San Diego
Spine Foundation

Annual Report

Academic Year

August 2012 – July 2013

fostering excellence in **spinal education** and **research**

Message from the President and Founder

I am pleased to present you with our annual report reflecting the activities of the San Diego Spine Foundation for the academic year August 2012–July 2013. Since its inception in 2004, our Foundation has grown tremendously and made great steps toward achieving our mission of fostering excellence in education and research related to the care of patients with spinal disorders.

First, I would like to acknowledge and thank our Board members, Sarah Aghassi, Esq.; Robert Eastlack, M.D.; Pat Kostial, R.N., B.S.N.; and Greg Mundis, Jr., M.D., for their voluntary contributions and commitment in moving the goals of the Foundation forward with their advice and hard work. Because of the expanding scope of services provided by our Foundation, the Board felt it was time to bring in a fulltime Executive Director/Fellowship Program Administrator to manage the Foundation and Fellowship Program. Pat Kostial has taken up this role since mid-2013 and has hit the ground running, helping the Foundation stay on course with its mission.

Since last year, significant progress has been made toward our research goals, including expanding our staffing and continuing to build a fellowship program that competes with the country's finest on every level. I would like to congratulate our Fellowship Co-Directors, Bob Eastlack and Greg Mundis, Jr., and our outstanding faculty, who are dedicated to building and improving upon the existing program. We also continue to host international fellows and offer them opportunities to observe cutting-edge spine care.

Community spine surgeons regularly participate in our educational activities, such as weekly Conferences, monthly Journal Clubs, and our annual Spine Symposium, which in 2013 was renamed as the San Diego Spine Foundation Visiting Professorship. This meeting was launched in 1997, with leaders in the field of spine surgery participating each year as keynote speakers. This year, we were pleased to have R. Shay Bess, M.D., President of the International Spine Study Group Foundation, serve as our Visiting Professor. Next year, the meeting will take place on Friday, July 25th, 2014, with Brian Kwon, M.D., Ph.D., F.R.C.S.C., serving as our Visiting Professor.

The Foundation is extremely proud of its research program and is actively involved in both clinical and basic science research. Most medical innovations tend to be driven by a great need to improve the lives of patients and, in this respect, our Foundation is no different. Whether we are treating a young child with devastating scoliosis or an aging adult with severe pain and disability, our physicians and researchers are dedicated to finding ways of improving quality of life for patients worldwide.

The results of these studies are presented at numerous meetings and have been published in peer-reviewed journals. Some of these research projects have been conducted as multicenter studies in collaboration with centers located throughout the United States and abroad. We believe the future of spine research will be significantly enhanced by the collaboration of prestigious institutions and talented staff working together toward a common goal. The Foundation's physicians take great pride in their association with the Growing Spine Study Group and the International Spine Study Group, two exceptionally active study groups that conduct research in adult and pediatric spinal deformities.

I cannot thank our Research Director Jeff Pawelek enough for his dedication and foresight as his department has changed and grown during this past year. We are pleased to announce the arrival of Stacie Nguyen, M.P.H., as a new member of our research team. We also welcome Navid Arandi, B.S., as our new Research Fellow for 2013–14, and Bo Robertson as our research assistant. In the past year, we also sadly bid farewell to Nima Kabirian Dehkordi, M.D., our Research Fellow since 2010, wishing him well as he leaves us to pursue his residency education.

Our faculty continue to donate their time and talent by giving back to underserved regions of the world in Africa, the Middle East, and other countries where service and education is needed. Our plan is to expand this program as we find new funding sources. Our mission statement calls for us to strive for excellence in medical education, research, and outreach, in order to achieve the best possible medical care for our patients so that we may better serve our community and the public. I hope you find this annual report demonstrates our continued commitment to dedicate ourselves to the SDSF mission.

Behrooz A. Akbarnia, M.D.

San Diego Spine Foundation Board of Directors

Behrooz A. Akbarnia, M.D.
President, Board of Directors
Director Emeritus and
Faculty Member,
Spine Fellowship Program

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Member, Board of Directors

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Administrator,
Spine Fellowship Program

Gregory M. Mundis, Jr., M.D.
Member, Board of Directors
Co-Director and
Faculty Member,
Spine Fellowship Program

San Diego Combined Spine Fellowship Program Co-Directors' Report

The San Diego Spine Fellowship faculty includes 7 spine surgeons covering both orthopaedic and neurosurgical spine backgrounds, thus providing extensive exposure for our fellows in adult, pediatric, trauma, tumor, deformity, degenerative and minimally invasive spine care.

Our clinical and research fellows generate a great deal of basic science and clinical research for presentation and publication throughout the world. In 2012-13, clinical fellows Dr. Daniel Barba and Dr. Matthew Goldstein, completed a total of 3 research projects. Two of these projects were accepted for presentation at the 7th Annual International Congress for Early Onset Scoliosis and are currently in the process of being submitted for publication. In addition to this productive academic year, our fellows were very busy honing their clinical and operative skills, generating enormous experience for them as they launch their clinical practices.

Our outgoing research fellow, Dr. Nima Kabirian Dehkordi, was highly prolific with more than 25 podium presentations and 20 poster exhibits at scientific forums including a Russell A. Hibbs Award nomination for the best clinical podium presentation at the 47th annual meeting of the Scoliosis Research Society, September 2012, Chicago, USA. He also has 4 peer-reviewed published manuscripts, and 5 book chapters (published, or pending publication) and 7 published abstracts to his credit during his time with our program.

Please visit our Fellowship section below to get more information about all of our fellows as they join us, or depart to begin the next chapter in their lives. We couldn't be more proud of our fellows!

Robert K. Eastlack, M.D. **Gregory M. Mundis, Jr., M.D.**

Additional Members of the Faculty

Ramin Bagheri, M.D.
Faculty, San Diego Spine Fellowship
San Diego Center for Spinal Disorders,
San Diego, CA.

Maneesh Bawa, M.D.
Faculty, San Diego Spine Fellowship
San Diego Orthopaedic Associates Medical Group,
San Diego, CA.

James D. Bruffey, M.D.
Faculty, San Diego Spine Fellowship
Scripps Clinic,
La Jolla, CA.

Donald Blaskiewicz, M.D.
Faculty, San Diego Spine Fellowship
Neurosurgical Medical Clinic,
San Diego, CA.

We Welcome

"We were embraced as part of the fellowship family this past year and are excited to remain involved going forward!"

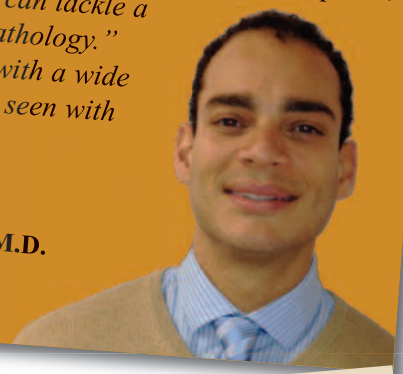
FELLOWSHIP STAFF

Patricia N. Kostial, R.N., B.S.N.
Fellowship Program Administrator

*We want to thank **Lisa Kotera** who has served the Foundation as the Fellowship Program Coordinator for the past 5 years. Lisa has been a great help to the program and she will now be directing her efforts to Ramin Bagheri, MD as she continues her role as his assistant.*

Weekly Fellows Meeting

Dr. Brown has relocated to La Jolla, CA. His best experience of fellowship so far: Drs. Eastlack and Bruffey taking me under their wing and teaching me the finer points of spine surgery." "My goals include being a confident and competent spine surgeon that can tackle a variety of spinal pathology." "Good fellowship with a wide range of pathology seen with excellent surgeons to learn from"



Drew J. Brown, IV, M.D.
University of Hawaii
Residency Program

Dr. Bagheri has relocated to La Jolla, CA. His best experience of fellowship so far: "Variety of OR cases and spinal deformity experience - very unique to this spine fellowship." Area of interest in spine surgery: Spine trauma, deformity and degenerative spine disorders. "My goals include being a confident and competent spine surgeon that can tackle a variety of spinal pathology."

Ali Bagheri, M.D.
Akron General
Medical Center

Navid Arandi, B.S. will begin his final year of medical school at the University of California; Irvine in 2014 upon completion of his Research Fellowship. He currently resides in Mission Valley, CA. Best experience of fellowship so far: "Getting the opportunity to work with the amazing staff at SDCSD and getting involved in both the research and clinical sides of spinal "I feel really blessed in having an opportunity to work with some of the pioneers in the field of spine. Everyday is a great learning opportunity for me."

