

AOSpine North America Community News Summer 2018





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From the Editor

Dear Colleagues:

Welcome to the Summer 2018 AOSNA newsletter. These past 6 months culminated in the Global Spine Congress in May 2018 in Singapore.

March 2018 had the 16th Annual Fellows Forum in Banff. This marquee event is the highlight of the year for most AOSNA fellows, where they have an opportunity to showcase and present their research, as well as meet other fellows and faculty. This very successful meeting was attended by over 60 AOSNA fellows who showcased their research projects conducted during their fellowship year.

In May 2018, the Global Spine Congress (GSC) was hosted by the city of Singapore. Approximately two thousand members and participants from all corners of the world, but particularly, Asia Pacific converged at this event. The weather and food were great and the sessions were well attended with high quality presentations. As this meeting evolves into the premier global spine meeting, all eyes are on 2019 as it moves to Toronto, Canada. Preparations are under way for this event and the upcoming 5th Annual Reception for AOSNA in Los Angeles, CA in September, 2018 as part of the North American Spine Society (NASS) meeting.

This newsletter has highlights of the educational, research, fellowship and community development endeavors this past quarter.

The AO continues to be the go to for knowledge and camaraderie in spine care. Global membership has reached record levels. There has never been a better time to join.

Sincerely,

A handwritten signature in black ink that reads "Lali Sekhon". The signature is fluid and cursive, with a long horizontal line extending from the end of the name.

Lali Sekhon

Chairman
AOSNA Community Development Committee



AOSpine North America Board and Committees

AOSNA Board

Darrel Brodke	AOSNA Chairperson
Michael Daubs	Chair Elect
John DeVine	Education Committee Chair
James Harrop	Research Committee Chair
Lali Sekhon	Community Development Committee Chair
Dan Gelb	Fellowship Committee Chair

AOSNA Education Committee

John DeVine	Education Committee Chair
Joseph Cheng	Past Chair
Ali Baaj	
Michelle Clarke	
David Gloystein	
Roger Hartl	
Michael Lee	
Alpesh Patel	

AOSNA Research Committee

James Harrop	Research Committee Chair
Daniel Sciubba	Research Chair Elect
Samuel Cho	
Brian Kwon	
Ahmad Nassr	
Justin Smith	

AOSNA Community Development Committee

Lali Sekhon	Community Development Committee Chair
Brandon Lawrence	Community Development Chair Elect
Eric Massicotte	
Ripul Panchal	
Patrick Pritchard	

AOSNA Fellowship Committee

Daniel Gelb	Fellowship Committee Chair
Ted Choma	Past Chair
Brandon Lawrence	
Dan Sciubba	
Bradley Segebarth	
Michael Weber	

Save-the-Date!

Join us for the AOSpine
North America reception at
the NASS Annual Meeting.

Wednesday September 26

from 5:30pm – 8:00pm

Intercontinental Los Angeles Downtown Hotel



The Global Spine Congress heads to North America



SUBMIT YOUR ABSTRACT!

**Submission deadline:
September 15, 2018**

The GLOBAL SPINE CONGRESS provides an outstanding forum to exchange ideas, network with fellow professionals, and discover the latest research, techniques, and technologies in spine surgery.

Each year, abstracts accepted for the GSC appear in a special supplement to the Global Spine Journal—a great opportunity for you to have your work viewed worldwide in an internationally renowned spine publication.

**For more information on
submitting your abstract
visit www.gsc2019.org**



Global Spine Congress

Toronto, Canada | May 15–18, 2019

www.gsc2019.org



Committee Updates

AOSpine North America Education Committee

John DeVine, MD

Greetings from the AOSNA Education Committee. I would like to welcome Paul Benjamin to our team as the AOSNA Education Development Manager. In the short time that he has been with us, Paul has already proved himself to be an asset to the organization. His expertise and knowledge in the spine specialty, his attention to detail and ability to collaborate with several stakeholders to ensure success is of immense value to us and to the clinical division. He is also very interested in moving the education agenda forward and I am confident that working with the spine leadership, he is going to be able to make a significant impact.

The 2018 AOSNA Webinar Series continues to mature with increasing engagement from target audience groups. Topics covered thus far included Cervical Total Disc Arthroplasty, Lumbar Interbody Fusions: ALIF vs Lateral IF vs TLIF, and Adult Degenerative Scoliosis – Surgical Planning. Over 100 participants were logged on for each webinar.

Regarding resident education, our first iteration of the flipped classroom approach was utilized in the January Principles Course.

We have eight AOSNA recorded lectures in the series that were completed last fall and approved by the education committee.

The feedback from January's Principles Course was positive, and we look forward to further implementation and feedback to make this a successful educational tool. Lastly, the first Regional Residents Course was piloted in March in San Francisco with positive feedback. The second pilot course will take place in Chicago this summer. Based on feedback from the Chairs, EAs, and participants, the committee will fine tune the logistics for the five Regional Resident Courses planned for 2019.

