

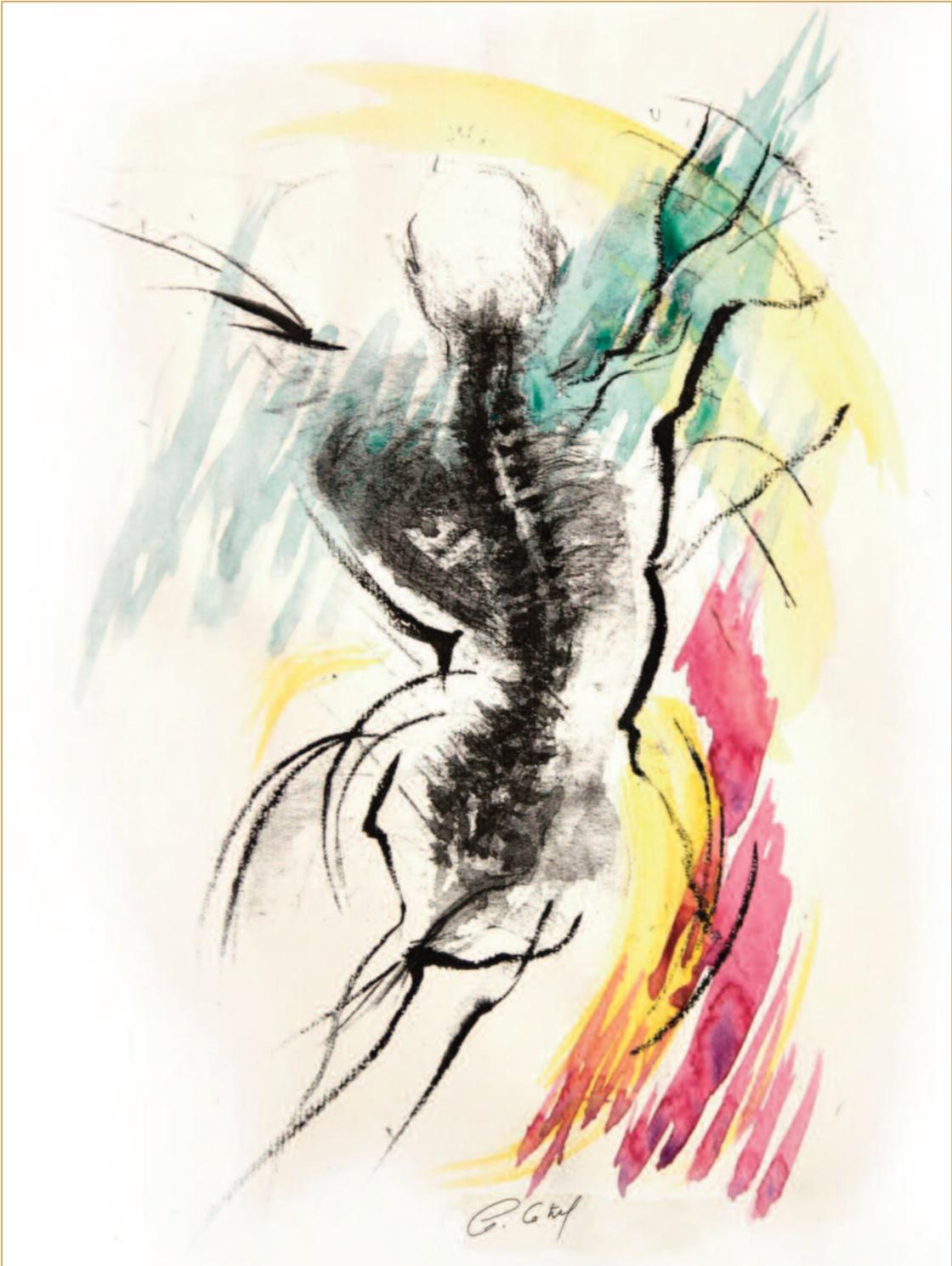
2016 Annual Report

Academic Year

August 2015 – July 2016



San Diego 
Spine Foundation
Established in 2006



FOSTERING EXCELLENCE IN SPINAL EDUCATION, RESEARCH AND OUTREACH



Jeff Pawelek, BS
Research Director



Stacie Nguyen, MPH
Manager: Clinical &
Fellowship Research



Pooria Hosseini, MD, MSc.
Research Fellow

Publications and Presentations 2015-16

Books Edited

Akbarnia BA, Yazici M, Thompson GH - Editors: The Growing Spine: Management of Spinal Disorders in Young Children. Springer Publishing, 2016

Kostial P: Assistant to the Editors: The Growing Spine: Management of Spinal Disorders in Young Children. Springer-Verlag, Berlin Heidelberg, 2016

Book Chapters

Schwend RM, **Akbarnia BA**, Schmidt J, Blakemore LC, Reigut JL: What Can We Learn About Ribs and Vertebral Growth from an Osteological Collection? The Growing Spine: Management of Spinal Disorders in Young Children. Springer-Verlag, Berlin Heidelberg, 2016

Elsebaie HB, **Pawelek J**: Clinical Examination and Associated Comorbidities of Early Onset Scoliosis. The Growing Spine: Management of Spinal Disorders in Young Children. Springer-Verlag, Berlin Heidelberg, 2016

Mundis GM, Blakemore LC, **Akbarnia BA**: Idiopathic Early Onset Scoliosis. The Growing Spine: Management of Spinal Disorders in Young Children. Springer-Verlag, Berlin Heidelberg, 2016

Thompson GH, **Akbarnia BA**: Single and Dual Traditional Growing Rods. The Growing Spine: Management of Spinal Disorders in Young Children. Springer-Verlag, Berlin Heidelberg, 2016

Akbarnia BA, **Arandi N**: Magnetically Controlled Growing Rods (MCGR). The Growing Spine: Management of Spinal Disorders in Young Children. Springer-Verlag, Berlin Heidelberg, 2016

Emans JB, **Akbarnia BA**: Complications Following Distraction-Based Growth-Friendly Surgery in Early-Onset Scoliosis. The Growing Spine: Management of Spinal Disorders in Young Children. Springer-Verlag, Berlin Heidelberg, 2016

Poe-Kochert C, D'Ambra P, **Kostial P**: Nursing Care. The Growing Spine: Management of Spinal Disorders in Young Children. Springer-Verlag, Berlin Heidelberg, 2016

Yazici M, **Akbarnia BA**, Thompson GH: A Journey from the Past to the Future. The Growing Spine: Management of Spinal Disorders in Young Children. Springer-Verlag, Berlin Heidelberg, 2016

Goldstein MJ, **Akbarnia BA**: Dual Growing Rod Treatment: Early Onset Scoliosis, A Comprehensive Guide from Oxford Meetings, Nnadi D, Editor, Thieme Publishers Stuttgart, 2016

Kabirian N, **Akbarnia BA**: Complications of Growing Rod Treatment. A Comprehensive Guide from Oxford Meetings, Nnadi D, Editor, Thieme Publishers Stuttgart, 2016

Peer-Reviewed Publications: Adult

Park P, Mummaneni PV, La Marca F, Fu KG, **Nguyen S**, Wang MY, Uribe JS, Anand N, **Mundis GM**, Deviren V, Kanter AS, Fessler RG, Shaffrey CI, **Akbarnia BA**, Passias PG, Nunley PD, Chou D, **Eastlack RK**, Okonkwo DO: What Is the Impact of Obesity in MIS Vs Open Surgery for Adult Spinal Deformity? Neurosurgery August 2015, Suppl 1, Clinical Neurosurgery: 221.

Mundis GM, Uribe JS, Mummaneni PV, Anand N, Park P, Okonkwo DO, Kanter Ad, Fessler RG, **Nguyen S**, **Akbarnia BA**, Bess S, Wang MY, La Marca F, Than KD, Deviren V, Chou D, Lafage V, Schwab F, Shaffrey CI: A Critical Analysis of Sagittal Plane Deformity Correction with Minimally Invasive Surgery: A 2-Year Follow-Up Study of Deformity Patients Categorized by the SRS-Schwab Classification. Neurosurgery August 2015, Suppl 1, Clinical Neurosurgery: 222-223.

Passias PG, Soroceanu A, Scheer J, Yang S, Boniello A, Smith JS5, Protopsaltis T, Kim HJ, Schwab F, Gupta M, Klineberg E, **Mundis GM**, Lafage R, Hart R, Shaffrey C, Lafage V, Ames C, ISSG: Magnitude of Preoperative Cervical Lordotic Compensation and C2-T3 Angle Are Correlated to Increased Risk of Postoperative Sagittal Spinal Pelvic Malalignment in Adult Thoracolumbar Deformity Patients at 2-Year Follow-Up. Spine J, 15(8):1756-63, August 2015.

