebral disc loading during simulated pelvic obliquity. *Spine J. 2013 May 21. doi:pii: S1529-9430(13)00412-9. 10.1016/j.spinee.2013.04.011. PMID: 23706384 [PubMed.gov]*
46. **Anand N**, Baron EM, Khandehroo B, Kahwaty S.: Long-term 2- to 5-year clinical and functional outcomes of minimally invasive surgery for adult scoliosis. *Spine; 2013 Aug 15;38(18):1566-75*
47. Tobler WD, Melgar MA, Raley TJ, **Anand N**, Miller LE, Nasca RJ: Clinical and radiographic outcomes with L4-S1 axial lumbar interbody fusion (AxiaLIF) and posterior instrumentation: a multicenter study. *Med Devices (Auckl). 2013 Sep 18;6:155-61.PMID:24092998[PubMed.gov]*
48. Mummaneni PV, Shaffrey CI, Lenke LG, Park P, Wang MY, La Marca F, Smith JS, Mundis GM Jr, Okonkwo DO, Moal B, Fessler RG, **Anand N**, Uribe JS, Kanter AS, Akbarnia B, Fu KM; Minimally Invasive Surgery Section of the International Spine Study Group: The minimally invasive spinal deformity surgery algorithm: a reproducible rational framework for decision making in minimally invasive spinal deformity surgery. *Neurosurg Focus,36 (5): E6, May 2014*
49. Uribe JS, Deukmedjian AR, Mummaneni PV, Fu KM, Mundis GM Jr, Okonkwo DO, Kanter AS, Eastlack R, Wang MY, **Anand N**, Fessler RG, La Marca F, Park P, Lafage V, Deviren V, Bess S, Shaffrey CI; International Spine Study Group: Complications in adult spinal deformity surgery: an analysis of minimally invasive, hybrid, and open surgical techniques. *Neurosurg Focus; 36 (5): E15, May 2014*
50. **Anand N**, Baron E.M., Khandehroo B: Limitations and ceiling effects with circumferential minimally invasive correction techniques for adult scoliosis: analysis of radiological outcomes over a 7-year experience. *Neurosurg Focus; 36 (5): E14, May 2014*
51. Haque RM1, Mundis GM Jr, Ahmed Y, El Ahmadi TY, Wang MY, Mummaneni PV, Uribe JS, Okonkwo DO, Eastlack RK, **Anand N**, Kanter AS, La Marca F, Akbarnia BA, Park P, Lafage V, Terran JS, Shaffrey CI, Klineberg E, Deviren V, Fessler RG; International Spine Study Group: Comparison of radiographic results after minimally invasive, hybrid, and open surgery for adult spinal deformity: a multicenter study of 184 patients. *Neurosurg Focus.; 36(5):E13. May 2014*
52. Wang MY1, Mummaneni PV, Fu KM, **Anand N**, Okonkwo DO, Kanter AS, La Marca F, Fessler R, Uribe J, Shaffrey CI, Lafage V, Haque RM, Deviren V, Mundis GM Jr; Minimally Invasive Surgery Section of the International Spine Study Group: Less invasive surgery for treating adult spinal deformities: ceiling effects for deformity correction with 3 different techniques. *Neurosurg Focus. 2014 May; 36(5):E12.*
53. **Anand N.**, Baron E.M., Kahwaty S: Evidence basis/outcomes in minimally invasive spinal scoliosis surgery. *Neurosurgery Clinics of North America; 2014 Apr;25(2):361-75*
54. **Anand N.**, Baron E.M., Khandehroo B.: Is Circumferential Minimally Invasive Surgery Effective in the Treatment of Moderate Adult Idiopathic Scoliosis? *Clinical Orthopedics and Related Research; 2014 Jun; 472(6): 1762–1768*
55. **Anand N.**, Baron E.M., Khandehroo B.: Does minimally invasive transsacral fixation provide anterior column support in adult scoliosis? *Clinical Orthopedics and Related Research; 2014 Jun;472(6):1769-75*

56. Lau D, Clark AJ, Scheer JK, Daubs MD, Coe JD, Paonessa KJ, LaGrone MO, Kasten MD, Amaral RA, Trobisch PD, Lee JH, Fabris-Monterumici D, **Anand N**, Cree AK, Hart RA, Hey LA, Ames CP; SRS Adult Spinal Deformity Committee; Proximal junctional kyphosis and failure after spinal deformity surgery: a systematic review of the literature as a background to classification development. *Spine* 2014 Dec 1;39(25):2093-102
57. Park P, Wang MY, Lafage V, Nguyen S, Ziewacz J, Okonkwo DO, Uribe JS, Eastlack RK, **Anand N**, Haque R, Fessler RG, Kanter AS, Deviren V, La Marca F, Smith JS, Shaffrey CI, Mundis GM Jr, Mummaneni PV; International Spine Study Group; Comparison of two minimally invasive surgery strategies to treat adult spinal deformity. *J Neurosurg Spine*. 2015 Apr;22(4):374-80
58. Melgar MA, Tobler WD, Ernst RJ, Raley TJ, **Anand N**, Miller LE, Nasca RJ: Segmental and global lordosis changes with two-level axial lumbar interbody fusion and posterior instrumentation. *Int J Spine Surg*. 2014 Dec 1;8
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## ABSTRACTS (PODIUM AND POSTERS PRESENTATIONS)

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68. **Anand, N**, Baron, EM, Thaiyananthan, T. Feasibility of Long Segment Percutaneous Minimally Invasive Correction and Fusion for Lumbar Degenerative Scoliosis. Society for Minimally Invasive Surgery of the Spine (SMISS) 2<sup>nd</sup> Annual Meeting, San Diego, CA. November 16-17, 2007
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71. **Neel Anand, MD**, Eli M. Baron, MD, Ty Thaiyananthan, MD. Novel Minimally Invasive Percutaneous Multilevel 360-degree fusion for Lumbar Degenerative Scoliosis – Feasibility, Technique and Early Results. Spine Arthroplasty Society (SAS) Annual Meeting, May 6-9 2008, Miami Beach, FL
72. **Neel Anand, MD**, Richard Wupperman, MD, Eli M. Baron, MD. Minimally invasive AxiaLIF L5-S1 interbody fusion for anterior column support at the end of a long segment fusion: Early results. Spine Arthroplasty Society (SAS) Annual Meeting, May 6-9 2008, Miami Beach, FL
73. **Neel Anand, MD**, Eli Baron, MD, Robert S. Bray, MD. Posterior Non-Fusion Stabilization of the Lumbar Spine for Degenerative Disc Disease – Minimum 2 year Clinical, Radiological and Functional Results for Back Pain. Spine Arthroplasty Society (SAS) Annual Meeting, May 6-9 2008, Miami, FL
74. P. McAfee, D. Sengupta, **N. Anand**, G. Deol, N. Khanna, D. Tyndall, R. Balderston, A. Ingallhalikar. TRIUMPH™ Posterolateral Artificial Disc Biomechanics: The Effect of Posterior Tethering. Spine Arthroplasty Society (SAS) Annual Meeting, May 6-9 2008, Miami Beach, FL
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81. **Anand, N**, Rosemann, R, Baron, EM. Minimally invasive AxiaLIF L5-S1 Interbody Fusion for anterior column support at the end of a long segment fusion: 1 year Clinical and Functional Outcome. Society for Minimally Invasive Spine Surgery (SMISS), November 13-15, 2008. Henderson, NV
82. **Neel Anand, MD**, Rebecca Rosemann, PA-C, Paul Salinas, MD, Eli M. Baron, MD. Can Minimally Invasive Adult Spinal Deformity Correction maintain Lordosis and Global Sagittal Balance? System. Spine Arthroplasty Society (SAS) Annual Meeting, 2009, London, UK
83. **Neel Anand, MD**, Rebecca Rosemann PA-C, Eli M. Baron, MD Minimally invasive AxiaLIF L5-S1 Interbody Fusion for anterior column support at the end of a long segment fusion: 1 year Clinical and Functional Outcome. Spine Arthroplasty Society (SAS) Annual Meeting, 2009, London, UK
84. **Neel Anand, MD**; Eli Baron, MD, Rebecca Rosemann, MS, PA-C Posterior Non-Fusion Stabilization of the Lumbar Spine for Degenerative Disc Disease with the Dynesys System – Minimum 3 year Clinical, Radiological and Functional. Spine Arthroplasty Society (SAS) Annual Meeting, 2009, London, UK
85. **Neel Anand, MD**, Eli M. Baron, MD, Rebecca Rosemann, PA-C; Minimally Invasive Percutaneous Circumferential Correction and Fusion for Adult Spinal Deformity: 1.5-year Clinical and Radiological results. Spine Arthroplasty Society (SAS) Annual Meeting, 2009, London, UK
86. **Anand, N**, Baron, EM, Rosemann, R, Härtl, R, Kitchel, S, Patel, V, Safety and Complication Profile of Percutaneous Lumbosacral Interbody Fusion. 16th International Meeting on Advanced Spine Techniques (IMAST), July, 2009, Vienna, Austria
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93. Mark Dekutoski, Paul Huddleston, **Neel Anand**, Joseph Riina, Robert Isaacs, Ralf Gahr; Thoracolumbar Fracture Management with Selective Fusion and Instrumentation Removal Open vs Percutaneous Stabilization of Thoracic and Lumbar Fracture in Ankylosing Spondylitis and DISH. North American Spine Society (NASS), San Francisco, CA, November 2009
94. **N. Anand**, B. Robie, N. Wharton, L. Ferrara, K. Yonemura, A.E. Castellvi: Quantity and Quality of Motion in Stenosis Patients; SAS 10<sup>th</sup> Annual meeting, New Orleans, LA, April 2010
95. A.E. Castellvi, A. Khandha, N. Wharton, L. Ferrara, **N. Anand**, J. Cheng; An Analysis of the PostOp Performance of the Stabilimax® Posterior Dynamic Stabilization (PDS) Implant through Measurement of Range of Motion (ROM) and InterPedicular Travel (IPT); SAS 10<sup>th</sup> Annual meeting, New Orleans, LA, April 2010
96. **N. Anand**, R. Rosemann, E. Baron; Mid to Long Term, 1-2 Year Radiological Analysis of Minimally Invasive Surgery for Adult Scoliosis; SAS 10<sup>th</sup> Annual meeting, New Orleans, LA, April 2010
97. **N. Anand**, R. Rosemann, B. Khalsa, E. Baron; Minimally Invasive AxiaLIF L5-S1 Interbody Fusion for Anterior Column Support at the End of a Long Segment Fusion: 1 to 2 year Clinical and Functional Outcomes; SAS 10<sup>th</sup> Annual meeting, New Orleans, LA, April 2010
98. **N. Anand**, R. Balderstone, P.C. McAfee, S.R. Chinthakunta, S. Khalil, A. Ingahalikar, M. Moldavsky; Fatigue Effect on an Artificial Posterolateral Lumbar Disc Replacement: An in-vitro Cadaveric Model; SAS 10<sup>th</sup> Annual meeting, New Orleans, LA, April 2010
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100. **N. Anand**, R. Balderstone, S.R. Chinthakunta, S. Khalil, A. Ingahalikar, M. Moldavsky; Quantifying Subsidence of a Novel Artificial Posterolateral Lumbar Disc Replacement Post-Fatigue Testing: A Cadaveric Study; SAS 10<sup>th</sup> Annual meeting, New Orleans, LA, April 2010
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103. **N. Anand**, E. Baron; Safety and Complications of Profile of Percutaneous Lumbosacral Axial Interbody Fusion, Society for Minimally Invasive Spine Surgery (SMISS), Miami, FL, October 2010.

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105. **N. Anand**, S. Kahwaty, S. Daroudi, E. Baron, Long Term 2 to 4 year Clinical and Functional Outcomes of Minimally Invasive Surgery (MIS) for Adult Spinal Deformity, ISASS, Las Vegas, NV, April, 2011
106. **N. Anand**, S. Kahwaty, E. Baron, S. Daroudi, A. King, O. Boachie-Adjei, Multicenter Minimally Invasive AxiaLIF L5-S1 Interbody Fusion for Anterior Column Support at the End of a Long Segment Construct: Feasibility, Safety, Complications, Early and Late 3 Year Outcomes, ISASS/SAS, Las Vegas, NV, April 26-29, 2011
107. J.A. Youssef, J.J. Regan, C.A. Hartjen, R.F. Dryer, W.B. Rodgers, K. Pettine, D.J. DiRisio, A.L. Rhyne, E.B. Laxer, L.B. Spector, M.P. Lorio, J.M. Marzluff, J.M. Highsmith, K.A. Rahn, R.M. Shugart, A.D. Tahernia, C.J. Morgan, T.B. Briggs, J.F. Ferguson, W.M. Ceola, **N. Anand**, R.B. Delamarter, S.C. Humphreys, S. Hodges, P. Connolly; Prospective Randomized FDA IDE Pivotal Study of Symptomatic Lumbar Spinal Stenosis Patients Treated with ACADIA™: Interim Perioperative and Clinical Outcomes for the Investigational Device, ISASS/SAS, Las Vegas, NV, April 26-29, 2011
108. **Anand, Neel**; Kahwaty, Sheila; Daroudi, Shideh; Baron, Eli; Boachie-Adjei, Ohenaba, Multicenter Minimally Invasive AxiaLIF L5-S1 Interbody Fusion for Anterior Column Support at the End of a Long Segment Construct: Feasibility, Safety, Complications, Early and Late 3 Year Outcomes, Int'l Society for the Study of the Lumbar Spine (ISSLS), Gothenburg, Sweden, June 14-18, 2011
109. **Anand, Neel**; Daroudi, Shideh; Kahwaty, Sheila; Baron, Eli, Long Term 2 To 4 Year Clinical and Functional Outcomes of Minimally Invasive (MIS) For Adult Spinal Deformity, Int'l Society for the Study of the Lumbar Spine (ISSLS), Gothenburg, Sweden, June 14-18, 2011
110. **Neel Anand, MD**; Sheila Kahwaty, PA-C; Babak Khandehroo, MD; Eli Baron, MD; Two to Four Year Functional Outcomes of Minimally Invasive Surgery (MIS) for Adult Spinal Deformity, IMAST, Copenhagen, Denmark, July 13-16, 2011
111. Dennis Crandall, MD; Eric Huish, BS; Sigurd H. Berven, MD; **Neel Anand, MD**; Murali P. Kadaba, PhD, MBA; Ryan McLemore, PhD; Radiographic Comparison of Fixed Cage vs. Expandable Cage in TLIF, IMAST, Copenhagen, Denmark, July 13-16, 2011
112. **Neel Anand, MD**; Sheila Kahwaty, PA-C; Babak Khandehroo, MD; Eli Baron, MD; Two to Four Year Functional Outcomes of Minimally Invasive Surgery (MIS) for Adult Spinal Deformity; SRS 46<sup>th</sup> Annual Meeting, Louisville, KY, September 14-17, 2011
113. **Neel Anand, MD**; Babak Khandehroo, MD; Jeffrey Toll, BA; Eli M Baron, MD; Sheila Kahwaty, PA-C; Long Term Clinical and Functional Outcomes of Minimally Invasive Surgery for Significant Thoracolumbar Scoliosis (COBB angle greater than 30°); SMISS Annual Meeting, Las Vegas, Nevada, October 21-23, 2011
114. **Neel Anand, MD**; Babak Khandehroo, MD; Jeffrey Toll, BA; Eli M Baron, MD; Sheila Kahwaty, PA-C; Long Term 2 to 4 year Clinical and Functional Outcomes of Minimally Invasive Surgery (MIS) for Adult Spinal Deformity; SMISS Annual Meeting, Las Vegas, Nevada, October 21-23, 2011

115. **Neel Anand, MD**; Babak Khandehroo, MD; Jeffrey Toll, BA; Eli M Baron, MD; Sheila Kahwaty, PA-C; Minimally Invasive AxiaLIF for Anterior Column Support in Long Segment Constructs: Minimum 1 year Functional and Clinical Outcomes; SMISS Annual Meeting, Las Vegas, Nevada, October 21-23, 2011
116. **Anand, N**, Khandehroo, B, Kahwaty S, Baron, E. M. Can Transsacral AxiaLIF Fixation at the Bottom of a Long Construct Avoid the Need for Iliac Bolt? International Society for the Advancement of Spine Surgery (ISASS) - Barcelona, Spain - March 20-23, 2012
117. **Anand, N**, Khandehroo, B, Kahwaty S, Baron, E. M. Can Minimally Invasive Surgical Strategies for Deformity Correction Avoid the Need for Routine Osteotomies in Moderate to Severe Adult Scoliosis? International Society for the Advancement of Spine Surgery (ISASS) - Barcelona, Spain - March 2012
118. **Anand, N**, Khandehroo, B, Kahwaty S, Baron, E. M. Minimally Invasive Pedicle Screw Instrumentation and Fusion for Adult Scoliosis - Functional and Radiological Outcomes; International Society for the Advancement of Spine Surgery (ISASS) - Barcelona, Spain - March 20-23, 2012
119. **N. Anand**, T. Castellvi, K. Yonemura, S. Kitchel, B.C. Cheng, B. Robie; 24 month functional outcomes from a US IDE trial evaluating a lumbar posterior dynamic stabilization (PDS) system with Interpedicular Travel (IPT) International Society for the Advancement of Spine Surgery (ISASS) - Barcelona, Spain - March 20-23, 2012
120. S.H. Kitchel, **N. Anand**, A. Castellvi, K. Yonemura, B. Cheng, B. Robie; Failure Analysis of Patients in a US IDE trial of a Posterior Dynamic Stabilization System Who Did Not Achieve Primary Success Endpoints; International Society for the Advancement of Spine Surgery (ISASS) - Barcelona, Spain - March 20-23, 2012
121. B.C. Cheng, S. Kitchel, A.E. Castellvi, K. Yonemura, **N. Anand**, B. Robie; Radiographic Assessment of Stabilimax Patients at 12 mos. Follow up; International Society for the Advancement of Spine Surgery (ISASS) - Barcelona, Spain - March 20-23, 2012
122. S.H. Kitchel, **N. Anand**, A. Castellvi, K. Yonemura, B. Cheng, B. Robie; Screw Radiolucency Is Not Predictive of Clinical Failure at 2 years in Posterior Pedicle Based Dynamic Stabilization; International Society for the Advancement of Spine Surgery (ISASS) - Barcelona, Spain - March 20-23, 2012
123. **Anand, Neel**, Khandehroo, Babak, Baron, Eli, Kahwaty Sheila; Does Minimally Invasive Surgical (MIS) Treatment of Adult Spinal Deformities Affect the Incidence of Proximal Junctional Kyphosis? 19<sup>th</sup> International Meeting on Advanced Spine techniques (IMAST); Istanbul, Turkey, July 18-21, 2012
124. **Anand, Neel**, Khandehroo, Babak, Baron, Eli, Kahwaty Sheila; Can Transsacral AxiaLIF Fixation at the Bottom of a Long Construct Avoid the Need for Iliac Bolt? Scoliosis Research Society; 19<sup>th</sup> International Meeting on Advanced Spine techniques (IMAST); Istanbul, Turkey, July 18-21, 2012
125. **Anand, Neel**, Khandehroo, Babak, Baron, Eli, Kahwaty Sheila; Can Minimally Invasive Surgical Strategies for Deformity Correction Avoid the Need for Routine Osteotomies in Moderate to Severe Adult Scoliosis? Scoliosis Research Society; 19<sup>th</sup> International Meeting on Advanced Spine techniques (IMAST); Istanbul, Turkey, July 18-21, 2012
126. **Anand, Neel**, Khandehroo, Babak, Baron, Eli, Kahwaty Sheila; Minimally Invasive Pedicle Screw Instrumentation and Fusion for Adult Scoliosis - Functional and Radiological Outcomes; Scoliosis Research Society; 19<sup>th</sup> International Meeting on Advanced Spine techniques (IMAST); Istanbul, Turkey, July 18-21, 2012

127. **Anand, Neel**, Khandehroo, Babak, Baron, Eli, Kahwaty Sheila; Long Term 2 to 5 year Clinical and Functional Outcomes of Minimally Invasive Surgery (MIS) for Adult Spinal Deformity; Scoliosis Research Society; 19<sup>th</sup> International Meeting on Advanced Spine techniques (IMAST); Istanbul, Turkey, July 18-21, 2012
128. **Neel Anand, MD**; Babak Khandehroo, MD; Eli Baron, MD; Sheila Kahwaty, PA-C; Does Minimally Invasive Surgical (MIS) Treatment of Adult Spinal Deformities Affect the Incidence of Proximal Junctional Kyphosis (PJK)?, Annual Meeting of the Society for Minimally Invasive Spine Surgery (SMISS), Miami, FL, September 21-23, 2012
129. **Neel Anand, MD**; Babak Khandehroo, MD; Eli Baron, MD; Sheila Kahwaty, PA-C; Can Minimally Invasive Surgical (MIS) Strategies for Deformity Correction Avoid the Need for Routine Osteotomies in Moderate to Severe Adult Scoliosis? Annual Meeting of the Society for Minimally Invasive Spine Surgery (SMISS), Miami, FL, September 21-23, 2012
130. **Neel Anand, MD**; Babak Khandehroo, MD; Eli Baron, MD; Sheila Kahwaty, PA-C; Technique Related complications of circumferential Minimally Invasive Spinal Surgery (MISS) for correction of Spinal Deformity - A 5-year experience. Annual Meeting of the Society for Minimally Invasive Spine Surgery (SMISS), Miami, FL, September 21-23, 2012
131. **Neel Anand, MD**; Babak Khandehroo, MD; Eli Baron, MD; Sheila Kahwaty, PA-C; Complications of Minimally Invasive Spinal Surgery (MISS) for Correction of Spinal Deformity – A 5-year experience. Annual Meeting of the American Academy of Orthopaedic Surgeons (AAOS), Chicago, IL, March 18-23, 2013.
132. **Neel Anand, MD**; Babak Khandehroo, MD; Eli Baron, MD; Sheila Kahwaty, PA-C; Technique Related complications of circumferential Minimally Invasive Spinal Surgery (MISS) for correction of Spinal Deformity - A 5-year experience. Annual Meeting of the International Society for the Study of the Lumbar Spine (ISSLS), Scottsdale, Arizona, May 13-17, 2013.
133. **Neel Anand, MD**; Babak Khandehroo, MD; Eli Baron, MD; Sheila Kahwaty, PA-C; Does Minimally Invasive Surgical (MIS) Treatment of Adult Spinal Deformities Affect the Incidence of Proximal Junctional Kyphosis (PJK)? Annual Meeting of the International Society for the Study of the Lumbar Spine (ISSLS), Scottsdale, Arizona, May 13-17, 2013.
134. **N. Anand**, B. Khandehroo, S. Kahwaty, E.M. Baron, Complications of Minimally Invasive Spinal Surgery (MISS) for Correction of Spinal Deformity – A 5-year experience. Annual Meeting of International Society for the Advancement of Spine Surgery (ISASS), Vancouver, Canada, April 3-5, 2013.
135. **N. Anand**, B. Khandehroo, S. Kahwaty, E.M. Baron, Does Minimally Invasive Surgical (MIS) Treatment of Adult Spinal Deformities Affect the Incidence of Proximal Junctional Kyphosis (PJK)? Annual Meeting of International Society for the Advancement of Spine Surgery (ISASS), Vancouver, Canada, April 3-5, 2013.
136. W.D. Tobler, T.J. Raley, **N. Anand**, R.J. Nasca, M.A. Melgar; Axial Presacral L4 to S1 Interbody Fusion using AxiaLIF and Posterior Instrumentation. Clinical Outcomes. Annual Meeting of International Society for the Advancement of Spine Surgery (ISASS), Vancouver, Canada, April 3-5, 2013.
137. W.D. Tobler, **N. Anand**, M.A. Melgar, T.J. Raley, R.J. Nasca; Evaluation of Lumbar Lordosis in Patients

treated with the AxiaLIF 2 Level Implant and Posterior Instrumentation. Annual Meeting of International Society for the Advancement of Spine Surgery (ISASS), Vancouver, Canada, April 3-5, 2013.