Based on the needs analysis, a gap was identified in the area of systems-based practice. The Practice Essentials course, which included primers on coding and reimbursement, marketing, addressing liability and malpractice, and several other topics relevant to the spine fellow and young spine surgeons (first 1-3 years in practice), was a huge success in November. This year, the September Fellows Course will incorporate a Practice Essentials component.

Lastly, the Global Spine Congress in May was fantastic. The AOSpine Education Commission met to review and plan for future educational strategies and our organization remains in alignment with the global educational vision.

AOSpine North America Research Committee

James Harrop, MD

The research committee consists of James Harrop (Chair), Tom Mroz (Past Chair), Samuel Cho, Brian Kwon, Justin Smith, and Nassr Ahmad. We are excited about our future with the election of Daniel Sciubba as the next Research Committee Chair.

The research committee has several functions and active projects:

1. Young Investigator Research Grant Award winners (YIRGA).

AOSNA will award four YIRGA grants at \$20,000 each in 2018. The committee is working on creating more formalized guidelines for the YIRGA grants such as: targeting clinicians who are doing research, commit to awarding one clinical and one basic science each year, and limiting the applicant age to 45. The committee met in February to review and select this year's submissions and each year the quality of work continues to improve. The call for applications for the 2019 YIRGA awards will be announced in October with the deadline of December 31, 2018. The committee has spent much time overhauling and redoing the application to make it easier and less time consuming for applicants.

2. Focus issues

The Spinal Infections focus issue will be published in the Global Spine Journal and released this summer. The next focus issue will be on Spine Patient Safety and Quality Improvement. The goal is to prepare this prior to the 2019 Global Spine Congress in Toronto with webinars and a seminar at the meeting.

3. Presenting forum

At the recent Global Spine Congress in Singapore, AOSNA hosted a symposium: Treatment and Prevention of Spine Infections on Thursday, 3 May 2018. It was well received with numerous questions from the audience and great interaction and discussion.

4. Globalization of Research

Our AOSNA Research Committee is working with the AOSpine Research Commission as we globalize the research agenda to allow all regions to apply for funding in order to execute the best and most relevant studies:

- a. Efficacy of Riluzole in Patients with Cervical Spondylotic Myelopathy Undergoing Surgical Treatment. A Randomized, Double-Blind, Placebo-Controlled, Multi-Center Study (Fehlings PI)
 - 300 subjects enrolled (full preplanned sample)
 - Subject follow-up has been completed
 - Completed Database Lock
 - June Primary Endpoint Success Determination
- b. RISCIS Trial Update (Fehlings PI)
 - 23 Sites Open for Enrollment as of February, 2018
 - Interim analysis plan 210 subjects (122 presently)
 - 351 subjects total for completion
 - 2 substudies
 - Pharmacology (PK) Sub Study – A total of 21 subjects.
 - Magnetic Resonance Imaging (MRI) Sub Study – A total of 18 subjects
- c. A Multi-Center, Prospective, Comparative Study of Anterior vs. Posterior Surgical Treatment for Lumbar Isthmic Spondylolisthesis (Arnold PI)
 - Total of 180 subjects (45 in the anterior cohort and 135 in the posterior cohort will be enrolled)
 - 92 enrolled and on schedule

Committee Updates

Community Development Committee Update

Lali Sekhon, MD


The highlights of the past 6 months were the 16th Annual AOSNA Fellows Forum in March 2018 in Banff, Canada, very well attended with over 60 fellows and faculty as well as the Global Spine Congress, in Singapore in May 2018.

AOSNA has been busy on a few different fronts:

1. Growth- Membership has increased in North America by 20% in the past few years. AOSNA remains the premier society for spine surgeons who are educators, researchers and clinicians and who want to network and enjoy the camaraderie of our chosen profession.
2. Congratulations to Brandon Lawrence, MD for being appointed the next Community Development Chair for AO Spine North America. Brandon has been active on several committees and takes over in mid 2019. Brandon is an outstanding selection who will continue to further the AO values of education, integrity and spine care.
3. Practice Essentials Meeting: This has now been incorporated in the Fellows Practical Course in Las Vegas in September, 2018. Last year's feedback on the inaugural course was very positive and Practice Essentials hopes to become an annual fixture.
4. Social Media: AOSpine North America is on Facebook, Twitter, and Instagram

 [facebook.com/aospine-North-America](https://www.facebook.com/aospine-North-America)

 [@aospineNA](https://twitter.com/aospineNA)

 [aospine](https://www.linkedin.com/company/aospine)

 [aospine_NA](https://www.instagram.com/aospine_NA)

5. Member Engagement Opportunities: Many members want to contribute and there are lots of ways to do it. Members have opportunities to get involved in education, research, marketing and promotion, fellowship outreach and professional growth. For those interested in becoming more involved, email: Chi Lam at CLam@aospine.org

6. AOSpine International has released the INSIGHTS Spine app for iOS and Android. Bringing online knowledge to your fingertips, this app promises to deliver tailored content to your smart phone.

Download it now.