Protopsaltis TS, Scheer JK, Terran JS, Smith JS, Hamilton DK, Kim HJ, **Mundis GM**, Hart RA, McCarthy IM, Klineberg E, Lafage V, Bess S, Schwab F, Shaffrey CI, Ames CP, ISSG: How The Neck Affects the Back: Changes in Regional Cervical Sagittal Alignment Correlate to HRQOL Improvement in Adult Thoracolumbar Deformity Patients at 2-Year Follow-Up. J Neurosurg Spine, 23(2):153-8, August 2015



Oh T, Scheer JK, **Eastlack RK**, Smith JS, Lafage V, Protopsaltis TS, Klineberg E, Passias PG, Deviren V, Hostin R, Gupta M, Bess S, Schwab F, Shaffrey CI, Ames CP, ISSG: Cervical compensatory alignment changes following correction of adult thoracic deformity: a multicenter experience in 57 patients with a 2-year follow-up, J Neurosurg: Spine, 22(6):658-65, August 2015

Soroceanu A, Diebo BG, Burton D, Smith JS, Deviren V, Shaffrey C, Kim HJ, **Mundis G**, Ames C, Errico T, Bess S, Hostin R, Hart R, Schwab F, Lafage V, ISSG: Radiographical and Implant-Related Complications in Adult Spinal Deformity Surgery: Incidence, Patient Risk Factors, and Impact on Health-Related Quality of Life. Spine (Phila PA 1976), 40(18):1414-21, September 2015

Sciubba DM, Scheer JK, Smith JS, Lafage V, Klineberg E, Gupta M, **Mundis GM**, Protopsaltis TS, Kim HJ, Hiratzka JR, Koski T, Shaffrey CI, Bess S, Hart RA, Ames CP, ISSG: Which Daily Functions Are Most Affected by Stiffness Following Total Lumbar Fusion: Comparison of Upper Thoracic and Thoracolumbar Proximal Endpoints. *Spine (Phila Pa 1976)*, 40(17):1338-44, September 2015

Smith JS, Shaffrey CI, Lafage V, Schwab F, Scheer JK, Protopsaltis T, Klineberg E, Gupta M, Hostin R, Fu KM, **Mundis GM Jr**, Kim HJ, Deviren V, Soroceanu A, Hart RA, Burton DC, Bess S, Ames CP, ISSG: Comparison of Best Versus Worst Clinical Outcomes for Adult Spinal Deformity Surgery: A Retrospective Review of a Prospectively Collected, Multicenter Database with 2-Year Follow-Up. *J Neurosurg Spine*, 23(3):349-59, September 2015

Fakurnejad S, Scheer JK, Lafage V, Smith JS, Deviren V, Hostin R, **Mundis GM**, Burton DC, Klineberg E, Gupta M, Kebaish K, Shaffrey CI, Bess S, Schwab F, Ames CP, ISSG: The Likelihood of Reaching Minimum Clinically Important Difference and Substantial Clinical Benefit at 2 Years Following a 3-Column Osteotomy: Analysis of 140 Patients. *J Neurosurg Spine*, 23(3):340-8, September 2015

Scheer JK, **Mundis GM**, Klineberg E, Hart RA, Deviren V, **Nguyen S**, Protopsaltis TS, Gupta M, Bess S, Shaffrey CI, Schwab F, Lafage V, Smith JS, Ames CP, ISSG: Postoperative Recovery After Adult Spinal Deformity Surgery: Comparative Analysis of Age in 149 Patients During 2-Year Follow-Up. *Spine (Phila Pa 1976)*, 40(19):1505-15, October 2015

Turner JD, Walker CT, **Mundis GM Jr**, Kakarla UK: Health Burden of Adult Spinal Deformity Compared with Other Chronic Diseases, *World Neurosurg*, 84(4):876-7, October 2015

Mundis GM, **Eastlack RK**, **Moazzaz P**, Turner AW, Cornwall GB, Contribution of Round vs. Rectangular Expandable Cage Endcaps to Spinal Stability in a Cadaveric Corpectomy Model. *Int J Spine Surg*, 22;9:53, October 2015

Daniels AH, Smith JS, Hiratzka J, Ames CP, Bess S, Shaffrey CI, Schwab FJ, Lafage V, Klineberg EO, Burton D, **Mundis GM**, Line B, Hart RA, ISSG: Functional Limitations Due to Lumbar Stiffness in Adults With and Without Spinal Deformity. *Spine (Phila Pa 1976)*, 40(20):1599-604, October 2015



Clinical Fellow Rajiv Saigal presents research at 2016 IMAST Annual Meeting

Liu S, Diebo B, Henry JK, Smith JS, Hostin R, Cunningham ME, **Mundis GM**, Ames CP, Burton D, Bess S, **Akbarnia BA**, Hart RA, Passias PG, Schwab FJ, Lafage V: The Benefit of Non-Operative Treatment for Adult Spinal Deformity: Identifying Predictors for Reaching a Minimal Clinically Important Difference. *The Spine Journal* – Published Online: Vol. 16, Issue 2 Pps 210-218, October 2015

Smith JS, Ramchandran S, Lafage V, Shaffrey CI, Ailon T, Klineberg E, Protopsaltis T, Schwab FJ, O'Brien M, Hostin R, Gupta M, **Mundis GM**, Hart R, Kim HJ, Passias P, Scheer JK, Deviren V, Burton DC, **Eastlack RK**, Bess S, Albert TJ, Riew KD, Ames CP, ISSG: Prospective Multicenter Assessment of Early Complication Rates Associated with Adult Cervical Deformity Surgery in 78 Patients, *Neurosurgery*, [Epub ahead of print], November 2015

Smith JS, Lafage V, Shaffrey CI, Schwab F, Lafage R, Hostin R, O'Brien M, Boachie-Adjei O, **Akbarnia BA**, **Mundis GM**, Kelly MP, Zebala L, Line B, Klineberg E, Gupta M, Deviren V, Hart R, Burton D, Bess S, Ames CP: Outcomes of Operative and Nonoperative Treatment for Adult Spinal Deformity. In Press. *Neurosurgery*. November 2015

Smith JS, Lafage V, Shaffrey CI, Schwab F, Lafage R, Hostin R, O'Brien M, Boachie-Adjei O, **Akbarnia BA**, **Mundis GM**, Errico T, Kim HJ, Protopsaltis TS, Hamilton DK, Scheer JK, Sciubba D, Ailon T, Fu KG, Kelly MP, Zebala L, Line B, Klineberg E, Gupta M, Deviren V, Hart R, Burton D, Bess S, Ames CP, ISSG: Outcomes of Operative and Nonoperative Treatment for Adult Spinal Deformity: A Prospective, Multicenter, Propensity-Matched Cohort Assessment with Minimum 2-Year Follow-up. *Neurosurgery*, [Epub ahead of print], November 2015

Buckland AJ, Vigdorichik J, Schwab FJ, Errico TJ, Lafage R, Ames C, Bess S, Smith J, **Mundis GM**, Lafage V: Acetabular Anteversion Changes Due to Spinal Deformity Correction: Bridging the Gap Between Hip and Spine Surgeons. *J Bone Joint Surg Am*, 97(23):1913-20, December 2015

Ames CP, Smith JS, **Eastlack RK**, **Blaskiewicz DJ**, Shaffrey CI, Schwab F, Bess S, Kim HJ, **Mundis GM**, Klineberg E, Gupta M, O'Brien M, Hostin R, Scheer JK, Protopsaltis TS, Fu KM, Hart R, Albert TJ, Riew KD, Fehlings MG, Deviren V, Lafage V, ISSG: Reliability Assessment of a Novel Cervical Spine Deformity Classification System. *J Neurosurg Spine*, 23(6):673-83, December 2015

Klineberg EO, Passias PG, Jalai CM, Worley N, Sciubba DM, Burton DC, Gupta MC, Soroceanu A, Zebala LP, **Mundis GM**, Kim HJ, Hamilton DK, Hart RA, Ames CP, Lafage V, ISSG: Predicting Extended Length of Hospital Stay in an Adult Spinal Deformity Surgical Population. *Spine (Phila Pa 1976)*, [Epub ahead of print], December 2015

Kelly MP, Zebala LP, Kim HJ, Sciubba DM, Smith JS, Shaffrey CI, Bess S, Klineberg E, **Mundis GM**, Burton D, Hart R, Soroceanu A, Schwab F, Lafage V, ISSG: Effectiveness of Preoperative Autologous Blood Donation for Protection Against Allogeneic Blood Exposure in Adult Spinal Deformity Surgeries: A Propensity-Matched Cohort Analysis. *J Neurosurg Spine*, 24(1):124-30, January 2016

Mummaneni PV, Park P, Fu KM, Wang MY, **Nguyen S**, Lafage V, Uribe JS, Ziewacz J, Terran J, Okonkwo DO, Anand N, Fessler R, Kanter AS, LaMarca F, Deviren V, Bess RS, Schwab FJ, Smith JS, **Akbarnia BA**, **Mundis GM**, Shaffrey CI, ISSG: Does Minimally Invasive Percutaneous Posterior Instrumentation Reduce Risk of Proximal Junctional Kyphosis in Adult Spinal Deformity Surgery? A Propensity-Matched Cohort Analysis. *Neurosurgery*, 78(1):101-8, January 2016

Scheer JK, Passias PG, Soroceanu AM, Boniello AJ, **Mundis GM**, Klineberg E, Kim HJ, Protopsaltis TS, Gupta M, Bess S, Shaffrey CI, Schwab F, Lafage V, Smith JS, Ames CP, ISSG: Association Between Preoperative Cervical Sagittal Deformity and Inferior Outcomes at 2-Year Follow-Up in Patients with Adult Thoracolumbar Deformity: Analysis of 182 Patients. *J Neurosurg Spine*, 24(1):108-15, January 2016

Turner JD, **Eastlack RK**, Mirzadeh Z, **Nguyen S**, **Pawelek J**, **Mundis GM Jr**, Fluctuations in Spinal Cord Perfusion During Adult Spinal Deformity Correction Identify Neurologic Changes: Proof of Concept. *World Neurosurg*, 85:365.e1-6, January 2016

Gupta M, Henry JK, Schwab F, Klineberg E, Smith JS, Gum J, Jr DW, Liabaud B, Diebo BG, Hamilton DK, **Eastlack RK**, Passias PG, Burton D, Protosaltis T, Lafage V, ISSG: Dedicated Spine Measurement Software (SMS) Quantifies Key Spino-Pelvic Parameters More Reliably Than Traditional PACS Tools, Spine (Phila Pa 1976), 41(1):E22-7, January 2016

Nourian AA, Cunningham C, **Bagheri A**, **Bruffey JD**, **Eastlack RK**, Effect of Anatomic Variability and Level of Approach on Perioperative Vascular Complications with Anterior Lumbar Interbody Fusion, Spine (Phila Pa 1976), 41(2):E73-77, January 2016.