138. D.G. Crandall, S. Berven, **N. Anand**, A. Byrd, M. Kadaba, J. Revella; Improving Segmental Lordosis with a Crescent Shaped Hydraulic Expandable TLIF Cage: Safety, Efficacy and Early Clinical Outcomes. Annual Meeting of International Society for the Advancement of Spine Surgery (ISASS), Vancouver, Canada, April 3-5, 2013.
139. R. Haque, MD; G.M. Mundis, MD; Y. M. Ahmed, BS; T. Y. El Ahmadi, MD; M.Y. Wang, MD; P.V. Mummaneni, MD; J. S. Uribe, MD; D.O. Okonkwo, MD, PhD; **N. Anand, MD**; A.S. Kanter, MD; Flu Marca, MD; V. Lafage, PhD; J.S. Terran, BS; V. Deviren, MD; R.G. Fessler, MD, PhD; International Spine Study Group; Comparison of Radiographic Results After Minimally Invasive (MIS), Hybrid (HYB) and Open (OPEN) Surgery for Adult Spinal Deformity (ASD): A Multi-Center Study of 184 Patients. 20<sup>th</sup> Int'l Meeting on Advanced Spine Techniques (IMAST), Vancouver, Canada, July 10-13, 2013
140. G.M. Mundis, MD; V. Lafage, PhD; B.A. Akbarnia, MD; R.K. Eastlack, MD; M.Y. Wang, MD; J. S. Uribe, MD; **N. Anand, MD**; P.V. Mummaneni, MD; D.O. Okonkwo, MD, PhD; A.S. Kanter, MD; Flu Marca, MD; R.G. Fessler, MD, PhD; C.I. Shaffrey, MD; V. Deviren, MD; International Spine Study Group; A Prospective Propensity Matched Cohort Analysis of Minimally Invasive (MIS), Hybrid (HYB), and Open Spine Surgery (OPEN) for the Treatment of Adult Spinal Deformity (ASD); 20<sup>th</sup> Int'l Meeting on Advanced Spine Techniques (IMAST), Vancouver, Canada, July 10-13, 2013
141. M.Y. Wang, MD; P.V. Mummaneni, MD; K-M. Fu, MD, PhD; **N. Anand, MD**; D.O. Okonkwo, MD, PhD; A.S. Kanter, MD; F. La Marca, MD; R.G. Fessler, MD, PhD; J.S. Uribe, MD; C.I. Shaffrey, MD; V. Lafage, PhD; R. Haque, MD; V. Deviren, MD; G.M. Mundis, MD; International Spine Study Group; Less Invasive Surgery for Treating Adult Spinal Deformities (ASD): Ceiling Effects for Cobb Angle Correction with Three Different Techniques; 20<sup>th</sup> Int'l Meeting on Advanced Spine Techniques (IMAST), Vancouver, Canada, July 10-13, 2013
142. J.S. Uribe, MD; G.M. Mundis, MD; D.O. Okonkwo, MD, PhD; A.S. Kanter, MD; R.K. Eastlack, MD; M.Y. Wang, MD; P.V. Mummaneni, MD; **N. Anand, MD**; R.G. Fessler, MD, PhD; F. La Marca, MD; P. Park, MD; V. Lafage, PhD; C.I. Shaffrey, MD; V. Deviren, MD; International Spine Study Group; Are Complications in Adult Spinal Deformity (ASD) Surgery Related to Approach or Patient Characteristics? A Prospective Propensity Matched Cohort Analysis of Minimally Invasive (MIS), Hybrid (HYB), and Open (OPEN) Approaches; 20<sup>th</sup> Int'l Meeting on Advanced Spine Techniques (IMAST), Vancouver, Canada, July 10-13, 2013
143. D. Crandall, MD; J.A. Byrd, MD; S.H. Berven, MD; **N. Anand, MD**; M.P. Kadaba, PhD, MBA; J. Revella, RN; L. Taylor; An Expandable Crescent Shaped TLIF Cage to Improve Segmental Lordosis: Safety, Efficacy, and Early Clinical Outcomes. 20<sup>th</sup> Int'l Meeting on Advanced Spine Techniques (IMAST), Vancouver, Canada, July 10-13, 2013
144. P.V. Mummaneni, MD; M.Y. Wang, MD; V. Lafage, PhD; J. Ziewacz, MD, MPH; J.S. Terran, BS; D.O. Okonkwo, MD, PhD; J.S. Uribe, MD; **N. Anand, MD**; R.G. Fessler, MD, PhD; A.S. Kanter, MD; Flu Marca, MD; C.I. Shaffrey, MD; V. Deviren, MD; G.M. Mundis, MD; International Spine Study Group; Does Minimally Invasive Posterior Instrumentation (PPI) Prevent Proximal Junctional Kyphosis (PJK) in Adult Spinal Deformity (ASD) Surgery? A Prospectively Acquired Propensity Matched Cohort Analysis; 20<sup>th</sup> Int'l Meeting on Advanced Spine Techniques (IMAST), Vancouver, Canada, July 10-13, 2013
145. D. Crandall, MD; L. Taylor; J.A. Byrd, MD; S.H. Berven, MD; **N. Anand, MD**; M.P. Kadaba, PhD, MBA; J. Revella, RN; Improving Local and Regional Lordosis in Degenerative Scoliosis: Preliminary

Findings on the Effect of an Expandable TLIF Cage; 20<sup>th</sup> Int'l Meeting on Advanced Spine Techniques (IMAST), Vancouver, Canada, July 10-13, 2013

146. R.K. Eastlack, MD; G.M. Mundis, MD; M.Y. Wang, MD; P.V. Mummaneni, MD; J.S. Uribe, MD; D.O. Okonkwo, MD, PhD; B.A. Akbarnia, MD; **N.Anand, MD**; A.S. Kanter, MD; P. Park, MD; V. Lafage, PhD; C.I. Shaffrey, MD; R.G. Fessler, MD, PhD; V. Deviren, MD; International Spine Study Group; Is There a Patient Profile That Characterizes a Patient as a Candidate for Minimally Invasive Surgery (MIS) to Treat Adult Spinal Deformity (ASD)?; 20<sup>th</sup> Int'l Meeting on Advanced Spine Techniques (IMAST), Vancouver, Canada, July 10-13, 2013
147. **Neel Anand MD**, Babak Khandehroo MD, Eli M. Baron MD, Sheila Kahwaty PA-C; Limitations and Ceiling Effects of Circumferential Minimally Invasive Surgical (cMIS) techniques for the Treatment of Adult Scoliosis - Analysis of a 6-year experience, Annual Meeting of SMISS, Las Vegas, NV, Oct 1-3 2013
148. **N. Anand**, B. Khandehroo, S. Kahwaty, E.M. Baron; Is there a limitation to correction of Sagittal balance with Circumferential Minimally Invasive Surgical (CMIS) correction of Adult Spinal Deformity (ASD)? 28<sup>th</sup> Annual Meeting of the North American Spine Society (NASS), New Orleans, LA, October 9-12, 2013.
149. **N. Anand**, B. Khandehroo, S. Kahwaty, E.M. Baron; Does the Thoracolumbar Upper Instrumented Vertebra (UIV) Level Make a Difference in Proximal Junctional Kyphosis (PJK) with Circumferential Minimally Invasive Surgical (CMIS) Correction of Adult Spinal Deformity (ASD)? 28<sup>th</sup> Annual Meeting of the North American Spine Society (NASS), New Orleans, LA, October 9-12, 2013.
150. G.M. Mundis, B.A. Akbarian, P. Mummaneni, A. Kanter, D. Okonkwo, P. Park, J. Uribe, V. Deviren, **N. Anand**, M. Wang, F. La Marca, R. Fessler, S. Nguyen, R.K. Eastlack, International Spine Study Group: Adult Spinal Deformity Treated with Minimally Invasive Techniques: 2-year Multicenter Clinical and Radiological Outcomes Study Comparing Circumferential MIS and Hybrid Surgery. 7<sup>th</sup> Annual SOLAS Research Meeting, Miami, FL, April 29, 2014.
151. B. Bolinger, K.M. Fu, P. Park, G.M. Mundis, **N. Anand**, F. La Marca, J. S. Uribe, M. Y. Wang, A.S. Kanter, D. Okonkwo, R. Fessler, V. Deviren, S. Nguyen, C.I. Shaffrey, B. Liabaud, B. Diebo, P. Mummaneni, International Spine Study Group: Do MIS Deformity Interventions Result in Similar Reductions of Disability Compared with Traditional Open Correction at 1 and 2 Years? A Propensity Matched Cohort Analysis. 7<sup>th</sup> Annual SOLAS Research Meeting, Miami, FL, April 29, 2014.
152. B. Bolinger, A.S. Kanter, G.M. Mundis, P. Mummaneni, **N. Anand**, R. Fessler, P. Passias, P. Park, F. La Marca, J. S. Uribe, M. Y. Wang, B. Liabaud, B. Diebo, B.A. Akbarian, C.I. Shaffrey, D. Okonkwo, International Spine Study Group: Re-Operation Rates in Minimally Invasive, Hybrid and Open Surgery Treatment for Adult Spinal Deformity with Minimum 2-year Follow-up. 7<sup>th</sup> Annual SOLAS Research Meeting, Miami, FL, April 29, 2014.
153. **N. Anand**, B. Khandehroo, E.M. Baron, S. Kahwaty, J.E. Cohen, R.B. Cohen: Limitation and ceiling effects of Circumferential minimally Invasive Surgical (CMIS) Techniques for the Treatment of Adult Scoliosis- Analysis of a 6-year Experience. Annual Meeting of International Society for the Advancement of Spine Surgery (ISASS), Miami, FL April 30- May 2, 2014.
154. **N. Anand**, B. Khandehroo, E.M. Baron, S. Kahwaty, J.E. Cohen, R.B. Cohen: Reoperation and Immediate Readmission Rates after Circumferential Minimally Invasive Surgical (CMIS) Correction of Adult Spinal Deformities (ASD); Annual Meeting of International Society for the Advancement of Spine

Surgery (ISASS), Miami, FL April 30- May 2, 2014.

155. **N. Anand**, B. Khandehroo, E.M. Baron, S. Kahwaty, J.E. Cohen, R.B. Cohen: 5 Year Outcomes and Survivorship Analysis of Posterior Pedicle Screw Non-Fusion Stabilization; Annual Meeting of International Society for the Advancement of Spine Surgery (ISASS), Miami, FL April 30- May 2, 2014.
156. **N. Anand**, B. Khandehroo, E.M. Baron, S. Kahwaty, J.E. Cohen, R.B. Cohen: Correction of Sagittal Profile and Pelvic Parameters with CMIS Techniques for Treatment of Adult Scoliosis; Annual Meeting of International Society for the Advancement of Spine Surgery (ISASS), Miami, FL April 30- May 2, 2014.
157. A.D. Tahernia, J. Youssef, **N. Anand**, D. Coric, K. Baker, J. Mayer: ACADIA Facet Replacement System IDE Study, Preliminary Outcomes at Two and Four Years Postoperative; Annual Meeting of International Society for the Advancement of Spine Surgery (ISASS), Miami, FL April 30- May 2, 2014.
158. **Neel Anand, MD**; Babak Khandehroo, MD; Eli Baron, MD; Sheila Kahwaty, PA-C: Reoperation and immediate Readmission Rates after Circumferential Minimally Invasive Surgical (cMIS) Correction of Adult Spinal Deformities (ASD); 7th Annual Lumbar Spine Research Society Meeting (LSRS), Chicago, IL, May 1-2, 2014
159. Gregory M. Mundis, Behrouz A. Akbarian, Praveen V. Mummaneni, Adam S. Kanter, David O. Okonkwo, Paul Park, Juan S. Uribe, Vedat Deviren, **Neel Anand**, Michael Y. Wang, Frank La Marca, Richard G. Fessler, Stacie Nguyen, Robert K. Eastlack, International Spine Study Group: Adult Spinal Deformity Treated with Minimally Invasive Techniques; Two-year Multicenter Clinical and Radiographic Outcomes Study Comparing Circumferential MIS and Hybrid Surgery; 21<sup>st</sup> Int'l Meeting on Advanced Spine Techniques (IMAST), Valencia Spain July 16-19, 2014.
160. Paul Park, Praveen V. Mummaneni, Gregory M. Mundis, **Neel Anand**, Pierce D. Nunley, Juan S. Uribe, Michael Y. Wang, Adam S. Kanter, David O. Okonkwo, Richard G. Fessler, Vedat Deviren, Stacie Nguyen, Christopher I. Shaffrey, Kai-Ming Fu, International Spine Study Group: Does the Use of Minimally Invasive Pedicle Screw Fixation Lower the Rate of PJK? 21<sup>st</sup> Int'l Meeting on Advanced Spine Techniques (IMAST), Valencia Spain July 16-19, 2014.
161. Kai-Ming Fu, Paul Park, Gregory M. Mundis, **Neel Anand**, Frank La Marca, Juan S. Uribe, Michael Y. Wang, Adam S. Kanter, David O. Okonkwo, Richard G. Fessler, Vedat Deviren, Stacie Nguyen, Christopher I. Shaffrey, Praveen V. Mummaneni, International Spine Study Group: Do MIS Deformity Interventions Result in Similar Reductions of Disability when Compared with Traditional Open Spinal Correction at One and Two Years? A Propensity Matched Cohort Analysis. 21<sup>st</sup> Int'l Meeting on Advanced Spine Techniques (IMAST), Valencia Spain July 16-19, 2014.
162. Richard G. Fessler, Praveen V. Mummaneni, **Neel Anand**, Donald J. Blaskiewicz, Juan S. Uribe, Michael Y. Wang, Adam S. Kanter, David O. Okonkwo, Paul Park, Vedat Deviren, Stacie Nguyen, Christopher I. Shaffrey, Behrouz A. Akbarian, Gregory M. Mundis, International Spine Study Group: Does Minimally Invasive Pedicle Screw Placement Prevent Reoperation for Distal Junctional Failure When Fusion is to L5? A Two- Year Follow up Study. 21<sup>st</sup> Int'l Meeting on Advanced Spine Techniques (IMAST), Valencia Spain July 16-19, 2014.
163. Christopher P. Ames, Justin K. Scheer, Michael D. Daubs, Jeffrey D. Coe, Kenneth j. Paonessa, Michael O. LaGrone, Michael D. Kasten, Rodrigo A. Amaral, Per D. Trobisch, Jung-Hee Lee, Daniele Fabris-Monterumici, **Neel Anand**, Andrew K. Cree, Robert A. Hart, Lloyed A. Hey; Results of The 2014 SRS Global Delphi Surgeon Survey on PJK/PJF: A Report on Surgeon View of Prevention and Treatment



Indications, Classification and Guidelines. 21<sup>st</sup> Int'l Meeting on Advanced Spine Techniques (IMAST), Valencia Spain July 16-19, 2014.

164. Adam S. Kanter, Gregory M. Mundis, Praveen V. Mummaneni, **Neel Anand**, Richard G. Fessler, Peter G. Passias, Paul Park, Virginie Lafage, Frank La Marca, Juan S. Uribe, Michael Y. Wang, Behrouz A. Akbarian, Christopher I. Shaffrey, David O. Okonkwo, International Spine Study Group: Re-Operation Rates in Minimally Invasive, Hybrid and Open Surgery Treatment for Adult Spinal Deformity with Minimum 2-year Follow-up. 21<sup>st</sup> Int'l Meeting on Advanced Spine Techniques (IMAST), Valencia Spain July 16-19, 2014.
165. **Neel Anand, MD**; Babak Khandehroo, MD; Eli Baron, MD; Sheila Kahwaty, PA-C: 5-Year Outcomes and Survivorship Analysis of Posterior Pedicle Screw Non-Fusion Stabilization; Annual Meeting of the Society for Min. Invasive Spine Surgery (SMISS), Miami, FL, Sept 19-21, 2014
166. **Neel Anand, MD**; Babak Khandehroo, MD; Eli Baron, MD; Sheila Kahwaty, PA-C: Do Hyper-Lordotic Cages Help Create and Maintain Sagittal Alignment with MIS Correction of Adult Scoliosis?; Annual Meeting of the Society for Min. Invasive Spine Surgery (SMISS), Miami, FL, Sept 19-21, 2014
167. Bryan Bolinger, DO; Adam Kanter, MD; Gregory Mundis Jr., MD; Praveen Mummaneni, MD; **Neel Anand, MD**; Richard Fessler, MD, PhD; Peter Passias, MD; Paul Park, MD; Frank Lamarca, MD; Juan S. Uribe, MD; Michael Wang, MD; Behrooz Akbarnia, MD; Christopher Shaffrey, MD; David Okonkwo, MD, PhD: Re-Operation Rates in Minimally Invasive, Hybrid and Open Surgical Treatment for Adult Spinal Deformity with Minimum 2-Year Follow-up; Annual Meeting of the Society for Min. Invasive Spine Surgery (SMISS), Miami, FL, Sept 19-21, 2014
168. Paul Park, MD; Praveen Mummaneni, MD; Gregory Mundis Jr., MD; **Neel Anand, MD**; Pierce Nunley, MD; Juan S. Uribe, MD; Michael Wang, MD; Adam Kanter, MD; David Okonkwo, MD; Richard Fessler, MD; Vedat Deviren, MD; Stacie Nguyen, MPH; Christopher Shaffrey, MD; Kai-Ming Fu, MD: Does the Use of Minimally Invasive Pedicle Screw Fixation Lower the Rate of PJK and Reoperation for PJK?; Annual Meeting of the Society for Min. Invasive Spine Surgery (SMISS), Miami, FL, Sept 19-21, 2014
169. Kai-Ming G. Fu, MD; Paul Park, MD; Gregory M. Mundis, MD; **Neel Anand, MD**; Frank La Marca, MD; Juan S. Uribe, MD; Michael Wang, MD; Adam Kanter, MD; David Okonkwo, MD; Richard Fessler, MD; Vedat Deviren, MD; Stacie Nguyen, MPH; Barthelemy Liabaud, MD; Behrooz Akbarnia, MD; Christopher Shaffrey, MD; International Spine Study Group: Do MIS Deformity Interventions Result in Similar Reductions of Disability when Compared with Traditional Open Spinal Deformity Correction at One and Two- years? A Propensity Matched Cohort Analysis; 29<sup>th</sup> Annual Meeting of the North American Spine Society (NASS), San Francisco, CA, November 12-15, 2014.
170. Gregory M. Mundis, MD; Behrooz Akbarnia, MD; Adam Kanter, MD; David Okonkwo, MD; Paul Park, MD; Juan S. Uribe, MD; Vedat Deviren, MD; **Neel Anand, MD**; Michael Wang, MD; Frank La Marca, MD; Richard Fessler, MD; Stacie Nguyen, MPH; Barthelemy Liabaud, MD; Robert K. Eastlack, MD; Bassel G. Diebo, MD; International Spine Study Group: Adult Spinal Deformity Treated with Minimally Invasive Techniques: Two Year Multicenter Clinical and Radiographic Outcomes Study Comparing Circumferential MIS and Hybrid Surgery; 29<sup>th</sup> Annual Meeting of the North American Spine Society (NASS), San Francisco, CA, November 12-15, 2014.
171. Gregory M. Mundis Jr., MD; Jay D. Turner, MD, PhD; Vedat Deviren, MD; Juan S. Uribe, MD; Pierce D. Nunley, MD; Christopher I. Shaffrey, MD; **Neel Anand, MD**; Paul Park, MD; David O. Okonkwo, MD; Michael Y. Wang, MD; Shay Bess, MD; Adam S. Kanter, MD; Richard G. Fessler, MD, PhD;

Stacie Nguyen, MPH; International Spine Study Group: A Critical Analysis of Sagittal Plane Deformity Correction with Minimally Invasive Adult Spinal Deformity Surgery: A Two-Year Follow-Up Study: 30<sup>th</sup> Annual Meeting of the North American Spine Society (NASS), Chicago, IL, October 14-17, 2015.