Navid Arandi, B.S.

We Bid Fond Farewell To

Dr. Barba and his wife Jill have remained in the San Diego area. He has begun working in his new position at Arch Health Partners in Escondido, CA where his primary area of interest will be adult degenerative spine and adult scoliosis.

Best memory of San Diego: getting married in La Jolla.

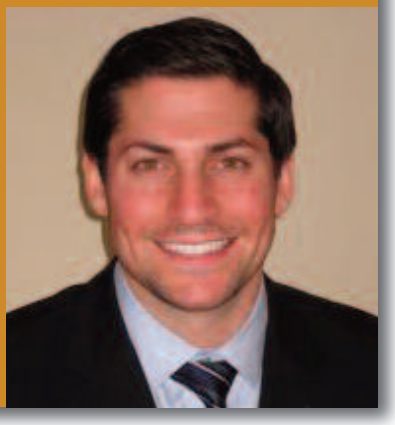
Best Memory of Fellowship: Weekly Fellow's Spine Conferences and discussions. "Great well-rounded training. One of the best programs I know of."

Daniel Barba, M.D.

Dr. Goldstein and his family, wife Orly and daughter Noah, have relocated to Port Washington, NY. He has begun working in his new position at Orthopaedic Associates of Manhasset in Great Neck, NY where his primary area of interest will be adult degenerative spine as well as pediatric and adult spinal deformity.

Best Memory of Fellowship: "No single best memory for me -- the whole experience was incredible. The caliber of work being done and the camaraderie amongst the fellowship... we really felt that we were embraced as part of the fellowship family this past year and are excited to remain involved going forward!"

Matthew Goldstein, M.D.



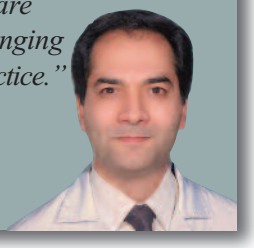
"I feel really blessed in having an opportunity to work with some of the pioneers in the field of spine."

"The visiting fellowship was a great opportunity for improvement of my knowledge. I want to do a special thank you to Dr. Gregory Mundis. I learned so much about adult degenerative scoliosis and XLIF procedure with him."

Jose Bruggemann, M.D.
Florianopolis, Brazil

"I learned a lot during my 3 months at the SDSF program. You will visit the "best of the best" spine surgeons; Monday morning spine conferences are really helpful learning from the challenging cases and discussions for your own practice."

Naveed Nabizadeh, M.D.
Tehran, Iran



Dr. Kabirian Dehkordi and his wife, Eimaneh have relocated to Old Town Pasadena, CA. He has begun his PGY1 surgical residency at Keck School of Medicine of USC, with the hope of continuing on in Orthopaedic Surgery or Neurosurgery: "My interest is specifically on pediatric and adult spinal deformity. Complex anatomy and meticulous surgical treatment, to me, is the ultimate art of practicing medicine and I hope I to be a deformity surgeon one day."

Best memory of Fellowship: Russell-Hibbs Award finalist at 47th Annual Meeting of Scoliosis Research Scoliosis Society, Chicago, 2012, joining the Scoliosis Research Society as a candidate fellow, and the first MCGR surgeries at Rady Children's Hospital; San Diego. "My fellowship was was a lesson for my life, first hand and unbeatable."

Nima Kabirian Dekhordi, M.D.

Early Onset Scoliosis

You've probably heard of scoliosis and may even know somebody who has been diagnosed with it. Early Onset Scoliosis (EOS) affects a small percentage of these patients who are diagnosed with progressive curves at a very young age . This type of severe scoliosis in our smallest patients may cause pulmonary problems such as Thoracic Insufficiency Syndrome (TIS) that can be life threatening.

Traditional scoliosis treatments used in older patients, such as spinal fusion, can inhibit lung and spine growth, making these treatments inadvisable for children with EOS.

Current Surgical Treatments

Growing Rod Technique was the first surgical treatment proven safe and effective for children with EOS.

Growing rods and other surgical techniques, such as rib-based and spine-based distraction devices, all have a common goal of promoting spine and lung growth while controlling the progression of scoliosis. Children who undergo these non-fusion procedures can expect multiple trips to the operating room for lengthening the rods under general anesthesia to allow for growth. For a family with a child facing multiple surgeries, recoveries and the associated risk of complications compounded with each surgery, this path can be a difficult and intimidating journey.

Magnetically Controlled Spinal Distraction

For a number of years, surgeons of the San Diego Spine Foundation have been exploring a highly innovative technology that uses Magnetically Controlled Growing Rods (MCGR) as a potential alternative treatment in hopes of minimizing repeated surgeries for lengthening the spinal rods. This new technology would require an initial surgery while allowing the rods to be remotely lengthened in an outpatient clinic without additional surgery, or, the use of anesthesia.

One form of MCGR was developed with the help of San Diego Spine Foundation surgeons and subsequently was used for the first time in Hong Kong in 2009. Since then, this type of MCGR has been implanted in nearly 600 children outside of the United States. The first studies of these patients have shown that the device is safe and effective and that these children face fewer surgeries and risks as compared to traditional growing rods.

Evolution of Surgical Care

The future of MCGR in the US

In May, 2013 two MCGR procedures were performed at Rady Children's Hospital in San Diego under an FDA Compassionate Use Pathway along with IRB (hospital) approval. As of November 2013, FDA HDE (Humanitarian Device Exemption) approval is still pending.

We are confident that this new surgical technique offers real hope for families with children currently undergoing surgical treatment for EOS in the United States.

Our Hope

We, at San Diego Spine Foundation, hope to be able to continue to advance the research and adoption of MCGR and help fully develop it's potential as a treatment for the thousands of children who currently face a very long path of difficult surgeries and treatments for an often devastating disorder.

Anthony Wainess was one of the two patients implanted with the MCGR rods on May 7th, 2013. We asked Anthony's father, if he would be willing to sit down and help us write a story about his experience.

Steve Wainess went on to write an incredibly honest and poignant story about his son's difficult path and how the MCGR procedure changed and altered his life.

There is nobody more qualified to tell the story of Early Onset Scoliosis than somebody who has direct experience with it. While we were unable to print the story in it's entirety in this publication due to space restrictions, we have included an abridged version of the Wainess family's story on the next page.

The full story can be viewed on our website at
www.sandiegospinefoundation.org/patientstories

Anthony's Story

SAN DIEGO, May 8, 2013 - In a revolutionary treatment for Early Onset Scoliosis (EOS), a team of surgeons implanted magnetically controlled spinal distraction growing rods (MCGR) in two children from California. My son, Anthony was one of these patients.

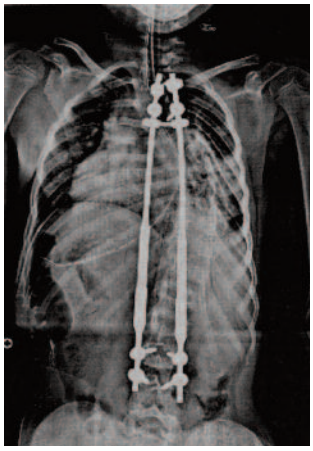
It was 2005 that we received the first devastating news that Anthony suffered from Early Onset Scoliosis (EOS). I am somewhat ashamed to admit it, but I probably trivialized Anthony's diagnosis in the beginning and hoped that non-surgical treatments would manage his scoliosis. By the time Anthony was 3 years old I could no longer downplay the situation. I spent lots of time and money searching for the finest doctors and medical treatments for Anthony's scoliosis. It was daunting. And depressing. Every path seemed to lead to a situation where Anthony would face multiple risky surgeries through most of his youth and teenage years.

In 2010, I learned about magnetically controlled spinal growth rod. The fact that Anthony would not be subjected to anesthesia and the pain/risk of surgery every six months to lengthen the growth rods helped lessen my wife, Lena's basic objection to growth rod surgery. I found that the MGCR procedure was not available in the U.S., even on a clinical trial basis. In desperation, I began to explore the possibility of liquidating everything we owned and moving our family overseas so Anthony could undergo the procedure.

In 2012, we were referred to Dr. Akbarnia. We were very impressed with Dr. Akbarnia's knowledge and experience, especially the fact that he was already working on this type of MGCR surgery. Unfortunately, there was nothing he could do to help us obtain this kind of surgery for Anthony.