Bess S, Line B, Fu KM, McCarthy I, Lafage V, Schwab F, Shaffrey C, Ames C, **Akbarnia BA**, Kim HJ, Kelly M, Burton D, Hart R, Klineberg E, Kebaish K, Hostin R, **Mundis GM**, Mummaneni P, Smith JS, ISSG: The Health Impact of Symptomatic Adult Spinal Deformity: Comparison of Deformity Types to United States Population Norms and Chronic Diseases. Spine, Vol. 41, Number 3, Pp 224-233, February 2016

Park P, Okonkwo DO, **Nguyen S**, **Mundis GM**, Than KD, Deviren V, La Marca F, Fu KM, Wang MY, Uribe JS, Anand N, Fessler R, Nunley PD, Chou D, Kanter AS, Shaffrey CI, **Akbarnia BA**, Passias PG, **Eastlack RK**, Mummaneni PV, ISSG: Can a Minimal Clinically Important Difference Be Achieved in Elderly Patients with Adult Spinal Deformity Who Undergo Minimally Invasive Spinal Surgery? World Neurosurg, 86:168-72, February 2016

Hamilton DK, Kanter AS, Bollinger BD, **Mundis GM**, **Nguyen S**, Mummaneni PV, Anand N, Fessler RG, Passias PG, Park P, La Marca F, Uribe JS, Wang MY, **Akbarnia BA**, Shaffrey CI, Okonkwo DO, ISSG: Reoperation Rates in Minimally Invasive, Hybrid and Open Surgical Treatment for Adult Spinal Deformity with Minimum 2-Year Follow-Up, Eur Spine J. [Epub ahead of print], February 2016

Smith JS, Klineberg E, Lafage V, Shaffrey CI, Schwab F, Lafage R, Hostin R, **Mundis GM**, Errico TJ, Kim HJ, Protosaltis TS, Hamilton DK, Scheer JK, Soroceanu A, Kelly MP, Line B, Gupta M, Deviren V, Hart R, Burton DC, Bess S, Ames CP, ISSG: Prospective Multicenter Assessment of Perioperative and Minimum 2-Year Postoperative Complication Rates Associated with Adult Spinal Deformity Surgery. J Neurosurg Spine, [Epub ahead of print], February 2016

Park P, Wang MY, **Nguyen S**, **Mundis GM**, La Marca F, Uribe JS, Anand N, Okonkwo DO, Kanter AS, Fessler R, **Eastlack RK**, Chou D, Deviren V, Nunley PD, Shaffrey CI, Mummaneni PV, ISSG: Comparison of Complications and Clinical and Radiographic Outcomes Between Nonobese and Obese Patients with Adult Spinal Deformity Undergoing Minimally Invasive Surgery. World Neurosurg, 87:55-60, March 2016

Smith JS, Klineberg E, Shaffrey CI, Lafage V, Schwab FJ, Protosaltis T, Scheer JK, Ailon T, Ramachandran S, Daniels A, **Mundis GM**, Gupta M, Hostin R, Deviren V, **Eastlack RK**, Passias P, Hamilton DK, Hart R, Burton DC, Bess S, Ames CP, ISSG: Assessment of Surgical Treatment Strategies for Moderate to Severe Cervical Spinal Deformity Reveals Marked Variation in Approaches, Osteotomies and Fusion Levels. World Neurosurg, [Epub ahead of print], April 2016

Soroceanu A, Burton DC, Oren JH, Smith JS, Hostin R, Shaffrey CI, **Akbarnia BA**, Ames CP, Errico TJ, Bess S, Gupta MC, Deviren V, Schwab FJ, Lafage V, ISSG: Medical Complications After Adult Spinal Deformity Surgery: Incidence, Risk Factors and Clinical Impact. Spine: [Epub Ahead of Print]. April 19, 2016

Phillips FM, Cheng I, Rampersaud YR, **Akbarnia BA**, Pimenta L, Rodgers WB, Uribe JS, Khanna N, Smith WD, Youssef JA, Sulaiman W, Tohmeh A, Cannestra A, Wohns R, Okonkwo DO, Acosta F, Rodgers EJ, Anderson G: Breaking Through The "Glass Ceiling" Of Minimally Invasive Spine Surgery. Spine Vol. 41, No. 8s, Pps S39-S43, April 2016



SDSF at 2016 SOLAS: Stacie Nguyen (Research Manager), Edward Nomoto (Past Clinical Fellow), Robert Eastlack, Paul Stanton (Past Clinical Fellow), Gregory Mundis, Jr., Behrooz Akbarnia, Bruce van Dam (Retired Faculty Member), Ricardo Acacio (Past Int. Visiting Fellow), Enrique Vargas (Past Int. Visiting Fellow) and Pooria Hosseini (Research Fellow)

Saigal R, **Mundis GM**, **Eastlack RK**, Uribe J, Phillips F, **Akbarnia BA**: Anterior Column Realignment (ACR) in Adult Sagittal Deformity Correction: Technique and Review of the Literature. Spine Vol. 41, No. 8s, Pps S66-S73. April 2016

Smith JS, Lafage V, Schwab F, Lafage R, Hostin R, O'Brien M, Boachie-Adjei O, **Akbarnia BA**, **Mundis GM**, Errico T, Kim HJ, Protosaltis TS, Hamilton DK, Scheer JK, Sciubba D, Ailon, Fu KM, Kelly MP, Zebala K, Line B, Klineberg E, Gupta M, Deviren V, Hart R, Burton D, Bess S, Ames CP, ISSG: Outcomes of Operative and Nonoperative Treatment for Adult Spinal Deformity: A Prospective, Multicenter Propensity-Matched Cohort Assessment with Minimum 2-Year Follow-Up. Neurosurgery 2016 Jun;78(6):851-61

Hosseini P, **Mundis GM**, **Eastlack RK**, **Nourian A**, **Pawelek J**, **Nguyen S**, **Akbarnia BA**: Do Longer Surgical Procedures Result in Greater Contamination of Surgeons' Hands? Clin Orthop Relat Res, 474(7):1707-1713, July 2016

Than KD, Park P, Fu Km, **Nguyen S**, Wang My, Chou D, Nunley PD, Anand N, Fessler RG, Shaffrey Ci, Bess S, **Akbarnia BA**, Deviren V, Uribe JS, La Marca F, Kanter AS, Okonkwo DO, **Mundis GM**, Mummaneni PV; ISSG: Clinical and Radiographic Parameters Associated with Best Versus Worst Clinical Outcomes in Minimally Invasive Spinal Deformity Surgery. J Neurosurg Spine. 2016 Jul;25(1): 21-5

Hosseini P, **Mundis GM**, **Eastlack RK**, **Pawelek J**, **Nguyen S**, **Akbarnia BA**: Is There a Role for an Ultrasonic Bone-Cutting Device in Adult Spinal Deformity: A Safety and Reproducibility Study. Shafa Ortho J. In Press (In Press): E7461. July 26, 2016

Peer-Reviewed Publications: Pediatric

Schwend RM, Schmidt JA, Reigrut JL, Blakemore LC, **Akbarnia BA**: Letter to The Editor Concerning: "Patterns of Rib Growth in The Human Child". Spine Deformity Journal, Vol. 3, Issue 6, Pps 608-610 And Pps 610-611. November 2015

Cheung JPY, Cahill P, Yaszay B, **Akbarnia BA**, Cheung KMC: Update On the Magnetically Controlled Growing Rod: Tips and Pitfalls, Journal of Orthopaedic Surgery, Vol. 23(3):383-90 December 2015

Mundis GM, **Pawelek J**, **Nomoto, EK**, **Hennessy MW**, Yaszay B, **Akbarnia BA**: Longitudinal Pilot Analysis of Radiation Exposure During the Course of Growing Rod Treatment for Early-Onset Scoliosis. Spine Deformity Journal Vol.4, Pp 55-58, January 2016

Pawelek JB, Yaszay B, **Nguyen S**, Newton PO, **Mundis GM**, **Akbarnia BA**, HSG, GSSG: Case-Matched Comparison of Spinal Fusion Versus Growing Rods for Progressive Idiopathic Scoliosis in Skeletally Immature Patients. Spine, Vol. 41, Number 3, Pp 234-238, February 2016

Goldstein MJ, Kabirian N, Pawelek JB, Arandi NR, Mundis GM, Yaszay B, Newton PO, **Akbarnia BA:** Quantifying Anesthesia Exposure in Growing Rod Treatment for Early Onset Scoliosis. *J Pediatr Orthop.* [Epub Ahead of Print] Feb 15, 2016

Hosseini P, Pawelek J, Mundis GM, Yaszay B, Ferguson J, Helenius I, Cheung K, Demirkiran G, Alanay A, Senkoylu A, Elsebaie H, **Akbarnia BA:** Magnetically-Controlled Growing Rods for Early Onset Scoliosis: A Multicenter Study of 23 Cases with Minimum 2 Years Follow-Up. *Spine (Phila Pa 1976).* [Epub Ahead of Print] Mar 10, 2016

Hosseini P, Nnadi C, Rehak L, Repko M, Grevitt M, Aydinli U, Allen C, **Pawelek J,** Crandall D, **Akbarnia BA:** Analysis of Segmental Mobility Following a Novel Posterior Apical Short-Segment Correction for Adolescent Idiopathic Scoliosis. *Spine (Phila Pa 1976).* [Epub Ahead of Print] April 5, 2016

Blakemore L, Schwend R, **Akbarnia BA,** Dumas M, Schmidt J: Growth Patterns of the Neurocentral Synchondrosis (NCS) In Immature Cadaveric Vertebra. *J Pediatr Orthop.* [Epub Ahead of Print]. April 30, 2016

Brooks, JT, Jain A, Perez-Gruoso FS, Skaggs DI, Thompson GH, **Akbarnia BA,** Sponseller PD, GSSG: Outcomes of Pelvic Fixation in Growing Rod Constructs: An Analysis of Patients with A Minimum of 4 Years of Follow-Up. *Spine Deformity Journal.* Vol. 4, Issue 3, Pps 211-216. May 2016

