VIRTUAL
2020 ANNUAL MEETING
OPENS: MAY 13
POSNA.ORG
Redefining spine

We’re focused on five core principles. One of these principles is that **continuous innovation is core to spine success**. Our comprehensive product portfolio allows us to create market-leading solutions for patients.

Together with our customers, we are driven to make healthcare better.
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ABOUT POSNA

The Pediatric Orthopaedic Society of North America (POSNA) is a group of professionals comprised mostly of pediatric orthopaedic surgeons. We are board certified in orthopaedic surgery and have participated in additional training to become specialized in the care of children’s musculoskeletal health and our practice reflects this dedication.

We, as a group, strive to become the authoritative source on such care through appropriate research that will lead to the best evidence-based patient care.

POSNA MISSION STATEMENT

To improve the care of children with musculoskeletal disorders through education, research, and advocacy.

CONNECT WITH POSNA DURING THE MEETING AND SHARE YOUR EXPERIENCES

#POSNA2020

@POSNA_org  Pediatric Orthopaedic Society of North America (POSNA)

linkedin.com/company/posna  posna_ortho

Websites: POSNA.org, orthokids.org and posnacademy.org
Dear Colleagues,

Consistent with the guidance provided by public health officials, POSNA is committed to reducing the spread of the COVID-19 virus and therefore made the disappointing decision to cancel the 2020 Annual Meeting in San Diego. Many options were explored, including rescheduling at a later time. Unfortunately, we were unable to identify a satisfactory date.

The annual meeting is the highlight of the POSNA year. The program committee of Jeff Martus (Chair), Woody Sankar, Michelle Caird and Matt Oetgen had organized an outstanding program for San Diego. Some of the highlights in the initial schedule are listed below:

- The pre-course “Transition to Adulthood: Orthopedics for the Adolescent,” organized by Noelle Larson. The course was designed to address many unique features of this age group and guide participants in the development of appropriate management strategies.
- Recognition of award winners Behrooz Akbarnia (Distinguished Achievement), Charles Johnston (Humanitarian) and Donald Bae (Special Effort and Excellence).
- Recognition of grant winners and industry partners.
- A scientific program including 170 podium presentations, 40 paper posters, 80 ePosters, multiple symposia and a subspecialty day.
- Presidential guest speaker Lori Karol addressing adapting to change in the new decade.
- Presidential transfer to incoming president Michael Vitale.
- Closing reception at the San Diego Air and Space Museum, located in historic Balboa Park. The museum is an affiliate of the Smithsonian Institution and is home to a diverse collection of aircraft.

The members of the Program Committee deserve special recognition. Since the cancellation of the on-site event, they have worked hard to make the meeting educational materials available to our members and meeting registrants. This reorganization required a great deal of time, effort and originality. It would not have been possible without the cooperation of the scientific program presenters. I appreciate the many hours Noelle Larson devoted to the development of the pre-course. The efforts of the local hosts Hank and Jill Chambers along with Peter and Cathy Newton also deserve recognition. Of course, all of this couldn’t have happened without the efforts of POSNA Executive Director Teri Stech, Meetings and Education Manager, Tara Long and the entire POSNA staff.

On behalf of POSNA, thank you for your understanding. This has been an extremely difficult time that has resulted in significant hardship throughout the world. I look forward to seeing you at the 2021 Annual Meeting in Dallas.

Stephen Albanese, MD
President, POSNA
STEPHEN ALBANESE, MD
PRESIDENT

Stephen Albanese, MD is Professor of Orthopedic Surgery at SUNY Upstate Medical University in Syracuse, New York. He has been depart-
ment chair and residency program director at Upstate since 2000.
Dr. Albanese received his undergraduate degree in electrical engineer-
ing from Bucknell University and MD from SUNY Buffalo College of Medicine. He completed orthopedic surgery residency at SUNY Upstate Medical University and pediatric orthopedic surgery fellowship at the Hospital for Sick Children in Toronto, Ontario.

Dr. Albanese’s academic interests have focused on education, accreditation and certifi-
cation. He has chaired the AAOS Committee on Evaluation (1996-2001), been a mentor in the AAOS leadership fellows program and completed two terms as a member of the AAOS Council on Education (1996-2001, 2005-09). Dr. Albanese has been a member at large on the AAOS Board of Directors (2002-2004). He served seven years (2005-2012) on the Accreditation Council for Graduate Medical Education (ACGME) Orthopaedic Surgery Residency Review Committee (RRC) and was chair the final 3 years. He served a 6 year term (2012-2018) on the ACGME Board of Directors and chaired the Program Requirements Committee (2016-2018). He served as a member of the American Orthopaedic Association Academic Leadership Committee (2006-2012). During his ten year term (2007-2017) on the American Board of Orthopaedic Surgery Board of Directors he chaired the Oral Examination Committee (2010-2012), was active in the question writing task force and served as President (2013-2014).

Dr. Albanese’s clinical interests are pediatric orthopaedics and spine deformity. He chaired the Scoliosis Research Society Morbidity and Mortality Committee (1998-2000). He served as a member at large on the POSNA Board of Directors (2004-06) and chaired the Education (2000-2002) and Health Care Delivery Councils (2014-2017). In addition, he has served on the Terminology and Nomenclature, Data Management, Education, and Practice Manage-
ment Committees for POSNA.

His sister, Dr. Margaret Albanese, is also an active member of POSNA. Dr. Albanese lives in Upstate New York with Eileen, his wife of 34 years. They have two sons, Matt and Kevin, who are currently Orthopedic Surgery Residents.
MICHAEL VITALE, MD, MPH
INCOMING PRESIDENT

Michael Vitale, MD MPH is the Ana Lucia Professor of Orthopedic and Neurosurgery and Vice Chief, (Quality and Strategy) of the Department of Orthopaedics at Columbia University Medical Center. He is also Chief of Pediatric Orthopaedics for the New York Presbyterian health system, where he has developed his clinical focus in the care of children with spinal deformity since joining the staff of the Morgan Stanley Childrens Hospital of New York in 2001.

Dr. Vitale received his undergraduate degree in biology and psychology from Trinity College, and attended medical school at Columbia University's College of Physicians & Surgeons, where he also completed a master's degree in public health. He remained at Columbia for his residency training in Orthopedic Surgery at New York-Presbyterian/Columbia University Irving Medical Center, followed by a fellowship in pediatric orthopedics at the Children’s Hospital of Los Angeles.

Early in career, Dr Vitale was chosen as an inaugural member of the AAOS Leadership Fellow Program as well as the POSNA Traveling Fellowship. He has served various roles in the POSNA BOD, and has been the recipient of POSNA’s Arthur Huene Memorial Award, the Angela Kuo award, and the Award for Special Effort.

Dr Vitale has served as Chairman of the International Pediatric Orthopaedic Symposium and President of the Childrens Spine Foundation and Pediatric Spine Study Group. He founded the Project for Safety in Spine Surgery, which hosts the annual Summit for Safety in Spine Surgery. He is also an active Member of the Scoliosis Research Society where he has chaired the Committee on Safety and the Committee on Pediatric Medical Devices.

In addition to his clinical practice, Dr. Vitale has made a lifelong commitment to clinical research with almost 200 peer-reviewed publications largely focused around pediatric spine surgery, and numerous related chapters and books.

Dr Vitale serves on the Board of Crutches for Kids and Alexandra’s Playground, which he co-founded with his wife, Andrea. An avid skier, marathon runner, and recreational tri-athlete, Dr. Vitale’s biggest pleasure is spending his free time with his wife and four sons.
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The Pediatric Orthopaedic Society of North America gratefully acknowledges the following for their generous financial support for 2020. We sincerely appreciate each of these companies for helping POSNA fulfill its goals of providing education and fostering research.