In March 2013, we were told that waiting was no longer an option and that there were no other options but to schedule traditional growth rod surgery. We were devastated. Hours after that doctor's visit, I received a call informing me that Dr. Akbarnia and his team were making a special application to the FDA for "Compassion Use" exemption in order to implant the MCGR rods in Anthony. For the first time in years – we had hope that Anthony would be spared the pain and associated risks of undergoing major surgery every six months or so throughout his youth and teen years.

We were overjoyed when the FDA granted the Compassion Use exemption and RADY Children's Hospital approved the procedure. The surgery on May 7th could not have gone more smoothly. Dr. Akbarnia, assisted by two other surgeons, Dr. Burt Yaszay and Dr. Greg Mundis, Jr., implanted the MCGR rods in Anthony. As a result of straightening his spine, Anthony instantly grew 2 inches! The before and after x-rays speak volumes.



On June 3rd, less than 30 days after his surgery, Anthony underwent his first lengthening. He felt no pain, but did feel a little movement/tingle during the procedure. He returned to school the very next day! His second lengthening occurred on August 19th. This time the rods were extended slightly longer than the first time. The third lengthening took place on October 21, 2013. It was totally uneventful as far as the lengthening. Anthony felt a little "push" as he called it, but no pain or discomfort.

Anthony was lucky in the sense that he has greatly benefited from implantation of MCGR rods. So many children endure risky, painful surgeries every six months because their doctors are forced to use standard growing rods. I trust and pray that the FDA will ultimately approve the MCGR rod system for all children with EOS.

A Minimally Invasive Approach to Adult Scoliosis

In 2005, an 84-year-old patient presented to the San Diego Center for Spinal Disorders, as she could not stand upright. Due to her age and medical health, she was not a candidate for traditional scoliosis surgery. A less morbid Minimally Invasive Surgery (MIS) was considered, however, this type of surgery had not been previously performed for the treatment of focal kyphosis. This was discussed with her fully and she was offered this procedure as a viable option for surgical resolution of her deformity.

Dr. Akbarnia and his team chose to use the lateral MIS approach to remove the disc and mobilize the spinal column to allow them to correct the kyphotic deformity and relieve the pressure on her spinal nerves. By using a lateral MIS approach they were able to access her spine using small, muscle-preserving incision on the side of her torso. Once they removed the disc, ALL (Anterior Longitudinal Ligament) of the spine was released to allow for a large angular correction in the spine. They then restored stability of this new alignment through the application of specialized cages, screws and rods. The patient had an excellent recovery and outcome, and through this endeavor, the concept of Anterior Column Realignment (ACR) performed as a Minimally Invasive Surgery was born. Since then, the technique has evolved in technique, instrumentation, and indications.

Minimally Invasive Realignment: Taking Spinal Realignment to a New Level

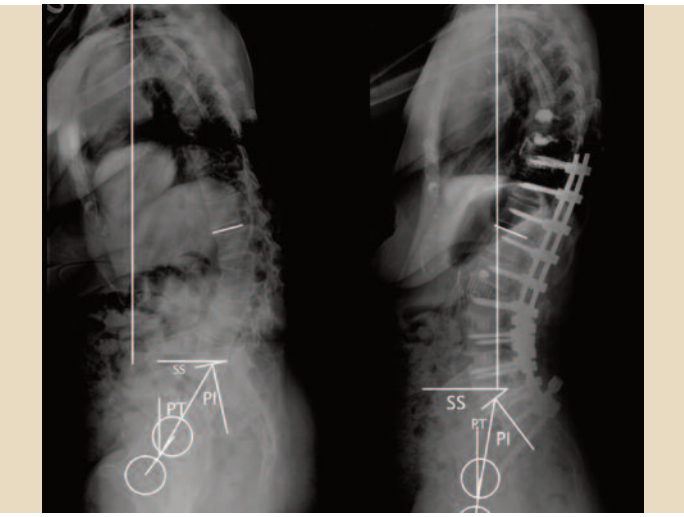
As leaders in this novel technique, we have designed special implants and equipment, and embarked to carefully train other physicians on the technique. Importantly, we have carefully monitored the outcomes on all of our ACR patients. We have compared this new technique with traditional osteotomies utilized for sagittal spinal corrections, and found the outcomes comparable in a carefully matched group. These scientific findings have been published and presented at surgical meetings across the globe and the technique has been well-received as a powerful alternative to typically highly-morbid corrective spinal surgeries.

The surgeon faculty of the SDSF at both SDCSD and Scripps Clinic continue to provide training in this new minimally invasive approach to surgeons in a variety of settings. San Diego live-surgery and cadaver training is done routinely, and other worldwide training has been undertaken through presentations, outreach programs and personal visits to other surgical sites.

San Diego Spine Foundation Setting the Standards Worldwide

It's been eight years since that first minimally invasive procedure for correction of sagittal deformity and in many ways our work is just beginning on researching this new procedure. In 2014, our goal is to complete more prospective studies on the MIS – ACR procedure.

The personnel working on this and other research projects with the San Diego Spine Foundation are a dedicated group, routinely volunteering their time in order to complete these important research goals. Each study involves countless hours of protocol planning, treating patients, collecting and analyzing data, writing and presenting research and educating the surgical community at large about the procedure and its results. It is our belief that MIS techniques, such as the ACR, will reduce complications, improve recovery and greatly increase the quality of life for people who would otherwise have no choice, but to live with markedly disabling deformities.



This study is only one of over 30 studies that the San Diego Spine Foundation is currently conducting. Our considerable focus on research stems from a deep desire to make our patient's lives better and to continue improving our techniques for accomplishing this goal. The surgeon faculty volunteers their time to lead this effort, and yet there is a considerable funding requirement that comes with performing these noble research projects.

At the San Diego Spine Foundation, we strive each day to make a difference in our patient's lives, and as Dr. Akbarnia sums up our approach, "After each surgery one must wonder, could I have done something else to make it better?" It is in this spirit that we undertake our research in spinal disorders each and every day.

Educate

"We were pleased to have R. Shay Bess, M.D., President of the International Spine Study Group Foundation (ISSGF), as our Visiting Professor."

Dr. Kawakami and Dr. Bagheri
Japan 2013

Above: 2013 San Diego City-Wide Spine Conference

Marc Asher, MD and Behrooz Akbarnia, MD
at Harrington Archives at KU

Research Leads to Education
SDSF Research Group at 2013 ISSG

Dr. Bruffey With Guest Surgeons

Make a Difference

Dr. Gregory M. Mundis, Jr. and his wife Lesley Mundis, PA-C as well as Dr. Donald Blaskiewicz and his wife Ursula Vacarro, PA-C traveled to Kenya in early 2013 to volunteer their time and expertise towards the evaluation, surgical management and postoperative care of patients with severe spinal deformities in need of their care.

Scoliosis Surgery, Kenya 2013

Shafa Hospital, 2012, Tehran, Iran

2013 - Greg Mundis is "trimmed" for charity by Don Blaskiewicz

Research

Research Staff

Jeff Pawalek, B.S.
Research Director

Stacie Nguyen, MPH
Research Coordinator

Navid Arandi, B.S.
Research Fellow

Bo Robertson
Research Assistant

Publications and Presentations for the 2012-2013 Academic Year

PEER-REVIEWED PUBLICATIONS: ADULT

1 Bess S, Line BG, Boachie-Adjei O, Hart R, Lafage V, Schwab F, **Akbarnia BA**, Ames CP, Burton DC, Hostin RA, Kleinberg E, **Mundis Jr GM,** Shaffrey CI, Smith JS ***Does Recombinant Human Bone Morphogenetic Protein-2 (Bmp) Use In Adult Spinal Deformity (Asd) Increase Complications And Are Complications Dose Related? A Prospective, Multicenter Study Of 257 Consecutive Patients*** NEUROSURGERY: 71(2) P E556-7

2 Holly LT, **Blaskiewicz DJ,** Wu A, Feng C, Ying Z, Gomez-Pinilla F ***Dietary Therapy To Promote Neuroprotection In Chronic Spinal Cord Injury*** J Neurosurg Spine. 2012 Aug;17(2):134-40. doi: 10.3171/2012.5.SPINE1216

3 Uribe JS, Smith DA, Dakwar E, Baaj AA, **Mundis Jr GM,** Turner AWL, Cornwall GB, **Akbarnia BA** ***Lordosis Restoration After Anterior Longitudinal Ligament Release And Placement Of Lateral Hyperlordotic Interbody Cages During The Minimally Invasive Lateral Transpsoas Approach: A Radiographic Study In Cadavers*** J NEUROSURG SPINE. 17(5) p476-85