Keskinen H, Helenius I, Nnadi C, Ferguson J, **Mundis GM, Pawelek J, Akbarnia BA:** Preliminary Comparison of Primary and Conversion Surgery with Magnetically Controlled Growing Rods in Children with Early Onset Scoliosis. *Eur Spine J* [Epub Ahead of Print] May 9, 2016

Matsumoto H, Williams B, Park HY, Yoshimachi JY, Roye BD, Roye DP Jr, **Akbarnia BA,** Emans J, Skaggs D, Smith JT, Vitale MG: The Final 24-Item Early Onset Scoliosis Questionnaires (EOSQ-24): Validity, Reliability and Responsiveness. *J Pediatr Orthop.* [Epub Ahead of Print] Jun 13, 2016

Choi E, Yaszay B, **Mundis GM, Hosseini P, Pawelek J,** Alanay A, Berk H, Cheung K, Demirkiran G, Ferguson J, Gregg T, Helenius I, La Rosa G, Senkoylu A, **Akbarnia BA.** Implant Complications After Magnetically Controlled Growing Rods for Early Onset Scoliosis: A Multicenter Retrospective Review. *J Pediatr Orthop.* [Epub Ahead of Print] Jun 18, 2016

Jain A, Sponseller PD, Flynn JM, Shah SA, Thompson GH, Emans JB, **Pawelek JB, Akbarnia BA,** GSSG: Avoidance of "Final" Fusion After Growing-Rod Treatment for Early Onset Scoliosis. *J Bone Joint Surg Am.* 2016, Jul 6; 98(13): 1073-8

Hamilton DK, Carlson BB, Klineberg EO, Bess S, Hart RA, Burton DC, Keefe MK, Scheer JK, Ames CP, Smith JS, Passias PG, Protopsaltis TS, Soroceanu A, Sciubba DM, Kim HJ, Lafage V, **Mundis GM,** Schwab FJ, ISSG: Patients Incurring Multiple Complications following Adult Spinal Deformity (ASD) Surgery Demonstrate an Additive Effect Resulting in Incremental Worsening of Health Related Quality of Life (HRQOL). 30th Annual Meeting of the North American Spine Society, Chicago, IL, October 14-17, 2015 **POSTER**

Klineberg EO, Iyer S, Kelly MP, Matthew E, Cunningham, MD, Zebala LP, Brian J, Neuman BJ, Hart RA, Daniels A, Bess S, Gupta MC, Hamilton DK, **Mundis GM,** Lafage V, Smith JS, Ames CP, Burton DC, Kim HJ, ISSG: Dural Tears Do Not Affect Outcomes or Rates of Other Associated Complications in Adult Spinal Deformity Surgery. 30th Annual Meeting of the North American Spine Society, Chicago, IL, October 14-17, 2015 **POSTER**

Harris JE, **Blaskiewicz DJ,** Han PP, Turner AW, **Mundis GM:** An In Vitro Evaluation of Sagittal Alignment in the Cervical Spine after Insertion of Supraphysiologic Lordotic Implants. 30th Annual Meeting of the North American Spine Society, Chicago, IL, October 14-17, 2015 **POSTER**

Than KD, Park P, **Nguyen S,** Wang MY, Chou D, Nunley PD, Anand N, Fessler RG, Shaffrey CI, Bess S, Diebo BG, Deviren V, Uribe JS, Kanter AS, Okonkwo DO, **Mundis GM,** ISSG: Clinical and Radiographic Parameters Associated with Best versus Worst Clinical Outcomes in Minimally Invasive Deformity Surgery. 30th Annual Meeting of the North American Spine Society, Chicago, IL, October 14-17, 2015 **POSTER**

Smith JS, Lafage V, Shaffrey CI, Protopsaltis TS, Passias PG, Schwab FJ, Gupta MC, O'Brien MJ, Hostin RA, **Mundis GM, Eastlack RK,** Burton DC, Hart RA, Daniels A, Kim HJ, Klineberg EO Bess S, Deviren V, Albert TJ, K. Riew D, Ames CP, ISSG: Prospective Multicenter Assessment of Early Complication Rates Associated with Adult Cervical Deformity Surgery in 78 Patients. 30th Annual Meeting of the North American Spine Society, Chicago, IL, October 14-17, 2015 **POSTER**

Kim HJ, Iyer S, Ames CP, Cunningham ME, Klineberg EO, Protopsaltis TS, Kelly MP, **Mundis GM,** Bess S, Burton DC, Schwab FJ, Hart RA, Lafage R, Lafage V, ISSG: Pelvic Tilt May Not Improve Despite Spinopelvic Realignment: An Analysis of Causative Factors. 30th Annual Meeting of the North American Spine Society, Chicago, IL, October 14-17, 2015 **POSTER**

Henry J, Schwab FJ, Kelly MP, **Mundis GM,** Bess RS, Lafage V, ISSG: The Unpredictability of Primary Adult Spinal Deformity Patients Undergoing Sagittal Realignment. American Academy of Orthopaedic Surgeons 2016 Annual Meeting, Orlando, Florida, March 1-5, 2016 **POSTER**

Poster Exhibits - Pediatric

Yaszay B, Reighard FG, Farnsworth C, Doan J, **Pawelek J, Mundis GM, Akbarnia BA:** Analyzing Early Onset Scoliosis in 3d: How Does Growing Rod Surgery Affect the Three Planes of Deformity? 9th International Congress On Early Onset Scoliosis. Boston, Massachusetts, November 19-20, 2015 **POSTER**

Matsumoto H, Feinberg N, Yoshimachi J, Roye DP, **Akbarnia BA,** Garg S, Sanders JO, Skaggs DL, Smith JT, Vitale MG, CSSG, GSSG: Short Term Health Related Quality of Life and Family Burden After Surgical or Casting Treatment for Early Onset Scoliosis. 9th International Congress On Early Onset Scoliosis. Boston, Massachusetts, November 19-20, 2015 **POSTER**

Helenius I, Keskinen H, Nnadi C, Cheung KMC, Ferguson J, **Mundis GM, Pawelek J, Akbarnia BA:** Comparison of Primary and Conversion Surgery with Magnetically Controlled Growing Rods in Children with Early Onset Scoliosis. 9th International Congress

POSTER

Poster Exhibits – Adult

Uribe JS, Mummaneni PV, Okonkwo DO, Nunley PD, **Eastlack RK,** Park P, **Akbarnia BA,** Shaffrey CI, Deviren V, **Nguyen S,** Anand N, Kanter A, Fessler RG, **Mundis GM,** ISSG: Does MIS Surgery Allow for Shorter Constructs in The Surgical Treatment of ASD? Scoliosis Research Society Annual Meeting, Minneapolis, Minnesota, September 30-October 3, 2015 **POSTER**

On Early Onset Scoliosis. Boston, Massachusetts, November 19-20, 2015 **POSTER**

Hosseini P, Pawelek J, Nguyen S, Thompson GH, Shah S, Flynn JM, Dormans JP, **Akbarnia BA**, GSSG: Rod Fracture and Lengthening Intervals in Traditional Growing Rods: Is There a Relationship? 9th International Congress On Early Onset Scoliosis. Boston, Massachusetts, November 19-20, 2015 **POSTER**

Hosseini P, Pawelek J, Mundis GM, Yazsay B, Ferguson J, Helenius I, Cheung KMC, Demirkiran G, Alanay A, Senkoylu A, Elsebaie H, **Akbarnia BA**: Magnetically-Controlled Growing Rods for Early Onset Scoliosis: A Multicenter Study of 23 Cases with Minimum of 2 Years Follow-Up. 9th International Congress On Early Onset Scoliosis. Boston, Massachusetts, November 19-20, 2015 **POSTER**

Yaszay B, **Pawelek J**, Emans JB, Cahill P, Robertson B, **Mundis GM**, **Akbarnia BA**, CSSG, GSSG: The Utility of Growth-Friendly Surgery in Early Onset Scoliosis Secondary to Beals Syndrome. 9th International Congress On Early Onset Scoliosis. Boston, Massachusetts, November 19-20, 2015 **POSTER**

Choi E, Hosseini P, Mundis GM, Pawelek J, Akbarnia BA, Helenius IJ, Ferguson JA, Cheung KMC, Yazsay B: Implant Complications After Magnetic-Controlled Growing Rods for Early Onset Scoliosis. American Academy of Orthopaedic Surgeons 2016 Annual Meeting. Orlando, Florida, March 1-5, 2016 **POSTER**

Polly DW, Ackerman SJ, Schneider KB, **Pawelek J, Akbarnia BA**: Cost Analysis of Magnetically-Controlled Growing Rods Compared with Traditional Growing Rods for Early Onset Scoliosis in The United States: An Integrated Healthcare Delivery System. 2016 Pediatric Orthopaedic Annual Meeting. Indianapolis, Indiana. April 27-30, 2016 **E-POSTER**

Sponseller PD, **McClung A, Pawelek J**, El-Hawary R, Thompson GH, Smith JT, Vitale MG, **Akbarnia BA**, Bachabi M, CSSG, GSSG, Johns Hopkins Medicine: Growing Rod and Vertical Expandable Prosthetic Titanium Rib Perform Differently for Idiopathic Early Onset Scoliosis at 5 Year Follow-Up. 2016 Pediatric Orthopaedic Annual Meeting. Indianapolis, Indiana. April 27-30, 2016 **POSTER**

Hosseini P, Pawelek J, Mundis GM, Yazsay B, Ferguson J, Helenius I, Cheung KMC, Alanay A, Senkoylu A, Elsebaie H, **Akbarnia BA**: Magnetically-Controlled Growing Rods for Early Onset Scoliosis: A Multicenter Study of 23 Cases with Minimum of 2 Years Follow-Up. 2016 Pediatric Orthopaedic Annual Meeting. Indianapolis, Indiana. April 27-30, 2016 **POSTER**