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Arthrex

BRONZE LEVEL
Children’s Mercy Kansas City
Gillette Children’s Specialty Healthcare
Globus Medical
IPSEN BioPharmaceuticals
MD Orthopaedics
NuVasive
Pega Medical
Stanford Children’s Health

*Provided Educational Grants for the 2020 Virtual Annual Meeting
LEARNING OBJECTIVES

Objective 1: Learn about the latest advances in pediatric orthopaedic surgery
Objective 2: Obtain opinions of world-renowned thought leaders in the field
Objective 3: Use the information obtained to make improvements in their own practices
Objective 4: Fulfill the annual meeting requirements for membership in POSNA

ACCREDITATION

This Annual Meeting of the Pediatric Orthopaedic Society of North America has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of the American Academy of Orthopaedic Surgeons and POSNA.

The American Academy of Orthopaedic Surgeons is accredited by the ACCME to provide continuing medical education for physicians.

CONTINUING MEDICAL EDUCATION

The American Academy of Orthopaedic Surgeons designates this live activity (Live Content) for a maximum of 2.5 **AMA PRA Category 1 Credits™** and On-Demand Content for a maximum of 24.25 **AMA PRA Category 1 Credits™**. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

4.7 hours may be used for external trauma-related CMEs.
Presentations denoted with ✲ are eligible for these credits.

DISCLOSURE

Each faculty member in this meeting has been asked to disclose if he or she has received something of value from a commercial company or institution, which relates directly or indirectly to the subject of their presentation. An indication of the participant's disclosure appears after his or her name as well as the commercial company or institution that provided the support. POSNA does not view the existence of these disclosed interests or commitments as necessarily implying bias or decreasing the value of the author’s participation in the meeting.

FDA STATEMENT

Some drugs or medical devices demonstrated at this meeting may not have been cleared by the FDA or have been cleared by the FDA for specific purposes only. The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or medical device he or she wishes to use in clinical practice.

Academy policy provides that ‘off label’ uses of a drug or medical device may be described in the Academy's CME activities so long as the “off label” use of the drug or medical device is also specifically disclosed (i.e., it must be disclosed that the FDA has not cleared the drug or device for the described purpose). Any drug or medical device is being used “off label” if the described use is not set forth on the product's approval label.
Indicates those faculty presentations in which the FDA has not cleared the drug and/or medical device for the use described (i.e., the drug or medical device is being discussed for an “off label” use).

DISCLAIMER
The material presented at the Annual Meeting has been made available by the Pediatric Orthopaedic Society of North America for educational purposes only. The material is not intended to represent the only, nor necessarily best, method or procedure appropriate for the medical situations discussed, but rather is intended to present an approach, view, statement or opinion of the faculty which may be helpful to others who face similar situations.

PRIVACY POLICY-USE OF PERSONAL INFORMATION
Annual Meeting registration lists, including the registrant’s name and postal mailing address are provided to POSNA's sponsors as a sponsor benefit.

REPRODUCTION POLICY
POSNA reserves any and all rights to materials presented at the Annual Meeting, including Video Abstracts and ePosters. Reproductions of any kind, by any person or entity, without prior written permission from POSNA, are strictly prohibited. Prohibited reproductions include, but are not limited to, audiotapes, videotape, and/or still photography.

ANNUAL MEETING COMING SOON TO POSNA PODCASTS
Best of POSNA 2020 on the JPO Podcast
Young Member Forum on “Interview with a Pedipod”

CONNECT WITH POSNA
The JPO Podcast
Featuring key articles from the journal each month, including discussions with authors and other experts.

Interview with a PediPod
Conversations with leaders in the field about their careers, philosophies, and more.
### Levels of Evidence for Primary Research Questions

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<th>Study Type</th>
<th>Question</th>
<th>Level I</th>
<th>Level II</th>
<th>Level III</th>
<th>Level IV</th>
<th>Level V</th>
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<td>Diagnostic—</td>
<td>Is this (early detection) test worthwhile?</td>
<td>• Randomized controlled trial</td>
<td>• Prospective cohort study</td>
<td>• Retrospective cohort study</td>
<td>• Case series</td>
<td>• Mechanism-based reasoning</td>
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<td>Investigating a</td>
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<td>diagnostic test</td>
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<td>Prognostic—</td>
<td>What is the natural history of the condition?</td>
<td>• Inception cohort study (all patients enrolled at an early, uniform point in the course of their disease)</td>
<td>• Prospective cohort study (patients enrolled at different points in their disease)</td>
<td>• Retrospective cohort study</td>
<td>• Case series</td>
<td>• Mechanism-based reasoning</td>
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<td>disease</td>
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<td>Therapeutic—</td>
<td>Does this treatment help? What are the harms?</td>
<td>• Randomized controlled trial</td>
<td>• Prospective cohort study</td>
<td>• Retrospective cohort study</td>
<td>• Case series</td>
<td>• Mechanism-based reasoning</td>
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<td>results of a</td>
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<td>treatment</td>
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<td>Economic</td>
<td>Does the intervention offer good value for dollars spent?</td>
<td>Computer simulation model (Monte Carlo simulation, Markov model) with inputs derived from Level I studies, lifetime time duration, outcomes expressed in dollars per quality-adjusted life years (QALY's) and uncertainty examined using probabilistic sensitivity analyses</td>
<td>Computer simulation model (Monte Carlo simulation, Markov model) with inputs derived from Level II studies, relevant time horizon, less than lifetime, outcomes expressed in dollars per QALY's and stochastic multi-level sensitivity analyses</td>
<td>Decision tree over the short time horizon with input data from original Level I and II studies and uncertainty is examined by univariate sensitivity analyses</td>
<td>Decision tree over the short time horizon with input data informed by prior economic evaluation and uncertainty is examined by univariate sensitivity analyses</td>
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1. This chart was adapted from OCEBM Levels of Evidence Working Group, “The Oxford 2011 Levels of Evidence,” Oxford Centre for Evidence-Based Medicine, http://www.oemb.net/oceb-levels-of-evidence/. A glossary of terms can be found here: http://www.oemb.net/oceb/glossary/.
2. Level I through IV studies may be graded downward on the basis of study quality, implosion, independence, or inconsistency between studies or because the effect size is very small; these studies may be graded upward if there is a dramatic effect size. For example, high-quality randomized controlled trial (RCT) should have 28% follow-up, blinding, and proper randomization. The Level of Evidence assigned to systematic reviews reflects the ranking of studies included in the review (e.g., a systematic review of Level II studies is Level II). A complete assessment of the quality of individual studies requires critical appraisal of all aspects of study design.
3. Investigators formulated the study question before the first patient was enrolled.
4. In these studies, "cohort" refers to a nonrandomized comparative study. For therapeutic studies, patients treated one way (e.g., cemented hip prosthesis) are compared with those treated differently (e.g., cementless hip prosthesis).
5. Investigators formulated the study question after the first patient was enrolled.
6. Patients identified for the study on the basis of their outcome (e.g., failed total hip arthroplasty), called "cases," are compared with those who did not have the outcome (e.g., successful total hip arthroplasty), called "controls."
7. Sufficient numbers are required to rule out a common harm (affects >20% of participants). For long-term harms, follow-up duration must be sufficient.