4 Hart R, Cabalo A., Bess S, **Akbarnia BA**, Boachie-Adjei O, Burton D, Cunningham ME, Gupta M, Hostin R, Kebaish K, Klineberg E, Richard Hostin, **Mundis Jr GM,** Shaffrey C, Smith J, Wood K, ISSG ***Comparison of Patient and Surgeon Perceptions of Adverse Events Following Adult Spinal Deformity Surgery*** Spine (Phila Pa 1976). 2012 Nov 2. - [Epub ahead of print] PubMed PMID: 23124267

5 Schwab FJ., Hawkinson N, Lafage V, Smith JS, Hart R, **Mundis Jr GM,** Burton DC, Line B, **Akbarnia BA**, Boachie-Adjei O, Hostin R, Shaffrey CI, Arlet V, Wood K, Gupta M, Bess S, Mummaneni PV, ISSG ***Risk Factors For Major Peri-Operative Complications In Adult Spinal Deformity Surgery: A Multi-Center Review Of 953 Consecutive Patients*** Eur Spine J. 2012 December; 21(12): 2603?2610

6 Kai-Ming G Fu, Justin S Smith, Douglas C Burton, Khaled M Kebaish, Christopher I Shaffrey, Frank Schwab, Virginie Lafage, Vincent Arlet, Richard Hostin, Boachie-Adjei O, **Behrooz Akbarnia**, Shay Bess ***Revision Extension To The Pelvis Versus Primary Spino-Pelvic Instrumentation In Adult Deformity: Comparison Of Clinical Outcomes And Complications Of Extension Of Previous Long Fusion To The Sacro-Pelvis: Is An Anterior Approach Necessary?***
World Neurosurg. 2013 Jan;79(1):177-81

7 Li Ym, **Blaskiewicz DJ,** Hall WA ***Shunt-Related Intracranial Abscess Caused By Staphylococcus Lugdunensis In A Hydranencephalic Patient***
World Neurosurg. 2013 Jan 12. Doi:Pii: S1878-8750(13)00107-1. 10.1016/J.Wneu.2013.01.046. [Epub Ahead Of Print]

8 **Akbarnia BA, Mundis Jr GM, Moazzaz P, Kabirian N, Bagheri R, Eastlack RK, Pawelek J** ***Anterior Column Realignment (Acr) For Focal Kyphotic Spinal Deformity Using A Lateral Transpsoas Approach And All Release***
J Spinal Disorders & Techniques, February 2013 (Ahead of Print)

9 Schwab FJ, Blondel B, Bess S, Hostin R, Shaffrey CI, Smith JS, Boachie-Adjei O, Burton DC, **Akbarnia BA**, **Mundis Jr GM,** Ames CP, Kebaish K, Hart RA, Farcy JP, Lafage V, ISSG ***Radiographic Spino-Pelvic Parameters And Disability In The Setting Of Adult Spinal Deformity: A Prospective Multicenter Analysis*** Spine (Phila Pa 1976). 2013 Mar 25. [Epub Ahead Of Print] Pmid: 23532123 [Pubmed - As Supplied By Publisher]

10 Mummaneni PV, Tu TH, Ziewacz JE, Akinbo OC, Deviren V, **Mundis GM** ***The Role Of Minimally Invasive Techniques In The Treatment Of Adult Spinal Deformity***
Neurosurg Clin N Am. 2013 Apr;24(2):231-48.

11 Hart R, Cabalo A, Bess S, **Akbarnia BA**, Boachie-Adjei O, Burton D, Cunningham ME, Gupta M, Hostin R, Kebaish K, Klineberg E, Richard Hostin, **Mundis Jr GM,** Shaffrey C, Smith J, Wood K, ISSG ***Comparison Of Patient And Surgeon Perceptions Of Adverse Events Following Adult Spinal Deformity Surgery*** Spine 38 (9) Pp 732-736 April 2013

12 Terran J, Schwab F, Shaffrey CI, Smith JS, Devos P, Ames CP, Fu KM, Burton D, Hostin R, Klineberg E, Gupta M, Deviren V, **Mundis Jr GM**, Hart R, Bess S, Lafage V; ISSG
The SRS-Schwab Adult Spinal Deformity Classification: Assessment And Clinical Correlations Based On A Prospective Operative And Nonoperative Cohort Neurosurgery. 2013 Jul 24. [Epub Ahead Of Print] Pubmed Pmid: 23756751

13 Ahmadian A, Verma S, **Mundis Jr GM**, Oskouian Jr RJ, Smith DA, Uribe JS. ***Minimally Invasive Lateral Retroperitoneal Transpsoas Interbody Fusion For L4-5 Spondylolisthesis: Clinical Outcomes*** J Neurosurg Spine. 2013 Jul 26

14 Ames CP, Smith JS, Scheer JK, Shaffrey CI, Lafage V, Deviren V, Moal B, Protopsaltis T, Mummaneni PV, **Mundis Jr GM**, Hostin R, Klineberg E, Burton DC, Hart R, Bess S, Schwab FJ
A Standardized Nomenclature For Cervical Spine Soft-Tissue Release And Osteotomy For Deformity Correction
Neurosurgery. 2013 Jul 24

PEER-REVIEWED PUBLICATIONS: PEDIATRIC

1 **Akbarnia BA**, Campbell R, McCarthy RE ***Optimizing Safety And Outcomes In Spinal Deformity Surgery: Early Onset Scoliosis*** Spinal Deformity, Preview Issue, September 2012

2 Tis JE, Karlin LI, **Akbarnia BA**, Blakemore LC, Thompson GH, McCarthy RE, Tello C, Mendelow MJ, Southern EP ***Early Onset Scoliosis: Modern Treatment And Results***
Journal of Pediatric Orthopaedics 32(7) PP 647-657 November 2012

3 McElroy MJ, Sponseller PD, Dattilo, J.R., Thompson GH, **Akbarnia BA**, Shah SA, Snyder BD, GSSG ***Growing Spine Study Group: Growing Rods For The Treatment Of Scoliosis In Children With Cerebral Palsy: A Critical Assessment***
SPINE 37 (24) E1504-E1510 November 2012

4 **Kabirian N**, Hunt LA, Ganjavian MS, **Akbarnia BA**
Progressive Early-Onset Scoliosis In Conradi Disease: A 34 Year Follow-Up Of Surgical Management
J PEDIATR ORTHOP, 33 (2)

5 **Akbarnia BA**, Cheung KM, Noordeen HH, Elsebaie HB, Yazici M, Dannawi Z, **Kabirian N** ***Next Generation Of Growth-Sparing Techniques; Preliminary Clinical Results Of A Magnetically Controlled Growing Rod In 14 Patients***
SPINE 38 (8) PP 665-670 Apr-13

6 Corona J, Miller DJ, Downs J, **Akbarnia BA**, Betz RR, Blakemore LC, Campbell RM, Flynn JM, Johnston CE, McCarthy RE, Roye JR., D.P., Skaggs DL, Smith JT, Snyder BD, Sponseller PD, Sturm PF, Thompson GH, Yazici M, Vitale NG
Evaluating The Extent Of Clinical Uncertainty Among Treatment Options For Patients With Early-Onset Scoliosis
J BONE JOINT SURG AM: 95:e67(1-10)

7 McElroy MJ, Sponseller PD, Fuhrhop SK, Russel CJ, Newton PO, Marks MC, Sanders JO, Yazici M, **Pawelek J**, **Akbarnia BA**
Clinically Significant Differences Exist Between Curves In Operative Idiopathic Early-Onset Scoliosis And Adolescent Idiopathic Scoliosis
SPINE. 38(16):1368-1374, JULY 15, 2013

8 **Mundis Jr GM, Kabirian N**, **Akbarnia BA** ***Dual Growing Rods For The Treatment Of Early Onset Scoliosis***
J BONE JOINT SURG,(3)1 6E 2013

9 Vitale MG, Reidel MD, Glotzbecker MP, Matsumoto H, Roye DP, **Akbarnia BA**, Anderson RCE, Brockmeyer D, Emans J, Erickson MA, Flynn JM, Lenke LG, Lewis S, Luhmann SJ, McLeod L, Newton PO, Nyquist A, Richards BS, Shah SA, Skaggs DL, Smith JT., Sponseller PD, Sucato D, Zeller R, Saiman L
Building Consensus: Development Of A Best Practice Guideline (BPG) For Surgical Site Infection (SSI) In High-Risk Pediatric Spine Surgery
JOURNAL OF PEDIATRIC ORTHOPEDICS 33(5) 471-478

BOOK CHAPTERS

1 Vikas Mehta, Kevin T. Foley, Donald J. Blaskiewicz, Langston T. Holly **Posterior Laminectomy for Cervical Stenosis: Cervical Spine Surgery: Current Trends and Challenges**
(Editors:Praveen V. Mummaneni, Adam S. Kanter, Michael Y. Wang, Regis W. Haid, Jr.)