172. Dean Chou, MD; Michael Y. Wang, MD; Donald J. Blaskiewicz, MD; Stacie Nguyen, MPH; Christofer I. Shaffrey, MD; David O. Okonkwo, MD; Adam S. Kanter, MD; Vedat Deviren, MD; Juan S. Uribe, MD; Robert K. Eastlack, MD; Pierce D. Nunley, MD; **Neel Anand, MD**; Paul Park, MD; Gregory M. Mundis Jr., MD; International Spine Study Group: The impact of Minimally Invasive Spinal Deformity Surgery on ICU and Hospital Stay; 30<sup>th</sup> Annual Meeting of the North American Spine Society (NASS), Chicago, IL, October 14-17, 2015.
173. **Neel Anand, MD**; Ryan Cohen; Jason Cohen; Babak Khandehroo, MD; Eli Baron, MD; Sheila Kahwaty, PA-C; Analysis of the 10 best and 10 worst functional outcomes of Circumferential Minimally Invasive Surgical (CMIS) correction of Adults Spinal Deformity (ASD); Annual Meeting for the Society for Minimally Invasive Spine Surgery (SMISS), Las Vegas, NV, November 5-7, 2015.
174. **Neel Anand, MD**; Zeeshan Sardar, MD; Paul Park, MD; Michael Wang, MD; Virginie Lafage, PhD; Stacie Nguyen, MPH; David Okonkwo, MD; Juan Uribe, MD; Robert Eastlack, MD; Richard Fessler, MD; Vedat Deviren, MD; Praveen Mummaneni, MD; Christopher Shaffrey, MD; Gregory Mundis Jr, MD; International Spine Study Group; Comparison Of Early And Late Complications After Circumferential Minimally Invasive And Hybrid Surgery For Adult Spinal Deformity; Annual Meeting for the Society for Minimally Invasive Spine Surgery (SMISS), Las Vegas, NV, November 5-7, 2015.
175. Paul Park, MD; Michael Wang, MD; Stacie Nguyen, MPH; Gregory Mundis, MD; Frank La Marca, MD; Juan Uribe, MD; **Neel Anand, MD**; David Okonkwo, MD, PhD; Adam Kanter, MD; Richard Fessler, MD, PhD; Robert Eastlack, MD; Dean Chou, MD; Vedat Deviren, MD; Pierce Nunley, MD; Christopher Shaffrey, MD; Praveen Mummaneni, MD; Comparison of Complications and Clinical and Radiographic Outcomes Between Non-Obese and Obese Patients with Adult Spinal Deformity Undergoing Minimally Invasive Surgery. Annual Meeting for the Society for Minimally Invasive Spine Surgery (SMISS), Las Vegas, NV, November 5-7, 2015.
176. **Neel Anand, MD**; Babak Khandehroo, MD; Ryan Cohen; Jason Cohen; Sheila Kahwaty, PA-C; Eli Baron, MD; Cedars-Sinai Medical Center: Analysis of Actual Segmental Lordosis Obtained with Lordotic and Hyperlordotic Later Cages- Analysis of 172 Levels. Annual Meeting for the Society for Minimally Invasive Spine Surgery (SMISS), Las Vegas, NV, November 5-7, 2015.
177. Dean Chou, MD; Michael Wang, MD; Kai-Ming Fu, MD; Gregory Mundis Jr, MD; Christopher Shaffrey, MD; David Okonkwo, MD; Adam Kanter, MD; Vedat Deviren, MD; Juan Uribe, MD; Pierce Nunley, MD; **Neel Anand, MD**; Paul Park, MD; Praveen Mummaneni, MD; International Spine Study Group; The Impact of Minimally Invasive Spinal Deformity Surgery on ICU and Hospital Stay; Annual Meeting for the Society for Minimally Invasive Spine Surgery (SMISS), Las Vegas, NV, November 5-7, 2015.
178. **Neel Anand, MD**; Babak Khandehroo; Jason Cohen; Ryan Cohen; Eli Baron, MD; Sheila Kahwaty; Cedars-Sinai Medical Center: Does poor post-op sagittal vertical alignment directly correlate with poor functional outcomes in patients with circumferential minimally invasive correction of adult spinal deformity? Annual Meeting of The international society for the advancement of spine surgery (ISASS), Las Vegas, NV, April 6-8, 2016.
179. J. Cuellar; **N. Anand**; K.-M. Fu; Z. Sardar; P. Park, M. Wang; V. Lafage; S. Nguyen, D. Okonkwo; J. Uribe; R. Eastlack, R. Fessler; V. Deviren; P. Mummaneni; C. Shaffrey; G. Mundis; International Study Group: Comparison of early and late complications after circumferential minimally invasive and hybrid

surgery for adult spinal deformity. Annual Meeting of The international society for the advancement of spine surgery (ISASS), Las Vegas, NV, April 6-8, 2016.

180. G. Mundis; V. Deviren, J. Uribe; P. Nunley; P. Mummaneni; **N. Anand**; P. Park; D. Okonkwo; M. Wang; S. Bess; A. Kanter; R. Fessler; S. Nguyen; B. Akbarnia; J. Zavatsky; International Spine Study Group: A critical analysis of sagittal plane deformity correction with minimally invasive adult spinal deformity surgery: A 2-year follow up study. Annual Meeting of The international society for the advancement of spine surgery (ISASS), Las Vegas, NV, April 6-8, 2016.
181. **N. Anand**; B. Khandehroo; J. Cohen; R. Cohen; E. Baron; S. Kahwaty; Cedars-Sinai Medical Center: Analysis of actual segmental lordosis obtained with lordotic and hyperlordotic lateral cages- Analysis of 218 levels. Annual Meeting of The international society for the advancement of spine surgery (ISASS), Las Vegas, NV, April 6-8, 2016.
182. P. Park; M. Wang; S. Nguyen; G. Mundis; F. La Marca; J. Uribe; **N. Anand**; D. Okonkwo; A. Kanter; R. Fessler; R. Eastlack; D. Chou; V. Deviren; P. Nunley; C. Shaffrey; P. Mummaneni; International Spine Study Group: Comparison of complications, clinical and radiographic outcomes between non-obese and obese patients with adult spinal deformity undergoing minimally invasive surgery. Annual Meeting of The international society for the advancement of spine surgery (ISASS), Las Vegas, NV, April 6-8, 2016.
183. **N. Anand**; J. Cohen; R. Cohen; B. Khandehroo; E. Baron; S. Kahwaty; Cedars-Sinai Medical Center: The incidence of proximal junctional kyphosis (PJK) in patients undergoing circumferential minimally invasive surgery (cMIS) for adult spinal deformity (ASD) – A 7-year experience. Annual Meeting of The international society for the advancement of spine surgery (ISASS), Las Vegas, NV, April 6-8, 2016.
184. A. Theologis; S. Nguyen; G. Mundis; B. Akbarnia; R. Eastlack; M. Wang; P. Mummaneni; J. Uribe; D. Okonkwo; **N. Anand**; A. Kanter; P. Park; R. Fessler; V. Deviren; International Spine Study Group: Circumferential fusion for thoracolumbar adult deformity surgery: Effect of open versus percutaneous pedicle screw fixation after MIS lateral interbody fusion. Annual Meeting of The international society for the advancement of spine surgery (ISASS), Las Vegas, NV, April 6-8, 2016.
185. D. Chou; M. Wang; K-M. Fu; G. Mundis; C. Shaffrey; D. Okonkwo; A. Kanter; V. Deviren; J. Uribe; P. Nunley; **N. Anand**; P. Park; P. Mummaneni; International Spine Study Group: The impact of minimally invasive spinal deformity surgery on ICU and Hospital Stay. Annual Meeting of The international society for the advancement of spine surgery (ISASS), Las Vegas, NV, April 6-8, 2016.
186. **N. Anand**; J. Millard; R. Cohen; J. Cohen; B. Khandehroo; E. Baron; S. Kahwaty; Cedars-Sinai Medical Center: Analysis of the 10 best and 10 worst functional outcomes of circumferential minimally invasive surgical (CMIS) correction of adult spinal deformity (ASD). Annual Meeting of The international society for the advancement of spine surgery (ISASS), Las Vegas, NV, April 6-8, 2016.
187. P. Park; D. Okonkwo; K-M. Fu; S. Nguyen; M. Wang; J. Uribe; **N. Anand**; G. Mundis; V. Deviren; R. Fessler; C. Shaffrey; D. Chou; P. Mummaneni; International Spine Study Group: Can MCID be achieved in elderly patients undergoing MIS deformity surgery? Annual Meeting of The international society for the advancement of spine surgery (ISASS), Las Vegas, NV, April 6-8, 2016.
188. **N. Anand**; J. Cohen; R. Cohen; B. Khandehroo; E. Baron; S. Kahwaty: The incidence of proximal junctional kyphosis (PJK) in patients undergoing circumferential minimally invasive surgery (cMIS) for adult spinal deformity (ASD). SpineWeek, Singapore, May 16-20, 2016.

189. P. Park; D. Okonkwo; K. Ming Fu; S. Nguyen; M. Wang; J. Uribe; **N. Anand**; G. Mundis; V. Deviren; R. Fessler; C. Shaffrey; D. Chou; P. Mummaneni: Can MCID be achieved in elderly patients undergoing MIS deformity surgery? SpineWeek, Singapore, May 16-20, 2016.
190. D. Chou; M. Wang; K. Ming Fu; S. Nguyen; G. Mundis; C. Shaffrey; D. Okonkwo; A. Canter; V. Deviren; J. Uribe; P. Nunley; **N. Anand**; P. Park; P. Mummaneni: The impact of minimally invasive spinal deformity surgery on ICU and hospital stay. SpineWeek, Singapore, May 16-20, 2016.
191. N. Anand; B. Khandehroo; J. Cohen; R. Cohen; E. Baron; S. Kahwaty: Analysis of actual segmental lordosis obtained with lordotic and hyperlordotic lateral cages – Is degenerative scoliosis a risk factor for adult thoracolumbar spinal fractures? A 7000 multi-racial Asian patients review analysis of 218 levels. SpineWeek, Singapore, May 16-20, 2016.
192. N. Anand; B. Khandehroo; J. Cohen; R. Cohen; E. Baron; S. Kahwaty: Does poor post-op sagittal vertical alignment directly correlate with poor functional outcomes in patients with circumferential minimally invasive correction of adult spinal deformity? SpineWeek, Singapore, May 16-20, 2016.
193. Robert K. Eastlack; Gregory M. Mudnis, Jr.; Stacie Nguyen; Praveen V. Mummaneni; David O. Okonkwo; Adam Kanter; **Neel Anand**; Paul Park; Pierce D. Nunley; Juan S. Uribe; Behrooz A. Akbarnia; Dean Chou; Vedat Deviren; International Spine Study Group: Early and late reoperation rates and etiologies are similar between cMIS and HYB for ASD correction. 23<sup>rd</sup> IMAST, Washington, D.C., July 13-16, 2016.
194. Pierce D. Nunley; Richard G. Fessler; Paul Park; Joseph M. Zavatsky; Gregory M. Mundis, Jr.; Juan S. Uribe; Robert K. Eastlack; Dean Chou; Michael Y. Wang; **Neel Anand**; Adam Kanter; Vedat Deviren; Praveen V. Mummaneni; International Spine Study Group: How does case type, length of stay, and comorbidities affect Medicare DRG reimbursement for Minimally Invasive (MIS) for deformity? 23<sup>rd</sup> IMAST, Washington, D.C., July 13-16, 2016.
195. G. Mundis, R. Eastlack, P. Mummaneni, D. Okonkwo, S. Nguyen A. Kanter, **N. Anand**, P. park, P. Nunley, J. Uribe, J. Zavatsky, D. Chou, V. Deviren, International Spine Study Group; Current MIS Techniques Fail to Optimize Spinopelvic Parameters in Patients with High Pelvic Incidence. Scoliosis Research Society (SRS) Prague, Czech Republic September 21 – September 24, 2016
196. Khoi Duc Than, MD; Stacie Nguyen, MPH; Paul Park, MD; Dean Chou, MD; Frank LaMarca, MD; Juan S. Uribe, MD; Todd D Vogel, MD; Pierce D. Nunley, MD; Robert K. Eastlack, MD; **Neel Anand, MD**, Mch Orth; Adam Kanter, MD; Praveen V. Mummaneni, MD; Gregory M. Mundis Jr., MD; International Spine Study Group: What Is The Effect Of Open Vs Percutaneous Screws On Complications Among Patients Undergoing Lateral Interbody Fusion for Adult Spinal Deformity? Scoliosis Research Society (SRS) Prague, Czech Republic September 21 – September 24, 2016
197. Gregory Mundis, Jr, MD; Robert Eastlack, MD; Praveen Mummaneni, MD; David Okonkwo, MD, PhD; Stacie Nguyen, MPH; Adam Kanter, MD; **Neel Anand, MD**; Paul Park, MD; Pierce Nunley, MD; Juan Uribe, MD; Joseph Zavatsky, MD; Dean Chou, MD; Vedat Deviren, MD; International Spine Study Group: Current MIS Techniques Fail to Optimize Spinopelvic Parameters in Patients with High Pelvic Incidence. Society for Minimally Invasive Spine Surgery (SMISS) Las Vegas, NV October 13 – October 15, 2016
198. Adam Kanter, MD; Joseph Zavatsky, MD; Gregory Mundis, Jr, MD; Zachary Tempel, MD; Stacie Nguyen, MPH; Dean Chou, MD; Paul Park, MD; Juan Uribe, MD; Michael Wang, MD; **Neel Anand, MD**; Robert Eastlack, MD; Praveen Mummaneni, MD; David Okonkwo, MD, PhD; and International

Spine Study Group; Does Concave versus Convex Approach Matter When using Lateral Lumbar Interbody Fusion for Adult Scoliosis? Society for Minimally Invasive Spine Surgery (SMISS) Las Vegas, NV October 13 – October 15, 2016

199. Dean Chou, MD; Praveen Mummaneni, MD; Pierce Nunley, MD; Joseph Zavatsky, MD; Robert Eastlack, MD; David Okonkwo, MD, PhD; Michael Wang, MD; Paul Park, MD; Juan Uribe, MD; **Neel Anand, MD**; Vedat Deviren, MD; Behrooz Akbarnia, MD; Stacie Nguyen, MPH; Gregory Mundis, Jr, MD; and International Spine Study Group; Treatment of the Fractional Curve with Circumferential Minimally Invasive (cMIS) Interbody versus Open Surgery without Interbody Fusion: An Analysis of Surgical Outcomes. Society for Minimally Invasive Spine Surgery (SMISS) Las Vegas, NV October 13 – October 15, 2016
200. Joseph Zavatsky, MD; Michael Wang, MD; Paul Park, MD; Dean Chou, MD; Adam Kanter, MD; Juan Uribe, MD; Pierce Nunley, MD; Robert Eastlack, MD; Behrooz Akbarnia, MD; **Neel Anand, MD**; Stacie Nguyen, MPH; Praveen Mummaneni, MD; Gregory Mundis, Jr, MD; and International Spine Study Group; Impact of Multi-Level Interbody Fusion in the Treatment of Severe Adult Scoliosis (Thoracolumbar Coronal Cobb Angle > 50 Degrees). Society for Minimally Invasive Spine Surgery (SMISS) Las Vegas, NV October 13 – October 15, 2016
201. Pierce Nunley, MD; Richard Fessler, MD, PhD; Paul Park, MD; Joseph Zavatsky, MD; Gregory Mundis, Jr, MD; Juan Uribe, MD; Robert Eastlack, MD; Dean Chou, MD; Michael Wang, MD; **Neel Anand, MD**; Adam Kanter, MD; and Christopher Shaffrey, MD; How Do Case Type, Length of Stay, and Comorbidities Affect Medicare DRG Reimbursement for Minimally Invasive Surgery (MIS) for Deformity? Society for Minimally Invasive Spine Surgery (SMISS) Las Vegas, NV October 13 – October 15, 2016
202. Robert Eastlack, MD; Gregory Mundis, Jr, MD; Stacie Nguyen, MPH; Praveen Mummaneni, MD; David Okonkwo, MD, PhD; Adam Kanter, MD; **Neel Anand, MD**; Paul Park, MD; Pierce Nunley, MD; Juan Uribe, MD; Joseph Zavatsky, MD; Dean Chou, MD; Vedat Deviren, MD; and International Spine Study Group; Early and Late Reoperation Rates and Etiologies are Similar Between cMIS and HYB techniques for ASD correction. Society for Minimally Invasive Spine Surgery (SMISS) Las Vegas, NV October 13 – October 15, 2016
203. **N. Anand**, R. Cohen, B. Khandehroo, S. Kahwaty, E. Baron: Clinical and Radiological Fate of the Lumbosacral Junction Following ALIF vs. Axial Lumbar Interbody Fusion at the Bottom of a Long Construct in cMIS treatment of Adult Spinal Deformity. Society for Minimally Invasive Spine Surgery (SMISS) Las Vegas, NV October 13 – October 15, 2016
204. **N. Anand**, J. Cohen, R. Cohen, B. Khandehroo, S. Kahwaty, E. Baron: The incidence of Proximal Junctional Kyphosis (PJK) Based on Upper-Instrumented Vertebrae (UIV) in Patients Undergoing Circumferential Minimally Invasive Surgical (CMIS) Correction for Adult Spinal Deformity, NASS, Boston, MA October 26 – October 29, 2016
205. Khoi D. Than, MD; Stacie Nguyen, MPH; Paul Park, MD; Dean Chou, MD; Frank LaMarca, MD; Juan S. Uribe, MD; Todd Vogel, MD; Pierce D. Nunley, MD; Robert K. Eastlack, MD; **Neel Anand, MD**; Adam S. Kanter, MD; Vedat Deviren, MD; Gregory M. Mundis Jr., MD; International Spine Study Group; What is the Effect of Open versus Percutaneous Screws on Complications Among Patients Undergoing Lateral Interbody Fusion for Adult Spinal Deformity? NASS, Boston, MA October 26 – October 29, 2016
206. Adam S. Kanter, MD; Joseph M. Zavatsky, MD; Gregory M. Mundis Jr., MD; Zachary Tempel, MD;

- Stacie Nguyen, MPH; Dean Chou, MD; Paul Park, MD; Juan S. Uribe, MD; Michael Y. Wang, MD; **Neel Anand, MD**; Robert K. Eastlack, MD; Khoi D. Than, MD; David O. Okonkwo, MD; International Spine Study Group<sup>14</sup> Does Concave Versus Convex Approach Matter when Using Lateral Lumbar Interbody Fusion for Adult Degenerative Scoliosis? NASS, Boston, MA October 26 – October 29, 2016
207. Pierce D. Nunley, MD; Richard G. Fessler, MD, PhD; Paul Park, MD; Joseph M. Zavatsky, MD; Gregory M. Mundis Jr., MD; Juan S. Uribe, MD; Robert K. Eastlack, MD; Dean Chou, MD; Michael Y. Wang, MD; **Neel Anand, MD**; Adam S. Kanter, MD; Christopher I. Shaffrey, MD; International Spine Study Group: How Does Case Type, Length of Stay, and Comorbidities Affect Medicare DRG Reimbursement for Minimally Invasive Surgery (MIS) for Deformity? NASS, Boston, MA October 26 – October 29, 2016
  208. J. Hue, **N. Anand**; What is Sagittal Balance , Sagittal Parameters and what are the Key Parameters to analyse the Sagittal Balance in Kalfas? Cervical Spine Sagittal Analysis; Sagittal Balance and Junctional Spine Master Course Baltimore, MD November 4 – November 5, 2016
  209. **N. Anand** ; Techniques, Indications, and Complication Avoidance for MIS Deformity. 11<sup>th</sup> Annual Congress of Chinese Orthopaedic Association Beijing, China November 17 – November 20, 2016.
  210. **Neel Anand, MD**, Dean Chou, MD, Robert K. Eastlack, MD, Richard G. Fessler, MD, Adam Kanter, MD, Praveen V. Mummaneni, Gregory M. Mundis, MD, Pierce D. Nunley, MD, Paul Park, MD, Christopher I. Shaffrey, MD, ,Juan S. Uribe, MD, Michael Y. Wang, MD, Joseph M. Zavatsky, MD, International Spine Study Group; How Does Case Type, Length of Stay, and Comorbidities Affect Medicare Diagnosis-related Group Reimbursement for Minimally Invasive Surgery for Deformity. AAOS Annual Meeting, San Diego, CA – March 14- March 18, 2017
  211. **Neel Anand, MD**, Dean Chou, MD, Robert K. Eastlack, MD, Richard G. Fessler, MD, Adam Kanter, MD, Praveen V. Mummaneni, Gregory M. Mundis, MD, Pierce D. Nunley, MD, Paul Park, MD, Christopher I. Shaffrey, MD, ,Juan S. Uribe, MD, Michael Y. Wang, MD, Joseph M. Zavatsky, MD, International Spine Study Group; What are the Differences in Medicare Diagnosis Related Group Reimbursement for Minimally Invasive Deformity Surgery in Academic vs. Private Hospitals in Different Geographic Regions. AAOS Annual Meeting, San Diego, CA – March 14- March 18, 2017
  212. Khoi Duc Than, Stacie Nguyen, Paul Park, Dean Chou, Frank La Marca, Juan S. Uribe, Todd D. Vogel, Pierce D. Nunley, Robert Eastlack, **Neel Anand**, Adam S. Kanter, Praveen V. Mummaneni, Gregory M. Mundis, Jr., International Spine Study Group; What is the Effect of Open Versus Percutaneous Screws on Complications Among Patients Undergoing Lateral Interbody Fusion for Adult Spinal Deformity? 33rd Annual Meeting Spine Summit Las Vegas, March 8-11, 2017
  213. Pierce D. Nunley, Richard G. Fessler, Paul Park, Joseph M. Zavatsky, Gregory M. Mundis, Jr., Juan S. Uribe, Robert Eastlack, Dean Chou, Michael Y. Wang, **Neel Anand**, Adam S. Kanter, Stacie Nguyen, Christopher I. Shaffrey, Praveen V. Mummaneni, International Spine Study Group; How Does Case Type, Length of Stay, and Comorbidities Affect Medicare DRG Reimbursement for Minimally Invasive Surgery (MIS) for Deformity? 33rd Annual Meeting Spine Summit Las Vegas, March 8-11, 2017
  214. Gregory M. Mundis, Jr., Robert Eastlack, Praveen V. Mummaneni, David O. Okonkwo, Stacie Nguyen, Adam S. Kanter, **Neel Anand**, Paul Park, Pierce D. Nunley, Juan S. Uribe, Joseph M. Zavatsky, Dean Chou, Vedat Deviren, International Spine Study Group; Current MIS Techniques Fail to Optimize Spinopelvic Parameters in Patients with High Pelvic Incidence. 33rd Annual Meeting Spine Summit Las Vegas, March 8-11, 2017