### References

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### MEETING AT A GLANCE

#### LIVE SESSION
**WEDNESDAY MAY 13, 2020, 7-9:30 PM EDT (4-6:30 PM PDT)**

- OPENING CEREMONY
- BASIC SCIENCE AWARD SESSION
- CLINICAL AWARD SESSION
- PRESIDENTIAL TRANSFER

#### ON DEMAND CONTENT
**OPEN DATE-WEDNESDAY, MAY 13**

- PRE-COURSE
- YOUNG MEMBER FORUM

### SCIENTIFIC PROGRAM
- Trauma
- Infections/Tumor
- QSVI
- Spine
- Sports/Trauma
- Upper and Lower Extremity
- Neuromuscular
- Hip

### SYMPOSIA PROGRAM
- Bone Health
- POGO
- POPS
- Practice Management
- Trauma

### SUBSPECIALTY DAY
- Hand
- Foot
- Hip
- Neuromuscular
- Lower Extremity
- Spine
- Sports
- Trauma

*Program subject to change*
Dear Colleagues,

On behalf of POSNA President Steven Albanese, MD and the 2020 Program Committee (Michelle Caird, MD, Woody Sankar, MD, and Matt Oetgen, MD, and I), we invite you to attend the **virtual 2020 POSNA Annual Meeting** starting May 13, 2020. Due to the COVID-19 outbreak, we have designed a virtual meeting with a combination of **On Demand** and **Live** content to facilitate presentation of the outstanding scientific program. **CME credit will be awarded to attendees of the virtual meeting.**

A record number of abstracts (1,061) were submitted and graded by volunteer readers. All 170 podium presentations, 40 posters, and 80 ePosters are outstanding. Now in its 2nd year, there will be 17 surgical technique videos presented in the Video Theater. The virtual meeting structure follows:

- **A live session** will kick off the meeting featuring the Basic Science and Clinical Award presentations on **Wednesday May 13, 2020, 7:00-9:30 pm EDT (4:00-6:30 pm PDT)**
  - The 2020 POSNA award winners will be announced, but will be formally recognized at the 2021 Annual Meeting in Dallas
  - A virtual presidential transfer will occur at the conclusion
- **On Demand** content will be available via the virtual platform
  - **Pre-Course**, chaired by Noelle Larson, MD
    - “Transition to Adulthood: Orthopedics for the Adolescent”
  - **Scientific Program**
    - Podium presentations, Video Theater, and ePosters (posters will be presented as ePosters)
  - **Subspecialty Day Program**, chaired by Woody Sankar, MD
  - **Symposia Program**
    - “The Physis: From Basic Biology to Advanced Surgical Intervention”
    - “Delivery of Pediatric Orthopaedic Global Outreach in 2020 and Beyond”
    - “Pediatric Bone Health for the Orthopaedic Surgeon”
    - “Enhancing Practice and Professional Development”
    - “Disaster Response for the Pediatric Orthopaedic Surgeon”
  - **6th Annual Arabella Leet Young Member Forum**, chaired by Megan Johnson, MD

I would like to personally thank all that have been involved in planning and contributing to the meeting, including our San Diego hosts (Hank Chambers, MD, and Peter Newton, MD), the volunteer abstract reviewers, the meeting presenters and chairs, the program committee, and in particular, Tara Long, Theodora Heihn, Teri Stech and the rest of the POSNA team.

This is a challenging time and we hope that you and your family remain safe and healthy. On behalf of POSNA, we appreciate your participation in the Virtual 2020 Annual Meeting.

Sincerely,

Jeff Martus, MD
Program Chair
LIVE SESSION

WEDNESDAY MAY 13, 2020, 7-9:30 PM EDT (4-6:30 PM PDT)

7:00 PM–7:10 PM OPENING CEREMONY
Stephen Albanese, MD

BASIC SCIENCE AWARD – 45 minutes
Moderator: Michelle Caird, MD  eModerator: Nancy Miller, MD

7:11 PM–7:15 PM PAPER 66
♦ Timing is Everything: Optimizing a Novel Pharmacologic Therapy for Contracture Prevention in Neonatal Brachial Plexus Injury
Qingnian Goh, PhD; Athanasia Nikolaou, PhD; Kritton Shay-Winkler; Roger Cornwall, MD
Cincinnati Children’s Hospital Medical Center, Cincinnati, OH

7:16 PM–7:20 PM PAPER 67
Collagen X Biomarker (CXM) is Predictive of Growth Cessation in Idiopathic Scoliosis
Michelle Welborn, MD; Ryan Coghlan; Susan Sienko, PhD; William Horton, MD
Shriners Hospital for Children, Portland, OR

7:21 PM–7:25 PM PAPER 68
Can Bisphosphonates Prevent Osteotomy Repair?
Jonathan Schoenecker, MD, PhD; Stephanie Moore; Samuel Posey, MD; Masanori Saito, MD
Vanderbilt University Medical Center, Nashville, TN

7:25 PM–7:33 PM Discussion

7:34 PM–7:38 PM PAPER 69
Sirt6 in Osteoblast/Osteocyte is Vital to Prevent Bone Deformity Induced by Ischemia Through Targeting VDR-RANKL Signaling
Young-Jae Moon; Sung Il Wang, MD; Jung-Ryul Kim, MD
Chonbuk National University, Jeonju, Jeollabuk-do, Republic of Korea

7:39 PM–7:43 PM PAPER 70
Intraosseous BMP2-Hydrogel Injection Using Multi-needles Improves Homogenous Bone Formation While Avoiding Heterotopic Ossification in a Piglet Model of Legg-Calve-Perthes Disease (LCPD)
Minsung Park, PhD; Yinshi Ren, PhD; Chi Ma, PhD; Felipe Monte, MD; Vishal Gokani, BS;
Xiaohua Liu, PhD; Harry Kim, MD
Texas Scottish Rite Hospital for Children, Dallas, TX

7:44 PM–7:48 PM PAPER 71
Reverse Dynamization Accelerates Bone Healing in a Large Animal Osteotomy Model
Christopher Iobst, MD; Mikhail Samchukov, MD; Alexander Cherkeshev, MD; Vaida Glatt;
Satbir Singh, BS
Nationwide Children’s Hospital, Columbus, OH

7:48 PM–7:56 PM Discussion

♦ Indicates those faculty presentations in which the FDA has not cleared the drug and/or medical device for the use described (ie. the drug or medical device is being discussed for an “off label” use).
CLINICAL AWARDS – 83 minutes

Moderator: Michael Vitale, MD, MPH  eModerator: Coleen Sabatini, MD, MPH

7:57 PM–8:02 PM  PAPER 56
Long-Term Outcomes of Closed Reduction and Open Reduction with Innominate Osteotomy for Developmental Dislocation of the Hip: 45 Years at Two Institutions
Elizabeth Scott, MD; Stuart Weinstein, MD; Lori Dolan, PhD
University of Iowa, Iowa City, IA

8:03 PM–8:08 PM  PAPER 57
A Postoperative Protocol Reduces Opioids Prescribed after Pediatric Orthopaedic Surgery
Kirsten Ross, MD; Joseph Gibian, BS; Jeffrey Martus, MD; David Johnson, MD; Megan Johnson, MD
Vanderbilt University Medical Center, Nashville, TN

8:09 PM–8:14 PM  PAPER 58
Probability Analysis of Sequential SCFE (PASS Score)
Baruch Danino, MD; Satbir Singh, BS; Junxin Shi, MD, PhD; Jingzhen Yang, MD, PhD; Kevin Klingele, MD
Nationwide Children’s Hospital, Columbus, OH

8:14 PM–8:22 PM  Discussion

8:23 PM–8:28 PM  PAPER 59
Marijuana Use Results in Increased Time to Union in Surgically Treated Pediatric Fracture Patients
David Heath, MD; James Miller; Caleb Davis, BS; Lynda Lee, BS; Rose Ann Huynh; Kush Shah, PhD; Grant Hogue, MD
University of Texas Health Science Center at San Antonio, San Antonio, TX

8:29 PM–8:34 PM  PAPER 60
A Multicenter Study of Intramedullary Rodding in Osteogenesis Imperfecta
Peter Smith, MD; Mercedes Rodriguez Celin, MD; Karen Kruger, PhD; Angela Caudill, MPT; Gerald Harris, PhD
Shriners Hospital for Children, Chicago, IL

8:35 PM–8:40 PM  PAPER 61
Ultrasonic Bone Scalpel (USBS) Does Not Reduce Blood Loss in Adolescent Idiopathic Scoliosis (AIS): Randomized Clinical Trial
Sumeet Garg, MD; James Thomas, MD; Hannah Quick, BA; Patrick Carry, MS; Eun Kim, BA; Mark Erickson, MD
Children’s Hospital Colorado, Aurora, CO