Podium Presentations – Adult

Klineberg EO, Smith JS, Lafage V, Shaffrey CI, Bess S, Schwab FJ, Gupta MC, Hart RA, Protosaltis TS, **Mundis GM**, Kim HJ, Burton DC, Scheer JK, Ames CP, ISSG: Prospective Multicenter Assessment of Perioperative and Minimum Two-Year Postoperative Complication Rates Associated with Adult Spinal Deformity Surgery. 50th Annual Meeting of the Scoliosis Research Society, Minneapolis, Minnesota. September 30-October 3, 2015



Scheer JK, Gum JL, Kelly MP, Schwab FJ, Hostin R, Lafage V, Bess S, Protosaltis TS, Burton DC, Gupta MC, Hart RA, **Mundis GM**, Smith JS, Ames CP, ISSG: Ratio of Disability to Deformity Burden in 264 Adult Spinal Deformity Patients with 2-Year Follow-Up: Novel Insight into Drivers of Disability. 50th Annual Meeting of the Scoliosis Research Society, Minneapolis, Minnesota. September 30-October 3, 2015



Gupta MC, Henry JK, Lafage V, Schwab FJ, Ames CP, Klineberg EO, Smith JS, Deviren V, Shaffrey CI, Hart RA, Hostin R, **Mundis GM**, Kim HJ, Burton DC, ISSG: Reducing Rod Breakage and Nonunion in



Research fellow Pooria Hosseini presents his research at the 2016 AAOS Annual Meeting. Research fellow Pooria Hosseini presents his research at the 2016 AAOS Annual Meeting

Pedicle Subtraction Osteotomy: The Importance of Rod Number and Configuration in 264 Patients with 2-Year Follow-Up. 50th Annual Meeting of the Scoliosis Research Society, Minneapolis, Minnesota. September 30-October 3, 2015 And 30th Annual Meeting of the North American Spine Society, Chicago, IL, October 14-17, 2015



Neuman BJ, Jain A, Sciubba DM, Klineberg EO, Kim HJ, Zebala LP, **Mundis GM**, Lafage V, Passias PG, Lafage R, Protosaltis TS, Hamilton DK, Scheer JK, Ames CP, ISSG: Regional Thoracic and Lumbar Sagittal Cobb Angle Changes and UIV Determine Evolution of Cervical Alignment After ASD Surgery: Series of 171 Patients with 2 Year Follow Up. 50th Annual Meeting of the Scoliosis Research Society, Minneapolis, Minnesota. September 30-October 3, 2015



Buckland J, Vigdorich J, Lafage R, **Mundis GM**, Gum JL, Kelly MP, Hart RA, Ames CP, Smith JS, Bess S, Errico TJ, Schwab FJ, Lafage V, ISSG: Acetabular Anteversion Changes in Spinal Deformity Correction: Implications for Hip and Spine Surgeons. 30th Annual Meeting of the North American Spine Society, Chicago, IL, October 14-17, 2015



Bess S, Line B, Klineberg EO, Ames CP, Boachie-Adjei O, Burton DC, Deviren V, Gupta MC, Gum JL, Hart RA, Hamilton DK, Hostin RA, Kim HJ, Keibaish KM, Kelly MP, Lafage V, **Mundis GM**, Schwab FJ, Shaffrey CI, Smith JS, ISSG: Operative Treatment of Adult Spinal Deformity (ASD) Improves Health Related Quality of Life (HRQOL) for All Spinal Deformity Types, While Patients Treated Nonoperatively Demonstrate No Change at Mean 4.9, Years Follow-Up. 30th Annual Meeting of the North American Spine Society, Chicago, IL, October 14-17, 2015



Mundis GM, Turner JD, Deviren V, Uribe JS, Nunley PD, Shaffrey CI, Anand N, Park P, Okonkwo DO, Wang MY, Bess S, Kanter AS, Fessler RG, **Nguyen S**, ISSG: A Critical Analysis of Sagittal Plane Deformity Correction with Minimally Invasive Adult Spinal Deformity Surgery: A Two-Year Follow-Up Study. 30th Annual Meeting of the North American Spine Society, Chicago, IL, October 14-17, 2015



Chou D, Wang MY, **Blaskiewicz DJ, Nguyen S**, Shaffrey CI, Okonkwo DO, Kanter AS, Deviren V, Uribe JS, **Eastlack RK**, Nunley PD, Anand N, Park P, **Mundis GM**, ISSG: The Impact of Minimally Invasive Spinal Deformity Surgery on ICU and Hospital Stay. 30th Annual Meeting of the North American Spine Society, Chicago, IL, October 14-17, 2015



Scheer JK, Smith JS, Schwab FJ, Lafage V, Shaffrey CI, Bess S, Hart RA, Gupta MC, Protopsaltis TS, Hostin RA, Deviren V, Line B, Daniels A, Diebo BG, Lafage R, Zebala LP, **Mundis GM**, Jain A, Ailon T, Kim HJ, Hamilton DK, Burton DC, Klineberg EO, Ames CP, ISSG: Development of Validated Computer Based Preoperative Predictive Model for Proximal Junction Failure or Clinically Significant Proximal Junction Kyphosis with 86% Accuracy Based on 510 Adult Spinal Deformity Patients with Two-Year Follow-Up. 30th Annual Meeting of the North American Spine Society, Chicago, IL, October 14-17, 2015



Klineberg EO, Carlson BB, Protopsaltis TS, Passias PG, Smith JS, Ames CP, Hostin RA, Gupta MC, Lafage V, **Mundis GM**, Kelly MP, Hart RA, Schwab FJ, Burton DC, ISSG: Can Measurements on Cervical Radiographs Predict Concurrent Thoracolumbar Deformity and Provide a Threshold for Acquiring Full-Length Spine Radiographs? 30th Annual Meeting of the North American Spine Society, Chicago, IL, October 14-17, 2015



Scheer JK, Gum JL, Kelly MP, Schwab FJ, Hostin RA, Lafage V, Bess S, Protopsaltis TS, Kebaish KM, Burton DC, Gupta MC, Soroceanu A, Hart RA, **Mundis GM**, Jain A, Smith JS, Ames CP, ISSG: Ratio of Disability to Deformity Burden in 264 Adult Spinal Deformity Patients with Two-Year Follow-Up: Novel Insight into Drivers of Disability. 30th Annual Meeting of the North American Spine Society, Chicago, IL, October 14-17, 2015



Gomez J, Lafage V, Sciubba DM, Bess S, **Mundis GM**, Liabaud B, Shaffrey CI, MP, Ames CP, Smith, Passias PG, Burton DC, Errico TJ, Schwab FJ, ISSG: Adult Scoliosis Deformity (ASD) Surgery: Comparison of One Versus Two Attending Surgeons' Clinical Outcomes. 30th Annual Meeting of the North American Spine Society, Chicago, IL, October 14-17, 2015



Smith JS, Iyer S, Kim HJ, Kelly MP, Hart RA, Gupta MC, Hamilton DK, Brian J. Neuman, MD; Protopsaltis TS, **Mundis GM**, Lafage V, Passias PG, Klineberg EO, Ames CP, ISSG: Cervical Deformity Surgery does not Result in Acute Postoperative Dysphagia: Preliminary Results from a Prospective Cervical Deformity Study. North American Spine Society (NASS), 30th Annual Meeting, Chicago, IL, October 14-17, 2015



Dr. Akbarnia and other speakers field questions during podium presentation session at the 2016 IMAST Annual Meeting

Gupta MC, Henry J, Lafage V, Deviren V, Hart RA, Hostin RA, **Mundis GM**, Kim HJ, ISSG: Reducing Rod Breakage and Pseudarthrosis in PSO: The Importance of Rod Number and Configuration in 264 patients. American Academy of Orthopaedic Surgeons 2016 Annual Meeting, Orlando, Florida, March 1-5, 2016



Bronson W, Protopsaltis TS, Liabaud B, **Mundis GM**, Gum J, Burton DC, Schwab FJ, Lafage V, ISSG: Reliability of Intraoperative Prone Lateral Radiographs in Predicting Postoperative Standing Sagittal Alignment. American Academy of Orthopaedic Surgeons 2016 Annual Meeting, Orlando, Florida, March 1-5, 2016



Zavatsky JM, Wang MY, Park P, Chou D, Kanter AS, Uribe JS, Nunley P, **Eastlack RK**, **Akbarnia BA**, Anand N, **Nguyen S**, Mummaneni P, **Mundis GM**, ISSG: Impact of Multi-Level Interbody Fusion in The Treatment of Severe Adult Scoliosis (Thoracolumbar Coronal Cobb Angle > 50 Degrees). 9th Annual Meeting of Society of Lateral Access Surgery. San Diego, California, March 10-11, 2016



Rodgers WB, **Mundis GM**, Malaba P, Ombachi R, Otieno S, Cornwall GB: The Role of Lateral Access Surgery in Global Outreach Spine Surgery: Single Position Surgery and Other Applications of Lateral Surgery. 9th Annual Meeting of Society of Lateral Access Surgery. San Diego, California, March 10-11, 2016



Mundis GM, **Eastlack RK**, Mummaneni P, Okwonko DO, **Nguyen S**, Kanter AS, Anand N, Park P, Nunley P, Uribe JS, Zavatsky JM, Chou D, Deviren V, ISSG: Current MIS Deformity Correction and Alignment, Part 2, Techniques Fail to Optimize Spinopelvic Parameters in Patients with High Pelvic Incidence, 9th Annual Meeting of Society of Lateral Access Surgery. San Diego, California, March 10-11, 2016