215. Robert Eastlack, Gregory M. Mundis, Jr., Stacie Nguyen, Praveen V. Mummaneni, David O. Okonkwo, Adam S. Kanter, Neel Anand, Paul Park, Pierce D. Nunley, Juan S. Uribe, Joseph M. Zavatsky, Dean Chou, Vedat Deviren, International Spine Study Group; Early and Late Reoperation Rates and Etiologies are Similar Between cMIS and HYB Techniques for ASD Correction. 33rd Annual Meeting Spine Summit Las Vegas, March 8-11, 2017
216. Michael Y. Wang, Joseph M. Zavatsky, Paul Park, Dean Chou, Adam S. Kanter, Juan S. Uribe, Pierce D. Nunley, Robert Eastlack, Behrooz A. Akbarnia, **Neel Anand**, Stacie Nguyen, Praveen V. Mummaneni, Gregory M. Mundis, Jr., International Spine Study Group; Impact of Multi-level Interbody Fusion in the Treatment of Severe Adult Scoliosis (Thoracolumbar Coronal Cobb Angle >50 Degrees). 33rd Annual Meeting Spine Summit Las Vegas, March 8-11, 2017
217. Joseph M. Zavatsky, Adam S. Kanter, Gregory M. Mundis, Jr., Zachary Tempel, Stacie Nguyen, Dean Chou, Paul Park, Juan S. Uribe, Michael Y. Wang, **Neel Anand**, Robert Eastlack, Praveen V. Mummaneni, David O. Okonkwo, International Spine Study Group; Does Concave Versus Convex Approach Matter when Using Lateral Lumbar Interbody Fusion for Adult Scoliosis? 33rd Annual Meeting Spine Summit Las Vegas, March 8-11, 2017
218. Gregory M. Mundis, Jr., Jacob Januszewski, Juan S. Uribe, Michael Y. Wang, **Neel Anand**, David O. Okonkwo, Stacie Nguyen, Praveen V. Mummaneni, Pierce D. Nunley, Paul Park, Adam S. Kanter, Joseph M. Zavatsky, Robert Eastlack, Behrooz A. Akbarnia, International Spine Study Group; Patients with High Pelvic Tilt Achieve the Same Clinical Success as Those with Low Pelvic Tilt After Minimally Invasive Deformity Surgery. 33rd Annual Meeting Spine Summit Las Vegas, March 8-11, 2017
219. Dean Chou, Praveen V. Mummaneni, Pierce D. Nunley, Joseph M. Zavatsky, Robert Eastlack, David O. Okonkwo, Michael Y. Wang, Paul Park, Juan S. Uribe, **Neel Anand**, Vedat Deviren, Behrooz A. Akbarnia, Stacie Nguyen, Gregory M. Mundis, Jr., International Spine Study Group; Treatment of the Fractional Curve with Circumferential Minimally Invasive (cMIS) Interbody Versus Open Without Interbody Fusion- An Analysis of Surgical Outcomes. 33rd Annual Meeting Spine Summit Las Vegas, March 8-11, 2017
220. **Neel Anand, MD**; Ryan Cohen, MS4; Jason Cohen, MS4; Babak Khanderoo, MD; Eli Baron, MD; Sheila Kahwaty, PA-C; Clinical and radiological fate of Lumbosacral Junction Following ALIF vs AxialLIF at the bottom of a long construct in CMIS treatment of Adult Spinal Deformity. AAOS, San Diego, March 14-18, 2017
221. **N. Anand**, P. Nunley, R. Fessler, P. Park, J. Zavatsky, G. Mundis, J. Uribe, R. Eastlack, D. Chou, M. Wang, N. Anand, A. Kanter, C. Shaffrey, P. Mummaneni, International Spine Study Group; Case Type, Length of Stay and Comorbidities' Affect on Medicare DRG Reimbursement on Minimally Invasive Surgery (MIS) for Spinal Deformity. Annual Meeting of The international society for the advancement of spine surgery (ISASS), Boca Raton, April 12-14, 2017
222. **Neel Anand, MD**; Ryan Cohen, MS4; Jason Cohen, MS4; Babak Khanderoo, MD; Eli Baron, MD; Sheila Kahwaty, PA-C; An Analysis of Outcome Predictors with Circumferential Minimally Invasive Surgical Correction (CMIS) of Adult Spinal Deformity (ASD) - A Multivariate Linear Regression Analysis- Annual Meeting of The international society for the advancement of spine surgery (ISASS), Boca Raton, April 12-14, 2017
223. **Neel Anand, MD**; Ryan Cohen, MS4; Jason Cohen, MS4; Babak Khanderoo, MD; Eli Baron, MD; Sheila Kahwaty, PA-C; Clinical and Radiological Fate of the Lumbosacral Junction Following ALIF vs. AxialLIF at the Bottom of a Long Construct in CMIS Treatment of Adult Spinal Deformity. Annual

Meeting of The international society for the advancement of spine surgery (ISASS), Boca Raton, April 12-14, 2017

224. **Neel Anand, MD**; Ryan Cohen, MS4; Jason Cohen, MS4; Babak Khanderoo, MD; Eli Baron, MD; Sheila Kahwaty, PA-C; What is the Minimal Clinical Important Difference (MCID) in Patients Undergoing Circumferential Minimally Invasive Correction (CMIS) Correction of Adult Spinal Deformity (ASD)? Annual Meeting of The international society for the advancement of spine surgery (ISASS), Boca Raton, April 12-14, 2017
225. **Neel Anand, MD**; Ryan Cohen, MS4; Jason Cohen, MS4; Babak Khanderoo, MD; Eli Baron, MD; Sheila Kahwaty, PA-C; Analysis of Operative Outcomes in Elderly Patients Following Circumferential Minimally Invasive Surgical (CMIS) Correction of Adults Spinal Deformity (ASD)-Estate Ballroom. Annual Meeting of The international society for the advancement of spine surgery (ISASS), Boca Raton, April 12-14, 2017
226. **Neel Anand, MD**; Ryan Cohen, MS4; Jason Cohen, MS4; Babak Khanderoo, MD; Eli Baron, MD; Sheila Kahwaty, PA-C; Does Obesity Affect Outcomes of Patients Undergoing Circumferential Minimally Invasive Surgical (CMIS) Correction of Adults Spinal Deformity (ASD)? Annual Meeting of The international society for the advancement of spine surgery (ISASS), Boca Raton, April 12-14, 2017
227. Paul Park, MD; Gregory M. Mundis, MD; Khoi D. Than, MD; Kai-Ming Gregory Fu, MD, PhD; Stacie Nguyen, MPH; Juan S. Uribe, MD; Adam S. Kanter, MD; Pierce D. Nunley, MD; Robert K. Eastlack, MD; Richard G. Fessler, MD, PhD; **Neel Anand, MD**; Frank La Marca, MD; Praveen V. Mummaneni, MD; International Spine Study Group; Analysis of Complications with Staged Surgery for Less Invasive Treatment of Adult Spinal Deformity. 52<sup>nd</sup> Scoliosis Research Society (SRS) Annual Meeting & course, Philadelphia, PA September 6-9, 2017
228. **Neel Anand, MD**; Babak Khandehroo, MD; and Sheila Kahwaty, PAC; Management of Adult Spinal Deformity (ASD) with Marked Schwab Sagittal Modifier (++) Using Staged Circumferential Minimally Invasive Surgical (CMIS) Strategies- Can T2 to Pelvis Fusion be avoided? - A 2 year Outcome study. Society for Minimally Invasive Spine Surgery (SMISS) Las Vegas, Nevada September 14-16, 2017
229. **Neel Anand, MD**; Babak Khandehroo, MD; and Sheila Kahwaty, PAC; A Strategic Staged Surgical Protocol for Correcting Sagittal alignment parameters with Circumferential Minimally Invasive Surgery(CMIS) of Adult Spinal Deformity(ASD). Society for Minimally Invasive Spine Surgery (SMISS) Las Vegas, Nevada September 14-16, 2017
230. **Neel Anand, MD**; Babak Khandehroo, MD; and Sheila Kahwaty, PAC; The incidence of Proximal Junctional Kyphosis (PJK) and Proximal Junctional Failure (PJF) in Patients Undergoing Circumferential Minimally Invasive Surgical (CMIS) Correction for Adult Spinal Deformity- 2 to 10 year follow-up. Society for Minimally Invasive Spine Surgery (SMISS) Las Vegas, Nevada September 14-16, 2017
231. **Neel Anand**, Babak Khandehroo, Sheila Kahwaty; Management of Adult Spinal Deformity (ASD) with Marked Schwab Sagittal Modifier (++) Using Staged Circumferential Minimally Invasive Surgical (CMIS) Strategies- Can T2 to Pelvis Fusion be avoided?A 2 year Outcome study, AAOS Annual Meeting: March 6-10 2018 New Orleans, Louisiana
232. **Neel Anand**, Alisa Alayan, Jason Cohen, Ryan Cohen, Babak Khandehroo; Clinical and Radiological Fate of the Lumbosacral Junction Following ALIF vs. AxiaLIF at the Bottom of a Long Construct in CMIS TreatmentofAdult Spinal Deformity. AAOS Annual Meeting: March 6-10 2018 New Orleans, Louisiana



233. Gregory M. Mundis, Jr., Paul Park, Khoi D. Than, Kai-Ming G. Fu, Stacie Tran, Juan S. Uribe, Adam S. Kanter, David O. Okonkwo, Pierce D. Nunley, Robert Eastlack, Richard G. Fessler, **Neel Anand**, Frank La Marca, Praveen V. Mummaneni, International Spine Study Group; Analysis of Complications with Staged Surgery for Less Invasive Treatment of Adult Spinal Deformity; Spine Summit 2018- 34th Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves, March 14-17, 2018, Orlando, Florida
234. Michael Gerling, Gregory M. Mundis, Jr., Juan S. Uribe, Paul Park, Praveen V. Mummaneni, Kai-Ming G. Fu, Stacie Tran, Khoi D. Than, Pierce D. Nunley, David O. Okonkwo, Richard G. Fessler, **Neel Anand**, Robert Eastlack, International Spine Study Group; The Impact of Revision Surgery on Patients Undergoing MIS Correction of Adult Spinal Deformity: A Multicenter Study; Spine Summit 2018- 34th Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves, March 14-17, 2018, Orlando, Florida
235. Justin Ledesma, Robert Eastlack, Stacie Tran, Paul Park, Khoi D. Than, Praveen V. Mummaneni, Dean Chou, Adam S. Kanter, **Neel Anand**, Pierce D. Nunley, Frank La Marca, Richard G. Fessler, Juan S. Uribe, Gregory M. Mundis, Jr., International Spine Study Group; Home versus Rehab: Factors That Influence Disposition After MIS Adult Spinal Deformity Surgery?; Spine Summit 2018- 34th Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves, March 14-17, 2018, Orlando, Florida
236. Peter G. Passias, Gregory W. Poorman, Dennis VasquezMontes, Gregory M. Mundis, Jr., **Neel Anand**, Santha R. Horn, Bassel G. Diebo, Cole Bortz, Frank Segreto, M. Burhan Janjua, Douglas C. Burton, Aaron J. Buckland, Michael Gerling, Alexandra Soroceanu, Robert Eastlack, D. Kojo Hamilton, Robert Hart, Frank Schwab, Virginie Lafage, Christopher I. Shaffrey, Daniel M. Sciubba, Shay Bess, Christopher P. Ames, Eric Klineberg; Predictive Analytics for Determining Extended Operative Time in Corrective ASD Surgery; Spine Summit 2018- 34th Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves, March 14-17, 2018, Orlando, Florida
237. **N. Anand**, B. Khandehroo, S. Kahwaty, C. Kong, E. Nomoto; Radiographic Analysis of Coronal and Sagittal Alignment Correction after a Strategic Staged Surgical Protocol for CMIS Correction of ASD, ISASS 18, April 11-13, 2018, Toronto, Canada
238. **N. Anand**, B. Khandehroo, S. Kahwaty, C. Kong, E. Nomoto ; Can T2 to Pelvis Fusion Be Avoided in Adult Spinal Deformity (ASD) with Marked Schwab Sagittal Modifier (++) Using Staged Circumferential Minimally Invasive Surgical (CMIS) Strategies - A Minimum 2 Year Outcome Study. ISASS 18, April 11-13, 2018, Toronto, Canada
239. **N. Anand**, B. Khandehroo, S. Kahwaty, C. Kong, E. Nomoto; Analysis of Operative Outcomes in Elderly Patients Following a Strategic Staged Circumferential Minimally Invasive Surgical (CMIS) Correction of Adults Spinal Deformity (ASD). ISASS 18, April 11-13, 2018, Toronto, Canada
240. Robert K. Eastlack, MD; Pierce D. Nunley, MD; Juan S. Uribe, MD; Paul Park, MD; Stacie Tran, MPH; Michael Y Y Wang, MD; Khoi D. Than, MD; David O Okonkwo, MD, PhD; Adam S. Kanter, MD; **Neel Anand**, MD; Richard G. Fessler, MD, PhD; Kai-Ming Gregory Fu, MD, PhD; Dean Chou, MD; Praveen V. Mummaneni, MD; Gregory M. Mundis, MD; International Spine Study Group; Impact of Lower Thoracic vs. Upper Lumbar UIV in MIS Correction of Adult Spinal Deformity. 25<sup>th</sup> IMAST (International Meeting for Advanced Spinal Technologies); July 11-14, 2018, LA California
241. Neel Anand, MD; Edward Nomoto, MD; Christopher Kong, MD; Babak Khandehroo, MD; Sheila

- Kahwaty, PA-C; Minimally Invasive Oblique Lateral Interbody Fusion (OLIF) at the bottom of a long construct (L5-S1) for Adult Spinal Deformity (ASD): Radiographic analysis and operative outcomes. Society for Minimally Invasive Spine Surgery (SMISS) Las Vegas, Nevada September 6-8, 2018
242. **Neel Anand, MD**; Edward Nomoto, MD; Christopher Kong, MD; Babak Khandehroo, MD; Sheila Kahwaty, PA-C; Minimally Invasive Multilevel Oblique Lumbar Interbody Fusion (OLIF): An Anatomical Single Position Approach for CMIS Correction of Adult Spinal Deformity (ASD). Society for Minimally Invasive Spine Surgery (SMISS) Las Vegas, Nevada September 6-8, 2018 Spinal Balance: Reducing Bacterial Dose During
  243. Gregory M. Mundis Jr., MD; Eric S. Varley, DO; Juan S. Uribe, MD; Paul Park, MD; Stacie Nguyen, MPH; Pierce D. Nunley, MD; Adam S. Kanter, MD; **Neel Anand, MD**; Khoi D. Than, MD; David O. Okonkwo, MD; Richard G. Fessler, MD, PhD; Kai Fu; Michael Y. Wang, MD; Dean Chou, MD; Robert K. Eastlack, MD; International Spine Study Group; Transforaminal versus Anterior Lumbar Interbody Fusion at L5-S1 in MIS Treatment of ASD: Effect on Spinopelvic Parameters and Outcomes in Degenerative Scoliosis; NASS 33<sup>rd</sup> Annual Meeting, Sept 26-29, 2018, LA California
  244. Paul Park, MD; Robert K. Eastlack, MD; Kai Fu; Stacie Nguyen, MPH; Gregory M. Mundis Jr., MD; Juan S. Uribe, MD; Michael Y. Wang, MD; Khoi D. Than, MD; David O. Okonkwo, MD; Adam S. Kanter, MD; Pierce D. Nunley, MD; **Neel Anand, MD**; Richard G. Fessler, MD, PhD; Dean Chou, MD; International Spine Study Group; Is Achieving Optimal Spinopelvic Parameters Necessary to Obtain Substantial Clinical Benefit? Analysis of Patients Who Underwent Circumferential MIS or Hybrid Surgery with Open Posterior Instrumentation; NASS 33<sup>rd</sup> Annual Meeting, Sept 26-29, 2018, LA California
  245. Aakash Agarwal, PhD; Boren Lin, PhD; **Neel Anand, MD**; Jeffrey C. Wang, MD; Anand Agarwal, MD; Christian Schultz, MD, MBA; Hossein K. Elgafy, MD, FRCS, FRCS; Vijay K. Goel, PhD; Steven R. Garfin, MD; Dennis P. McGowan, MD; Chris Karas, MD  
Spinal Balance: Reducing Bacterial Dose During Instrumented Spine Surgery: A Clinical Study on a Novel and Effortless Method; NASS 33<sup>rd</sup> Annual Meeting, Sept 26-29, 2018, LA California
  246. Paul Park, MD; Robert K. Eastlack, MD; Kai-Ming Gregory Fu, MD, PhD; Stacie Tran, MPH; Gregory M Mundis, MD; Juan S. Uribe, MD; Michael Y. Wang, MD; Khoi D. Than, MD; David O Okonkwo, MD, PhD; Adam S. Kanter, MD; Pierce D. Nunley, MD; **Neel Anand, MD**; Richard G. Fessler, MD, PhD; Dean Chou, MD; Praveen V. Mummaneni, MD; International Spine Study Group; Is Achieving Optimal Spinopelvic Parameters Necessary to Obtain Substantial Clinical Benefit: Analysis of Patients Who Underwent Circumferential MIS or Hybrid Surgery with Open Posterior Instrumentation. SRS 53<sup>rd</sup> Annual Meeting & course, Oct 10-13, 2018, Bologna, Italy.
  247. **N. Anand**, E. Nomoto, C. Kong, B. Khandehroo, S. Kahwaty; Los Angeles, CA/US; Minimally Invasive Multilevel Oblique Lumbar Interbody Fusion (OLIF): An Anatomical Single Position Approach for CMIS Correction of Adult Spinal Deformity (ASD). ISASS19 - 19th Annual Conference, April 3 - April 5, 2019 - Anaheim, California, USA
  248. **N. Anand**, E. Nomoto, C. Kong, M. McGinity, B. Khandehroo, S. Kahwaty; Los Angeles, CA/US; Long Term Results of Minimally Invasive In line Posterior Inferior iliac Spine (PIIS) Screw fixation for CMIS Correction of ASD – A Simple alternative to S2A1 screws for iliac Fixation. ISASS19 - 19th Annual Conference, April 3 - April 5, 2019 - Anaheim, California, USA
  249. **N. Anand**, E. Nomoto, C. Kong, B. Khandehroo, S. Kahwaty; Los Angeles, CA/US; Minimally Invasive Multilevel Oblique Lumbar Interbody Fusion (OLIF): An Anatomical Single Position Approach for