8:40 PM–8:48 PM  Discussion
<table>
<thead>
<tr>
<th>Time</th>
<th>Paper Number</th>
<th>Title</th>
<th>Authors</th>
<th>Institution</th>
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<tr>
<td>8:49 PM–8:54 PM</td>
<td>PAPER 62</td>
<td>Hunger Games: Impact of Fasting Guidelines for Orthopaedic Procedural Sedation in the Pediatric Emergency Department (PED)</td>
<td>Jeffrey Sawyer, MD; Robert Stewart, MD; Carson Strickland, MD; Rudy Kink, MD; Padam Kumar, BS; Busra Gungor, BA; Derek Kelly, MD</td>
<td>Campbell Clinic Orthopaedics, Memphis, TN</td>
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<td>8:55 PM–9:00 PM</td>
<td>PAPER 63</td>
<td>Do Routine Nutrition Consults for Neuromuscular Scoliosis Help the Patient or Just the Rankings?</td>
<td>Kavish Gupta, BA; David Skaggs, MD, MMM; Stephen Stephan, MD; Kenneth Illingworth, MD; Lindsay Andras, MD</td>
<td>Children's Hospital Los Angeles, Los Angeles, CA</td>
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<td>9:01 PM–9:06 PM</td>
<td>PAPER 64</td>
<td>Prospective Randomized Controlled Trial of Implant Density in AIS: Results of the Minimize Implants Maximize Outcomes Study</td>
<td>A. Noelle Larson, MD; David Polly; Paul Sponseller, MD, FAAOS; B. Stephens Richards, MD; Sumeet Garg, MD; Hubert Labelle, MD; Stuart Weinstein, MD; Suken Shah, MD; Charles Crawford, MD; Matthew Oetgen, MD; James Sanders, MD; Nicholas Fletcher, MD; Laurel Blakemore, MD; Michael Kelly, MD; Ann Brearley, PhD; Mark Erickson, MD; Stefan Parent, MD; Carl-Eric Aubin, PhD; Daniel Sucato, MD, MS</td>
<td>University of Minnesota, Minneapolis, MN</td>
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<td>9:07 PM–9:12 PM</td>
<td>PAPER 65</td>
<td>Effect of Reducing Urban Speed Limit on Pedestrian Collisions: A Controlled Study</td>
<td>Andrew Howard, MD; Liraz Fridman, PhD; Linda Rothman, PhD; Brent Hagel, PhD; Marie Soleil Cloutier, PhD; Colin Macarthur, MBBS</td>
<td>Hospital for Sick Children, Toronto, Ontario, Canada</td>
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<td>9:12 PM–9:20 PM</td>
<td>Discussion</td>
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<td>9:20 PM–9:30 PM</td>
<td>PRESIDENTIAL TRANSFER</td>
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<td>Stephen Albanese, MD</td>
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SPINAL DEFORMITY

Building on our 35 year legacy of advancing spine care globally, DePuy Synthes is committed to always evolving with you; delivering the ideas, resources, and solutions you need to treat your patients today and in the years to come.
TRANSITION TO ADULTHOOD: ORTHOPEDICS FOR THE ADOLESCENT

Chair: A. Noelle Larson, MD

DESCRIPTION
Pediatric orthopedic surgeons care for children from infancy to adulthood, and the adolescent years present special challenges both in surgical decision-making and patient and parent communication. In this precourse, we will discuss when to introduce adult treatment strategies in the adolescent years and how to achieve age-appropriate orthopedic care. Further, at every visit with adolescents and young adults, there is an opportunity to intervene and change the trajectory of young people’s health by promoting informed shared decision making and guided autonomy. This partnership is critical in the treatment of adolescents. This course will discuss evidence-based communication skills to improve patient/parent/surgeon conversations and discuss longterm implications of pediatric orthopedic treatment.

LEARNING OBJECTIVES
Upon completion of this program, participants should be able to:
Objective 1: Differentiate orthopedic conditions which are best treated with adult treatment strategies rather than a pediatric orthopedic approach
Objective 2: Assess treatment approaches in adolescents that may result in future harm or altered health related quality of life and identify how to mitigate potential deleterious effects
Objective 3: Develop evidence-based communication skills to address unique needs and considerations specific to adolescents

ACCREDITATION
This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of the American Academy of Orthopaedic Surgeons and the Pediatric Orthopaedic Society of North America. The American Academy of Orthopaedic Surgeons is accredited by the ACCME to provide continuing medical education for physicians
**PROGRAM – 162 minutes**

**Welcome and Overview**  
A. Noelle Larson, MD

### Upper Extremity Trauma

- Fracture in Girls 11-14 and Boys 13-15 – What Alignment is Acceptable at What Age? Pinning vs. Plates  
  Mauricio Silva, MD

- Distal Radial Physeal Bar and Ulnar Overgrowth, Indications for Treatment, Epiphyseodesis vs. Ulnar Shortening Osteotomy in Adolescents  
  Julie Samora, MD

- Both Bone Forearm Fractures – What Alignment is Acceptable at What Age? Nails vs. Plates?  
  Christine Ho, MD

- Proximal Humerus Fractures – What Alignment is Acceptable in Children 10 and up?  
  Pooya Hosseinzadeh, MD

### Lower Extremity

- Has the Threshold for Epiphyseodesis vs. Lengthening Changed in the Era of Magnetically Controlled Rods?  
  L. Reid Boyce Nichols MD, FAAOS

- Internal Fixation vs. Casting: Tibial Shaft Fractures in Adolescents  
  Jeffrey Martus, MD

- A Foot to Last a Lifetime – Is Hindfoot Fusion Ever Appropriate for Pediatric Orthopedic Conditions?  
  Derek Kelly, MD

- End-Stage Arthritis in the Teenage Hip: How to Reconstruct  
  Eduardo Novais, MD

- Total Hip Arthroplasty for Teenagers and What Peds Ortho Surgeons Can Do to Optimize the Result  
  Richard Santore, MD

*may be used for external trauma-related CMEs.*
## Spine

- **Neuromuscular Minimally Ambulatory Patient – Fuse to the Pelvis**  
  *Rachel Thompson, MD*

- **Neuromuscular Minimally Ambulatory Patient – Stop Short of the Pelvis**  
  *Sumeet Garg, MD, FAAOS*

- **45 Degree Skeletally Mature Athlete with Lumbar Curve with Oblique Takeoff + Leg Length Discrepancy – Observe**  
  *Nicholas Fletcher, MD*

- **45 Degree Skeletally Mature Athlete with Lumbar Curve with Oblique Takeoff + Leg Length Discrepancy – Fuse**  
  *Ying Li, MD*

## Surviving Adolescence

- **Preoperative Considerations for Teenagers: DVT Prevention, Vaping, OCPs, SI, Drug Addiction: What Questions Can You Not Afford to Miss?**  
  *Benjamin Shore, MD, MPH, FRCSC*

- **How to Practice Kind, Careful Medicine: Shared Decision-Making**  
  *Juan Brito Campana, MD*

- **What is Happening in the Teenage Brain and How Best to Communicate?**  
  *Ken Taylor, MD*

## Long-Term Impact of Pediatric Orthopedic Treatment

- **Radiation Safety. . . How to Minimize Pediatric Exposure**  
  *Jeffrey Sawyer, MD*

- **Anesthesia Safety. . . Are We Causing ADHD?**  
  *Lindsay Andras, MD*

- **Retained Implants? Can They Stay or Can They Go? Is There Systemic Harm from Metallosis?**  
  *Michelle Caird, MD*

- **Screw Malposition. . . Are there Long-term Repercussions to Malpositioned Pedicle Screws?**  
  *Terry Amaral, MD*
Transition to Adulthood

I Discharge My Patients at Age 18, This is Appropriate
Purnendu Gupta, MD

I Keep Seeing My Patients Long into Adulthood
Steven Koop, MD

What Happens to our Neuromuscular Patients in Adulthood:
Pathway to Independence and Maximal Function
Wade Schrader, MD
Discover Dysplasias™
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The bone is only the beginning
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- Skeletal dysplasias are a heterogeneous group of over 450 genetic disorders—over 350 of which already have a specifically identified genetic basis²

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YOUNG MEMBER FORUM

2020 ARABELLA LEET MEMORIAL YOUNG MEMBER FORUM

Chair: Megan Johnson, MD

DESCRIPTION

The POSNA Young Member Forum is held in honor of Dr. Arabella Leet, who passed away in 2013 after a sudden illness. Dr. Leet was a highly accomplished Pediatric Orthopaedic Surgeon with a special interest in children with Cerebral Palsy. At the end of her career, she served as Chief of the Shriner's Hospital in Honolulu, Hawaii.