2 **Nomoto EK**, **Kabirian N, Akbarnia BA**, **Mundis GM**
XLIF for Anterior Column Realignment Extreme Lateral Interbody Fusion (XLIF) Second Edition
(Editors:Goodrich J.A. and Volcan, I)

RESEARCH PRESENTATIONS: ADULT

Table of Meeting Icons and Acronyms

SRS 2012	Scoliosis Research Society, 47th Annual Meeting & Course, Chicago, Illinois, Sept 5-8, 2012
SMISS	Society for Minimally Invasive Spine Surgery (SMISS), Miami, Florida, Sept. 21-23, 2012
NASS	North American Spine Society, 27th Annual Meeting, Dallas, TX, Oct 24-27, 2012
SOLAS	Adult Spinal Deformity (ASD), 6th Annual SOLAS Research Meeting, San Diego, CA. May 9-11, 2013
IMAST	20th International Meeting on Advanced Spine Techniques, Vancouver, BC, July 20-23, 2013
BSRF	50th Anniversary International Phillip Zorab Symposium, London, England June 20-21, 2013
GSF	6th International Congress Of Early Onset Scoliosis And Growing Spine (ICEOS) Dublin, Ireland November 15-16, 2112
AAP	American Academy Of Pediatrics National Conference & Exhibition, New Orleans, Louisiana2012 October 20-21, 2012
AAOS	American Academy Of Orthopaedic Surgeons Annual Meeting, Chicago, Illinois, March 9-23, 2013

Jeff Pawelek presenting paper at ICEOS 2012

A. Podium Presentations (Adult):

1 Kai-Ming, F., Bess S, Shaffrey CI, Smith JS, Lafage V, Schwab F, Burton DC, **Akbarnia BA**, Ames CP, Boachie-Adjei O, Hart RA., Klineberg E, Gupta MC, Mummaneni PV, ISSG
Operatively (Op) Treated Adult Spinal Defomity (Asd) Patients Report Worse Health Related Quality Of Life (HRQOL) Than Nonoperative (Non), Regardless Of Age; However, Radiographic Deformity Differs Between Age Groups
SRS 2012

2 Bess S, Line B, Boachie-Adjei O, Hart RA., Ames CP Lafage V, Schwab F, **Akbarnia BA**, Burton DC, Hostin R, Klineberg E, **Mundis Jr GM,** Smith JS, Shaffrey CI, ISSG
Operative Time And Patient Age, Rather Than Recombinant Human Bone Morphogenetic Protein-2 (BMP) Use, Increase Major Complications In Adult Spinal Deformity (ASD) Surgery
SRS 2012

3 Smith JS, Klineberg E, Schwab F, Shaffrey CI, Moal B, Ames C, Hostin R, Kai-Ming, F., Burton DC, **Akbarnia BA**, Gupta MC, Hart RA., Bess S, Lafage V, ISSG ***Change In Classification Grade By The Schwab-Srs Adult Spinal Deformity (ASD) Classification Predicts Impact On Health Related Quality Of Life (HRQOL) Measures: Prospective Analysis Of Operative And Nonoperative Treatment - Hibbs Award Nomination For Best Clinical Research Paper***
SRS 2012

4 Fu KM, Bess S, Schwab F, Shaffrey C, Lafage V, Smith J, Ames C, Boachie-Adjei O, Burton D, Hart R, Klineberg E, Hostin R, **Mundis Jr GM,** Mummaneni P, ISSG ***Health Impact Comparison Of Different Disease States And Population Norms To Adult Spinal Deformity (ASD): A Call For Medical Attention***
SRS 2012

5 Hart R, Bess S, Burton D, Shaffrey C, Protopsaltis T, Boachie-Adjei O, Ames C, Deviren V, Hostin R, Klineberg E, Mummaneni P, **Mundis Jr GM,** Smith J, Schwab F, ISSG ***Proximal Junctional Failure (Pjf) Classification And Severity Scale: Development And Validation Of A Standardized System***
SRS 2012

6 **Akbarnia BA**, **Mundis Jr GM,** Moazzaz P, **Kabirian N**, **Bagheri R, Eastlack RK, Pawelek J** ***Anterior Column Realignment (Acr) For Focal Kyphotic Spinal Deformity Using A Lateral Transpsoas Interbody Approach And All Release***
2012 (POSTER) SMISS 2012 (PODIUM)
SRS 2012 SMISS

7 Fu, K.M., Bess, R.S., Lafage V, Smith J, **Akbarnia BA**, Ames CP, Boachie-Adjei O, Burton DC, Hostin R, Hart R, Kebaish KM., Klineberg EO, Gupta MC, Deviren V, Wood KB, ISSG
Health Impact Comparison Of Different Disease States And Population Norms To Adult Spinal Deformity (ASD): A Call For Medical Attention (Selected As Best Paper At NASS 2012)
NASS

8 Bess, R.S.,Line B, Boachie-Adjei O, Hart R, Lafage V, Schwab FJ., **Akbarnia BA**, Ames CP, Burton DC, Hostin R, Kebaish KM., Klineberg EO, Gupta MC, **Mundis Jr GM,** Deviren V, O'Brien M, Wood KB,Shaffrey CI, Smith JS, ISSG ***Does Recombinant Human Bone Morphogenetic Protein-2 (BMP) Use In Adult Spinal Deformity (ASD) Increase Complications And Are Complications Dose Related? A Prospective Multicenter Study Of 257 Consecutive Patients***
NASS

9 Lafage V, Smith JS, Schwab FJ, Moal B, Klineberg EO, Ames CP, Hostin R, Fu, KM, Kebaish KM., Burton DC, **Akbarnia BA**, Gupta MC, Deviren V, **Mundis Jr GM,** Boachie-Adjei O, Hart R, Bess S, ISSG ***Likelihood Of Reaching Minimal Clinically Important Difference In Health-Related Quality Of Life Measures: Prospective Analysis Of Operative And Nonoperative Treatment Of Adult Spinal Deformity***
NASS

10 Schwab FJ., Lafage V, Shaffrey CI, Smith JS, Moal B, Klineberg EO, Ames CP, Hostin R, Fu, KM, Kebaish KM., Burton DC, **Akbarnia BA**, Gupta MC, Boachie-Adjei O, Hart R, Bess S, ISSG ***The Schwab-SRS Adult Spinal Deformity Classification: Assessment And Clinical Correlations Based On A Prospective Operative And Nonoperative Cohort***
SRS 2012 NASS

11 Smith JS, Klineberg EO, Schwab FJ., Shaffrey CI, Moal B, Ames CP, Hostin R, Fu, KM, Kebaish KM., Burton DC, **Akbarnia BA**, Gupta MC, Deviren V, **Mundis Jr GM,** Boachie-Adjei O, Hart R, Bess S, Lafage V, ISSG ***Change In Classification Grade By The Schwab- Srs Adult Spinal Deformity Classification And Impact On Health-Related Quality Of Life Measures: Prospective Analysis Of Operative And Nonoperative Treatment***
NASS

12 **Nomoto E, Stanton P, Eastlack RK, Kabirian N, Bruffey JD, Pawelek J., Mundis Jr GM, Akbarnia BA**
Intervertebral Subsidence After LLIF Can Lead To Loss Of Correction After Two Years
SOLAS

13 **Mundis Jr GM, Amaral R, Pawelek J, Kabirian N, Kyaw J, Bagheri R, Akbarnia BA** ***The Role Of The Lateral Interbody Fusion In The Treatment Of Adult Spinal Deformity***
SOLAS

14 **Eastlack RK, Mundis Jr GM,** Wang M, Mummaneni PV, Uribe JS, Okonkwo DO, **Akbarnia BA**, Anand N, Kanter AS, Park P, Lafage V, Shaffrey CI, Fessler RG, Deviren V, ISSG ***Is There A Patient Profile That Characterizes A Patient As A Candidate For Minimally Invasive Surgery (Mis) To Treat Adult Spinal Defomrity (ASD)?***
SOLAS