- CMIS Correction of Adult Spinal Deformity (ASD). 12th Annual SOLAS Meeting, Miami, FL, May 16-18, 2019
250. **N. Anand**, E. Nomoto, C. Kong, M. McGinity, B. Khandehroo, S. Kahwaty; Los Angeles, CA/US; Long Term Results of Minimally Invasive In line Posterior Inferior iliac Spine (PIIS) Screw fixation for CMIS Correction of ASD – A Simple alternative to S2A1 screws for iliac Fixation. 12th Annual SOLAS Meeting, Miami, FL, May 16-18, 2019
  251. R. Eastlack, J. Uribe, R. Fessler, K. Than, S. Tran, D. Chou, P. Park, K. Fu, M. Wang, A. Kanter, P. Mummaneni, D. Okonkwo, P. Nunley, **N. Anand**, G. Mundis, I.S. Study Group; DOES ACR RESULT IN GREATER MORBIDITY THAN LLIF ALONE WHEN TREATING ADULT SPINAL DEFORMITY? 12th Annual SOLAS Meeting, Miami, FL, May 16-18, 2019
  252. R. Eastlack, D. Chou, J. Uribe, R. Fessler, K. Than, S. Tran, P. Park, K. Fu, M. Wang, A. Kanter, P. Mummaneni, D. Okonkwo, P. Nunley, **N. Anand**, G. Mundis, I.S. Study Group; TREATMENT OF ADULT SCOLIOSIS FRACTIONAL CURVE WITH MINIMALLY INVASIVE SURGERY: ANTERIOR VERSUS POSTERIOR APPROACH? 12th Annual SOLAS Meeting, Miami, FL, May 16-18, 2019
  253. Park, P. Mummaneni, K. Than, P. Nunley, R. Eastlack, J. Uribe, M. Wang, S. Tran, R. Fessler, D. Okonkwo, **N. Anand**, D. Chou, K. Fu, G. Mundis, I.S. Study Group; Choosing Minimally Invasive vs. Open Surgery In The Treatment Of Adult Spinal Deformity (ASD): Analysis Of A Prospective, Non-Randomized Multicenter Study P. 12th Annual SOLAS Meeting, Miami, FL, May 16-18, 2019
  254. Aakash Agarwal, PhD; Boren Lin, PhD; Hossein Elgafy, MD, FRCS, FRCS(C); Hossein Elgafy, MD, FRCS, FRCS(C); Vijay K. Goel, PhD; Anand K. Agarwal, MD; Chris Karas, MD; Steven R. Garfin, MD; Jeffrey C. Wang, MD; **Neel Anand, MD**. Can We Reduce the Infection Rates Associated with High Implant Density in Deformity Surgeries? Scoliosis Research Society (SRS) 54<sup>th</sup> Annual Meeting & Course, Montreal, Canada, September 18-21, 2019
  255. **Neel Anand, MD**; Babak Khandehroo, MD; Sheila Kahwaty, PA-C; and Edward Nomoto, MD Reoperation and Complication Rates After Strategic Circumferential Minimally Invasive Surgical (CMIS) Correction of Adult Spinal Deformities (ASD) - A 7-year Study. Society for Minimally Invasive Spine Surgery (SMISS) Las Vegas, October 31-Nov 2, 2019
  256. **Neel Anand, MD**; Babak Khandehroo, MD; Sheila Kahwaty, PA-C; and Edward Nomoto, MD Are the New Strategic Circumferential Minimally Invasive Surgical (CMIS) Techniques a Safe and Effective Approach for Correction of Adults Spinal Deformity (ASD) in Elderly Patients? Society for Minimally Invasive Spine Surgery (SMISS) Las Vegas, Oct 31-Nov 2, 2019
  257. Gregory Mundis Jr., MD; Paul Park, MD; Robert Eastlack, MD; Juan Uribe, MD; Stacie Tran; Kenyu Ito, MD; Pierce Nunley, MD; Michael Wang, MD; Richard Fessler, MD, PhD; **Neel Anand, MD**; Adam Kanter, MD; David Okonkwo, MD; and Christopher Shaffrey, MD. A Prospective Analysis of Minimally Invasive Surgery for Adult Spinal Deformity: A Multicenter Study. Society for Minimally Invasive Spine Surgery (SMISS) Las Vegas, Oct 31-Nov 2, 2019
  258. Dean Chou; Pierce Nunley; Robert Eastlack; Juan Uribe; Richard Fessler; Khoi Than; Paul Park; Kai-Ming Fu; Michael Wang; Adam Kanter; David Okonkwo; **Neel Anand**; Gregory Mundis; and Praveen Mummaneni. Revision Surgery Rates in Patients Undergoing Minimally Invasive Adult Spinal Deformity Surgery: Is There a Correlation with Roussouly Spine Type? Society for Minimally Invasive Spine Surgery (SMISS) Las Vegas, Oct 31-Nov 2, 2019

259. Robert Eastlack, MD; Dean Chou, MD; Juan Uribe, MD; Richard Fessler, MD; Khoi Than, MD; Stacie Tran; Paul Park, MD; Kai-Ming Fu, MD; Michael Wang, MD; Adam Kanter, MD; David Okonkwo, MD; Pierce Nunley, MD; **Neel Anand, MD**; Gregory Mundis, MD; Praveen Mummaneni, MD; and International Spine Study Group. Treatment of Adult Scoliosis Fractional Curve with Minimally Invasive Surgery: Anterior versus Posterior Approach? Society for Minimally Invasive Spine Surgery (SMISS) Las Vegas, Oct 31-Nov 2, 2019
260. Robert Eastlack, MD; Juan Uribe, MD; Richard Fessler, MD, PhD; Khoi Than, MD; Stacie Tran; Dean Chou, MD; Paul Park, MD; Kai-Ming Fu, MD; Michael Wang, MD; Adam Kanter, MD; David Okonkwo, MD; Pierce Nunley, MD; **Neel Anand, MD**; Praveen Mummaneni, MD; Gregory Mundis Jr., MD; and International Spine Study Group. Does ACR Result in Greater Morbidity than LLIF Alone When Treating Adult Spinal Deformity? Society for Minimally Invasive Spine Surgery (SMISS) Las Vegas, Oct 31-Nov 2, 2019
261. **Neel Anand, MD**; Alisa Alayan, MD; Edward Nomoto, MD; Babak Khandehroo, MD; Sheila Kahwaty, PA-C; Reoperation and complication Rates after Strategic Circumferential Minimally Invasive Surgical (cMIS) Correction of Adult Spinal Deformities (ASD) - a 7 year study. ISASS 20, San Juan, Puerto Rico, Feb 26-28, 2020
262. **Neel Anand, MD**; Alisa Alayan, MD; Edward Nomoto, MD; Babak Khandehroo, MD; Sheila Kahwaty, PA-C; Can Pelvic Tilt and Spino-pelvic Parameters be corrected with L5-S1 Oblique lateral Interbody Fusion (OLIF 5-1) at the bottom of a long construct in CMIS correction of ASD. ISASS 20, San Juan, Puerto Rico, Feb 26-28, 2020
263. **Neel Anand, MD**; Edward Nomoto, MD; Christopher Kong, MD; Babak Khandehroo, MD; Sheila Kahwaty, PA-C; Are the New Strategic Circumferential Minimally Invasive Surgical (CMIS) Techniques a Safe and Effective Approach for Correction of Adults Spinal Deformity (ASD) in Elderly Patients? 27th IMAST (International Meeting for Advanced Spinal Technologies), Athens, Greece, April 1-4, 2020.

## THESES SUBMITTED

1. **"Transpedicular Screw Fixation for Thoracolumbar and Lumbar Spinal Disorders" - The Bombay Experience**  
This Thesis was accepted to the University of Liverpool for the degree of *Mch.Orth. (1992)*.
2. **"Internal Fixation of Traumatic Spine - An analysis of various methods"**  
This Thesis was accepted to the University of Bombay for the degree of *M.S.Orth. (1988)*
3. **"Harrington Rod Instrumentation" - A method of treatment for fractures and fracture-dislocations of dorso-lumbar and lumbar spine with neurological involvement.**  
This Thesis was accepted to the College of Physicians and Surgeons of Bombay for the degree of *F.C.P.S.Orth. (1988)*

## VIDEO

1. **Anand N, Hamilton J,:** Cantilever TLIF (C-TLIF) for Maintenance and Correction of Segmental Sagittal

Deformity. Innovative Treatment Options in Spine Surgery, SRS 39<sup>th</sup> Annual Meeting WEBCAST, Buenos Aires, September 2004.

2. **Anand N**, Hamilton J,: Cantilever TLIF (C-TLIF) for Reduction of Spondylolisthesis. Innovative Treatment Options in Spine Surgery, SRS 39<sup>th</sup> Annual Meeting WEBCAST, Buenos Aires, September 2004
3. Perri B, Siddique K, **Anand N**, Pashman RS, and Johnson JP. Charité SBIII Artificial Disc Replacement: Techniques for Surgical Implantation. Instructional Video in Vaccaro, AR, Baron, EM *Atlas of Spinal Surgery*. Elsevier Medical Publishing, Philadelphia. 2007
4. Brian Perri, **Neel Anand**, Gabriel Hunt, Leonel Hunt, MD: Cervicothoracic Deformity correction in Vaccaro, AR, Baron, EM *Atlas of Spinal Surgery*. Elsevier Medical Publishing, Philadelphia. 2007
5. **Neel Anand**, and Eli Baron: Paraspinal Approach and interlaminar decompression – A technique for Posterior Non-Fusion Stabilization. *SAS Journal*. Winter 2008. 2:40–42. DOI: SASJ- 2007-0120-MIS

## VISITING PROFESSOR

**University of California San Diego, Combined Orthopaedic and Neurosurgery Grand Rounds, San Diego, CA, June 2007** – Posterior Non-Fusion Stabilization for Lumbar DDD

**University of Virginia Department of Spine Surgery Grand Rounds, Charlottesville, VA, August 2008** – Multilevel Percutaneous 360 Degree Fusion for Adult Degenerative Scoliosis; Direct Lateral Interbody Fusion; CD Longitude Multilevel Percutaneous Fixation

**University of South Florida, Department of Orthopedics & Sports Medicine Grand Rounds, Tampa, FL, December 2009** – The Technique as well as the Do's and Don'ts of Minimally Invasive Surgery for Spinal Deformity

**Tampa Bay Orthopaedic Society, Tampa, FL, December 2009** – Minimally Invasive Surgery for correction and fusion of Scoliosis

**New York University, Hospital for Joint Diseases, New York, NY, December 2015** – Minimally Invasive Surgery for Adult Spinal Deformity – A 12-year Journey

**Twin Cities Spine Center, John Moe Visiting Professor, St-Paul-Minneapolis, MN, May 2019**

## EDITORIAL AND REVIEW WORK

1. Editor: Gray's Surgical Anatomy, 2019
2. Editor: Gray's Anatomy, 42<sup>nd</sup> Ed, 2019

3. Editor: Gray's Anatomy, 41<sup>st</sup> Ed, 2016
4. European Spine Journal – Assistant Editorial Board, 2014
5. Deputy Editor: SAS Journal
6. Peer Reviewer: ISSAS Journal
7. Reviewer – SAS/ISASS Annual Meeting, 2009, 2012, 2013, 2014, 2015, 2016, 2018
8. Reviewer – NASS Annual Meeting, 2009, 2012, 2013
9. Reviewer – SRS/IMAST, 2013
10. Reviewer – SMISS Annual Meeting, 2013, 2014, 2015, 2016
11. Reviewer – AAOS Annual Meeting, 2017, 2018

## **TEACHING CONFERENCES AND SYMPOSIA**

### **COURSE DIRECTOR/CO-DIRECTOR/CHAIRMAN**

1. Course Director, Fifth Annual Symposium on Current Concepts in Spinal Disorders, Las Vegas, NV, Feb 3-4, 2006.
2. Course Director, Sixth Annual Symposium on Current Concepts in Spinal Disorders, Las Vegas, NV, Mar 1-3, 2007
3. Chairman, Current Concepts in Spine, Los Angeles, CA, Dec 8, 2007
4. Course Director, Seventh Annual Symposium on Current Concepts in Spinal Disorders, Las Vegas, NV, Feb 1-3, 2008
5. Course Director, Eighth Annual Symposium on Current Concepts in Spinal Disorders, Las Vegas, NV, Jan 29-Feb 1, 2009
6. Course Co-Chairman, 4<sup>th</sup> Annual Course on Sharpening Your Surgery Skills, Burr Ridge, IL, May 15-16, 2009
7. Course Co-Chairman, Association of Presacral Spine Surgeons (APSS): Problems and solutions in adult scoliosis treatment: The role of Lumbosacral Fixation, New York, NY, January 2010
8. Course Co-Director, Ninth Annual Symposium on Current Concepts in Spinal Disorders, Las Vegas, NV, Feb. 2-4, 2010
9. Course Chairman, Association of Presacral Spine Surgeons (APSS): Adult Complex Spine Workshop:

Current Concepts in Lumbosacral Fixation, Las Vegas, NV, June 2010

10. Course Co-Director, Tenth Annual Symposium on Current Concepts in Spinal Disorders, Las Vegas, NV, Feb. 3-5, 2011
11. Course Co-Director, 11th Annual Symposium on Current Concepts in Spinal Disorders, Las Vegas, NV, Feb. 2-4, 2012
12. Course Director, Deformity Course, Tampa, FL, January 25-26, 2013
13. Course Co-Director, 12th Annual Symposium on Current Concepts in Spinal Disorders, Las Vegas, NV, Jan 31- Feb. 2, 2013
14. Course Chairman, SMISS, Las Vegas, NV, November 1-3, 2013
15. Course Co-Director, 13th Annual Symposium on Current Concepts in Spinal Disorders, Las Vegas, NV, Jan 30- Feb. 1, 2014
16. Course Co-Director, 13th Annual Symposium on Current Concepts in Spinal Disorders, Las Vegas, NV, Jan 30- Feb. 1, 2015
17. Course Co-Director, 15th Annual Symposium on Current Concepts in Spinal Disorders, Las Vegas, NV, Jan 30- Feb. 1, 2016
18. Course Co-Director, 16th Annual Symposium on Current Concepts in Spinal Disorders, Las Vegas, NV, Jan 30- Feb. 1, 2017
19. Course Co-Director, 17th Annual Symposium on Current Concepts in Spinal Disorders, Las Vegas, NV, Jan 30- Feb. 1, 2018
20. Course Co-Director, 18th Annual Symposium on Current Concepts in Spinal Disorders, Las Vegas, NV, Jan 30- Feb. 1, 2019
21. Chairman, Disc Arthroplasty Summit, Los Angeles, CA, Nov 15, 2019

#### **INVITED SPEAKER/FACULTY/MODERATOR**

1. **Emerging Technologies in Spinal Surgery, Washington DC, October 2002**  
Minimal Access to Spine Surgery Gas Assisted Laparoscopic ALIF  
Panel Discussion Minimally Invasive Surgery
2. **Third Annual Symposium on Current Concepts in Spinal Disorders. La Quinta, CA, February 2004**  
Cantilever TLIF  
Dynesys
3. **NASS Workshop on “Surgical Approaches and Techniques for the Lumbar Spine” St. Louis, Missouri, April 2004**  
Open and Laparoscopic Approaches for ALIF.

4. **Spine Technology Education Group. Los Cabos, August 2004**  
Dynesys
5. **NASS, Chicago, Illinois, October 2004**  
TLIF Workshop
6. **Non-Fusion Technologies/"Soft Restraints", Practical Anatomy & Surgical Education, St. Louis, Missouri, November 2004**  
Posterior Interbody Fusion Techniques (Open PLIF and TLIF),
7. **AANA. Whistler, British Columbia, Canada, January 2005**  
Minimally Invasive Lumbar Fusion/Posterior Lumbar Interbody Fusion
8. **72<sup>nd</sup> American Association of Orthopedic Surgeons (AAOS) Annual Meeting. Wash., D.C., February 2005**  
Symposium: Anterior Thoracolumbar Spinal Surgery: Minimal and Maximally Invasive
9. **National Osteoporosis Foundation (NOF) 6<sup>th</sup> Int'l Symposium on Osteoporosis. Wash., DC, April 2005**  
Vertebroplasty and Kyphoplasty
10. **North American Spine Society (NASS) Spring Break 2005 - Spring into Motion. BalHarbour, FL, April 2005**  
Dynesys
11. **Hands-on Cadaver Instructional Course, San Diego April 2005**  
Instructor XLIF Training Course  
Instructor Minimally Invasive TLIF Training Course
12. **Spine Trauma Study Group, New York, NY, April 2005**  
Advances in Kyphoplasty  
Alternatives to Cement Augmentation
13. **Posterior Dynamic Stabilization Instructional Course, Santa Monica, CA May 2005**  
Case Presentations Dynesys
14. **IMAST Annual Meeting, Banff, Canada, July 2005**  
Minimally Disruptive TLIF  
Percutaneous Stabilization of Thoracolumbar Fractures  
Kyphoplasty Workshop
15. **2nd Annual Innovative Techniques in Spine Surgery Symposium, Los Cabos, August 2005**  
Dynesys  
Instructor, Kyphoplasty Workshop
16. **Loma Linda Dept of Orthopaedic Annual Meeting, Mammoth Lakes, CA September 2005**  
Posterior Dynamic Stabilization Dynesys
17. **Technologies in Spine Surgery, Washington DC, September 2005**  
XLIF



18. **NASS Annual Meeting, Philadelphia, September 2005**  
Instructor Dynesys Workshop
19. **American College of Rheumatology (ACR) National Meeting, San Diego, November 2005**  
Orthopaedic Symposium, Advances in Orthopaedic Surgery Vertebroplasty and Kyphoplasty
20. **Hands-on Cadaver Instructional Course, San Diego, December 2005**  
XLIF Training Course Instructor  
Minimally Invasive TLIF Training Course Instructor
21. **IOACON 2005, Bombay, India. December 2005**  
Minimally Invasive Fusion Surgery  
Lumbar Disc Herniations  
Dynamic Non-Fusion Technology  
Microdecompression for Spinal Stenosis  
XLIF  
Cantilever TLIF
22. **Spine Trauma Study Group (STSG) Meeting, Vancouver, January 2006**  
MRI Standards in Spine Trauma
23. **Fifth Annual Symposium on Current Concepts in Spinal Disorders. Las Vegas, Nevada, February 2006**  
Dynesys: Dynamic Non-Fusion Stabilization  
Posterior Lumbar Artificial Disc Devices  
XLIF  
Cadaver Workshop: MAST TLIF, Thoracic Pedicle Screws
24. **72<sup>nd</sup> American Association of Orthopedic Surgeons (AAOS) Annual Meeting. Chicago, March 2006**  
Symposium: Anterior Thoracolumbar Spinal Surgery: Minimal and Maximally Invasive XLIF
25. **Scoliosis Association Meeting, La Jolla, April 2006**  
Posterior Non-Fusion Stabilization Dynesys
26. **1<sup>st</sup> Spine Technology Summit, Montreal, Quebec, Canada, May 2006**  
Faculty Panel Discussion on Posterior Dynamic Stabilization
27. **6<sup>th</sup> Spine Arthroplasty Society (SAS) Annual Meeting, Montreal, Quebec, Canada, May 2006**  
Instructional Course Posterior Non-Fusion Technology
28. **Global Spine 2006, Las Vegas, June 2006**  
The Role for Minimally Invasive Surgery in Spine Trauma  
Cadaver Workshop MAST TLIF
29. **3rd Annual Innovative Techniques in Spine Surgery Symposium, Los Cabos, June 2006**  
Dynesys  
Lytic Spondylolisthesis How I do it  
Neuromonitoring
30. **IMAST, Athens, Greece, July 2006**  
Moderator Spondylolisthesis Symposium

Instructor ICL: Posterior Percutaneous Instrumentation for Spine Trauma

31. **NASS Annual Meeting, Seattle, September 2006**  
Trans1 Workshop
32. **"Contemporary Surgical Techniques in Spine Trauma", Phoenix, October 2006**  
The MRI & PLC: How it can Guide Treatment in T/L Trauma  
Debate: Cervical Fracture Dislocations
33. **Minimally Invasive Surgery of the Spine (SMISS) 2006, San Diego, November 2006**  
Moderator: Case Presentations  
Instructor: XLIF Workshop
34. **Dynesys Course and Workshop, Las Vegas, November 2006**  
Case Presentations Dynesys for DDD
35. **HSS Alumni Meeting, New York, November 2006**  
Debate: Posterior Non-Fusion Stabilization for DDD
36. **Globus Annual Sales Meeting, Tampa, January 2007**  
Posterior Non-Fusion Stabilization for DDD
37. **Spine Trauma Study Group (STSG) Meeting, Denver, January 2007**  
MRI to evaluate Cervical Discoligamentous Complex in Cervical Spine Trauma
38. **AANA. Whistler, British Columbia, Canada, January 2007**  
Instructor Dynesys Workshop  
Faculty Adolescent Idiopathic Scoliosis Update
39. **One Spine Mtg Controversies in Spine Surgery, Cancun, February 2007**  
Faculty Debate: Cervical Arthroplasty is the standard of Care  
Faculty Debate: Fusion for Degenerative Spondylolisthesis  
Faculty Debate: Posterior Non-Fusion Stabilization for DDD  
Moderator & Instructor Minimally Invasive Techniques in Spine Trauma  
Moderator & Instructor Posterior Dynamic Stabilization
40. **73rd American Association of Orthopedic Surgeons (AAOS) Annual Meeting. San Diego, February 2007**  
Symposium: Anterior Thoracolumbar Spinal Surgery: Minimal and Maximally Invasive XLIF
41. **MAST Cadaver Workshop, Satellite Training Center, Marina Del Rey, CA. February 2007**  
MAST TLIF  
Thoracic Pedicle Screws  
Direct Lateral Interbody Fusion  
Posterior Dynamic Stabilization  
Multilevel Percutaneous Pedicle Screw Fixation
42. **6th Annual Symposium on Current Concepts in Spinal Disorders. Las Vegas, Nevada, March 2007**  
Faculty Dynamic Non-Fusion Stabilization for Lumbar DDD  
Faculty Posterior Lumbar Artificial Disc Devices  
Faculty Lateral Artificial Disc Replacement

- Faculty Fusion less Scoliosis Surgery in the Pediatric Spine
  - Faculty NeoDisc Cervical Artificial Disc Replacement
  - Faculty Multilevel Percutaneous Pedicle Screw Fixation
  - Moderator Posterior Dynamic Stabilization Symposium
  - Instructor Cadaver Workshop: MAST TLIF, Thoracic Pedicle Screws
43. **San Diego Spine Meeting, San Diego, CA. March 2007**  
Faculty Posterior Non-Fusion Stabilization for Lumbar DDD
  44. **2nd Spine Technology Summit, Berlin, Germany, May 2007**  
Faculty Panel Discussion on Posterior Dynamic Stabilization
  45. **7th Spine Arthroplasty Society (SAS) Annual Meeting, Berlin, Germany, May 2007**  
Faculty Meet the Expert: Dynesys
  46. **A Comprehensive Spine Review for Residents & Fellows, White Sulphur Springs, WV, May 2007**  
Faculty Pediatric Spinal Deformity  
Faculty Adult Spinal Deformity  
Faculty Congenital Spinal Disorders
  47. **Spine Trauma Study Group (STSG) Meeting, Tampa, June 2007**  
Moderator Spinal Trauma Outcomes, breakout session
  48. **City Wide San Diego Spine Conference, San Diego, June 2007**  
Guest Speaker Minimally Invasive Spine Surgery Update on the Science and Technology
  49. **4th Annual Innovative Techniques in Spine Surgery Symposium, Los Cabos, June 2007**  
Faculty Round Table Discussion Dynesys  
Faculty Round Table, Vertebral Augmentation Kyphoplasty for Trauma  
Faculty Minimal Access Surgery, Nerve Surveillance for MIS applications
  50. **IMAST (International Meeting for Advanced Spinal Technologies), Bahamas, July 2007**  
Moderator Cervical and Lumbar Arthroplasty  
Early Bird Round Table Case Discussion Panel Lumbar Spine Challenges  
Instructor: Advanced Topics in MAST, Multilevel Percutaneous Pedicle Screw Instrumentation for Degenerative Scoliosis  
Instructor AxiaLIF: Advanced Techniques and Indications in Complex Lumbar Spine
  51. **World Spine IV: Fourth Interdisciplinary Congress on Spine Care, Istanbul, Turkey, July 2007**  
Faculty Symposium: Advances in the Treatment of Thoracolumbar Scoliotic Deformity, Minimally Invasive Posterior Correction Procedures  
Faculty Symposium: Minimally Invasive Spinal Surgery, Posterior Thoracolumbar Minimally Invasive Strategies
  52. **SINCOL: SIMPOSIO INTERNACIONAL DE COLUNA, Rio De Janeiro, Brazil August 2007**  
Guest Speaker Cervical Disc Arthroplasty will be the Standard of Care in the Future  
Faculty Dynesys for degenerative disc disease  
Faculty Dynesys, Complications and How to avoid them  
Faculty PEMF for Cervical Spine Fusion, results of a prospective randomized trial