This year the Young Member Forum will focus on a variety of topics relevant to pediatric orthopaedic surgeons in the first 5 years of their practice, as well as residents and fellows pursuing careers in pediatric orthopaedic surgery. Members of POSNA will share their own personal experience and wisdom on the topics selected.

PROGRAM – 86 minutes

Welcome
Megan Johnson, MD

Arabella Leet Memorial
Margaret Siobhan Murphy-Zane, MD

Developing a Career Action Plan: Academic and Professional Advancement
Stephen Albanese, MD

Getting to Yes: Negotiation with your Practice and Administration
David Skaggs, MD, MMM

Mentors, Networking, and POSNA
Michelle Caird, MD

Success at Home and Work: How to be a Great Mom/Dad/Surgeon
Amy McIntosh, MD

Lessons Learned: Mistakes from My First 10 Years
John (Jack) Flynn, MD

Concluding Remarks
Megan Johnson, MD
BEHROOZ AKBARNIA, MD
DISTINGUISHED ACHIEVEMENT AWARD

Behrooz Akbarnia, M.D. graduated from Tehran University and continued his Orthopaedic Surgery residency at Albany Medical Center including a year of Pediatric Orthopaedics under Dr. Howard Steel in Philadelphia. He then completed a Scoliosis Fellowship at Twin Cities Scoliosis Center with Dr. John Moe and colleagues. Dr. Akbarnia was Professor/Vice Chairman of the Department of Orthopaedic Surgery at St. Louis University and Chief of Pediatric Orthopaedics at Cardinal Glennon Children's Hospital for 10 years before relocating to San Diego in 1990. There, he established his academic practice, created the San Diego Spine Fellowship Program and founded the San Diego Spine Foundation to support educational and research programs.

Dr. Akbarnia’s interest has been focused on spinal deformity, especially Early Onset Scoliosis which started with POSNA Growing Rod Tutorials at Children’s Hospital, San Diego. He then worked with other colleagues to establish the Growing Spine Study Group. GSSG recently merged with CSSG to become Pediatric Spine Study Group (PSSG), creating the largest database of young children with spine deformity. In 2007, he established International Congress on Early Onset Scoliosis (ICEOS), which just held its 13th Annual Meeting. He has published several books including 2 editions of The Growing Spine Textbook (3rd Ed. in progress). His efforts have significantly affected the lives of young children with spinal deformity around the world.

He has helped many children globally with his innovations, developing new means for treating young children with EOS. His efforts comprise over 200 peer-reviewed publications, many book chapters, and presentations nationally and internationally. He has received the AAP Distinguished Service Award, SRS’s Blount Humanitarian and Lifetime Achievement Awards. He is past president of Scoliosis Research Society and currently a Clinical Professor of Orthopedic Surgery at University of California; San Diego.

He and Nasrin married in 1968 and now reside in La Jolla, California. He is both proud father of three children and grandfather of five.

LORI KAROL, MD
2020 PRESIDENTIAL GUEST SPEAKER

Dr. Lori Karol is currently the Assistant Chief of Staff and Chief Quality Officer at Texas Scottish Rite Hospital for Children, and professor of orthopaedic surgery at the University of Texas-Southwestern in Dallas. She is the medical director of the movement science laboratory. She earned her undergraduate and medical degrees at the University of Michigan, and served her orthopaedic residency at Wayne State University in Detroit. Dr. Karol completed a fellowship in pediatric orthopaedics and scoliosis at the Texas Scottish Rite Hospital in Dallas. She served as the president of the Pediatric Orthopaedic Society of North America in 2015-2016. Her clinical areas of interest include scoliosis, clubfoot, and the orthopaedic management of cerebral palsy. She has authored 93 peer reviewed manuscripts on topics ranging from early onset scoliosis, the orthotic management of scoliosis, the application of gait analysis in clubfoot. She has lectured widely both nationally and internationally. She credits her success to the team at Scottish Rite, especially Tony Herring, who has served as a mentor throughout her career. Lori has been married to Bob Karol for 35 years, and has three lovely and successful daughters, Molly, Leah, and Abby.
DONALD BAE, MD
SPECIAL EFFORT AND EXCELLENCE AWARD

Donald S. Bae, MD is a Professor of Orthopaedic Surgery at Harvard Medical School and Attending Surgeon at Boston Children’s Hospital. He also serves as co-director of the Harvard Hand and Upper Extremity Fellowship, Associate Clinical Director of the SimPeds Program at Boston Children’s Hospital, and Associate Program Director of the Harvard Combined Orthopaedic Surgery Residency.

After completing his undergraduate and medical school degrees at Harvard, Dr. Bae completed orthopaedic surgery residency in the Harvard Combined Orthopaedic Residency Program. He joined the faculty at Boston Children’s Hospital after fellowship training in both pediatric orthopaedics and hand surgery. Clinically, Dr. Bae specializes in congenital, traumatic, neuromuscular, and sports-related conditions of the hand and upper limb.

In addition to patient care, his clinical research focuses on pediatric upper limb conditions, including congenital differences of the hand. Dr. Bae currently serves as PI of a multicenter prospective longitudinal cohort study of children and adolescents with distal radius fractures, supported by a POSNA Quality-Safety-Value grant. He is co-PI of a multicenter prospective registry of congenital hand differences, with currently over 2,500 patients enrolled across seven institutions in North America. Most recently, he has helped form a multicenter effort studying osteochondritis dissecans of the elbow.

A devoted member of the Pediatric Orthopaedic Society of North America, Dr. Bae has previously served on the POSNA Board of Directors as the junior member-at-large, as chair of the Educational Courses Committee, and most recently Director of the International Pediatric Orthopaedic Symposium.
After growing up in the 50’s & 60’s in Southern California, Charlie Johnston left the Beach Boys/Jan & Dean for the right coast attending Yale, Columbia P&S, and U.Va. before coming full circle back to Texas where family ancestors first immigrated to south Texas in the 1870’s. After fellowship at TSRH with Tony Herring and Dennis Wenger and a brief stint at LSU NOLA, he has had but one job, secured only with a handshake, since 1985, and attributes his medical “attitude” directly to the TSRH philosophy that provides the most expert care available anywhere to any child with an orthopedic condition, without regard to the cost – actually, there was no billing dept. at TSRH - or amount of time to complete the task.

Having known and been mentored by many giants – the aforementioned Herring and Wenger, Luque, Dubousset, Coleman, Hall, Goldner, Gillespie, Dimeglio, to name a few - it didn’t take much to transport all that knowledge and expertise to patients unable, through geographic or political isolation, to access care and escape the debilitation and impairment of neglected treatable conditions.

The goal however was not to simply swoop in, operate, and be back in the office by Monday, but to identify, train and mentor local orthopods who could then effectively treat their own population while minimizing the effects of neglect and incompetence. He was first challenged to venture to the Mosquito Coast, Honduras to treat children who could only be reached by air or water – no roads existed to connect to the usual “mission” sites in San Pedro Sula or inland. Then an opportunity to build a spine deformity program in the West Bank, Palestinian Territory arose through the auspices of Hugh Watts and The Palestine Childrens Relief Fund (PCRF). There were no local physicians in Mosquito environs, so those patients had to be brought to Dallas for surgery and rehab….but once we penetrated the physical and political isolation of Palestine, it was just a matter of enlisting other US mentors and an Israeli colleague to develop now three well-trained and competent “residents” who engage as COUR scholars and who have become our junior colleagues locally.