Uribe JS, **Mundis GM**, Wang M, Anand N, Okonkwo DO, **Nguyen S**, Mummaneni P, Nunley P, Park P, Kanter AS, Zavatsky JM, **Eastlack RK**, **Akbarnia BA**, ISSG: Patients with High Pelvic Tilt Achieve the Same Clinical Success as Those with Low Pelvic Tilt After Minimally Invasive Deformity Surgery. 9th Annual Meeting of Society of Lateral Access Surgery. San Diego, California, March 10-11, 2016



Eastlack RK, **Mundis GM**, **Nguyen S**, Mummaneni P, Okonkwo DO, Kanter AS, Anand N, Park P, Nunley P, Uribe JS, **Akbarnia BA**, Chou D, Deviren V, ISSG: Early and Late Reoperation Rates and Etiologies Are Similar Between CMIS and HYB Techniques for ASD Correction. 9th Annual Meeting of Society of Lateral Access Surgery. San Diego, California, March 10-11, 2016, AND 23rd International Meeting On Advanced Spine Techniques (IMAST), Washington, DC, USA. July 13-16, 2016



Kanter AS, Tempel ZJ, Zavatsky JM, **Mundis GM**, **Nguyen S**, Chou D, Park P, Uribe JS, Wang M, Anand N, **Eastlack RK**, Mummaneni PV, Okonkwo DO, ISSG: Does Concave Versus Convex Approach Matter When Using Lateral Lumbar Interbody Fusion for Adult Scoliosis? Deformity Correction and Alignment, Part 2. 9th Annual Meeting of Society of Lateral Access Surgery. San Diego, California, March 10-11, 2016



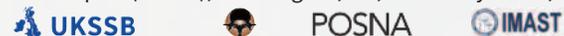
Than K, Nguyen S, Park P, Chou D, La Marca F, Uribe JS, Vogel T, Nunley P, **Eastlack RK**, Anand N, Kanter AS, Mummaneni P, **Mundis GM**, ISSG: What Is the Effect of Open Vs Percutaneous Screws On Complications Among Patients Undergoing Lateral Interbody Fusion for Adult Spinal Deformity Deformity Correction and Alignment, Part 2.

9th Annual Meeting of Society of Lateral Access Surgery. San Diego, California, March 10-11, 2016



Hosseini P, Mundis GM, Eastlack RK, Pawelek J, Nguyen S, Akbarnia BA: Do Surgeons Need to Rescrub During Operations That Last Longer Than Three Hours? **Best in Show Nomination** - 9th Britspine 2016 Conference. Nottingham, England. April 6-8, 2016 and LSRS, Chicago, Illinois, April 14-15, 2016

2016 Pediatric Orthopaedic Annual Meeting. Indianapolis, Indiana. April 27-30, 2016, and **Whitecloud Best Basic Science Paper Award Nomination.** 23rd International Meeting On Advanced Spine Techniques (IMAST), Washington, DC, USA. July 13-16, 2016



Than K, Park P, Fu KM, **Nguyen S**, Wang M, Shaffrey C, Bess S, **Akbarnia BA**, Deviren V, Uribe J, Okonkwo D, **Mundis GM**, Mummaneni P, ISSG: Clinical and Radiographic Parameters Associated with Best Vs. Worst Clinical Outcomes in Minimally Invasive Deformity Surgery. Society for Minimally Invasive Spine Surgery Session at Spine Week. Singapore. May 2016



Miller EK, Ailon T, Neuman BJ, Klineberg EO, **Mundis GM**, Sciubba DM, Kebaish KM, Lafage V, Scheer JK, Smith JS, Hamilton DK, Bess S, Ames CP, ISSG: Assessment of a Novel Adult Cervical Deformity (ACD) Frailty Index (FI) as a Component of Preoperative Risk Stratification (Whitecloud Award Nominee – Best Clinical Paper). 23rd International Meeting on Advanced Spine Techniques, Washington, DC, July 13–16, 2016



Kim HJ, Bao H, Iyer S, Smith JS, Gupta MC, Albert TJ, Protosaltis TS, **Mundis GM**, Passias PG, Neuman BJ, Klineberg EO, Lafage V, Ames CP, ISSG: The Posterior use of BMP-2 in Cervical Deformity Surgery Does Not Result in Increased Complications: A Prospective Multicenter Study (Whitecloud Basic Science Nominees and Top-Scoring Abstracts). 23rd International Meeting on Advanced Spine Techniques, Washington, DC, July 13–16, 2016



Kim HJ, Diebo BG, Iyer S, Kelly MP, Sciubba DM, Schwab FJ, Lafage V, **Mundis GM**, Shaffrey CI, Smith JS, Hart RA, Burton DC, Bess S, Ames CP, Klineberg EO, ISSG: Thromboembolic Disease in Adult Spinal Deformity Surgery: Incidence and Risk Factors in 737 Patients. 23rd International Meeting on Advanced Spine Techniques, Washington, DC, July 13–16, 2016



Buckland AJ, Hart RA, **Mundis GM**, Sciubba DM, Lafage R, Errico TJ, Bess S, Viggdorichik J, Schwarzkopf R, Lafage V, ISSG: Acetabular Component Orientation in the Setting of Spinal Deformity Correction. 23rd International Meeting on Advanced Spine Techniques, Washington, DC, July 13–16, 2016



Saigal R, Mundis GM, Eastlack RK, Nguyen S, Bagheri A, Bagheri R, Akbarnia BA: Anterior Column Realignment: A Detailed Analysis of Neurologic Risk and Radiographic Outcomes. 23rd International Meeting on Advanced Spine Techniques, Washington, DC, July 13–16, 2016



Mundis GM, Lafage V, Ames CP, Hart RA, Burton DC, Bess S, Schwab FJ, Klineberg EO, Protosaltis TS, **Akbarnia BA**, Diebo BG, Kim HJ, Deviren V, ISSG: High Pelvic Incidence Predicts Alignment Failure in Patients Undergoing 3-Column Osteotomy. 23rd International Meeting on Advanced Spine Techniques, Washington, DC, July 13–16, 2016



Robert Eastlack and Gregory Mundis, Jr. in discussion at the SRS Annual Meeting

Mundis GM, Klineberg EO, Hart RA, Smith JS, Shaffrey CI, Ames CP, ISSG: Upper Cervical and Infra-Cervical Compensation in Cervical Deformity Patients. 23rd International Meeting on Advanced Spine Techniques, Washington, DC, July 13–16, 2016



Smith JS, Shaffrey CI, Kim HJ, Neuman BJ, Klineberg EO, Schwab FJ, Lafage R, Protosaltis TS, Passias PG, **Mundis GM**, Hart RA, Deviren V, Bess S, Ames CP, ISSG: Three-column Osteotomy for Correction of Cervical Deformity: Alignment Changes and Early Complications in a Multicenter Prospective Series of 24 Patients. 23rd International Meeting on Advanced Spine Techniques, Washington, DC, July 13–16, 2016



Smith JS, Line B, Bess S, Shaffrey CI, Kim HJ, **Mundis GM**, Klineberg EO, Schwab FJ, Lafage V, Passias PG, Protosaltis TS, Hart RA, Burton DC, Ames CP, ISSG: The Health Impact of Symptomatic Adult Cervical Deformity: Comparison to United States Population Norms and Chronic Disease States Based on the EQ5D. 23rd International Meeting on Advanced Spine Techniques, Washington, DC, July 13–16, 2016



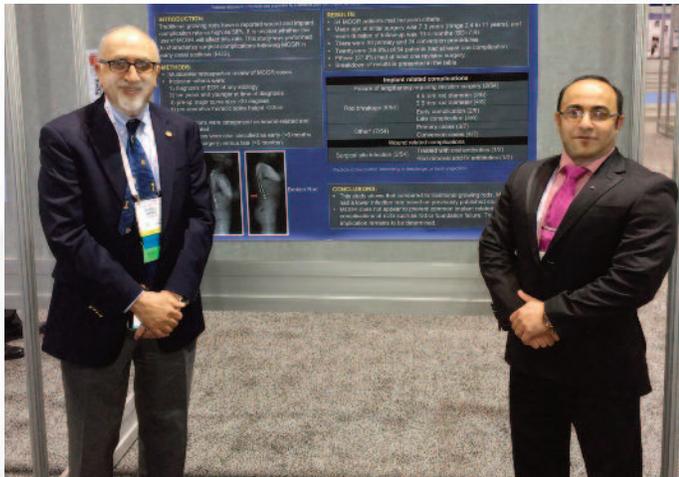
Kim HJ, Bao H, Iyer S, Smith JS, Kelly MP, Gupta MC, Albert TJ, **Mundis GM**, Passias PG, Neuman B, Klineberg E, Lafage V, Ames CP, ISSG: Cervical Deformity Surgery Does Not Result in Post-Operative Dysphagia: A Prospective Cohort Study. 23rd International Meeting on Advanced Spine Techniques, Washington, DC, July 13–16, 2016



Eastlack RK, Mundis GM, Nguyen S, Mummaneni PV, Okonkwo DO, Kanter A, Anand N, Park P, Nunley PD, Uribe JS, Akbarnia BA, Chou D, Deviren V, ISSG: Early and Late Reoperation Rates and Etiologies Are Similar Between cMIS and HYB Techniques for ASD Correction. 23rd International Meeting on Advanced Spine Techniques, Washington, DC, July 13-16, 2016



Liabaud B, Lafage R, Hart RA, Schwab FJ, Smith JS, Kim HJ, Hostin R, Passias PG, Ames CP, **Mundis GM, Burton DC, Bess S, Klineberg EO, Lafage V, ISSG:** Proximal Junctional Kyphosis (PJK) Can Be Predicted Following Adult Spinal Deformity (ASD) Surgery: Models Based On Regional Alignment Changes within the Fusion Area. 23rd International Meeting on Advanced Spine Techniques, Washington, DC, July 13-16, 2016