53. **Congress of Neurological Surgeons Workshop, San Diego, Sep 2007**  
Faculty CD Horizon Longitude Training,
54. **Congress of Neurological Surgeons Workshop, San Diego, Sep 2007**  
Faculty Minimally Invasive Multilevel Percutaneous Instrumentation for Trauma and Complex Deformity,
55. **The Leaders in Spine Surgery Series, Advanced Decision Making with Emphasis on Posterior Solutions, Las Vegas, Oct 2007**  
Panel Lumbar and Cervical Degenerative Case Discussions  
Instructor Cadaver Workshop
56. **NASS Annual Meeting, Austin, October 2007**  
Faculty: Trans1 Workshop L5-S1 Minimally Invasive Fusion at the End of Long Scoliosis Constructs
57. **Visiting Professor, China, November 2007**  
L5-S1 Minimally Invasive Fusion at the End of Long Scoliosis Constructs, MAST, TLIF  
Huashan Hospital, Shanghai, November 5, 2007  
2nd Hospital of ZJ Medical School, Hangzhou, November 6, 2007  
Zhongda Hospital, Nanjing, November 7, 2007
58. **Chinese Orthopedic Association Meeting, Zhengzhou, China, November 2007**  
Key Note Speaker - Posterior Motion Segment Stabilization
59. **Minimally Invasive Surgery of the Spine Annual Meeting, San Diego, Nov. 2007**  
Faculty Posterior Motion Segment
60. **Current Concepts in Spine Surgery, Los Angeles, December 2007**  
Course Chair Posterior Dynamic Stabilization  
Posterior Lumbar Disc Arthroplasty
61. **Visiting Professor, Apollo Hospital, Chennai, India, January 2008**  
The State of Minimally Invasive Spine Surgery
62. **17<sup>th</sup> Annual Dr. Tom Lowe Spine Symposium: The Surgical Management of Spinal Disorders, Beaver Creek, January 2008**  
Faculty Lumbar Degenerative Disc Disease Indications and Surgical Options  
Faculty Lumbo-Sacral Fixation Challenges and Complications  
Faculty Lumbar Degenerative Disorders Approach Options: MIS vs. Open  
Faculty TL Trauma Challenges and Complications
63. **APSAS Annual Meeting, Seoul, Korea, January 2008**  
Faculty Symposium Indications for Posterior Dynamic Stabilization  
Free Paper Minimally Invasive Percutaneous Multilevel 360 degree Fusion for Lumbar Degenerative Scoliosis a Feasibility Study
64. **APEC Current Techniques in Advanced Spine Care, Memphis, January 2008**  
Faculty MAST TLIF Overview  
CD Horizon Longitude Multilevel Percutaneous Fixation  
Direct Lateral Interbody Fusion Technique  
Overview of Neuromonitoring

65. **Selby Spine Society Meeting, Park City, UT, January 2008**  
Faculty Minimally Invasive Correction and Fusion for Adult Scoliosis
  
66. **Seventh Annual Symposium on Current Concepts in Spinal Disorders, Las Vegas, February 2008**  
Course Chair  
Faculty Multilevel Percutaneous Pedicle Fixation for Spine Trauma  
Faculty Dynesys What Have We Learned?  
Faculty Stabilimax NZ  
Faculty Multilevel Percutaneous 360 Degree Fusion for Adult Degenerative Scoliosis  
Faculty Cervical ADR Will Become the Standard of Care Cervical ADR Debates  
Moderator Lumbar ADR Debates: Reality & Controversy  
Instructor Saw Bones Workshop: Longitude Fusion System, Prestige Cervical Artificial Disc
  
67. **ONE Spine Controversies in Spine Surgery, Cancun, February 2008**  
Faculty Cervical Best Treatment Options  
Aging Spine Options for Sustained Fixation and MIS Treatments  
The Lumbar Spine: Best Treatment Options
  
68. **Winter Spinal Clinics, Cranial and Spinal Surgery, Snow Mass, CO, February 2008**  
Faculty Extreme Lateral Interbody Fusion (XLIF) for Scoliosis  
Minimally Invasive L5-S1 Fusion and Correction for Adult Scoliosis
  
69. **Minimally Invasive Deformity Course, Oakland CA, March 2008**  
Faculty MIS TLIF  
Direct Lateral Interbody Fusion,  
CD Longitude Multilevel Percutaneous Fixation
  
70. **Stabilimax NZ Surgeon Training, Dallas, TX, April 2008**  
Faculty Technique, Pearls & Tips, Case Presentation
  
71. **MAST Deformity Focus Group Meeting, Memphis, TN, April 2008**  
Faculty Minimally Invasive Adult Degenerative Scoliosis  
Faculty MIS TLIF  
Direct Lateral Interbody Fusion,  
CD Longitude Multilevel Percutaneous Fixation
  
72. **Minimally Invasive Deformity Course, Denver, CO, April 2008**  
Faculty MIS TLIF  
Direct Lateral Interbody Fusion,  
CD Longitude Multilevel Percutaneous Fixation
  
73. **Minimally Invasive Deformity Course, in conjunction with AANS Annual Meeting Chicago, IL , April 2008**  
Faculty MIS TLIF  
Direct Lateral Interbody Fusion,  
CD Longitude Multilevel Percutaneous Fixation
  
74. **3<sup>rd</sup> Spine Technology Summit, Miami, FL, May 2008**  
Faculty Panel Discussion on Cervical Total Disc Replacement  
Panel Discussion on The Aging Patient Revolution in Spine Care  
Presenter Dynesys Dynamic Stabilization

Presenter Triumph TDR

75. **8th Spine Arthroplasty Society (SAS) Annual Meeting, Miami, FL, May 2008**  
Faculty Moderator Innovative Technologies  
Presenter: Novel Minimally Invasive Percutaneous Multi-Level 360 Degree Fusion for Lumbar Degenerative Scoliosis Feasibility, Technique and Early Results  
Presenter: Dynamic Stabilization and Indications in Back Pain; Stabilimax NZ Clinical Inv. Meeting  
Presenter: Transl AxiaLIF. A Novel Fusion Technique. Instructional course presented for Transl
76. **SRS/AAOS Current Trends & Treatment Methods in Pediatric and Adult Spinal Deformity, Dallas, TX, May 2008**  
Faculty Presenter: Multilevel Percutaneous 360 Degree Fusion for Adult Degenerative Scoliosis
77. **1<sup>st</sup> World Congress of Minimally Invasive Spine Surgery and Techniques, Honolulu, HI, June 2008**  
Faculty Presenter: Pre-Course Discussion on Posterior Dynamic Stabilization and Dynesys  
Presenter: Minimally Invasive Deformity Correction  
Presenter: Symptomatic Adjacent Disease  
Presenter: Pedicle Based Dynamic Stabilization
78. **5<sup>th</sup> Innovative Techniques in Spine Surgery, Los Cabos, Mexico, June 2008**  
Faculty Presenter: Posterior Non-Fusion Devices; Stabilimax NZ and Dynesys  
Presenter: Posterior Disc Replacement; Transforaminal Disc  
Presenter: Minimally Invasive Surgery; Nerve Surveillance for MIS applications
79. **IMAST (International Meeting for Advanced Spinal Technologies), Hong Kong, July 2008**  
Faculty Moderator: Session #1 Cervical and Lumbar Arthroplasty Early Bird Round Table Case Discussion Panel Lumbar Spine Challenges  
Instructor: MAST, Multilevel Percutaneous Pedicle Screw Instrumentation for Degenerative Scoliosis  
Instructor: AxiaLIF: Advanced Techniques and Indications in Complex Lumbar Spine
80. **Western Spine Symposium, San Diego, CA, August 2008**  
Faculty Moderator: Surgical Options for Low Back Pain  
Presenter: In 2010 what would you do?  
Presenter: Multilevel Percutaneous 360 Degree Fusion for Adult Degenerative Scoliosis
81. **Minimally Invasive Deformity Course, St Louis, MO, August 2008**  
Faculty MIS TLIF,  
Direct Lateral Interbody Fusion,  
CD Longitude Multilevel Percutaneous Fixation
82. **First Brazilian Congress of Minimally Invasive Spinal Surgery and Techniques, Gramado, Brazil Aug. 2008**  
Faculty Presenter: Surgical Treatment of Vertebral Compression Fractures  
Presenter: Multilevel Percutaneous 360 Degree Fusion for Adult Degenerative Scoliosis  
Debater: Degenerative Disease Lumbar II  
Presenter: Pedicle Based Stabilization What Have We Learned?
83. **DIAM Clinical Investigators Meeting OUS Clinical Trial, Nice, France September 2008**  
Invited Speaker: US Experience DIAM vs. Microdecompression
84. **1<sup>st</sup> Inaugural Association of Presacral Spine Surgeons Meeting, Las Vegas, NV, October 2008**

Faculty: Presenter: AxiaLIF for Adult Deformity

**85. NASS Annual Meeting, Toronto, October 2008**

Faculty: Trans1 Workshop L5-S1 Minimally Invasive Fusion at the End of Long Scoliosis Constructs

**86. Emerging Techniques and Technologies in Spine Surgery, Toronto, Canada, November 2008**

Faculty: Trans1 Workshop L5-S1 Minimally Invasive Fusion at the End of Long Scoliosis Constructs

**87. Society of Minimally Invasive Spine Surgeons Annual Meeting, Las Vegas, NV, November 2008**

Faculty: Multilevel Percutaneous 360 Degree Fusion for Scoliosis

**88. Minimally Invasive Deformity Course, Scottsdale, AZ, December 2008**

Faculty MIS TLIF,  
Direct Lateral Interbody Fusion,  
CD Longitude Multilevel Percutaneous Fixation

**89. Presacral Fusion L5-1 Surgeon Training Course, New Orleans, LA, December 2008**

Faculty Trans1 AxiaLIF

**90. 18th Annual Dr. Tom Lowe Spine Symposium: The Surgical Management of Spinal Disorders, Beaver Creek, January 2009**

Faculty Lumbar Degenerative Disc Disease Indications and Surgical Options

Faculty Lumbo-Sacral Fixation Challenges and Complications

Faculty Lumbar Degenerative Disorders Approach Options: MIS vs. Open

Faculty TL Trauma Challenges and Complications

**91. Eighth Annual Symposium on Current Concepts in Spinal Disorders, Las Vegas, January 2009**

Course Chair

Faculty Multilevel Percutaneous Pedicle Fixation for Spine Trauma

Faculty Dynesys What Have We Learned?

Faculty Multilevel Percutaneous 360 Degree Fusion for Adult Degenerative Scoliosis

Moderator Lumbar ADR Debates: Reality & Controversy

**92. Presacral Fusion L5-1 Surgeon Training Course, Park City, UT, February 2009**

Moderator /Faculty Trans1 AxiaLIF

**93. Winter Spinal Clinics, Cranial and Spinal Surgery, Snow Mass, CO, February 2009**

Faculty Minimally Invasive L5-S1 Fusion and Correction for Adult Deformity

**94. Minimally Invasive Deformity Course, Denver, CO, March 2009**

Faculty MIS TLIF,  
Direct Lateral Interbody Fusion,  
CD Longitude Multilevel Percutaneous Fixation

**95. Preservation of Motion in the Spine, Duck Keys, FL, April 2009**

Faculty Preservation of Motion in Lumbar spine

**96. Spine Arthroplasty Society (SAS) Annual Meeting, London, UK, April 2009**

Faculty Master Techniques in Minimally Invasive Spine Surgery; MIS Radiographic Anatomy.

Moderator Percutaneous Techniques

97. **WENMISS** Kota Kinabaul, Malaysia, May 21-23, 2009  
 Faculty: Rationale and Methods of Minimally Invasive Spine Surgery in Treatment of Spinal Deformity  
 Fusion of L5/S1 using AXILIF technique  
 Overview of Current Methods of Diagnosis of Disc Degeneration and Low Back Pain  
 Scoliosis – Case Presentation  
 Percutaneous Stabilization and Selective Fusion for Ankylosing Spondylitis and DISH  
 Rationale of AXILIF Concept – Overview and Results  
 Minimally Invasive Posterior Pedicle Based Non-Fusion Stabilization
  
98. **4<sup>th</sup> Annual Course: Sharpening Your Spine Surgery Skills, Burr Ridge, IL, May 15-16, 2009**  
 Course Co-Chairman  
 Moderator: Lumbar Spine: Minimally Invasive Adult Degenerative and Deformity Correction  
 Faculty: Current and Emerging Minimally Invasive Posterior Techniques  
 Surgical Video: Lumbar Percutaneous Screw Placement
  
99. **IMAST (International Meeting for Advanced Spinal Technologies), Vienna, Austria, July 2009**  
 Faculty: Anterior Surgery for Adult Deformities: How do Lateral Approaches Change our Treatment Strategies in this Population?
  
100. **SINCOL: SIMPOSIO INTERNACIONAL DE COLUNA, Rio De Janeiro, Brazil July 2009**  
 Faculty: Minimally Invasive Fusion of L5-S1 at the end of long fusions.  
 Minimally Invasive Correction of Scoliosis  
 Posterior Non-fusion stabilization What we know today  
 Kyphoplasty / Vertebroplasty The differences and result
  
101. **Complex Spine Study Group Meeting (CSSG), Washington DC, August 7, 2009**  
 Faculty: MIS Deformity Applications
  
102. **Presacral Fusion L5-1 Surgeon Training Course, Indianapolis, IN, September 2009**  
 Faculty: Transl Axial LIF
  
103. **MAST Direct Lateral Interbody Fusion Technique Course, Denver, CO, September 2009**  
 Faculty: Lateral Anatomy and Physiology Review
  
104. **2<sup>nd</sup> Annual Symposium Association of Presacral Spine Surgeons, Las Vegas, October 2009**  
 Faculty: Clinical Results of 18 Month Deformity Study
  
105. **Annual Meeting of the Society for Minimally Invasive Spine Surgery, Las Vegas, October, 2009**  
 Faculty: Technology Forum: Lumbar Spinal Stenosis Treatment Options  
 Presentation: Direct Lateral Interbody Fusion Technique
  
106. **6<sup>th</sup> Annual Meeting Innovative Techniques in Spine Surgery, Scottsdale, AZ, October 2009**  
 Faculty: Posterior dynamic stabilization: Indications and Results  
 Oxygenated Scaffolds  
 MIS Applications for Trauma  
 Moderator: MIS Round Table Discussion / Faculty: Axial LIF Clinical Results
  
107. **NASS 24<sup>th</sup> Annual Meeting, San Francisco, CA, November 2009**  
 Faculty: Advances in the Surgical Treatment of Acute Spine Trauma Course:  
 Minimally Invasive Stabilization of TL Fractures  
 Critical Concepts in Adult Deformity Surgery Course: Minimally Invasive Deformity



Correction: Anterior and/or Posterior Approaches  
DLIF Workshop  
Trans1 Workshop

108. **Complex Spine Study Group (CSSG) San Diego, CA, January 2010**  
Faculty Debate: MIS vs. Open Procedure for Adolescent Scoliosis
109. **Association of Presacral Spine Surgeons (APSS): Problems and solutions in adult scoliosis treatment: The role of Lumbosacral Fixation, New York, NY, January 2010**  
Faculty Clinical Data Presentation  
Faculty Clinical Data Panel Discussion
110. **MAST Direct Lateral Interbody Fusion Technique Course, Scottsdale, AZ, January 2010**  
Faculty Lateral Anatomy and Physiology Review
111. **Ninth Annual Symposium on Current Concepts in Spinal Disorders, Las Vegas, February 2010**  
Course Co-Chair  
Moderator Minimally Invasive Innovative Technologies  
Faculty MIS for Spine Trauma  
Minimally Invasive Fixation in AIS/MIS Scoliosis Surgery: It is possible?  
Anatomical Facet Replacement System  
X-Stop  
Stabilimax NZ
112. **4th Annual Advances in Neurology and Neurosurgery Symposium, Marina Del Rey, CA, February 2010**  
Faculty ACDF vs. Disc Arthroplasty
113. **Presacral Fusion L5-1 Surgeon Training Course, San Diego, CA, March 2010**  
Faculty Trans1 AxiaLIF
114. **Preservation of Motion in the Spine; Duck Keys, FL, April 2010**  
Faculty Experience with Stabilimax a posterior dynamic stabilization system  
ACADIA Facet Replacement Results  
MIS Correction of Scoliosis
115. **10<sup>th</sup> Annual Global Symposium on Motion Preservation Technology (SAS), New Orleans, LA, April 2010**  
Moderator MIS Case Presentation/Discussion
116. **3<sup>rd</sup> Annual Dubai Spine Masters, Dubai, UAE, May 2010**  
Faculty Percutaneous MIS Fixation Multilevel Introduction  
Trans Sacral Screw Fixation
117. **2<sup>nd</sup> World Congress of Minimally Invasive Spinal Surgery and Techniques (WCMISSST); Las Vegas, NV, June 2010**  
Faculty MISS Deformity Correction, Posterior Approach  
Faculty Dynamic Stabilization, Pedicle Based
118. **Association of Presacral Spine Surgeons (APSS): Adult Complex Spine Workshop: Current Concepts in Lumbosacral Fixation, Las Vegas, NV, June 2010**

Faculty MIS Complex Spine Clinical Data  
Case Presentation Discussion

119. **7th Annual Innovative Techniques in Spine Surgery Symposium, Los Cabos, Mexico, June 2010**  
Faculty Clinical Performance: Stabilimax Pedicle Based Motion Preservation System  
MIS Applications for Trauma  
AxiaLIF: Clinical Results
120. **ONE Spine: Controversies in Spine Surgery, Bahamas, June 2010**  
Faculty: Deformity Challenges Panel  
MIS L5-S1 Fusion  
Lumbar Spine, Best treatment options: Case Panel  
Use of Minimally Invasive Correction of Adult Degenerative Lumbar Scoliosis  
The Aging Spine: Case Panel
121. **IMAST (International Meeting for Advanced Spinal Technologies), Toronto, Canada, July 2010**  
Faculty: Adult Deformity: Less Invasive Paracoccygeal Approaches and the use of Navigation and Percutaneous  
Pedicle Screw systems in the treatment of adult deformity.  
Approaches to Degenerative Disc Disease: Non-operative, Fusion, Arthroplasty, Nucleus Replacement  
Lumbar Degenerative Panel  
Workshop: Decision Making relative to Extension to the Sacrum Pelvis: Hands On Demonstration  
Workshop: The Role of Minimally Invasive Surgery in Adult Degenerative Deformity: Hands On Demo  
DLIF workshop
122. **NASS (North American Spine Society) 25<sup>th</sup> Annual Meeting, Orlando, FL, October 2010**  
Moderator: Lumbar Total Disc Arthroplasty  
Faculty: Innovations in Minimally Invasive Surgery for the Complex Spine: Workshop
123. **Annual Meeting of the Society for Minimally Invasive Spine Surgery (SMISS); Miami, FL, October 2010**  
Faculty: Indications and Results for MIS Surgical Approach (Single Approach Posterior or Lateral vs. Combined) for Adult Scoliosis  
Scoliosis Panel discussion  
DLIF workshop
124. **Minimally Invasive Spinal Surgery and Navigation Hands-on Symposium, Weill-Cornell Medical College, New York, NY Dec. 2-4, 2010**  
Faculty Advanced MIS: Patient selection and principles for deformity correction  
Surgical demonstration  
AxiaLIF and XLIF challenges: How I do it.  
Future of MIS: Panel Discussion
125. **Spine on the Mountain: Innovation Meets Practice, Vail, CO, January 27-30, 2011**  
Faculty: Deformity at the Junctions: Panel Discussion  
MIS for Spinal Deformity: Hype or Reality?  
MIS Complications of Neurologic Decompression: Adequacy of Decompression,  
Spinal Fluid Leaks, and Neurologic Injury
126. **Tenth Annual Symposium on Current Concepts in Spinal Disorders, Las Vegas, February 2011**  
Course Co-Chair

Moderator: Frontier Technologies

Faculty: Complications and Controversies: Surgery with New Technology Case Presentations

Deformity: Surgery with New Technology Case Presentations

**127. Winter Spinal Clinics, Cranial and Spinal Surgery, Snow Mass, CO, February 27-March 1, 2011**

Faculty: Controversies in Lumbar Spine Surgery: Innovative Technologies

**128. Current Solutions in Spine Surgery, Duck Keys, FL, Mar 30-Apr 1, 2011**

Moderator: Updates

Faculty: Case Presentation

Anchoring Long Constructs with AxiaLIF

**129. Presacral Fusion L5-1 Surgeon Training Course, San Francisco, CA, April 9, 2011**

Faculty Transl AxiaLIF

**130. Int'l Society for the Advancement of Spine Surgery (ISASS/SAS) Meeting, Las Vegas, NV April, 2011**

Faculty: Work shop: MAST Correction Technique

**131. Spine Technology Summit, Napa, CA, May 11, 2011**

Faculty: Personalized Stem Cell Therapy

**132. Innovative Techniques in Spine Surgery: 2011, Cabo, June 24-25, 2011**

Faculty: Surgical Techniques and pearls: MIS Applications for Trauma

Techniques and Complications: Pre-Sacral for L5-S1 Isthmic Spondylolisthesis

**133. 18<sup>th</sup> IMAST (International Meeting for Advanced Spinal Technologies), Copenhagen, Denmark, July 2011**

Faculty: Adult Deformity: Minimally Invasive Lateral and Transsacral Techniques for Deformity Correction

MIS: Optimal Treatment of Significant (50-Degree) Thoracolumbar Scoliosis in 50-Year-Old

**134. Hibbs Spine Society, Louisville, KY, September 2011**

Faculty Can MIS Correction of Spinal deformity avoid the need for Routine Osteotomies?