The message: there are probably an infinite number of patients and places needing POSNA expertise, and many are covered by regularly-visiting brigades. But imagine the efficiency and the benefit when you can teach, train and turn over care to someone who lives locally and becomes the pediatric orthopedist for their community, region, even nation. The value of having local pediatric orthopedic colleagues with real “skin in the game” is a worthy goal for POSNA colleagues who can commit more to the patients who are otherwise reliant only on the visiting brigades and Mercy ships or have the means to travel to come to us.
Stanford Excellence in Action

Our Presentations:
Using Data-Driven, Principled Negotiation with a Clinician-Integrated Approach to Achieve Best Values on Spinal Implants | Kevin Shea, MD
Does Navigation Make Spinal Fusion for Adolescent Idiopathic Scoliosis Safer? Insights from 17,400 Cases in a National Database | John Vorhies, MD

Our Posters and Abstracts:
Opioid Re-Prescription Following ACL Reconstruction is Associated with Subsequent Opiate Use Disorders | John Vorhies, MD
Cast Univalve Location Matters: Determines Pressure at the Three-Point Mold | Stephen Frick, MD
A Quality Improvement Project to Reduce the Use of Combination Acetaminophen-Opioid Medications within a Large Health System | Kevin Shea, MD
No Correlation between Healthcare System Device Volume and Price Paid for Spinal Implants in a National Database | Kevin Shea, MD
Technique for Elongation, Derotation, Flexion Casting Using a Modified Jackson Table | John Vorhies, MD

Learn more at ortho.stanfordchildrens.org or by calling (844) 41-ORTHO.
TRAUMA — 24 minutes

PAPER 1
22 Years of Pediatric Musculoskeletal Firearm Injuries: The Carnage Continues
Richard Schwend, MD; Emily Boschert, BA; Connor Stubblefield, BS; Kimberly Reid, MS
Children’s Mercy Hospital, Kansas City, MO

PAPER 2
Optimizing Triage of Orthopedic Transfers to a Level 1 Pediatric Trauma Center:
Is there a Role for Telemedicine?
Rameez Qudsi, MD; Kathryn Leyden, BA; Nancy Moontasri, MD; Alfred Atanda, MD
Nemours / A.I. duPont Hospital for Children, Wilmington, DE

PAPER 3
Age-Based Screening for Non-Accidental Trauma in Children Less than 3 Years Old with Femur Fracture
Raheel Ali, MD; Varun Bora; Lorenzo Deveza, MD; Angela Bachim, MD; Binita Patel, MD;
Scott Rosenfeld, MD
Texas Children’s Hospital, Houston, TX

PAPER 4
Fracture Characteristics Predict Suboptimal Alignment in Pre-School Femur Fractures Treated in a Spica Cast
Amirhossein Misaghi, MD; Mahmoud Mahmoud, MD; Alexandre Arkader, MD; Keith Baldwin, MD
Children’s Hospital of Philadelphia, Philadelphia, PA

PAPER 5
Sagittal Plane Residual Deformity in Pediatric Type II Supracondylar Humerus Fractures
Mauricio Silva, MD; Matthew Day, BS; Bianka Aceves-Martin, BS; Edward Ebramzadeh, PhD
Orthopaedic Institute for Children, Los Angeles, CA

PAPER 6
Operative Versus Non-Operative Management of Acute Pediatric Monteggia Injuries with Complete Ulna Fractures
Mauricio Silva, MD; Christopher Hart, MD; Joshua Bram, BS; Alexandre Arkader, MD
UCLA/Orthopaedic Institute for Children, Los Angeles, CA

INFECTIONS AND TUMOR — 24 minutes

PAPER 7
Abbreviated Non-contrast Imaging Protocol Decreases Costs and Improves Value in Treatment of Pediatric Musculoskeletal Infection
Todd Blumberg, MD; Shing Varakitsomboon, BS; Viviana Bompadre, PhD; Mahesh Thapa, MD;
Sarah Menashe
Seattle Children’s Hospital, Seattle, WA
PRESENTATIONS, CONTINUED

INFECTIONS AND TUMOR, CONTINUED

PAPER 8
Surgical Management of Children with Osteomyelitis Results in Significantly Greater Identification of the Causative Organism: Results from the CORTICES Multicenter Database
Vidyadhar Upasani, MD; Brian Brighton, MD; Rachel Goldstein, MD; Benton Heyworth, MD; Mark Miller; Julia Sanders, MD; Jonathan Schoenecker, MD, PhD; Walter Truong; Cortices Study Group
Rady Children's Hospital San Diego, San Diego, CA

PAPER 9
Can CRP Predict the Need to Escalate Care After Initial Debridement for Musculoskeletal Infection?
Jonathan Schoenecker, MD, PhD; Joshua Daryoush, BS; Joseph Gibian, BS; Colby Wollenman, BS; Megan Johnson, MD; Isaac Thomsen, MD; Stephanie Moore
Vanderbilt University Medical Center, Nashville, TN

PAPER 10
Pediatric Chondroblastoma and the Need for Chest Staging
Alexandre Arkader, MD; Amy Williams, MD; Odion Binitie, MD; Mihir Thacker, MD; German Farfalli, MD
Children’s Hospital of Philadelphia, Philadelphia, PA

PAPER 11
Synthetic Bone Graft Substitute for Treatment of Unicameral Bone Cysts: Preliminary Results
John Williams, MD; Carl Nunziato, MD; Ronald Williams, MD
Dell Children’s Medical Center, Austin, TX

PAPER 12
Low Rate of Healing and High Incidence of Complications in Benign Pediatric Bone Tumors Treated with Synthetic Calcium Sulfate-Calcium Phosphate Bone Graft
Kenneth Illingworth, MD; Ali Siddiqui, BS; Lindsay Andras, MD; Bensen Fan, MD; James Bennett, MD; Vernon Tolo, MD; David Skaggs, MD, MMM
Children’s Hospital Los Angeles, Los Angeles, CA

QSVI – 52 minutes

PAPER 13
Improving Patient-Family Experience in Pediatric Ambulatory Orthopaedics
James McCarthy, MD; Andrea Shaffer Ellis, RN; Carie Norris, RN; Sandy Singleton, MBA; Jennifer Anadio, MA
Cincinnati Children’s Hospital, Cincinnati, OH

PAPER 14
Improving Access to Care by Implementing LEAN Methodology in a Pediatric Orthopaedic Clinic
Ron El-Hawary, MD; Karl Logan, MBBS; Benjamin Orlik, MD; Luke Gauthier, MD; Michael Drake, MBA; Kristyn Reid, MSc; Lucas Parafianowicz, MSc; Elizabeth Schurman, MS; Shelley Saunders, MA; LeeAnn Larocque, MSPH; Kristin Taylor, PT
IWK Health Centre, Halifax, Nova Scotia, Canada
QSVI, CONTINUED

PAPER 15
Rational Electronic Medical Record Template Design and Implementation Improves Documentation Quality
Sasha Carsen, MD, MBA, FRCSC; Christopher Mattice, PhD; Andrew Tice, MD; Holly Livock, MSc; Kevin Smit, MD
CHEO, Ottawa, Ontario, Canada

PAPER 16
Implementation of a Venous Thromboembolic in a Pediatric Orthopaedics: High Rates of High Risk Patients
Henry Ellis, MD; Meagan Sabatino, BA; Kerry Wilder, RN, MBA; Charu Sharma, MD
Texas Scottish Rite Hospital for Children, Dallas, TX

PAPER 17
Use of Virtual Reality Distraction to Manage Anxiety During Cast Removal in Children: A Prospective, Randomized Trial
Mark Sinclair, MD; Paige Chase, MS; Julia Leamon, RN; Ashley Sherman, MA
Children’s Mercy Hospital, Kansas City, MO

PAPER 18
Virtual Reality (VR) to Reduce Pain and Anxiety in the Pediatric Orthopaedic Outpatient Setting: A Randomized Controlled Trial
Bejaan Jivraj, MBBS; Emily Schaeffer, PhD; Jeffrey Bone, MSc; Chelsea Stuenden, MPH; Eva Habib, BS; John Jacob, MSc; Kishore Mulpuri, FRCSC
BC Children’s Hospital, Vancouver, BC, Canada