15 Uribe J, **Mundis Jr GM,** Okonkwo D, Kanter A, **Eastlack RK,** Wang M, Mummaneni P, Anand N, Fessler R, La Marca F, Park P, Lafage V, Shaffrey C, Deviren V, ISSG ***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***
SOLAS IMAST

16 Mummaneni PV, Wang MW, Lafage V, Ziewacz J, Okonkwo D, Uribe JS, **Eastlack RK,** Anand N, Fessler R, Kanter A, Deviren V, La Marca F,Shaffrey C, **Mundis Jr GM,** ISSG
Comparison Of 3 Minimally Invasive Surgery (MIS) Strategies To Treat Adult Spinal Deformity (ASD)
SOLAS

17 Mummaneni P, Wang M, Lafage V, Ziewacz J, Terran J, Okonkwo D, Uribe J, Anand N, Fessler R, Kanter A, La Marca F, Shaffrey C, Deviren V, **Mundis Jr GM,** ISSG
Does Minimally Invasive Posterior Instumentation (PPI) Prevent Proximal Junction Kyphosis (PJK) In Adult Spinal Deformity (ASD) Surgery? A Prospectively Acquired Propensity Matched Cohort Analysis
SOLAS IMAST

18 **Mundis Jr GM,** Lafage V, **Akbarnia BA**, **Eastlack RK,** Wang, M.Y., Uribe JS, Anand N, Mummaneni PV, Okonkwo DO, Kanter AS, Lamarca, F., Fessler RG, Shaffrey CI, Deviren V, ISSG
A Prospective Porpensity Matched Cohort Analysis Of Minimally Invasive (MIS) Hybrid (HYB) And Open Spine Surgery (Open) For The Treatment Of Adult Spinal Deformity (ASD)
SOLAS IMAST

19 **Mundis Jr GM, Akbarnia BA, Kabirian N, Pawelek J., Eastlack RK,** Shaffrey CI, Klineberg, E, Bess S, Ames C, Deviren V, Lafage V, ISSG ***Anterior Column Realignment (ACR) Has Similar Results To Pedicle Subtraction Osteotomy (PSO) In Treating Adults With Sagittal Spinal Deformity: A Multicenter Study***
SOLAS IMAST

20 **Eastlack RK,** Scheer J, Kim HJ, Boachie-Adjei O, Deviren V, Smith J, Hart R, Bess S, **Mundis Jr GM**, Lafage V, Schwab F, Shaffrey C, Burton D, Ames C, ISSG ***Do Operative Outcomes for Adults with Spinal Deformity Differ Based on the Relative Severity of Back and Leg Pain Prior to Surgery?***
IMAST

21 Kim HJ, Boachie-Adjei O, Scheer J, Hostin R, Kebaish K, Smith J, **Mundis Jr GM**, **Eastlack RK,** Schwab B, Lafarge V, Hart R, Bess S, Deviren V, Shaffrey CI, Ames C, ISSG
Upper Thoracic versus Lower Thoracic Upper Instrumented Verbebrae Endpoints have Similar Outcomes and Complications in Adult Scoliosis at 2-Year Follow up
IMAST

22 Saravanja, D., Ferguson, J.A., Kebaish K, Geck, M.J., Maziad, A.M., **Akbarnia BA**, Boachie-Adjei O, CSSG
A Comparison Of Rod Breakage Rates In Adult Idiopathic Scoliosis Patients Treated With Posterior Only Surgery With BMP Versus Anterior/Posterior Surgery Without BMP:
IMAST

23 Hamilton, D.K., Hiratzka, J.R., Bess, R.S., Schwab FJ., Shaffrey CI, Ames CP, **Mundis Jr GM,** JR., Lafage V, Deviren V, Smith MD, J.S., Klineberg E, **Akbarnia BA**, Burton DC, Hart RA. ISSG ***HRQOL Scores And Radiographic Parameters Do Not Drive Patient Satisfaction After Adult Spinal Deformity Surgery***
IMAST

24 Bess, R.S., Line B, Hart RA., Klineberg E, Ames CP, **Akbarnia BA**, Boachie-Adjei O, Burton DC, Hostin R, Kebaish K, Lafage V, Schwab FJ., Shaffrey CI, Smith JS, ISSG
Return To Surgery Does Not Worsen Health Related Quality Of Life (Hrqol) Or Patient Satisfaction At Two Year: An Analysis Of Incidence And Risk Factors For Secondary Surgery In Adult Spinal Deformity (ASD)
IMAST

25 Ferguson, J.A., Saravanja, D., Kebaish K, Geck, K., Maziad, A.M., **Akbarnia BA**; Boachie-Adjei O, CSSG
Comparison Of Operative Complications In Posterior Only Surgery Utilizing BMP Versus Combined Anterior/ Posterior Surgery With No BMP For Adult Idiopathic Scoliosis Surgery
IMAST

26 Haque, R., **Mundis Jr GM**, Ahmed, Y.M., EL Ahmadieh, T.Y., Wang, M.Y., Praveen V. Mummaneni PV, Uribe JS, Okonkwo DO, Anand N, **Akbarnia BA**, Kanter AS, La Marca, F., Lafage, V., Terran, J.S., Deviren V, Fessler RG, ISSG
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
SOLAS IMAST

27 Singh M, Smith J, Klineberg E, Shaffrey C, Lafage V, Schwab F, Protopsaltis T, **Mundis Jr GM,** Hostin R, Deviren V, Hart R, Burton D, Bess S, Ames C, ISSG ***Surgical Treatment Of Pathological Loss Of Lumbar Lordosis (Flatback) In The Setting Of Normal Sagittal Vertical Axis (SVA) Achieves Similar Clinical Improvement As Surgical Treatment For Elevated SVA***
IMAST

28 Bess S, FU K, Lafage V, Schwab F, Shaffrey C, Ames C, Hart R, Klineberg E, **Mundis Jr GM,** Hostin R, Burton D, Gupta M, Boachie-Adjei O, Smith J, ISSG ***Disease State Correlates For Type And Severity Of Adult Spinal Deformity (ASD): Assessment Guidelines For Health Care Providers***
IMAST

29 KIM H, **Mundis Jr GM, Eastlack RK,** Burton D, Scheer J, Boachie-Adjei O, Cunninham M, Smith J, Bess S, Shaffrey C, Ames C, ISSG
Severity And Treatment Response Of Back And Leg Pain Differ By Curve Location In Adult Spinal Deformity (ASD)
IMAST

30 Scheer J, Protopsaltis T, Kim H, Hostin R, Kebaish K, Smith J, **Mundis Jr GM,** Schwab F, Lafage V, Hart R, Bess S, Shaffrey C, Deviren V, Ames C, ISSG ***Health Comparison Of Cervical Sagittal Deformity And Thoracolumbar Sagittal Deformity On Baseline Disability And Surgical Outcomes: Cervical PSO Versus Lumbar PSO***
IMAST

31 Protopsaltis T, Broansard N, Terran J, Smith J, Klineberg E, **Mundis Jr GM,** Kim H, Hostin R, Hart R, Ames C, Shaffrey C, Bess S, Schwab F, Lafage V, ISSG ***Cervical Sagittal Deformity Develops After PJK In Adult Thoracolumbar Deformity Correction: Radiographic Analysis Utilizing A Novel Global Sagittal Parameter, The CTPA***
IMAST

32 Poorman C, Slobodyanyuk K, Smith J, Protopsaltis T, Hostin R, Bess S, **Mundis Jr GM,** Schwab F, Lafage V, ISSG
Clinical Improvement Through Nonoperative Treatment Of Adult Spinal Deformity: Who Is Likely To Benefit?
IMAST

33 Klineberg E, FU K, Smith J, Lafage V, Schwab F, Bess S, Hart R, Kebaish K, Burton D, Shaffrey C, Ames C, Hostin R, **Mundis Jr GM,** Gupta M, ISSG ***Impact Of Major And Minor Complications On Health Related Quality Of Life Following Adult Spinal Deformity Surgery: Multi-Center Prospective Database***
IMAST

34 Gupta M, Boachie-Adjei O, Cunninham M, Protopsaltis T, Deviren V, **Mundis Jr GM,** Ames C, Hostin R, Lafage V, Klineberg E, Smith J, Terran J, ISSG ***Coronal Imbalance May Be Neglected In Patients Undergoing Majority Sagittal Deformity Correction***
IMAST