**135. SRS Annual meeting (Scoliosis Research Society), Louisville, KY, September 2011**

Workshop Minimally Invasive Lumbosacral Fusion for Scoliosis Constructs

**136. Annual Meeting of the Society for Minimally Invasive Spine Surgery (SMISS); Las Vegas, NV, Oct 2011**

Lab: Fundamentals of Lateral MIS

Technology Forum: MIS Advanced Complex Spine Techniques

Round Table: Deformity

Moderator: Deformity and Trauma

Faculty: New Technology and Advanced Techniques

**137. Decision Making Strategies for Complex Degenerative Conditions Course; New Orleans, LA, October 2011**

Faculty Minimally Invasive Options: Treatment options, Surgical Pearls on Procedures

**138. NASS (North American Spine Society) 26<sup>th</sup> Annual Meeting, Chicago, IL, November 2011**

Lab Course: Minimally Invasive Spine Surgery Hands-on Course  
Faculty MIS: Complication Review and Avoidance  
Trauma: Thoracolumbar Fractures & Dislocations: Indications for Open vs. MIS

**139. Spine Fellow Live Course, IEP; Miami, FL. November 18, 2011**

Moderator Deformity and Trauma  
Faculty Role of Motion Preserving Reconstruction  
Degenerative Lumbar Scoliosis

**140. 21<sup>st</sup> Annual Tom Lowe Spine Symposium: The surgical Management of Spinal Disorders, Beaver Creek, CO Jan 13-16, 2012;**

Faculty What is the role of MIS for deformity now?  
When should we do traditional method vs. MIS?  
What is the 2-5-year follow-up with rigorous assessment of implant complications and non-union?  
Faculty Minimally invasive surgery in the elderly: Increasing safety or increasing risks?  
Panel Adult Deformity I, Adult Deformity II, MIS techniques, Aging Spine

**141. Spine on the Mountain: Innovation Meets Practice, Vail, CO, January, 2012**

Faculty MIS for Spinal Deformity: Can We Get Optimal Sagittal Plane Correction?  
Lumbar Multilevel Degeneration  
When Does a Lumbar Degenerative Case Become a Deformity?  
Adult Deformity

**142. 11th Annual Symposium on Current Concepts in Spinal Disorders, Las Vegas, February 2012**

Course Co-Chair  
Moderator: Frontier Technologies  
Faculty: Deformity: Minimally Invasive Correction of Severe (>50%) Thoracolumbar Scoliosis

**143. Winter Spinal Clinics, Cranial and Spinal Surgery, Snow Mass, CO, February, 2012**

Faculty: Minimally Invasive Lumbosacral Fixation with AxiaLIF at the Bottom of Long Constructs in Adult Spinal Deformity

**144. ISASS 12 (Int'l Society for the Advancement of Spine Surgery), Barcelona, Spain, March, 2012**

Moderator: Minimally Invasive Surgery

**145. Current Solutions in Spine Surgery, Duck Keys, FL, April 17-21, 2012**

Faculty: Minimally Invasive AxiaLIF for Anterior Column Support in Long Segment Constructs:  
Minimum 1 year Functional and Clinical Outcomes

**146. Dubai Spine Masters: Complex Spine Reconstruction & Deformity Management Strategies, Dubai, UAE. May 6-8 2012**

Moderator: Adult Deformity MIS Techniques  
Moderator: Case Presentation: Minimally Invasive Technique for Adult Deformity Case  
Faculty: Minimally Invasive Techniques for Adult Deformity Correction with Focus on Direct Lateral Techniques  
Faculty: Management of Degenerative Spinal Stenosis and Spondylolisthesis: Role for MIS  
Debate: Best Treatment for Degenerative Spondylolisthesis Is Interbody Fusion  
Debate: Moderate Deg. Scoliosis in an Elderly Patient. The Safest and Best Procedure Is Minimally Invasive  
Video Case presentation: MIS Fusion Techniques  
Panel: Ideal Image Guidance Case. Is Image Guidance Really Better?

147. **SMISS Course: Advances in MIS, Miami, FL. May 19, 2012**  
 Faculty: AxiaLIF: Indications, technique and outcomes  
 Lab: AxiaLIF
  
148. **Innovative Techniques in Spine Surgery: Carlsbad, CA, June 21-23, 2012**  
 Faculty: AxiaLIF+: The next generation of lumbosacral fusion  
 Faculty: Minimally invasive approaches to spinal trauma  
 Faculty: VEO Lateral Access System: Seeing is Believing  
 Debate: Surgical Management of symptomatic lumbar degenerative scoliosis: Open full-curve deformity correction is optimum;
  
149. **AANS Course: Minimally Invasive Lateral Interbody Fusion, Chicago, IL June 29-30, 2012**  
 Faculty: Minimally Invasive Lateral Retroperitoneal Transpsoas Approach: Complications and Avoidance
  
150. **19<sup>th</sup> IMAST (International Meeting for Advanced Spinal Technologies), Istanbul, Turkey, July 2012**  
 Faculty: Minimally Invasive Lateral and Trans-Sacral Techniques for Deformity Correction  
 Debate: Optimal Treatment of Moderate (30-Degree) Thoracolumbar Scoliosis with Stenosis in 70-Year-Old  
 Workshop: MIS Approaches for the Complex Spine
  
151. **Spine Across the Sea, Kauai, Hawaii, July 29-Aug 2, 2012**  
 Moderator: Best Poster Presentations  
 Faculty: Minimally Invasive Lateral Access to the Lumbar Spine
  
152. **Scoliosis Research Society (SRS) 47<sup>th</sup> Annual Meeting, Chicago Sept 5-8, 2012**  
 Faculty: Direct lateral approaches in lumbar scoliosis  
 MIS Pelvic fixation techniques  
 Degenerative lumbar curve requiring decompression and interbody fixation
  
153. **Annual Meeting of the Society for Min. Invasive Spine Surgery (SMISS), Miami, FL, Sept, 2012**  
 Debate: MIS Deformity; Fixation to Pelvis: MIS Presacral Approach is Best Option  
 Workshop:
  
154. **NASS (North American Spine Society) 27<sup>th</sup> Annual Meeting, Dallas, TX, October 24-27, 2012**  
 Faculty: Minimally Invasive Spine Surgery Hands-on Course: LLIF
  
155. **Spine Fellow Live Course, IEP; San Diego, CA. November 16-18, 2012**  
 Faculty: MIS Approaches to Deformity and Trauma  
 Low Back Pain with DDD: Role of Motion Preserving Reconstruction
  
156. **Deformity Course, Tampa, FL, January 25-26, 2013**  
 Course Director  
 Faculty: Surgery workshop
  
157. **12<sup>th</sup> Annual Symposium on Current Concepts in Spinal Disorders, Las Vegas, NV, Jan 31-Feb 2 2013**  
 Course Co-Chair  
 Moderator: Controversies in Spine Surgery

- Faculty: The Challenges and Controversies in MIS Correction of Spinal Deformity
158. **Winter Clinics, Cranial and Spinal Surgery, Snow Mass, CO February 24-26, 2013,**  
 Faculty: Complications: MIS Lateral Transpoas Approach Complications and Avoidance  
 Faculty: Emerging Treatments: Circumferential MIS Strategies for the Correction of Moderate to Severe Adult Scoliosis (>50 degrees)
  159. **ISASS (Int'l Society for the Advancement of Spine Surgery) Annual meeting, Vancouver, Canada, April 3-5, 2013**  
 Moderator: Cervical Arthroplasty - Oral Posters
  160. **LSRS – Lumbar Spine Research Society 6th annual meeting Chicago, IL, April 11-12, 2013**  
 Faculty: MIS for Deformity Correction
  161. **Ganga Hospital Operative course, Coimbatore, India, April 25-28, 2013**  
 Faculty: Surgery workshop
  162. **SMISS Cadaver Lab, Miami, FL, May 18, 2013**  
 Faculty: Surgery workshop
  163. **Deformity Correction Course, Tampa, FL, June 7, 2013**  
 Faculty: Surgery workshop
  164. **Spine Technology and Educational Group Organization 10th Annual Symposium “State of Spine Surgery: A Think Tank”, Cabo, Mexico, June 20-22, 2013**  
 Panelist in case presentations  
 Faculty: MIS treatment of degenerative scoliosis
  165. **AOSpine Master Deformity Course, Dubai, UAE, September 28-30, 2013**  
 Lectures in:  
 Adult Scoliosis – Case Presentation  
 Minimally Invasive TLIF  
 Direct Lateral Interbody Fusion  
 MIS Screw Rod Placement  
 Developmental Kyphosis  
 Pediatric Scoliosis – Case Presentation  
 Spinal-Pelvis Fixation Update  
 Degenerative Scoliosis Sagittal and Coronal Balance  
 Severe Adult Idiopathic Scoliosis – Case Presentation  
 VCR for Severe Scoliosis  
 Is Anterior Surgery Necessary?
  166. **AOSpine Webinar; Minimally Invasive Spinal Surgery and Navigation – MIS Basics, Oct 2, 2013**  
 Faculty: The Evidence - MIS Fusion Comparative Effectiveness  
 Faculty: MIS – Case Presentation
  167. **2013 Midwest Deformity Peer to Peer Course, Chicago, IL, October 25-26, 2013**  
 Panel: Pseudoarthrosis in Adult Deformity: How I have dealt with it.  
 Panel: De-Rotation in AIS: How I do it  
 Panel: Sacro-Pelvic Fixation: What went wrong?  
 Faculty: Adult Idiopathic Scoliosis – Case Presentation

Faculty: Worst Case – Case Presentation

**168. Annual Meeting of the Society for Min. Invasive Spine Surgery (SMISS), Las Vegas, NV, Oct 2013**  
Course Director

Faculty: Limitations of MIS Techniques for Correction of Spinal Deformity

Faculty: Complications and Reality of MIS Lateral Approach

**169. WENMISS, New Delhi, India, November 7, 2013**

Faculty: DLIF complications

Faculty: MIS strategies for Degenerative Scoliosis

Faculty: DLIF Technique

**170. 7<sup>th</sup> Annual MIS and Navigation Course, NYCMIS Course, New York, NY, Dec 12-14, 2013**

Faculty: Long Term MIS Results for Scoliosis

Faculty: Trans Sacral AxiaLIF Fusion

Panel: MIS debate

**171. 23<sup>rd</sup> Annual Tom Lowe Spine Symposium: The surgical Management of Spinal Disorders, Beaver Creek, CO Jan 17-20, 2014**

Workshop: Motion Preservation vs. Fusion for Spinal Stenosis

**172. 13<sup>th</sup> Annual Symposium on Current Concepts in Spinal Disorders, Las Vegas, NV, Jan 30-Feb 1, 2014**

Course Co-Director

Moderator: Minimally Invasive Surgeries & New Technologies

Moderator: Lumbar Spine and Deformities

Faculty: Limitations and Ceiling Effects of MIS Deformity Correction

**173. 2014 Winter Clinics, Cranial and Spinal Surgery, Snow Mass, CO, February 23-24, 2014,**

Faculty: MIS Correction of Spinal Deformity: Long Term Results (2 to 5 Years)

**174. 1<sup>st</sup> Annual SMISS Contemporary Techniques for Minimally Invasive Spinal Surgery, St. Louis, MO, Mar 28-29, 2014**

Faculty: MIS for Selected Deformity Applications

Faculty: Workshop

**175. Current Solutions in Spine Surgery, Duck Key, FL, April 2-5, 2014**

Faculty: Complications for MIS

Faculty: Surgical Strategies for corrections of Scoliosis – Long Term Outcomes

Faculty: Management of Degenerative Spondylolisthesis and Spinal Stenosis – Role of MIS

**176. ISASS (Int'l Society for the Advancement of Spine Surgery) Annual meeting, Miami, FL, Apr 30-May 2, 2014**

Faculty: Adult Scoliosis MIS – case presentation

**177. PUMCH Annual Spine Conference, Beijing, China, May 23-25, 2014**

Key Note Speaker

Faculty: Evolution of MIS Strategies for Correction of Adult Spinal Deformity – 10-year experience

Faculty: Complications and Avoidance Strategies in MIS Correction of Spinal Deformity

**178. Spine Technology and Educational Group Organization 11<sup>th</sup> Annual Symposium State of Spine**

**Surgery: A Think Tank, Cabo, Mexico, June 26-28, 2014**

Faculty: MIS Lateral Approach; L3-4-5 stenosis with mild scoliosis, Lateral anatomic plexus constrains

Faculty: Spinal Sagittal Balance: Role of anterior surgery in deformity surgery

**179. 21<sup>st</sup> IMAST (International Meeting for Advanced Spinal Technologies), Valencia, Spain, July 16-19, 2014**

Workshop: Minimizing Post-Op Complications and Maximizing Correction in Lateral Procedures

**180. Annual Meeting of the Society for Min. Invasive Spine Surgery (SMISS), Miami, FL, Sept 19-21, 2014**

Moderator: Applying MISS in Treating Various Patient Types: Patients with Deformities

Moderator: Controversies – Free Papers

Workshop: Clinical and Economic Justification for Treating Elderly Adult Deformity with MIS

**181. Castellvi Spine Meeting, Duck Keys, FL, May 2015**

Debate: L4-5 Spondylolisthesis discussing Lateral Transpsoas vs TLIF.

**182. Spine Technology and Educational Group Organization, 12<sup>th</sup> Annual Symposium, Los Cabos, Mexico, June 18-20, 2015**

Faculty: Cervicothoracic Deformity – Do MIS techniques have a role?

Faculty: Discussion-MIS: What I've Learned and What the Future Holds.

Moderator: Case-Based Lecture: Rod bending: Art or science?

**183. Sixth annual ONE Spine Residents & Fellows Course, Seattle, WA, August 14-16, 2015**

Faculty: Minimally Invasive Surgery for Spine Fractures

**184. Annual Meeting of the North American Spine Society (NASS), Chicago, IL, October 14-17, 2015**

Faculty: Hands-On Course: Minimally Invasive Spine Surgery; Percutaneous Fixation Techniques:

Pedicle, Cortical, Iliac

**185. MISSICON – Minimally Invasive Spine Surgeons of India**

Faculty: Live Surgery – Demonstration of MIS-TLIF

Faculty: Posterior MIS stabilization techniques in TL trauma

Faculty: My Best MIS Case & My Worst MIS Case

Faculty: The evolution of minimally invasive spine surgery in the treatment of adult spine deformity – A ten-year experience.

Faculty: Complications and avoidance strategies to prioritize safety in the MIS treatment of adult spinal deformity.

Faculty: Managing instrumentation failure in MIS

Debate: L4-5 Stenosis with Spondylolisthesis

**186. International Forum of Minimally Invasive Spine Surgery, Shanghai, China, October 30 – November 1, 2015**

Faculty: Current status of MISS for degenerative scoliosis.

Faculty: Case Discussion: Tips and Tricks – Most Challenging Cases for MISS.

Faculty: Case Discussion: Worst Experience of MISS – complications and management

**187. Annual Meeting of the Society for Minimally Invasive Spine Surgery (SMISS), Las Vegas, NV, November 5-7, 2015**

Debate: MISS vs. Open for Spinal Deformity

Faculty: Discussion Panel, Expert Case Discussions; Deformity and Revision



188. **9<sup>th</sup> New York City Minimally Invasive Spine and Navigation Course: “Case-Based and Hand-On”, New York, NY, December 17-19, 2015**  
Faculty: Step-by-Step: OLIF  
Faculty: Cadaver Lab
189. **19<sup>th</sup> Annual Selby Spine Conference, Park City, UT, January 14-16, 2016**  
Faculty: MIS techniques for sagittal plane correction in adult degenerative deformity
190. **Cedars-Sinai 15<sup>th</sup> Annual Symposium on Current Concepts in Spinal Disorders, Las Vegas, NV, February 4-6, 2016**  
Course Director  
Moderator: Minimally Invasive Surgeries  
Faculty: Deformities: The pros and cons of a staged surgical protocol in the circumferential MIS correction of adult spinal deformity – 10-year experience  
Moderator: The art of Spine Surgery  
Faculty: New Technologies – Minimally invasive cervical facet fusion
191. **2016 Winter Clinics for Cranial & Spinal Surgery, Snowmass, CO, February 21-25, 2016**  
Faculty: Influence of Lordotic and hyperlordotic lateral cages on the actual lordosis achieved at each segmental level.
192. **Minimally invasive Fusion Cadaveric Workshop and Symposium, Sydney Australia, February 26-27, 2016**  
Faculty: History and Overview of Minimally Invasive Procedures and Techniques  
Faculty: Minimally Invasive Trauma Techniques - Indications, patient Profiles, Advantages and Disadvantages, Surgical Technique and Cases  
Faculty: Minimally invasive deformity Techniques – Indications, patient Profiles, Advantages and Disadvantages, Surgical Technique and Cases  
Faculty: Thoracic Access and Lateral Fusion - Indications, patient Profiles, Advantages and Disadvantages, Surgical Technique and Cases  
Faculty: Cadaver Lab
193. **Skull to Sacrum, Jersey City, NJ, March 31-April 2, 2016**  
Faculty: Case Discussion Breakouts - Minimally invasive  
Moderator: Live Surgery, T10-Pelvis with PSO and OLIF procedure  
Faculty: Video Surgery: MAST Deformity Correction  
Faculty: Hands on Workshop, Cadaver Lab
194. **The International Society for the Advancement of Spine Surgery (ISASS), Las Vegas, NV, April 6-8, 2016**  
Faculty: Symposium: Minimally invasive correction of adult spinal deformity – Circumferential MIS correction of ASD  
Faculty: Symposium: New Technologies – Hype or incremental value? LLIF for degenerative spondylolisthesis
195. **SpineWeek, Singapore, May 16-20, 2016**  
Chairman: ISASS  
Moderator: ISASS Abstract Session I  
Moderator: ISASS Abstract Session II  
Faculty: ISASS Case Discussion: L4-5 Grade 1 degenerative spondylolisthesis with stenosis Back (50%)

and leg pain (50%) – MIS TLIF

Faculty: Asia Pacific Spine Society – MIS adult spinal deformity surgery: Is it better?

**196. Operative Spine Forum, Mumbai, India, May 23-24, 2016**

Faculty: Live Surgery – MIS TLIF

Faculty: Symposium – MIS TLIF

Faculty: Debate – Dynamic stabilization vs. Fusion

Faculty: Live Surgery – Direct Lateral Interbody Fusion

Faculty: Symposium – Longitude 2

Faculty: Panel Discussion – Tube vs. Endoscopic spine decompression

**197. 23<sup>rd</sup> IMAST (International Meeting for Advanced Spinal Technologies), Washington, D.C., July 13-16, 2016**

Moderator: Novel Treatment Techniques in Spinal Deformity

Faculty: Novel Treatment Techniques in Spinal Deformity; Case Presentations and Panel Discussion

Moderator: Two-Minute Point Presentations

Faculty: Early and late reoperation rates and etiologies are similar between cMIS and HYB techniques for ASD correction

Faculty: How does case type, LOS and Comorbidities affect Medicare DRG reimbursement for Minimally Invasive Surgery (MIS) deformity?

Moderator: Emerging Technologies in Spine Surgery

**198. Scoliosis Research Society (SRS) Prague, Czech Republic September 21 – September 24, 2016** Debate: MIS Surgery for Adult Spinal Deformity is the Wave of the Future

**199. 2nd Annual International Spinal Deformity Symposium (ISDS) Chicago, IL November 11 – November 12, 2016**

N Anand ; How are we progressing? How would I have treated a case 10 years ago and how and why I've changed today: Adult Lumbar Degenerative Kyphoscoliosis – Flexible

**200. Annual Forum of the Society for Minimally Invasive Spine Surgery (SMISS), Las Vegas, NV October 13–15, 2016**

Faculty: Lateral Pre-psoas, Presentation

Moderator: Does Concave versus Convex Approach Matter When using Lateral Lumbar Interbody Fusion for Adult Scoliosis?