PAPER 19
A Negative Workplace Culture is Associated with Burnout in Pediatric Orthopaedic Surgeons
Cordelia Carter, MD; Vishwas Talwalkar, MD; Jennifer Weiss, MD; Richard Schwend, MD; Michael Goldberg, MD
NYU-Langone Medical Center, New York, NY

PAPER 20
Infection Prevention Pathway for Scoliosis: What is Necessary for Success?
William Randall; Benjamin Martin, MD; Shannon Kelly, MD; Matthew Oetgen, MD
Children’s National Hospital, Washington, DC

PAPER 21
Using Data-Driven, Principled Negotiation with a Clinician-Integrated Approach to Achieve Best Values on Spinal Implants
Eli Cahan, BA; Amanda Chawla, MA; Ly Nguyen, MS; James Lee, BS; Serena Hu, MD; John Ratliff; Meghan Imrie, MD; John Vorhies, MD; Steven Frick, MD; Kevin Shea, MD
Stanford School of Medicine, Stanford, CA
QSVI, CONTINUED

PAPER 22
Refilling Opioid Prescriptions after Pediatric Orthopaedic Surgery: Who is at Risk for Opioid-Seeking Behavior?
Blake Meza, BS; Ishaan Swarup, MD; Thaddeus Woodard, BS; Alejandro Cazzulino, BA; Apurva Shah
Children’s Hospital of Philadelphia, PA

PAPER 23
Pills at Home: Teenagers Report Pain and Opioid Usage Following Posterior Spinal Fusion in AIS Using Text Messaging
Nishank Mehta, BA; John (Jack) Flynn, MD; Daniel Miller, MD; Wudbhav (Woody) Sankar, MD; Patrick Cahill, MD; Faris Fazal, BS; Apurva Shah, MD, MBA
Children’s Hospital of Philadelphia, Philadelphia, PA

PAPER 24
Decreasing Overall Narcotic Load in a Pediatric Population Using Standardized Home Going Postoperative Pain Management Standardization
Kerwyn Jones, MD; Laurie Engler
Akron Children’s Hospital, Akron, Ohio

PAPER 25
Safely Reducing Unnecessary Radiographs in Suspected Pediatric Musculoskeletal Injuries Through a Multidisciplinary Developed Algorithm
Sarah Lander MD; Julie Michels; Anne Brayer MD; Sarah Obudzinski; Taylor D’Amore BA; Mitchell Chess MD; Derek Wakeman MD; P. Cook MD; James Sanders MD
University of Rochester, Rochester, New York

SPINE – 60 minutes

PAPER 26
♦ Surgical Complications of Anterior Vertebral Body Growth Modulation for Skeletally Immature Patients with Idiopathic Scoliosis
Stefan Parent, MD; Abdalmajeed Alzakri, MD; Marjolaine Roy-Beaudry, MSc; Isabelle Turgeon, BS; Marie Beausejour, PhD; Olivier Turcot, MD
CHU Sainte-Justine, Montreal, Quebec, Canada

PAPER 27
♦ Anterior Vertebral Body Tethering vs. Posterior Spinal Fusion for Adolescent Idiopathic Scoliosis: Results of a Surgeon-Sponsored FDA IDE Study
Todd Milbrandt, MD; Smitha Mathew, MBBS; A. Noelle Larson, MD; Donald Potter, MD
Mayo Clinic, Rochester, MN

PAPER 28
Anterior Vertebral Body Tethering Shows Mixed Results at 2-Year Follow Up
Kevin Neal, MD; Courtney Baker, MD; Gary Kiebzak, PhD
Nemours, Jacksonville, FL

♦ Indicates those faculty presentations in which the FDA has not cleared the drug and/or medical device for the use described (i.e. the drug or medical device is being discussed for an “off label” use).
PAPER 29
Comparison of Traditional Growth Friendly Surgeries and Magnetically Controlled Growing Rods for the Treatment of Early Onset Scoliosis in Patients with Cerebral Palsy
Margaret Man Ger Sun, PhD; Nicholas Buckler, BS; Mason Al Nouri, MD; Majella Vaughan, MPH; Tricia St. Hilaire, MPH; Paul Sponseller, MD, FAAOS; John Smith, MD; George Thompson, MD; Jason Howard, MD; Ron El-Hawary, MD
Dalhousie University, Halifax, Nova Scotia, Canada

PAPER 30
Five Year Radiographic Outcomes Following Discontinuation of Growth Friendly Surgery for Early Onset Scoliosis
Robert Murphy, MD; William Barfield, PhD; John Emans, MD; Behrooz Akbarnaia, MD; Paul Sponseller, MD, FAAOS; George Thompson, MD; David Skaggs, MD, MMM; David Marks, FRCS; Charles Johnston, MD; John (Jack) Flynn, MD; Tricia St. Hilaire, MPH; Jeffrey Sawyer, MD; John Smith, MD
Medical University of South Carolina, Charleston, SC

PAPER 31
What’s It Worth? Growth-Friendly Surgery Results in More Growth but a Higher Complication Rate and Unplanned Returns to the Operating Room Compared to Single Fusion in Juvenile Neuromuscular Scoliosis
Ying Li, MD; Jennylee Swallow, MS; Joel Gagnier, PhD; Patrick Cahill, MD; Paul Sponseller, MD, FAAOS; Sumeet Garg, MD; George Thompson, MD; Brandon Ramo, MD; Pediatric Spine Study Group
C.S. Mott Children’s Hospital, Michigan Medicine, Ann Arbor, MI

PAPER 32
Validation of the Early Onset Scoliosis Questionnaire (EOSQ) as Applied to the Classification of Early Onset Scoliosis (C-EOS) Etiology Designation Before Scoliosis Treatment
Brandon Ramo, MD; Anna McClung, RN; Chan-Hee Jo, PhD; Burt Yaszay, MD; Lindsay Andras, MD; Matthew Oetgen, MD
Texas Scottish Rite Hospital, Dallas TX

PAPER 33
Is Growth-Friendly Surgery Effective for the Treatment of Spinal Deformity in Patients with Arthrogryposis Multiplex Congenita?
Bram Verhofste, MD; John Emans, MD; Patricia Miller, MS; George Thompson, MD; Amer Samdani, MD; Francisco Perez-Grueso, MD; Anna McClung, RN; Pediatric Spine Study Group; Michael Glotzbecker;
Craig Birch, MD
Boston Children’s Hospital, Boston, MA

PAPER 34
Age Stratified Outcomes of Mehta Casting in a Large Multi-Center Cohort of Idiopathic Early-Onset Scoliosis Patients
Graham Fedorak, MD; Bruce MacWilliams; Michal Szczodry, MD; Peter Stasikelis, MD; Joel Lerman, MD; Joshua Pahys; Kim Hammerberg, MD
Shriners Hospitals for Children-Salt Lake City, Salt Lake City, Utah
PRESENTATIONS, CONTINUED

SPINE, CONTINUED

PAPER 35
Serious Perioperative Adverse Events After Pediatric Cervical Spine Fusions
Bram Verhofste, MD; Nora O’Neill, BA; Michael Hresko, MD; John Emans, MD; Daniel Hedequist, MD
Boston Children’s Hospital, Boston, MA

PAPER 36
Modified Proximal Humerus Physeal Classification System for Growth Prediction in Children
Brian Smith, MD; Eric Li; Elsayed Attia, MD; Ashley Startzman, DO; Don Li; Joseph Kahan; Alana Munger, MD; Ahmed Elabd, MD; Siddharth Jadhav, MD; Jonathan Cui, MD; Erin Cravez, MD; Logan Petit, MD; Daniel Cooperman, MD; Ronan Talty, BS
Texas Children’s Hospital, Houston, TX

PAPER 37
The Relationship of Olecranon Apophyseal Ossification and Sanders Hand Scores to the Timing of Peak Height Velocity in Adolescents
Janelle Greene, MD; Don Li; Kristin Yu, BA; Raymond Liu, MD; Daniel Cooperman, MD
Yale University School of Medicine, New Haven, CT