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 ANDROID

7. Finally, mark your calendar for Sept. 26 for the 5th Annual AOSNA Reception at the annual North American Spine Society meeting in Los Angeles. All are welcome. Come along, meet old acquaintances and make new friends.

The AO Community continues to grow. With over 6,000 members world-wide, there has never been a better time to join. If you have not done so, join now!

Fellowship Committee Update

Daniel Gelb, MD

As the current fellowship funding cycle enters its second year, the fellowship committee is gearing up for another round of applications. Recently, it was decided to reduce the fellowship award from the current 75,000 dollars to 65,000 dollars. This award is still substantial – probably the largest available in North America. However, the savings accrued from the award will allow us to institute several new programs.

Overall, the goal is to develop a fellowship experience that is more than just a one-year stipend to study at a particular institution but rather a conduit into a more lasting AOSpine membership identity. Our aim is to interact with the fellows starting in their final year of residency and continue to provide them with opportunities to be involved and benefit from the organization well into their first few years of practice. Increased recognition of the contribution of AOSpine to fellows' career development should lead to increased organizational loyalty and ongoing support. The redirection of financial resources to these efforts within the scope of a "global fellowship concept" seems appropriate and should enhance our goal of increased member retention while providing an increased level of benefit to the fellows. The modest decrease in fellowship stipend should not negatively impact the ability of programs to continue to offer high quality educational experiences.

On the international level there is increased interest in aligning the metrics of fellowship experience across regions. There was a one-day task force at Global Spine Congress in Singapore to begin to discuss what appropriate metrics might look like. The goal is to ensure that sites with the designation of AOSpine fellowship sites meet defined criteria and continue to provide quality educational experiences.

Fellowship in other regions follows a very different model more consistent with short term visiting observerships. Going forward the fellowship committee will explore the possibility of developing a similar program in the United States layered on top of the existing fellowship sponsorship program. In addition, the committee will work to centralize the administration of international visitors to various AOSpine centers within the USA to ensure that the experience is appropriate and that the opportunity to participate is available widely.

Finally, the committee will keep its core mission in mind. By summer the call for applications should go out, a revamped streamlined application should be available and much of the latter part of the year will be spent reviewing and scoring applications.

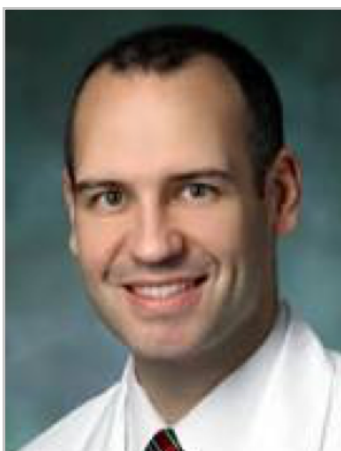
Election Results

AOSpine North America (AOSNA) is pleased to announce the results of our recently held elections for the AOSNA Board. The election process was carried out according to AOSpine standards and the elections were conducted in a transparent and democratic manner. The results of the elections have just been approved by the AOSpine International Board at the GSC in Singapore.



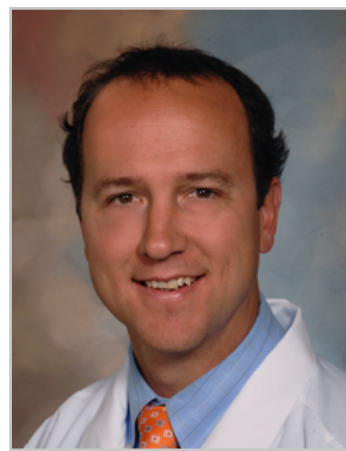
AOSNA Regional Chairman:

Dr. Michael Daubs has been elected as the incoming Regional Chairman of AOSpine North America replacing Dr. Darrel Brodke, whose term will end on July 31, 2019.



AOSNA Research Committee Chairman:

Dr. Dan Sciubba will take over from Dr. Jim Harrop as the incoming AOSNA Research Committee Chair.



AOSNA Community Development Chairman:

Dr. Brandon Lawrence will succeed Dr. Lali Sekhon as the incoming AOSNA Community Development Committee (CDC) Chair.

All three elected officials will start on August 1, 2018 for one-year as Chair Elect of their respective Region/Committees followed by their three-year terms from August 1, 2019 - July 31, 2022.

The AOSNA Board would like to thank all of the candidates who ran for the elections, for their ongoing commitment and dedication to AOSNA.

Please join us in congratulating Drs. Daubs, Sciubba, and Lawrence as they assume their new roles within the AOSNA organization.

16th Annual Fellows Forum the Largest Group in AOSNA History

The 16th Annual AOSNA Fellows Forum has set a new record with our largest group of Fellows and Fellowship Directors in AOSNA history. The Forum took place on March 23-25, 2018 at the beautiful Banff Springs Hotel in Alberta, Canada. The AOSNA Board welcomed Distinguished Keynote Speaker, Dr. Ed Benzel from the Cleveland Clinic, as well as 66 AOSNA Fellows and 53 Fellowship Directors/ Faculty from around the United States and Canada.