35 Hiratzka J, Hamilton K, Bess S, Schwab F, Shaffrey C, Ames C, **Mundis Jr GM,** Lafage V, Deviren V, Smith J, Klineberg E, Boachie-Adjei O, Burton D, Hart R, ISSG ***Stiffness After Fusion For Adult Spinal Deformity Does Not Significantly Impact Patients? Functional Status Or Satisfaction***
IMAST

36 Ryan D, Protopsaltis T, Ames C, Hostin R, Klineberg E, **Mundis Jr GM,** Obeid I, Kebaish K, Smith J, Boachie-Adjei O, Burton D, Hart R, Schwab F, Lafage V, ISSG ***Does T1 Pelvic Angle (TPA) Effectively Assess Sagittal Imbalance And Can It Predict Sustainable Correction?***
IMAST

37 Wang M, Mummaneni P, FU K, Anand N, Okonkwo D, Kanter A, La Marca F, Fessler R, Uribe J, Shaffrey C, Lafage V, Haque R, Deviren V, **Mundis Jr GM,** ISSG ***Less Invasive Surgery For Treating Adult Spinal Deformities (ASD): Ceiling Effects For Cobb Angle Correction With Three Different Techniques***
IMAST

B. Poster Presentations (Adult):

1 **Nomoto EK**, **Stanton P**, **Kabirian N**, **Bruffey JD**, **Pawelek J**, **Mundis Jr GM**, **Akbarnia BA**, **Eastlack RK**
Subsidence and Lumbar Sagittal Alignment Following Lateral Lumbar Interbody Fusion
SMISS

2 **Stanton P**, **Nomoto EK**, **Kabirian N**, **Bruffey JD**, **Mundis Jr GM**, **Akbarnia BA**, **Eastlack RK**
Analysis of Transpsoas Lateral Lumbar Interbody Fusion (LLIF) for the Treatment of Adult Lumbar Degenerative Spondylolisthesis (DS): A Radiographic Review
SMISS

3 K.M., Bess S, Shaffrey CI, Smith JS, Lafage V, Schwab FJ., Burton DC, Boachie-Adjei O, Hart R, **Akbarnia BA**, Ames CP, Hostin R, Kebaish KM., Klineberg EO, Gupta MC, **Mundis Jr GM,** Deviren V, O'Brien M., Wood KB, ISSG
Operatively (OP) Treated Adult Spinal Deformity (ASD) Patients Report Worse Health-Related Quality Of Life (HRQOL) Than Nonoperative (NON), Regardless Of Age, However Radiographic Deformity Differs Between Age Groups
NASS

Dr. Akbarnia at Japanese Scoliosis Society, 2012

4 **Eastlack RK, Mundis Jr GM**, Wang M, Mummaneni P, Uribe J, Okonkwo D, **Akbarnia BA**, Anand N, Kanter A, Park P, Lafage V, Shaffrey C, Fessler R, Deviren V, ISSG
Is There A Patient Profile That Characterizes A Patient As A Candidate For Minimally Invasive Surgery (MIS) To Treat Adult Spinal Deformity?
IMAST

5 Kim HJ, **Mundis Jr GM**, **Eastlack RK**, Burton D, Scheer J, Boachie-Adjei O, Cunningham ME, Smith J, Bess S, Ames C, ISSG ***Severity And Treatment Response Of Back And Leg Pain Differ By Curve Location In Adult Spinal Deformity (ASD)***
IMAST

6 Terran J, Schwab F, **Mundis Jr GM,** Klineberg E, Buchowsky J, Hart R, Hostin R, Gupta M, Ames C, Smith J, Shaffrey C, Lafage V, Bess S, Burton D, ISSG ***Poor Psychosocial Profile Reported By Sf 36, SRS 22R, And DRAM Does Not Predict Outcome Following Adult Spinal Deformity Surgery***
IMAST

7 McCarthy I, Obrien M, Ames C, Errico T, Kim H, **Mundis Jr GM,** Schwab F, Klineberg E, Shaffrey C, Gupta M, Polly D, Hostin R, ISSG ***Quantifying The Role Of Baseline HRQOLl And Readmissions On The Cost-Effectiveness Of Surgical Treatment For Adult Spinal Deformity (ASD)***
IMAST

Research Advancing Treatment

RESEARCH PRESENTATIONS: PEDIATRIC

A. Podium Presentations (Pediatric)

1 **Akbarnia BA**, Cheung KM, Noordeen HH, Elsebaie HB, Yazici M, Dannawi Z, **Kabirian N** ***Next Generation Of Growth-Sparing Techniques; Preliminary Clinical Results Of A Magnetically Controlled Growing Rod In 14 Patients***.
SRS 2012

2 Shah SA, Karatas AF, Dhawale AA, Dede O, Holmes L, Yorgova P, Neiss GI, **Mundis Jr GM, Pawelek J**., **Akbarnia BA**
Growing Spine Study Group: What Is The Effect Of Serial Growing Rod Lengthening On The Sagittal Profile And Pelvic Parameters In Early Onset Scoliosis?
SRS 2012

3 Matsumoto H, McCalla DJ, Nair, K., Williams BA, Corona J, **Akbarnia BA**, Smith JT., Emans JB, Skaggs DL, Vitale MG
The Early Onset Scoliosis Questionnaire (EOSQ) Reflects Improvements In Quality Of Life After Growth Rod Surgery.
SRS 2012 GSF AAP

4 **Kabirian N**, **Akbarnia BA**, **Pawelek J**., Alam, M., **Mundis Jr GM, Acacio R**, Thompson GH, Marks, D.S., Gardner A., Sponseller PD, Skaggs DL, GSSG ***Deep Surgical Site Infection Following Growing Rod Surgery In Early Onset Scoliosis: How Does It Change The Course Of Treatment?*** ***Hibbs Award Nomination For Best Clinical Research Paper***
SRS 2012

5 Lebl, D.R., Boachie-Adjei O, **Akbarnia BA**, Gogia,J., Krajbich, J.I., Woo, R., King, A.B., Cunningham ME, Rahm, M.D., CSSG
The Treatment Of Thoracolumbar/Lumbar Adolescent Idopathic Curves (Lenke 5c): Anterior Vs. Posterior Approach With Modern Instrumentation
SRS 2012

6 Schwend, R.M., Blakemore LC, **Akbarnia BA**, Reigrut, J.L., Schmidt, J.A., CSSG ***Coupled Symmetry And Proportional Expansion Of The Ribs Through Adolescence***
SRS 2012 GSF

7 **Akbarnia BA**, Yazsay, B., Yazici M, **Kabirian N**, Strauss, K., Glaser, D.A., CSSG ***Biomechanical Evaluation Of Four Different Foundation Constructs Commonly Used In Growing Spine Surgery: Are Rib Anchors Comparable To Spine Anchors?*** 6th Triennial Congress Of The International Federation Of Pediatric Orthopaedic Societies, Toronto, Canada , May 1, 2013
SRS 2012 GSF

8 Vitale MG, Reidel MD, Saiman L, Matsumoto H, Glotzbecker M, Emans J, Erickson MA, Flynn, J., **Akbarnia BA**, Anderson RCE, Brockmeyer D, Lenke LG, Luhmann SJ, Lewis S, Newton PO, Richards, S., Sucato D, Shah SA, Skaggs DL, Smith JT., Sponseller PD, Zeller R, Nyquist A, McLeod L, Roye DP
Building Consensus - Development Of A Best Practice Guideline (BPG) In Pediatric Spine SSI Prevention
AAP

9 McCalla DJ, Williams BA, Matsumoto H, **Akbarnia BA**, Blakemore LC, Betz RR, Flynn JM, Johnston CE, McCarthy, R., Roye DP, Skaggs DL, Smith JT., Snyder BD, Sponsellor PD, Sturm PF, Thompson GH, Yazici M, Vitale MG
Introducing The Early Onset Scoliosis Classification System
AAP

10 **Kabirian N**, **Mundis Jr GM, Kostial P**, Yazsay B, **Kyaw J**, **Pawelek J., Akbarnia BA** ***Recommendations For Patients And Families After Growing Rod Surgery: Surgeon Agreement On Post-Operative Care***
GSF

11 Yamaguchi, K., Skaggs, D., Mansour, S., Levitan, J., Myung, K.S., Yazici M, Johnston, C., Thompson, G., Sponseller, P., **Akbarnia BA**, Vitale, M.
Are Proximal Rib Anchors Protective Against Rod Breakage In Distraction-Based Growing Rods?
GSF IMAST