Behrooz Akbarnia and Research Fellow Pooria Hosseini at 2016 AAOS Annual Meeting Poster Exhibit

Nunley PD, Fessler RG, Park P, Zavatsky JM, **Mundis GM, Uribe JS, Eastlack RK, Chou D, Wang MY, Anand N, Kanter A, Deviren V, Mummaneni PV, ISSG:** How Does Case Type, Length of Stay, and Comorbidities Affect Medicare DRG Reimbursement for Minimally Invasive Surgery (MIS) for Deformity? 23rd International Meeting on Advanced Spine Techniques, Washington, DC, July 13-16, 2016



Podium Presentations - Pediatric

Yilgor C, Cheung KMC, Kwan K, Samartzis D, Ferguson J, Nnadi C, Helenius I, Yazici M, Demirk G, Alanay A, **Akbarnia BA:** The Effect of Magnetically Controlled Growing Rod On the Sagittal Profile in Early Onset Scoliosis Patients. Eurospine, Copenhagen, Denmark, September 2-4, 2015



Yilgor C, Cheung KMC, Kwan D, Samartzis D, Alanay A, Ferguson J, Nnadi C, Helenius I, Yazici M, Demirkiran G, **Akbarnia BA:** Effects of Frequency of Distraction in Magnetically-Controlled Growing Rod Lengthening on Outcomes and Complications. Eurospine, Copenhagen, Denmark, September 2-4, 2015 And 9th Annual International Congress On Early Onset Scoliosis. Boston, Massachusetts. November 19-20, 2015 And 9th Britspine 2016 Conference. Nottingham, England. April 6-8, 2016



ICEOS



Hill G, Nagaraja S, **Akbarnia BA, Sponseller PD, Sturm PF, Emans JB, Pawelek JB, GSSG, Dreher M:** Retrieval Analysis of Traditional Distraction-Based Growing Rod Constructs for Early Onset Scoliosis: Scoliosis Research Society 50th Annual Meeting, Minneapolis, Minnesota, September 30-October 3, 2015



Ferguson J, **Hosseini P, Pawelek J, Mundis GM, Yaszay B, Helenius I, Cheung KMC, Demirkiran G, Alanay A, Senkoylu A, Elsabaie H, Akbarnia BA:** Magnetically-Controlled Growing Rods for Early Onset Scoliosis: A Multicenter Study of 23 Cases with Minimum 2 Years Follow Up. 2015 New Zealand Orthopaedic Association Annual Scientific Meeting. Te Papa, Wellington, New Zealand. October 18-21, 2015



Oetgen ME, Matthews A, Wang Y, Blakemore L, **McClung A, Pawelek JB, Sponseller PD, Perez-Gruoso FS, Akbarnia BA:** Radiographic Outcome Differences in Growing Rod Constructs Using Tandem Vs. Wedding Band Connectors. 9th Annual International Congress On Early Onset Scoliosis. Boston, Massachusetts. November 19-20, 2015 And 23rd International Meeting on Advanced Spine Techniques (IMAST), Washington, DC, USA. July 13-16, 2016



Choi E, Yaszay B, Mundis GM, Hosseini P, Pawelek JB, Alanay A, Berk H, Cheung KMC, Demirkiran G, Ferguson J, Gregg T, Helenius I, La Rosa G, Senkoylu A, Akbarnia BA: Implant Complications After Magnetic-Controlled Growing Rods for Early Onset Scoliosis. 9th Annual International Congress On Early Onset Scoliosis. Boston, Massachusetts. November 19-20, 2015

ICEOS

Polly DW, Ackerman SJ, Schneider KBA, **Pawelek JB, Akbarnia BA:** Cost Analysis of Magnetically-Controlled Growing Rods Compared with Traditional Growing Rods for Early Onset Scoliosis in The United States. 9th Annual International Congress On Early Onset Scoliosis. Boston, Massachusetts. November 19-20, 2015

ICEOS

Sponseller PD, **McClung A, Pawelek JB, El Hawary R, Thompson GH, Smith JT, Vitale MG, Akbarnia BA, Bachabi M:** Growing Rod and Vertical Expandable Prosthetic Titanium Rib Perform Differently for Idiopathic Early Onset Scoliosis at 5-Year Follow-Up. 9th Annual International Congress On Early Onset Scoliosis. Boston, Massachusetts. November 19-20, 2015

ICEOS

Hosseini P, Pawelek J, Mundis GM, Yaszay B, Ferguson JA, Helenius IJ, Cheung KM, Akbarnia BA: Magnetically-Controlled Growing Rods for Early Onset Scoliosis: A Study of 23 Cases with 2 Years Follow Up. American Academy of Orthopaedic Surgeons 2016 Annual Meeting, Orlando, Florida, March 1-5, 2016



Hosseini P, Pawelek J, Nguyen S, Thompson GH, Shah SA, Flynn JM, Dormans JP, Akbarnia BA, GSSG: Rod Fracture and Lengthening Intervals in Traditional Growing Rods: Is There a Relationship? American Academy of Orthopaedic Surgeons 2016 Annual Meeting. Orlando, Florida, March 1-5, 2016



Nnadi C, **Hosseini P, Rehak L, Repko M, Grevitt M, Aydinli U, Carl A, Akbarnia BA:** Analysis of Segmental Mobility Following a Novel Posterior Apical Short-Segment Correction for Adolescent Idiopathic Scoliosis. 9th Britspine 2016 Conference. Nottingham, England. April 6-8, 2016



Akbarnia BA, Nnadi C, Cheung KMC, Ferguson J, **Mundis GM**, Thakar C, **Pawelek J**: Comparison of Primary and Conversion Surgery with Magnetically Controlled Growing Rods in Children with Early Onset Scoliosis. 9th Britspine 2016 Conference. Nottingham, England. April 6-8, 2016



Akbarnia BA, Cheung KMC, Kwan K, Samartzis D, Ferguson J, Thakar C, Panteliadis P, Nnadi C, Helenius I, Yazici M, Demirkiran GH, Alanay A: The Effect of Magnetically Controlled Growing Rod on Sagittal Profile in Early-Onset Scoliosis Patients. 9th Britspine 2016 Conference. Nottingham, England. April 6-8, 2016



Akbarnia BA, Carl AL, Grevitt MP, Nnadi C, Repko M, Crandall DG, **Hosseini P**, Aydinli U, Zabka M, Seme SJ: Preservation of Spine Motion in The Surgical Treatment of AIS Patients Using an Innovative Apical Fusion Technique: A 2 Year Follow-Up Study. 23rd International Meeting on Advanced Spine Techniques (IMAST), Washington, DC, USA. July 13-16, 2016



Harris LR, Andras LM, **Mundis GM**, Sponseller PD, Emans JB, Skaggs DL, GSSG: Five or More Proximal Anchors, Including Upper End Vertebra, Protects Against Reoperation. 23rd International Meeting on Advanced Spine Techniques, Washington, DC, July 13-16, 2016



Invited Speakers:

Behrooz A. Akbarnia, MD:



EOS – Where We Are and What We Know Now? **Deformity Down Under Annual Meeting, Sydney Australia, August 28-29, 2015**

Magnetic Growing Rods in Eos. **Deformity Down Under Annual Meeting, Sydney Australia, August 28-29, 2015**

Finite Element Analysis of Lordosis Restoration with All and Hyper-Lordotic Cage Placement. **Deformity Down Under Annual Meeting, Sydney Australia, August 28-29, 2015**

Comparison of Radiographic Results After Minimally Invasive, Hybrid and Open Surgery for Adult Spinal Deformity: A Multicenter Study of 184 Patients. **Deformity Down Under Annual Meeting, Sydney Australia, August 28-29, 2015**

A Historical Perspective of the Management of Early Onset Scoliosis, Pre-Meeting Course, **50th Annual Meeting of the Scoliosis Research Society Annual Meeting, Minneapolis, Minnesota, September 29, 2015**

History of Scoliosis Research Society and Evolution of Spine Deformity Care. **Iranian Spine Society Meeting Tehran, Iran. October 19, 2015**

EOS: What Have We Learned. **Shafa Hospital, Iran University of Medical Science, Tehran, Iran. October 30, 2015**

Historical Evolution of Scoliosis Research Society and Spinal Deformity Care. Friesen Lecture. **Departure of History and Philosophy of Medicine, University of Kansas. Kansas City, Ks. November 12, 2015**

When and How to Do Distractions with MCGR. **9th Annual International Congress On Early Onset Scoliosis. Boston, Massachusetts. November 19-20, 2015**

Historical Evolution of Scoliosis Research Society and Spine Deformity Care. **Daniel Benson Lectureship, University of**

California, Davis, Sacramento, California, November 30, 2015

Principles in The Treatment of Early Onset Scoliosis. **Daniel Benson Lectureship, University of California, Davis, Sacramento, California, December 1, 2015**

When Is Lateral Surgery Not Indicated for Adult Spinal Deformity? **9th Annual Meeting of Society of Lateral Access Surgery. San Diego, California, March 10-11, 2016**

Evolution and Principles of Care for EOS: From Harrington to MCGR. **Rizzoli Institute Meeting: Scoliosis When It Occurs Early in Life and Not Only Scoliosis: State of The Art of Diagnosis and Treatment. Bologna, Italy April 15, 2016**

EOS Classification and Treatment Options. **Meeting of Minds Advanced Spinal Deformity Symposium. Chicago, Illinois. April 22-23, 2016**

Anterior Alternatives to PSO. **Society of Lateral Access Surgery at 2016 Spine Week. Singapore. May 19, 2016**

“ACR” Case Discussion. **Asian Pacific Spine Society at Spine Week. Singapore. May 19, 2016**

Growing Rods: What Works, What Doesn't? – **Asian Pacific Spine Society at Spine Week. Singapore. May 20, 2016**

Posterior Approach: Magnetic Growing Rod System – **Asian Pacific Spine Society at Spine Week. Singapore. May 20, 2016**