The Fellows Forum provided the Fellows an opportunity to interact with other fellows and Fellowship Directors to exchange ideas and knowledge that centered on the advancement of disciplinary spine care. The scientific program consisted of lectures from some of the faculty, presentations given by selected fellows focusing on his/her research at their institutions, and fireside case conferences. Special time was built into the day for a fun scavenger hunt in town for a great team-building experience.

Each Fellows' presentation was evaluated in a peer-reviewed process by the Faculty and Fellowship Directors. The scores were tallied and awards given for the best clinical and basic abstract as well as best poster presentation. The winners of this year's Fellows Forum Awards were presented to Catherine Miller, MD (University of California at San Francisco) for the best clinical abstract, Jeremy Shaw, MD (University of Utah) for the best basic science abstract, and Ganesh Shankar, MD (Cleveland Clinic) for the best oral poster presentation. These three winners will be invited to participate as faculty in the 2019 Fellows Forum.

Congratulations to our Award Winners as well as the rest of the Fellows for their hard work and outstanding research presentations.



AOSpine North America proudly announces the completion of the Cervical Spondylotic Myelopathy (CSM) study

AOSpine North America is proud to announce the completion of its clinical trial Efficacy of Riluzole in Patients With Cervical Spondylotic Myelopathy (CSM) Undergoing Surgical Treatment. A Randomized, Double-Blind, Placebo-controlled Multi-Center Study, also known as the CSM-protect trial. The phase 3 drug trial enrolled 300 patients from 21 study centers across North America making it the largest interventional CSM research effort to date.

CSM (Cervical spondylotic myelopathy) is the most common cause of spinal cord injury worldwide. While evidence shows that surgical decompression is an effective treatment for the disease, many patients continue to suffer from neurological impairment following surgical treatment. This led AOSpine North America to explore whether a neuroprotective drug may promote improved outcomes for patients who are undergoing surgical decompression. The investigational product, riluzole, is a sodium-glutamate antagonist, approved as treatment to attenuate the rate of nerve cell degeneration in Amyotrophic Lateral Sclerosis (ALS). ALS has similar clinical features to CSM. Riluzole is also currently being investigated for the treatment of acute traumatic spinal cord injury in another AOSpine North America-sponsored trial. Given this background, there was a strong scientific rationale to consider studying the potential neurological benefits of riluzole as a treatment to surgical decompression in patients with CSM.

The data from the double-blinded trial are currently being analyzed with results publications expected in 2018. AOSpine North America is very grateful to the patients, investigators, study coordinators and organizations that contributed their time to this six-year research effort.

“We hope these guidelines will promote shared decision making among physicians, patients, and their families, standardize care worldwide and encourage future research to address existing knowledge gaps.”

The CSM study is lead by Principal Investigator Dr. Michael Fehlings, Professor of Neurosurgery at the University of Toronto.



Global Spine Journal at GSC 2018

Global Spine Journal Editors-in-Chief Jeffrey Wang, Jens Chapman and Karsten Wiechert presented the 2017 Global Spine Journal awards at Global Spine Congress in Singapore in May. The GSJ awards were given out to the top 2 papers published in 2017 and the top 2 reviewers of 2017. The criteria for Best Papers are as follows: only Original Research papers are considered, then the papers are looked at based on the quality of the work as well as the number of downloads and citations that the article has received. The top two reviewers are chosen based on the amount of articles they reviewed in that year and the quality of the reviews they completed, cross referenced with their average R-score and the average amount of days it took them to complete their review. All award winners receive a certificate as well as a cash prize. The corresponding authors on the top 2 papers receive a \$400 cash prize and the top 2 reviewers receive \$100 each.

The award winners are:

For Best Papers in 2017

Return to Play in Elite Contact Athletes After Anterior Cervical Discectomy and Fusion: A Meta-Analysis by Andrew C. Hecht, Samuel Overley, Sheeraz Qureshi, Wellington K. Hsu, Steven Andelman, Diana C. Patterson, Steven McAnany

Beyond Pelvic Incidence-Lumbar Lordosis Mismatch: The Importance of Assessing the Entire Spine to Achieve Global Sagittal Alignment By: Samuel K. Cho, Robert K. Merrill, Dante M. Leven, Joung Heon Kim

For Best Reviewers in 2017

Avery Buchholz
Philippe Bancel

If you are interested in becoming a reviewer for Global Spine Journal, please email your CV and areas of expertise to:

[EMAIL CLICK HERE](#)

If you would like to submit your research to Global Spine Journal please visit:

[CLICK HERE](#)

All GSJ content can be read online at:

[CLICK HERE](#)



GSJ Editors with Best Reviewer Winner Avery Buchholz

Global Spine Journal also held its annual Members Only Session at Global Spine Congress on "How to Write and Review a Scientific Paper". At this session, GSJ Editors-in-Chief Jeffrey Wang, Jens Chapman and Karsten Wiechert discussed their experiences with writing and reviewing scientific research and offered tips and tricks to the attendees on how to write successful reviews and how to get their research published. This session was as always, completely packed with standing room only. For Global Spine Congress next year in Toronto, we are going to continue to have a Members Only Session but we are planning to make some changes in order to tailor it to the North American audience. Stay tuned next year for updates on the next session!