12 Yazsay, B., **Kabirian N**, **Pawelek J**., Bastrom, T, Emans J, Thompson GH, **Mundis Jr GM, Akbarnia BA**, GSSG
What Do Coronal Flexibility Films Really Tell Us About The Treatment Of Idiopathic Early Onset Scoliosis Patients Using Growing Rods
GSF

13 **Akbarnia BA**, **Kabirian N**, **Pawelek J**., Thompson GH, Emans JB, Sponseller PD, Skaggs DL
Five To Sixteen-Year Results Of 201 Growing Rod Patients: Is There A Difference Between Etiologies?
IMAST AAP

14 Vitale MG, Park, H.Y., Matsumoto H, McCalla DJ, Roye DP, Skaggs DL, **Akbarnia BA** ***Correction And Complications In The Treatment Of EOS: Is There A Difference Between Spine Vs. Rib-Based Proximal Anchors***
AAP

15 **Akbarnia BA**, **Kabirian N**, **Pawelek J**., Thompson GH, Emans JB, Sponseller PD, Skaggs DL, GSSG ***Long-Term Results Of Growing Rod Treatment In 201 Patients: Is There A Difference Between Aetiologies?***
BSRF

16 Heung KM, Cheung JP, Samartzis, D., Cheung Mak K, Wong YW, Cheung WY, **Akbarnia BA**, Luk KDK
The Safety And Efficacy Of A Remotely Distractible, Magnetically Controlled Growing Rod (MCGR) For The Treatment Of Scoliosis In Children
BSRF

17 **Akbarnia BA**, Cheung K, Demirkiran G, Elsebaie H, Emans J, Johnston C, **Mundis Jr GM**., Noordeen H, **Pawelek J**, Shaw M, Skaggs D, Sponseller P, Thompson GH, Yazici M, GSSG
Traditional Growing Rods Versus Magnetically Controlled Growing Rods: A Case-Matched Two Year Study
BSRF

18 Schwend RM, Kishan S., Blakemore LC, Ferguson J, Reigru JL, Schmidt JA, **Akbarnia BA**
Relation Between Paediatric Rib And Thoracic Vertebral Morphology With Age
BSRF

19 Kishan S, Blakemore LC, Schwend RM, Ferguson J, Reigrut JL, Schmidt JA, **Akbarnia BA** ***Rib And Vertebral Growth And Relationship To Chest Volume***
BSRF

20 Repko M, Aydinli U, Rehak L, Grevitt M, Zabka M, Akesen B, Nnadi C, Klemme W, Caarl A, **Akbarnia BA**
Apical Short-Segment Correction In Adolescent Idiopathic Scoliosis: A Multicenter Study Of A New Innovative Posterior Technique
IMAST BSRF

21 Yaszay B, **Kabirian N**, **Mundis Jr GM**, **Pawelek J**, Bartley CE, **Akbarnia BA** ***EOS Imaging System Is Available For Early Onset Scoliosis Patients And Can Reduce Their Ionizing Radiation Exposure***
GSF IMAST

EOS Team at Rady Children's

Poster Presentations (Pediatric):

1 El Sebaie HB, Noordeen HH, **Akbarnia BA** ***Incidence Magnitude And Classification Of Pedicle Screw Migration***
SRS 2012

2 **Akbarnia BA**, **Kabirian N**, **Pawelek J**., Zhang D, Redding G, Emans JB, Shah SA , Johnston II CE ***Is There A Significant Increase In Thoracic Height After Growing Rod Surgery For Early Onset Scoliosis?***
AAOS

3 Shah SA, Karatas A, Dhawale, R, Dede O, Holmes L, Yorgova P, Neiss G, **Mundis G, Pawelek J**, **Akbarnia BA** ***What Is The Effect Of Growing Rod Lengthening On The Sagittal Profile And Pelvic Parameters In Early Onset Scoliosis?***
AAOS

4 **Akbarnia BA**, Yaszay B, Yazici M, **Kabirian N**, Strauss K, Glaser DA ***Rib Anchors As An Alternative To Spine Anchors In An Immature Porcine Model: Can They Withstand Similar Loads?***
AAOS

5 McElroy MJ, Sponseller PD, Fuhrhop SK, Newton PO, Marks M, Sanders JO, **Akbarnia BA**
Operative Idiopathic Early Onset Scoliosis (IEOS) And AIS Curves Have Different Characteristics
AAOS

6 Schwend RM, Kishan S, Blakemore LC, Ferguson J, Reigrut JL, Schmidt JA, **Akbarnia BA**, CSSG ***New Data On The Growth Patterns Of The Pediatric Spinal Canal***
BSRF

7 Ferguson J, Kishan S, Blakemore LC, Schwend RM, Reigrut JL, Schmidt JA, **Akbarnia BA**, CSSG
Posterior Rib Geometry - What Is The Ideal Site For Proximal Rib Anchors In Growing Rod Surgery?
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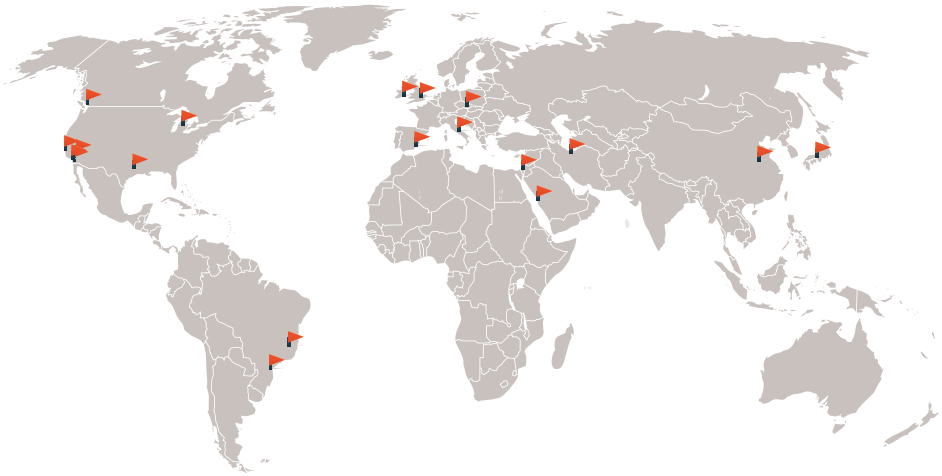
"The Foundation is very proud of its research program, and actively involved in both clinical and basic science research."

INVITED LECTURES 2012-2013

- SMISS at III WCMISST, Bahia, Brazil
- Scoliosis Research Society (SRS) Annual Meeting, Chicago, IL
- Iranian Orthopaedic Association Annual Meeting, Tehran, Iran
- UCSF Techniques in Complex Spine Surgery; Las Vegas, NV
- University of Texas, Houston, TX
- Jeddah Spine Summit, Jeddah, Kingdom of Saudi Arabia
- Scripps Foundation, La Jolla
- Alicante Medical Society Meeting, Alicante, Spain
- Meeting of the Minds, Rome, Italy
- American Academy of Orthopaedic Surgeons Annual Meeting, Chicago, IL
- SRS World Wide Conference, Brazil
- Chinese Spinal Deformity Society Annual Meeting, Nanjing, China
- IMAST, Vancouver, British Columbia, Canada
- Harbor / University of California; Los Angeles
- Shafa Hospital, Tehran, Iran
- SRS World Wide Course, Tel Aviv, Israel
- Japanese Scoliosis Society, Kobe, Japan
- International Congress on Early Onset Scoliosis, Dublin Ireland
- BRNO University Hospital, BRNO, CZ Republic
- David H. Sutherland Visiting Professorship, San Diego, California
- 50th Anniversary International Phillip Zorab Symposium, London, England



Foundation Educators have lectured in 13 countries around the world, and logged hundreds of thousands of miles during the past academic year.

MESSAGE FROM EXECUTIVE DIRECTOR

Our Foundation's role is to support all aspects of our research, education, and outreach. However, we cannot do this work successfully without continued funding. We deeply appreciate the support of our donors and sponsors and we want you to know that no contribution is too small. We would be honored to accept your donations and would be grateful for your continued support of SDSF. Thank you for your consideration.

Pat Kostial, RN, BSN
Executive Director
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San Diego
Spine Foundation

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4130 La Jolla Village Drive - Suite 300
La Jolla, CA 92037
(858) 875 4850
www.sandiegospinefoundation.org