Lateral Lumbar Interbody Fusion: XLIF – **Asian Pacific Spine Society at Spine Week. Singapore. May 20, 2016**

Evolution and Principles of Care for EOS: What Do We Know in 2016? **University of New Mexico Visiting Professorship Meeting. Albuquerque, New Mexico, June 9, 2016**

Interbody Alternatives to PSO. **University of New Mexico Visiting Professorship Meeting. Albuquerque, New Mexico, June 9, 2016**

Distraction Methods in Magnetically Controlled Growing Rods: **Scoliosis Research Society Traveling Fellows Meeting, Rady Children's Hospital, San Diego, California. June 24, 2016**



Magnetically Controlled Growing Rods for EOS; What We Have Learned? **2016 Annual San Diego Spine Visiting Professorship. La Jolla, California. July 29, 2016**

Gregory M. Mundis. Jr., MD:



MIS Approaches to Deformity - **50th Annual Scoliosis Research Society Annual Meeting, Minneapolis, MN, September 2015**

MIS-When To Go Anterior, Lateral, Posterior. **Premeeting Course: 50th Annual Scoliosis Research Society Annual Meeting, Minneapolis, MN, September 2015**

Safety in Spine Surgery—Operate There Are No Other Options
MIS—When To Go Anterior, Lateral, Posterior - MIS—When To Go
Anterior, Lateral, Posterior – ICL: **50th Annual Scoliosis Research
Society Annual Meeting, Minneapolis, MN, September 2015**

Spine Injuries in the Athlete, **San Diego Sports Medicine
Fellowship Lecture Series, San Diego, CA, September 24, 2015**

MIS in Complex Spinal Deformity, **Premeeting Course: 30th Annual
Meeting of the North American Spine Society Annual Meeting,
Chicago, IL, October 13, 2015**

Misonix: Ultrasonic Bone Scalpel Assisted MIS TLIF Deformity Correction
with the Ultrasonic Bone Scalpel. **Solution Showcase Theater,
Technical Exhibition, 30th Annual Meeting of the North American
Spine Society Annual Meeting, Chicago, IL, October 13, 2015**

Unsolved Problems in EOS, **9th Annual International Congress On Early
Onset Scoliosis. Boston, Massachusetts. November 19-20, 2015**

Not Every Growing Rod Surgery Can Be an MCGR Case, **9th Annual
International Congress On Early Onset Scoliosis. Boston,
Massachusetts. November 19-20, 2015**

Deformity Correction with MIS or Hybrid Approaches, **Fireside
Chat/Case Debates, 9th Annual SOLAS Meeting, Carlsbad, CA,
March 10-12, 2016**

Eight Steps to Efficient XLIF and Complication Avoidance - **5th
Annual Australian XLIF Usergroup Meeting Melbourne,
Australia, March 20-21, 2016**

ACR: Surgical Technique - **5th Annual Australian XLIF Usergroup
Meeting Melbourne, Australia, March 20-21, 2016**

Case Presentations: Adult Degenerative Deformity - **5th Annual
Australian XLIF Usergroup Meeting Melbourne, Australia,
March 20-21, 2016**

Degenerative Scoliosis in the Literature - **5th Annual Australian
XLIF Usergroup Meeting Melbourne, Australia,
March 20-21, 2016**

IGA-Integrated Global Alignment - **5th Annual Australian XLIF
Usergroup Meeting Melbourne, Australia, March 20-21, 2016**

Lateral Minimally Invasive Corpectomy: Technique and Applications -
**5th Annual Australian XLIF Usergroup Meeting Melbourne,
Australia, March 20-21, 2016**

Using SurgiMap to Help Assess & Plan Adult Deformity Cases -
**Degenerative and Complex Conditions in the Aging Spine,
DePuy Synthes Institute, San Diego, CA, May 6 - 8, 2016**

Osteotomies & Osteotomy Planning - **Degenerative and Complex
Conditions in the Aging Spine, DePuy Synthes Institute,
San Diego, CA, May 6 - 8, 2016**

Deformity Surgery is just a way to place 20 Screws, 2 Rods, Loads of
Biologics and Fund Your Kids College Education, Pro Surgery –
**DEBATE, Spine Technology and Educational Group
Organization, 13th Annual “State of Spine Surgery – A Think
Tank”, Los Cabos, Mexico, June 30–July 2, 2016**

Can we Make Spine Surgery More Precise? Surgical planning tools –
**Spine Technology and Educational Group Organization, 13th
Annual “State of Spine Surgery – A Think Tank”, Los Cabos,
Mexico, June 30–July 2, 2016**

Innovative Technologies/Updates – II, Use of ultrasonic bone scalpel
in treatment of spinal deformity – **Spine Technology and
Educational Group Organization, 13th Annual “State of Spine
Surgery – A Think Tank”, Los Cabos, Mexico, June 30–July 2, 2016**

Spine Deformity Care in an Outreach Setting: Giving Back -
**2016 Annual San Diego Spine Visiting Professorship. La Jolla,
California. July 29, 2016**

Robert K. Eastlack, MD:

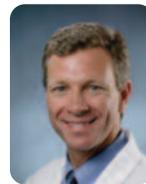


Technical and Practical Considerations of Lateral
Lumbar Interbody Fusion (LLIF) in Spinal Deformity
Surgery, **University of California, San Francisco,
San Francisco, CA, November 2015**

Spine Deformity Solutions: A Hands-On Course:
**American Association of Neurosurgeons (AANS)
and the Scoliosis Research Society (SRS), Oquendo
Center, Las Vegas, NV, February 4–6, 2016**

LIF Approaches for Spondylolisthesis - **2016 Annual San Diego
Spine Visiting Professorship. La Jolla, California. July 29, 2016**

James D. Bruffey, MD:



Future Trends in Bundled Care/ACOs - **2016 Annual
San Diego Spine Visiting Professorship. La Jolla,
California. July 29, 2016**

Pooria Hosseini, MD, M.Sc.:



Preliminary Results of Anterior Lumbar Interbody
Fusion, Anterior Column Realignment for The
Treatment of Sagittal Malalignment - **2016 Annual
San Diego Spine Visiting Professorship. La Jolla,
California. July 29, 2016**

Ravi Srinivas, MD:



Early and Late Reoperation Rates and Etiologies for
cMIS and HYB Techniques for ASD Correction - -
**2016 Annual San Diego Spine Visiting
Professorship. La Jolla, California. July 29, 2016**

Pat Kostial, RN, BSN:



Adolescent Idiopathic Scoliosis (AIS) – **Christus
Muguerza Hospital Del Parque, Chihuahua, CHIH,
Mexico, August 11, 2016**

Early Onset Scoliosis (EOS) – **Christus Muguerza
Hospital Del Parque, Chihuahua, CHIH, Mexico,
August 11, 2016**

Postoperative Patient Care: Scoliosis and Spinal Deformity Surgery
– **Christus Muguerza Hospital Del Parque, Chihuahua, CHIH,
Mexico, August 11, 2016**

2015-2016 Table of Meeting Icons and Bibliography Acronyms

Deformity Down Under Annual Meeting, Sydney Australia, August 28-29, 2015



Eurospine, Copenhagen, Denmark, September 2-4, 2015



50th Annual Meeting of the Scoliosis Research Society Annual Meeting, Minneapolis, Minnesota, September 29, 2015



San Diego Sports Medicine Fellowship Lecture Series, San Diego, CA, September 24, 2015

UC San Diego

30th Annual Meeting of the North American Spine Society Annual Meeting, Chicago, IL, October 13, 2015



Iranian Spine Society Meeting Tehran, Iran. October 19, 2015



Shafa Hospital, Iran University of Medical Science, Tehran, Iran. October 30, 2015



9th Annual International Congress On Early Onset Scoliosis. Boston, Massachusetts. November 19-20, 2015

ICEOS

Departure of History and Philosophy of Medicine, University of Kansas. Kansas City, Kansas. November 12, 2015



Daniel Benson Lectureship, University of California, Davis, Sacramento, California, November 30 - December 1, 2015

UCDAVIS

American Association of Neurosurgeons (AANS) and the Scoliosis Research Society (SRS), Oquendo Center, Las Vegas, NV, February 4-6, 2016

AANS  **SRS**

American Academy of Orthopaedic Surgeons 2016 Annual Meeting. Orlando, Florida, March 1-5, 2016

AAOS

9th Annual Meeting of Society of Lateral Access Surgery. San Diego, California, March 10-11, 2016

 **SOLAS**

9th Britspine 2016 Conference. Nottingham, England. April 6-8, 2016



5th Annual Australian XLIF Usergroup Meeting Melbourne, Australia, March 20-21, 2016

Rizzoli Institute Meeting: Scoliosis When It Occurs Early in Life and Not Only Scoliosis: State of The Art of Diagnosis and Treatment. Bologna, Italy April 15, 2016



Meeting of Minds Advanced Spinal Deformity Symposium. Chicago, Illinois. April 22-23, 2016

LSRS Annual Meeting. Chicago, Illinois 14-15 April 14-15, 2016



Pediatric Orthopaedic Society of North American Annual Meeting, Indianapolis, Indiana, April 27-30, 2016
Degenerative and Complex Conditions in the Aging Spine, DePuy Synthes Institute, San Diego, CA, May 6 - 8, 2016

POSNA

Asian Pacific Spine Society at Spine Week. Singapore. May 19, 2016



University of New Mexico Visiting Professorship Meeting. Albuquerque, New Mexico, June 9, 2016

UNM

Scoliosis Research Society Traveling Fellows Meeting, Rady Children's Hospital, San Diego, California. June 24, 2016



13th Annual "State of Spine Surgery - A Think Tank", Los Cabos, Mexico, June 30-July 2, 2016

Christus Muguerza Hospital Del Parque, Chihuahua, CHIH, Mexico, August 11, 2016