Global Spine Journal will be releasing their next special issue at the end of the summer/beginning of the fall on Spinal Trauma. This special issue is led by Frank Kandziora and was done in conjunction with the German Society for Orthopaedics and Traumatology. Please stay tuned for more updates on upcoming special issues as the year goes on.

Don't forget to check out GSJ's article of the month for the month of May! The article of the month is chosen by one of our Editors-in-Chief from our current issue based on the topic. This month's article is "Worldwide Steroid Prescription for Acute Spinal Cord Injury" by Falavigna et. al and you can read it online here at:

[CLICK HERE](#)



Don't forget to follow GSJ on social media for the most updated news on the journal. You can follow us on Facebook at www.facebook.com/globalspinejournal and on Twitter @globalspinej

AOSNA is pleased to announce the results of the 2018 Young Investigator Research Grant Awards



For the 11th year, the AOSpine North America Research Committee has established the Young Investigator Research Grant Award (YIRGA) funding new investigators who have a desire to perform high-quality, clinically relevant spinal or spinal cord research in basic or clinical science. The applicants, all AOSNA subscribed members, sent in a significant number of applications to be evaluated in a blinded peer review process by the Research Committee members.

The following investigators will each be awarded a one-year grant of \$20,000 to help with their research.

- | | |
|---|--|
| Larry Lo (Johns Hopkins Hospital) | In Vivo Synergistic Effect of Checkpoint Blockade and Bromodomain Inhibitors Against Chordomas in a Humanized Mouse Model |
| Ali Ozturk (Yale University) | Stretch-grown Axons in Spinal Cord Injury |
| Ganesh Shankar (Cleveland Clinic) | Molecular Determinants of Outcomes in Metastatic Renal Cell Carcinoma to the Spine |
| Jeff Wilson (St. Michael's Hospital) | Defining the Natural History and Predictors of Disease Progression in Mild Degenerative Cervical Myelopathy |

The projects will be carried out during 2018 and 2019 and the investigators will be invited to present their results at the 2019 Fellows Forum in Banff. Congratulations to the winners – they certainly represent a significant contribution to the quality of research being performed in North America. For AOSNA, it is a pleasure to be able to invest in promising projects like these and to incentivize the members to actively take part in the scientific development of the region.

Fellow Spotlight



Jeremy Shaw, MD

Tell us a little about yourself?

I grew up in the Boston area and attended Middlebury College. While at Middlebury, I developed an interest in biofilm biology, studying oral bacteria and their role in dental caries formation. Prior to attending medical school at Case Western Reserve University School of Medicine, I spent two years as a professional ski patroller in Park City, Utah. I completed residency in Orthopaedic Surgery at the University of California, San Francisco (UCSF) and am now finishing up my Spine Fellowship at the University of Utah. I will be joining the faculty at the University of Pittsburgh, Department of Orthopaedic Surgery in the Fall.

How was your fellowship experience? How has being an AOSNA Fellow helped you in your career path?

I can't imagine a better fellowship experience than my year at the University of Utah. The mentorship, case mix and graduated autonomy have been exceptional. Drs. Brodke, Lawrence, Spiker and Spina are outstanding mentors and have pushed me to rapidly master complex spine techniques. The VA experience for fellows in the Utah program provides autonomy that is unique among North American fellowships, and there is a robust research infrastructure within the spine group. In short, Utah is a complete and comprehensive fellowship that is further enhanced by its partnership with AOSpine.

Being an AOSNA Fellow has provided outstanding supplemental educational opportunities through its schedule of meetings, and the AOSpine North America Banff Fellows Forum was a highlight. The program provided practical clinical and professional guidance, and it also served as an excellent opportunity to connect with current and future leaders in the field.

What was your most memorable experience during your fellowship year?

My most memorable and enjoyable experiences from fellowship have been my interactions with my VA patients. I have gotten to know most of my operative VA patients extremely well during the course of multiple clinic visits - evaluating their spine pathology, indicating them for surgery, then following them post-operatively. Seeing them get better after surgery and move on with their lives is my favorite part of the job.

What is the one thing or person you will remember most from your fellowship?

Brandon Lawrence is my fellowship director and an outstanding surgeon. I credit him with a great deal of my progress this year. His Pandora SOJA Radio playlist will stay with me forever.

Do you have any advice for upcoming fellows?

Fellowship is like being a boat on the ocean.

- 1) Go with the flow
- 2) Don't make waves
- 3) Have some direction
- 4) Always keep the boat moving forward

Congratulations to the Graduating Fellows of 2017-2018

At the end of July, we bid farewell to the AOSNA fellows of 2017-2018 graduating from our fellowship sites. On behalf of the AOSNA Fellowship Committee, we wish them much success and happiness in their next steps.