Moderator: Treatment of the Fractional Curve with Circumferential Minimally Invasive (cMIS)

Interbody versus Open Surgery without Interbody Fusion: An Analysis of Surgical Outcomes

Moderator: Impact of Multi-Level Interbody Fusion in the Treatment of Severe Adult Scoliosis (Thoracolumbar Coronal Cobb Angle > 50 Degrees)

Faculty: Patient Evaluation: MIS, Hybrid, or Open, Presentation

**201. Sagittal Balance and Junctional Spine Master Course, Baltimore, MD, November 4-5, 2016,**

Course Co-chair: A two day Sagittal Balance and Junctional Spine Master Course and hands-on bioskills cadaver lab

**202. Cedars-Sinai 16<sup>th</sup> Annual Symposium on Current Concepts in Spinal Disorders, Las Vegas, NV, February 2-4, 2017**

Course Director

Moderator: Deformities

Moderator: Common Spine Debates

Debate: 50-Degree Adult Thoracolumbar Scoliosis with Sagittal Imbalance: CMIS is Optional in the Future

203. **American Academy of Orthopaedic Surgeons (AAOS) Annual Meeting, San Diego, CA, March 14-18, 2017**  
Moderator: Adult spinal deformity, Scientific paper session
204. **The International Society for the Advancement of Spine Surgery (ISASS), Boca Raton, FL, April 12 – 14, 2017**  
Moderators: Values and Outcomes in Spine Surgery
205. **2017 CASTELLVI SPINE, Monroe, Florida, May 10 - 13, 2017**  
Faculty: Anterior Lumbar Interbody Fusion (ALIF), Case Presentation  
Faculty: Anterior Column Reconstruction, Case Presentation
206. **Spine Masters' Surgical Techniques, St Louis, MO, May 18-20, 2017**  
Faculty: Minimally Invasive Approaches Using Lateral or Anterior Approach in Combination with a Posterior Approach for Treatment of Adult Spinal Deformity  
Faculty: Future of MIS  
Faculty: MIS Lateral Technique, Cadaveric Lab
207. **24<sup>th</sup> IMAST (International Meeting for Advanced Spinal Technologies), Cape Town, July 12-15 2017**  
Faculty: I Can Do It Better with Less Morbidity, Role of MIS  
Faculty: Adult Deformity, Advances on Treatment; Case Presentation  
Faculty: Spine Trauma, Diagnosis and Treatment; Case Presentation  
Faculty: How to Determine when a Decompression will Suffice vs a Decompression and Fusion for the Lumbar Spine
208. **Eighth Annual ONE Spine Residents & Fellows Course, Seattle Science Foundation, August 11–13, 2017**  
Faculty: Hands-on Cadaver Lab, Minimally Invasive  
Faculty: Minimally Invasive Spine Techniques
209. **52<sup>nd</sup> Scoliosis Research Society (SRS) Annual Meeting & course, Philadelphia, PA, September 6-9, 2017**  
Faculty: MIS Spinal Surgery – An Updated Global Perspective  
Faculty: MIS Approach Selection: When to Use LLIF?  
Faculty: Role of MIS in ASD Correction
210. **Spine Summit 2018, The Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral nerves**  
Faculty: Minimally Invasive Considerations and Case Presentations
211. **Cedars-Sinai 17<sup>th</sup> Annual Symposium on Current Concepts in Spinal Disorders, Las Vegas, NV, February 8-10, 2018**  
Moderator: Common Spine topics: Disc herniation and DDD  
Faculty: Technique Videos & Discussion on Circumferential Minimally Invasive Surgery for Adult Spinal Deformity

212. **2018 Castellvi Spine by Fore, Foundation for orthopaedic research and education, Casa Marina, FL, May 10-12, 2018**  
Faculty: Spine Biomechanics & Technology: Where Do We Stand  
Faculty: Advances in Spinal Technology  
Moderator: Complications & Solutions
213. **The 15th Annual State of Spine Surgery Think Tank, Aruba, June 21-23, 2018**  
Faculty: ALIF in the lateral position  
Faculty: What did we learn from pedicle based non-fusion surgery?  
Faculty: Pre-psoas LLIF  
Moderator: Spinal Deformity
214. **25<sup>th</sup> IMAST (International Meeting for Advanced Spinal Technologies), Los Angeles, CA, July 11-14, 2018**  
Faculty: Complications of Lateral and Antepsoas Approach: To Spare or Spear  
Faculty: Use of Lateral and Antepsoas Approach to Assist with Correction  
Moderator: Cervical and Trauma
215. **Seattle Science Foundation: 4th Annual MIS Outpatient Spine Symposium, July 21, 2018**  
Faculty: OLIF at L5 -S1  
Faculty: MIS Deformity Correction
216. **2018 San Diego Visiting Professorship Annual Meeting, San Diego, California, July 27, 2018**  
Faculty: Multilevel MIS Oblique Lumbar Interbody Fusion for Adult Spinal Deformity  
Faculty: Adult Spine Panel Discussion
217. **Skull to Sacrum, New York, NY, September 13-15, 2018**  
Faculty: MIS Deformity Principles  
Faculty: PJK Case Discussions: Extending TL into Cervical Spine  
Faculty: My Worst Case Ever: What I've learned and what I'd do differently
218. **Scoliosis Research Society (SRS) 53<sup>rd</sup> Annual Meeting& Course, Bologna, Italy, October 10-13, 2018**  
Faculty: Circumferential Minimally Invasive Surgery (CMIS) for ASD – The Cutting Edge  
Faculty: MIS Adult Deformity  
Faculty: The minimally invasive spinal deformity surgery algorithm: a reproducible rational framework for decision making in minimally invasive spinal deformity surgery
219. **The 21st Annual Meeting of the Japanese Society of Minimally Invasive Spine Surgery, Japan, November 28-30, 2018**  
Faculty: MIS correction for adult spinal deformity
220. **Cedars- Sinai 18th Annual Symposium on Current Concepts in Spinal Disorders, Las Vegas, NV, February 7-9, 2019**  
Moderator: Common Spine Case Presentations – How Would I Treat My Mom?  
Moderator: MIS Debates
221. **AAOS 2019 Annual Meeting, Las Vegas, NV, March 12-16, 2019**  
Faculty: Adult Spine Deformity  
Faculty: What is the Role of Anterior, Oblique, Posterior, and Laterally Based Surgery: How Can They

Help?

Faculty: Minimally Invasive Surgery versus Standard Open Techniques in the Lumbar Spine: Indications, Contraindications, and Controversies

**222. 12th Annual SOLAS Meeting, Miami, FL, May 16-18, 2019**

Faculty: Pre-psoas lumbar, single-level

Faculty: Fusion/Subsidence

**223. Twin Cities Spine Surgeons; 2019 John H. Moe Visiting Professor Symposium, St. Paul-Minneapolis, MN, May 31, 2019**

Faculty: The Evolution and Development of Circumferential Minimally Invasive Spine Surgery (CMIS) for Adult Spinal Deformity(ASD) - A 15-year Saga

Faculty: Pearls and Pitfalls to Avoid in CMIS Rx of ASD - Use of a Strategic Staged Systematic Protocol with Case Review

**224. The 16th Annual State of Spine Surgery Think Tank, Aruba, June 27-29, 2019**

Faculty: Technology Update – Medtronic; Implant Architecture and Biologics: Combining Fixation, Osteointegration, and Bone Grafting to Promote Fusion

Faculty: L4-5 lateral Interbody fusion: Facts and fiction; Ante-psoas approaches address the shortcomings of transpsoas fusion

**225. Annual Meeting of the North American Spine Society (NASS), Chicago, IL, September 25-28, 2019**

Faculty: Oblique Lateral Interbody Fusion

**226. Skull to Sacrum, October 10-11, 2019**

Faculty: Standardizing Spine Care to Drive Optimization

Faculty: My LIF is Better than Yours

Faculty: The Evolution of MIS Deformity Surgery

**227. Annual Forum of the Society for Minimally Invasive Spine Surgery (SMISS), Las Vegas, NV, October 31-November 2, 2019**

Faculty: MIS Complication and What I Learned

**228. Selby Spine Conference, Park City, UT, January 30-February 2, 2020**

Faculty: The Incremental Value of New Technologies

Faculty: Hospital Perspective on New Technologies in Spine Surgery

**229. 2020 Winter Clinics for Cranial & Spinal Surgery, Snowmass Village, CO, February 23-27, 2020**

Faculty: How Pre-psoas Lateral Approach has Changed the Paradigm and Complications for Lateral Approaches in the Circumferential Minimally Invasive Correction of Adult Spinal Deformity

**230. The 36<sup>th</sup> Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Las Vegas, NV, March 5-8, 2020**

Faculty: Minimally invasive deformity results in a lower incidence of PJK

Faculty: MIS for deformity is feasible, cost effective and sustainable

**231. AAOS 2020 Annual Meeting, Orlando, FL, March 24-28, 2020**

Faculty: Minimally Invasive Surgery versus Standard Open Techniques in the Lumbar Spine Indications, Contraindications, and Controversies

Faculty: What is the Role of Anterior, Oblique, Posterior, and Laterally Based Surgery: How Can They

Help?

**232. 2020 Castellvi Spine Symposium, Key Largo, FL, April 29- May 2, 2020**

Faculty: Infection Rates are too high

Faculty: ALIF v OLIF

**INTRAMURAL LECTURES AND CONFERENCES**

1. Current update and concepts in burst fractures. Cedars-Sinai Medical Center, Institute for Spinal Disorders, Spine Conference, Los Angeles, CA, June 4, 2003
2. Dynamic stabilization: a conceptual revolution. Cedars-Sinai Medical Center, Institute for Spinal Disorders, Spine Conference, Los Angeles, CA, June 18, 2003
3. Stabilization for degenerative disc disease: fusion and non-fusion techniques. Cedars-Sinai Medical Center, Institute for Spinal Disorders, Back Pain Conference, Los Angeles, CA, June 14, 2003
4. Thoracic pedicle screws. Cedars-Sinai Medical Center, Institute for Spinal Disorders, Spine Conference, Los Angeles, CA, March 24, 2004
5. Non-fusion spinal instrumentation technologies. Cedars-Sinai Medical Center, Institute for Spinal Disorders, Spine Conference, Los Angeles, CA, May 12, 2004
6. Motion preservation in spinal surgery. Cedars-Sinai Medical Center, Institute for Spinal Disorders, Spine Conference, Los Angeles, CA, January 26, 2005
7. Posterior non-fusion stabilization with Dynesys: beyond the IDE study. Cedars-Sinai Medical Center, Institute for Spinal Disorders, Spine Conference, Los Angeles, CA, August 17, 2005
8. Beat back pain and save your spinal motion: surgery without fusion. Cedars-Sinai Medical Center, Institute for Spinal Disorders, Back Pain Conference, Los Angeles, CA, August 20, 2005
9. Beat back pain and save your spinal motion: surgery without fusion. Cedars-Sinai Medical Center, Institute for Spinal Disorders, Back Pain Conference, Las Vegas, NV. February 2006
10. Office Orthopaedics: The Essentials of Non-Operative Musculoskeletal Care: Acute Back Pain, Cedars-Sinai Medical Center, Institute for Spinal Disorders, Los Angeles, CA, May 20, 2006
11. Posterior Non-Fusion Stabilization: Cedars-Sinai Medical Center, Institute for Spinal Disorders, Spine Conference Grand Rounds, Los Angeles, CA, October 18, 2006
12. Baron, EM, Anand, N. Future Concepts in Artificial Disc Treatment of Cervical Spine Disorders. Cervical Spine Community Conference. Cedars Sinai Medical Center. Los Angeles, CA. February 3, 2007
13. Beat back pain and save your spinal motion: surgery without fusion. Cedars-Sinai Medical Center, Institute for Spinal Disorders, Back Pain Conference, Las Vegas, NV. March 2007
14. Beat back pain and save your spinal motion: surgery without fusion. Cedars-Sinai Medical Center, Institute for Spinal Disorders, Back Pain Conference, Los Angeles, CA. March 2007

15. Spine Trauma in Ankylosing Spondylitis: Medical and Surgical Approach to Spine Disease and Spine Deformity in Ankylosing Spondylitis. Cedars-Sinai Medical Center, Institute for Spinal Disorders, Los Angeles, CA. March 2007
16. The State of Minimally Invasive Spine Surgery Today: Cedars-Sinai Medical Center, Institute for Spinal Disorders, Spine Conference Grand Rounds, Los Angeles, CA, April 25, 2007
17. Posterior Non-Fusion Stabilization for DDD – An update: Cedars-Sinai Medical Center, Institute for Spinal Disorders, Spine Conference Grand Rounds, Los Angeles, CA, May 2007
18. Baron, EM, Anand, N. New Developments in Spine Surgery. Temple Community Hospital, Los Angeles, CA. Tuesday, May 15, 2007
19. Baron, EM, Anand, N. Extreme Lateral Interbody Fusion. Nursing Staff Presentation. Cedars Sinai Medical Center. Los Angeles, California. June 26, 2007
20. The State of Minimally Invasive Spine Surgery Today: Cedars-Sinai Medical Center, Research Dept Grand Rounds, Los Angeles, CA, July 2007
21. Baron, EM, Anand, N. Minimally Invasive Spinal Surgery. Sherman Oaks Hospital & Health Center, Sherman Oaks, California. July 26, 2007
22. Baron, EM, Anand, N. Future Concepts in Artificial Disc Treatment of Cervical Spine Disorders. Cervical Spine Community Conference. Cedars Sinai Medical Center. Los Angeles, CA. February 3, 2007
23. Baron, EM, Anand, N. New Developments in Spine Surgery. Temple Community Hospital, Los Angeles, CA. May 15, 2007
24. Baron, EM, Anand, N. Extreme Lateral Interbody Fusion. Nursing Staff Presentation. Cedars Sinai Medical Center. Los Angeles, CA. June 26, 2007
25. Baron, EM, Anand, N. Minimally Invasive Spinal Surgery. Sherman Oaks Hospital & Health Center, Sherman Oaks, California. July 26, 2007
26. Baron, EM, Anand, N. X-STOP® Interspinous Process Decompression (IPD®) System. Primary Care Physician Informational Lecture, Beverly Hills, CA. September 20, 2007
27. Baron, EM, Anand, N. Cement Augmentation for Osteoporotic Fractures –Kyphoplasty versus Vertebroplasty. Primary Care Physician Informational Lecture, Beverly Hills, CA. September 20, 2007
28. Thoracic pedicle screws. Cedars-Sinai Medical Center, Institute for Spinal Disorders, Spine Conference, Los Angeles, CA, August 1, 2007
29. Baron, EM, Anand, N. Atypical Diagnoses in the Cervical Spine that should NOT Be Missed. 2008 Interdisciplinary Symposium Cervical Spine Trauma. Presented by Southern California University of Health Sciences and Diagnostic and Interventional Spinal Care. Southern California University of Health Sciences Performing Arts Center, Whittier, CA. February 24, 2008.
30. Baron, EM, Anand, N. Minimally Invasive Percutaneous Multilevel 360 Degree Fusion for Deg. Scoliosis - Feasibility Study. Cervical Spine Community Lecture. Cedars Sinai Medical Center. Los Angeles,

California. Saturday, March 15, 2008

31. Anand, N. Baron, EM, Stabilization of the Spine without Fusion. Spine Community Lecture. Cedars Sinai Medical Center. Los Angeles, CA. Saturday, March 15, 2008
32. Rivadeneira, D., Anand, N., Minimally Invasive Surgery L5-S1 Fusion: A Spine and Colorectal Perspective; Cedars-Sinai Spine Center, Spine Conference, Los Angeles, CA, September 23, 2009
33. Anand, N, Baron EM, Minimally Invasive Surgery: Correction of Adult Scoliosis; Cedars-Sinai Spine Center, Spine Conference, Los Angeles, CA, November 18, 2009
34. Anand, N., Baron, EM., Zarembinski, CJ. Latest Advances in Spine Care; Cedars-Sinai Medical Center, Community Lecture, Los Angeles, CA, December 8, 2009
35. Anand, N., Anatomy and Pathology of Scoliosis & Current Treatments; LAUSD District 8 School Nurses Lecture, Gardena, CA, February 2010
36. Anand, N., Minimally Invasive Spinal Surgery – State of the Art; T.N. Medical College reunion, New York, NY, August 2010
37. Anand, N., Kahwaty, S., Scoliosis Screening and Education; Scoliosis Association Community Outreach. Mission Viejo, CA, October 8, 2011
38. Anand, N.; Minimally Invasive Surgery for Correction of Scoliosis, 10-year experience, Cedars-Sinai Spine Center, Spine Conference, Los Angeles, CA, March 13, 2013
39. Anand, N.: Lumbar Minimally Invasive Surgery – An Overview. State of the Art Spine Care, Cedars-Sinai Spine Center, Los Angeles, CA, November 16, 2013
40. Anand, N.: Trauma Conference, Cedars-Sinai Spine Center, Los Angeles, CA, January 11, 2017
41. Anand, N.: New FDA Trials: TOPS & LimiFlex, Cedars-Sinai Spine Center, Los Angeles, CA, August 9, 2017
42. Anand, N.: Minimally Invasive Spine Surgery, Fellows Didactic Lecture, Cedars-Sinai Spine Center, Los Angeles, CA, March 27, 2019

**IN THE NEWS** (for additional news prior to 2013, please go to [www.infospine.net](http://www.infospine.net) )

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Orthopedics This Week: “Neel Anand, M.D.: Spine Surgeon to the Stars,” February 5, 2020

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## **INDUSTRY RELATIONS**

Consulting: Medtronic, Globus Medical, Spinal Balance, Spinal Simplicity, Viseon

Stocks, Stock Options, Private Investments: Medtronic, Globus Medical, Atlas Spine, Paradigm Spine, Theracell, AF Cell, Bonovo, Spinal Balance, Spinal Simplicity, Viseon

Royalties: Medtronic, Globus Medical, Elsevier

Surgical Advisory Board: Globus Medical, Theracell, Spinal Balance, Spinal Simplicity

## **FELLOWS TRAINED**

John K. Stokes, MD 2001-2002

Paul C. Liu, MD 2001-2002

Alan T. Villavicencio, MD 2001-2002

F. Clifford Roberson, MD 2001-2002

Darren Bergey, MD 2002-2003

Mark Wolgin, MD 2002-2003

Firooz Amjadi, MD 2002-2003

Ali Abazari, MD 2002-2003

Karin Swartz, MD 2003-2004

Saad Khairi, MD 2003-2004

Chris Lycette, MD 2003-2004

Hamid Miraliakbar, MD 2003-2004

S. Craig Meyer, MD 2003-2004

Toki Oyelese, MD 2004-2005

Khawar Siddique, MD 2004-2005

John Hamilton, MD 2004-2005

Hooman Melamed, MD 2004-2005

Brian Perri, DO 2004-2005

Anthony Hadden, MD 2005-2006

Tooraj Gravori, MD 2005-2006

Edward Rustamzadeh, MD 2005-2006

Justin Paquette, MD 2005-2006

Stepan Kasimian, MD 2005-2006

Eli Baron, MD 2006-2007

Kevin Ammar, MD 2006-2007  
 Raman Rabbani, MD 2006-2007  
 Richard Wupperman, MD 2007-2008  
 Curt Freudenberger, MD 2007-2008  
 Ty Thaiyananthan, MD 2007-2008  
 Terrence Kim, MD 2008-2009  
 Paul Salinas, MD 2008-2009  
 J. Scott Schoeb, MD 2008-2009  
 Stephen Scibelli, MD 2009-2010  
 Kamal Woods, MD 2009-2010  
 Thomas Phillips, MD 2010-2011  
 Harvinder Bedi, MD 2011-2012  
 M.Kamran Khan, DO 2011-2012  
 Ali Shirzadi, MD 2011-2012  
 Nicholas Slimack, MD 2012-2013  
 Ashley T. Simela, MD 2013-2014  
 Zeeshan M. Sardar, MD 2014-2015  
 Andrea M. Simmonds, MD 2014-2015  
 Justin D. Millard, MD 2015-2016  
 Jason M. Cuellar, MD 2015-2016  
 Victor Lo, MD 2016-2017  
 Christopher Kong, MD 2016-2017  
 Jared Ament, MD 2016-2017  
 Saqib Hasan, MD 2017-2018  
 Ajit Jada, MD 2017-2018  
 Michael McGinity, MD: 2018-2019  
 Robert Ravinsky, MD: 2018-2019  
 Alisa Alayan, MD: 2018-2019

### **Comprehensive Minimally Invasive & Outpatient Spine Surgery Super Fellow**

Alisa Alayan, MD: Aug 2019 – Jan 2020

### **Visiting National and International Surgeons Hosted**

March 2017 – **INDIA** – *Dr Hrushikesh Mehata* at Spine Care Clinic, Pune  
 April 2017 – **INDIA** – *Dr Jairam Jagiasi* at Hinduhridaysamrat Balasaheb Thackeray Medical College & Dr RN Cooper Hospital, Mumbai  
 August 2017 – **THAILAND** – *Dr Vit Kotheeranuraka* at King Chulalongkorn Memorial Hospital, Bangkok  
 October 2017 – **INDIA** – *Dr Avinash Jain* at The Abhoy Clinic, Indore  
 November 2017 – **BRAZIL** – *Dr Rodrigo Lima* at Santa Lucia Hospital, Brazilia  
 April 2018 – **INDIA** – *Dr Srikanth Reddy Dumpa* at Sai Bhaskar Spine Center, BMR Hospital  
 September 2018 – **AUSTRALIA** – *Dr Arvind Dubey* at Royal Hobart Hospital, Tasmania  
 September 2018 – **AUSTRALIA** – *Dr Yagnesh Vellore* at Austin Hospital, Heidelberg  
 March 2019 – **UK** – *Dr Andrew Bowey* at Royal Victoria Infirmary, Newcastle  
 March 2019 – **UK** – *Dr John Andrews* at Royal Victoria Infirmary, Newcastle  
 March 2019 – **BRAZIL** – *Dr Rodrigo Lima* at Santa Lucia Hospital, Brazilia  
 May 2019 – **INDIA** – *Dr Ayush Sharma* at Central Railway Hospital, Mumbai  
 October 2019 – **INDIA** – *Dr Ankit Patel* at Bombay Hospital & Medical Research Center, Mumbai



## **TABLE OF CONTENTS:**

Page 1. Address
Page 1. Education
Page 2. Appointments
Page 2. Licenses and Certifications
Page 3. Professional Organizations
Page 3. Clinical Investigational Protocols
Page 4. Honors and Awards
Page 5. Experience
Page 6. Publications
Page 16. Chapters
Page 19. Abstracts (Posters and Podium Presentations)
Page 44. Theses Submitted
Page 44. Video
Page 45. Visiting Professor
Page 45. Editorial and Review Work
Page 46. Teaching Conferences and Symposia
Page 47. Invited Speaker/Faculty/Moderator
Page 70. Intramural Lectures and Conferences
Page 72. In the News
Page 87. Industry Relations
Page 87. Fellows Trained