Graduating Fellows from Cleveland Clinic

John Freeland Ackley, DO
Samuel Clay Overlay, MD
Anup Krishna Gangavalli, MD
Maziyar Arya Kalani, MD
Ganesh Mani Shankar, MD

Graduating Fellows from Columbia University

Melvin Makhni, MD
Martin Pham, MD
John Sielatycki, MD

Graduating Fellows from Emory University

Orthopedics and Spine Center
Daniel Blizzard, MD
Chase Bennett, MD
Amit Jain, MD
John Rodriguez-Feo, MD

Graduating Fellows from the Hospital for Special Surgery

Patrick Hill, MD
Brandon Carlson, MD
Phillip Saville, MD
Eric Feuchtbaume, MD

Graduating Fellows from Houston Methodist

Ronak Desai, DO
Joseph Brindise, MD

Graduating Fellows from Johns Hopkins University

Corinna Zygourakis, MD
Samuel Kalb, MD

Graduating Fellows from Mayo Clinic

Oscar A. Duyos-Garcia, MD
Bryan K. Lawson, MD

Graduating Fellows from McGill University Health Centre

Andrew Douglas Tice, MD
Abdulaziz Alhajeri, MD
Abdulaziz Saud Bin Shebreen, MD

Graduating Fellows from Northwestern University

Andrew Yew, MD
Eric Bialanski, DO

Graduating Fellows from NYU Hospital for Joint Diseases

Bradley Johnson, MD
Tomas Kuprys, MD
Tina Raman, MD
Aaron Hockley, MD
Pawel Jankowski, MD

Graduating Fellows from OrthoCarolina Spine Center

Michael R. Conti Mica, MD
Michael Silverstein, MD

Graduating Fellows from Rush University Medical Center

Hani Malone, MD

Graduating Fellow from Stanford University

Remi M. Ajiboye, MD

Graduating Fellows from Swedish Neurosciences Institute

Ronen Belcher, MD
Amir Abdul Jabbar, MD
Emre Yilmaz, MD
Thomas O'Lynnger, MD
Tamir Tawfik, MD

Graduating Fellows from Thomas Jefferson University

Yusef Mosley, MD
Geoffrey Sielatycki, MD

Graduating Fellows from Toronto Western Hospital/University of Toronto

Jamie Wilson, MD
Vinay Kulkarni, MD
Chris Neilsen, MD
Maheswara Akula, MD
Robert Ravinsky, MD
Fan Jiang, MD

Graduating Fellow from University of Alabama at Birmingham

Kivanc Atesok, MD

Graduating Fellows from University of British Columbia

Shreya Srinivas, MD
Hanbing Zhou, MD
Babak Sharifi, MD

Graduating Fellows from University of Calgary

Duncan Cushnie, MD
Christos Zafeiris, MD
Felipe Nares, MD
Alisson Teles, MD
Patricia Sirios, MD

Graduating Fellows from University of California at Davis

Luke Hiatt, MD
Gurpal Pannu, MD

Graduating Fellows from University of California at San Francisco (Ortho and Neuro)

Neil Bhamb, MD
Paul Eichenseer, MD
Singh Paramjit, MD
Catherine Miller, MD

Graduating Fellows at University of Cincinnati

Rani Nassr, MD
David Gimbel, MD

Graduating Fellows from University of Maryland

Morenikeji Buraimoh, MD
Charles Gordon, MD
Vishal Kahtri, MD

Graduating Fellow from University of Pennsylvania

Nissim Ackshota, MD

Graduating Fellow from University of Rochester

Eric Emanski, MD

Graduating Fellows from University of Southern California

Pranay B. Patel, MD
Nickul Jain, MD
Ifije Ohiorhenuan, MD

Graduating Fellows from University of Utah

Ross McEntarfer, MD
Jeremy Shaw, MD

Graduating Fellows from University of Virginia

Juanita Garces, MD
Marcus Mazur, MD
Jeffrey Mullin, MD

Graduating Fellows from University of Washington

Christina W.C. Cheng, MD
David Gendelberg, MD
Nathan A. Wigner, MD

Graduating Fellows from Washington University

Pablo J. Diaz-Collado, MD
Pooira Salari, MD
Alexander A. Theologis, MD
Chase C. Woodard, MD

Graduating Fellows from Weill Cornell Medical College

Robert N. Hernandez, MD
Christoph Wipplinger, MD
Rodrigo Navarro-Ramirez, MD

Graduating Fellow from West Virginia University

Colby Fagin, MD

Graduating Fellow from Yale University

Ryan Grant



Steven Presciutti, MD

AOSNA Young Investigator Research Grant Award Winner Dr. Steven Presciutti on Answering Basic, Fundamental Questions About the Biology of Spinal Fusions

I realized early in my clinical training as a spine surgeon that meticulous surgical technique and state-of-the-art instrumentation can only take you so far in achieving successful spinal fusions. While most patients fuse after arthrodesis surgery and go on to have great clinical outcomes, I witnessed many patients during my residency and fellowship training who went on to suffer after surgery because of a persistent pseudarthrosis. This dichotomy was particularly troubling to me. I found myself asking a simple question over and over again: why do some patients go on to fuse and other, seemingly similar patients, fail to fuse their spine after an identical arthrodesis procedure?

Trying to find the answer to this important question has been a focus of my early research efforts. Every answer I tried to find in the literature about the basic biology of spinal fusion, however, resulted in many more questions. I realized that there is a fundamental knowledge gap in our understanding of the basic science of spinal fusion, and that there is so much about this topic that remains unexplored. There is an important unmet clinical need to elucidate the molecular mechanisms of spinal fusion and pseudarthrosis. I strongly felt that if we could begin to understand the spinal fusion process at a basic, fundamental level, that we could design biologic strategies to significantly reduce pseudarthrosis rates and make a tangible, real-world impact on my patients.

The healing environment within the posterolateral spine is one of the most clinically challenging bone healing environments in all of surgery. Unlike the healing environment in a fractured long bone, for example, bone does not naturally exist in the intended spine fusion bed and it is a non-contained space. Given these challenges, failure of spinal fusion is still unfortunately a common complication. With the use of autologous iliac crest bone graft, the gold standard in bone grafting material, pseudarthrosis rates still range from 10-40%, depending on the number of arthrodesis levels and the complexity of the operation. Not only do patients with a pseudarthrosis typically experience inferior outcomes, but the high cost required to continue to treat them represents a major burden on our healthcare system. This high cost not only includes the additional direct cost for a pseudarthrosis revision surgery, but also the cost of additional prescription medications, bone stimulators, and time lost from work. As the social and economic costs of caring for an aging population continues to increase, government agencies and third-party payers are aiming to preferentially support higher value care and decreased spending on outcomes that require continued treatment or even revision surgery. Therefore, prevention of pseudarthrosis is an important and clinically relevant goal to reach. This would directly lead to better outcomes for our patients as well as a decrease in the overall cost associated with these commonly performed surgeries.

Recombinant human (rh) BMP-2 is the only FDA approved biologic bone graft substitute. It can increase spinal fusion rates due to its potent ability to stimulate local bone formation. However, widespread and routine clinical use of this technology has been limited due to its high cost and associated complications (i.e., local tissue swelling, ectopic bone formation, nerve inflammation, and local osteolysis when used near a cancellous rich environment like the intervertebral space). Thus, there is a clear clinical need for alternative biologic strategies that can consistently achieve safe and successful fusions.

Despite the problems with rhBMP-2, it is an example of how powerful and effective the use of a biologic agent to modulate local cell signaling pathways in the developing spinal fusion bed is in stimulating bone formation and achieving a successful fusion. My basic and translational science lab focuses on the design and exploration of both novel and FDA repurposable drugs to do just that; we are actively searching for small molecule drugs that can interact with and control various cell signaling pathways that are important for osteogenesis. By doing this, my lab hopes to find new alternative biologic bone graft extenders that can be used similar to how rhBMP-2 is currently used, but without the local side effects and high cost.

One signaling pathway that we are particularly interested in exploring is the canonical Wnt pathway. Growing evidence in the literature has demonstrated that sclerostin, an osteocyte-secreted inhibitor of canonical Wnt signaling, is crucial in bone homeostasis. Sclerostin is an integral signal in bone metabolism that dampens osteoblast bone deposition and increases bone resorption. As such, sclerostin inhibition is the only known anabolic strategy for bone that is able to uncouple bone formation and resorption. Thus, enhancing local bone formation via sclerostin inhibition strategies may avoid the osteolysis issues seen with BMP-2.

While much work has been performed in studying the role of sclerostin in fracture healing and osteoporosis, nothing has been done to determine its role and the role of canonical Wnt signaling in spinal fusion. The expression pattern of canonical Wnt signaling factors and their inhibitors (sclerostin) during the developing fusion remain unexplored. Also, once expressed, the specific cells that are influenced most by extracellular sclerostin protein is unknown. Understanding the sequence of sclerostin signaling events involved in the spine fusion process at a cellular level will allow us to design biologic strategies that modulate the cellular activity of these pathways in order to enhance bone formation and reduce pseudarthrosis rates. In other words, the problem must be first understood before we can solve it; we need to understand what cells to target with drugs and when to target them in order to increase our chance of success with local drug delivery.

I am very grateful to the AOspine for awarding me with a Young Investigator Research Grant Award so that I can explore these questions.

The development of de novo bone within a posterolateral spine fusion after arthrodesis surgery is a complex temporal process that involves many tissue types and signaling pathways. By using an established rabbit model of spinal fusion, we are determining the spatial and temporal pattern of gene expression as well as the protein location of sclerostin and other important factors in canonical Wnt signaling. I am happy to report that with this funding, we have made some novel and important discoveries that contribute to our basic understanding of the molecular changes that occur over time in the developing spine fusion. We have found discreet temporal patterns of gene expression for sclerostin and multiple factors of the canonical Wnt signaling pathway. We will look to publish this data later this year. With this knowledge, my lab is now much better equipped to succeed in using novel drugs to enhance spinal fusion rates. This AOspine funding has allowed me to generate important preliminary data that will be used to compete for federal grant funding.

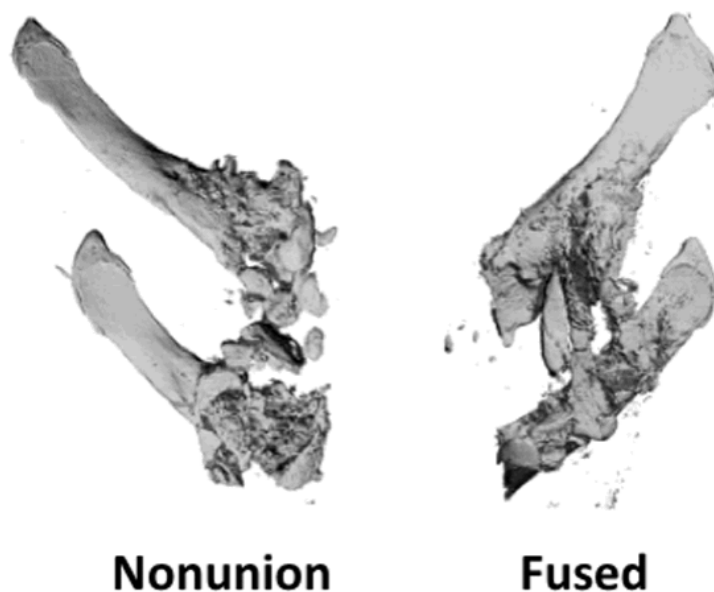
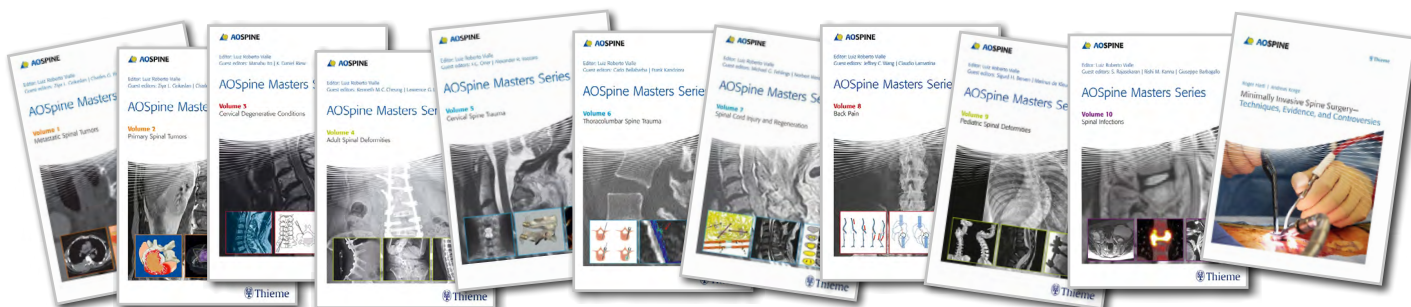


Figure Legend: These are examples of uCT scans of a rabbit posterolateral spine fusion mass 6 weeks after arthrodesis surgery with autologous iliac crest bone graft. The transverse processes (TPs) can be seen as well as the consolidated bone graft between them. On the left, there is a nonunion, as evidenced by the lack of bridging bone between the TPs. On the right, there is evidence of bone that solidly bridges between the TPs, indicating a successful fusion.

Dr. Steven Presciutti is currently an Assistant Professor of Orthopaedic Surgery at Emory University, where he serves as the Director of the Whitesides Orthopaedic Research Laboratory. This lab is a basic and translational laboratory that focuses on the design of small molecule drugs to enhance spinal fusion as well as intervertebral disc degeneration and regeneration. He is a proud member of AOspine.

Dr. Presciutti graduated from Jefferson Medical College with Honors in 2009. Under the mentorship of Dr. Alex Vaccaro, this is where he first developed a deep interest in academic spine surgery and spine research. He next completed his orthopaedic surgery residency at the University of Connecticut. In addition to maintaining a busy clinical training schedule, it was during this five-year period where he developed a true passion for basic and translational orthopaedic research while working in the lab of Dr. Hicham Drissi, PhD. Dr. Presciutti subsequently completed his orthopaedic spine fellowship at Rush University under the mentorship of Dr. Howard An, who not only provided Dr. Presciutti with excellent clinical training, but also taught him firsthand how to be a clinician scientist with a successful translational research lab.

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The AOSpine Knowledge Forum Trauma was given the task to develop and validate a new classification system. The AOSpine Thoracolumbar and Subaxial Classification systems are the result of a systematic assessment and revision of the Magerl classification. The AOSpine Classification Group reached a consensus on a classification that incorporates both fracture morphology and clinical factors relevant for clinical decision making. After the endorsement of the classification by the International Board, the Knowledge Forum Trauma finalized the validation studies.

The AOSpine Upper Cervical Classification was recently launched at the GSC in Singapore in May. This is the last classification system and completes the series of spine classification systems.

For more information, please visit:

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