PAPER 38
Deformity Angular Ratio is Associated with Neuromonitoring Changes without a Vertebral Column Resection: Spinal Deformity is More Influential than Type of Surgery
Kenneth Illingworth, MD; Ali Siddiqui, BS; David Skaggs, MD, MMM; Lindsay Andras, MD
Children’s Hospital Los Angeles, Los Angeles, CA

PAPER 39
The Axial Spinal Cord Classification Is Associated with Intraoperative Neurologic Alerts for Pediatric Scoliosis Patients
Smitha Mathew, MBBS; Todd Milbrandt, MD; William Shaughnessy, MD; Anthony Stans, MD; A. Noelle Larson, MD
Mayo Clinic, Rochester, MN

PAPER 40
Preoperative Halo-Gravity Traction for Severe Pediatric Spinal Deformity: Can It Replace a Vertebral Column Resection?
Scott Lavalva, BA; Joshua Pahys; Sumeet Garg, MD; David Bumpass, MD; Daniel Sucato, MD, MS; Amer Samdani, MD; John Emans, MD; Mark Erickson, MD; Michael Kelly, MD; Lawrence Lenke, MD; Munish Gupta; Oheneba Boachie-Adjei, MD; Paul Sponseller, MD, FAAOS; Peter Newton, MD; Richard McCarthy, MD; Suken Shah, MD; Harry Shuffelbarger, MD; Burt Yaszay, MD; Patrick Cahill, MD
Children’s Hospital of Philadelphia, Philadelphia, PA

SPORTS/TRAUMA — 60 minutes

PAPER 41
Use Caution When Assessing Pre-Operative Leg Length Discrepancy in Pediatric Patients with Acute Anterior Cruciate Ligament Injuries
Lindsay Schlichte, MS; Peter Fabricant, MD; Christine Goodbody, MD; Frank Cordasco; Daniel Green, MD
Hospital for Special Surgery, New York, NY
SPORTS/TRAUMA, CONTINUED

PAPER 42
Comparing the Relative Utility of Wrist and Tibial Tubercle Apophysis X-Rays in Determining Skeletal Age in Pediatric Patients Undergoing ACL Reconstruction
Mihir Dekhne, MS; Isabelle Kocher, BA; Kathryn Williams, MS; Saritha Sankaran, MS; Benton Heyworth, MD; Matthew Milewski, MD; Mininder Kocher, MD, MPH
Boston Children’s Hospital, Boston, MA

PAPER 43
Quadriceps Tendon Autograft for Pediatric Anterior Cruciate Ligament Reconstruction Results in Less Graft Failure and Meniscus Re-injury
Tyler Hall, BA; Carly Strohbach, BA; Kiana King; Luciano Lazzaretto; Craig Finlayson; Neeraj Patel, MD
Ann & Robert H. Lurie Children’s Hospital of Chicago, Chicago, IL

PAPER 44
Association Between Psychological Readiness, Patient Reported Outcomes and Return-to-Sport Following Primary Anterior Cruciate Ligament Reconstruction: Readiness Outcomes Affecting Return-to-Sport (ROAR)
Matthew Milewski, MD; Jessica Traver; Melissa Christino, MD; Ryan Coene; Kathryn Williams, MS; Dai Sugimoto; Dennis Kramer, MD; Yi-Meng Yen; Mininder Kocher, MD, MPH; Lyle Micheli, MD
Boston Children’s Hospital, Boston, MA

PAPER 45
Comparison of 6-Month Return to Sports Assessments Following ACL Reconstruction in Male vs. Female Adolescents: A Matched, Sex-Based Cohort Analysis of 543 Patients
Kathleen Maguire, MD; Dai Sugimoto; Lyle Micheli, MD; Mininder Kocher, MD, MPH; Benton Heyworth, MD
Boston Children’s Hospital, Boston, MA

PAPER 46
Cost-Effectiveness for Return-To-Play (RTP) Programs after Anterior Cruciate Ligament Reconstruction
Christopher Defrancesco, MD; Drake Lebrun, MD; Joseph Molony, PT; Madison Heath, BS; Peter Fabricant, MD
Hospital for Special Surgery, New York, NY

PAPER 47
POSNA Surgeons Warning: Multicenter Study Reveals Arthrofibrosis Incidence After Operative Management of Tibial Spine Fractures Higher than Previously Reported
Joshua Bram, BS; Julien Aoyama, BA; R. Justin Mistovich, MD; Yi-Meng Yen; Henry Ellis, MD; Rushyuan Lee, MD; Peter Fabricant, MD; Daniel Green, MD; Aristides Cruz; Scott McKay, MD; Gregory Schmale, MD; Theodore Ganley, MD
Children’s Hospital of Philadelphia, Philadelphia, PA

PAPER 48
Do Not Discount Non-Operative Treatment: Factors Associated with a Successful Closed Reduction of a Tibial Eminence Fracture
Henry Ellis, MD; Morgan Adkins, BS; Marilyn Elliot, BS; Sharon Huang, BA; Charles Wyatt, NP; Philip Wilson, MD
Texas Scottish Rite Hospital for Children, Dallas, TX
SPORTS/TRAUMA, CONTINUED

PAPER 49
A Comparison of Non-Operative and Operative Treatment of Type II Tibial Spine Fractures
Niyathi Prasad, BS; Theodore Ganley, MD; Henry Ellis, MD; Julien Aoyama, BA; R. Justin Mistovich, MD; Yi-Meng Yen; Peter Fabricant, MD; Daniel Green, MD; Aristides Cruz; Scott McKay, MD; Gregory Schmale, MD; Jason Rhodes, MD; Jason Jagodzinski, MD; Indranil Kushare; Brant Sachleben, MD; M. Sargent, MD; Rushyuan Lee, MD
Johns Hopkins University, Baltimore, MD

PAPER 50
Outcomes of Pediatric Acetabular Fractures Managed Operatively: Results of a Large, Consecutive Series of Patients from 2 Large Academic Medical Centers
Evan Sheppard, MD; Kyle Cichos, BS; Alice Hughes, MD; Taylor Swansen, MD; Jessica Heyer, MD; Gerald McGwin, MS; Elie Ghanem; Shawn Gilbert, MD; Shannon Kelly, MD; James DeBritz, MD; Clay Spitler, MD
University of Alabama at Birmingham, Birmingham, AL

PAPER 51
Expert Consensus for a Principle-Based Classification in Treatment of Diaphyseal Pediatric Femur Fractures
Daniel Weltsch, MD; Keith Baldwin, MD; Divya Talwar, MPH; John (Jack) Flynn, MD
Children’s Hospital of Philadelphia, Philadelphia, PA

PAPER 52
Dorsal-Entry Flexible Radial Nails and Extensor Pollicis Longus Injury: “Entry-Point of the Devil?” or “The Devil’s in the Details?”
Junichi Tamai, MD; Derek Hayden, DO; Charles Mehlman, DO; Roger Cornwall, MD
Cincinnati Children’s Hospital Medical Center, Cincinnati, OH

PAPER 53
Incidence of Compartment Syndrome and Fasciotomy and Associated Risk Factors in Children with Supracondylar Fractures of the Elbow
Douglas Armstrong, MD; Rhett Macneille, MD; Erik Lehman, MS; William Hennrikus, MD
PennState Hershey Medical Center, Hershey, PA

PAPER 54
Prospective, Randomized, Blinded Trial Demonstrates Decreased Pain During Supracondylar Pin Removal with Noninvasive Electrotherapy Stimulation Compared to Placebo
Natalya Sarkisova; Rachel Goldstein; Erin Meisel, MD; Nina Lightdale-Miric, MD; David Skaggs, MD, MMM; Lindsay Andras, MD
Children’s Hospital Los Angeles, Los Angeles, CA

PAPER 55
Is the Pendulum Swinging in the Right Direction? Displaced and Non-Displaced Supracondylar Humerus Fractures Have Similar Functional Outcomes with Casting
Rushyuan Lee, MD; Alexandra Dunham; Walter Klyce, MD; Ranjit Varghese, MD; Alvaro Ibaseta, MS; Caleb Gottlich, BS; Francisco Eguia, BA
Johns Hopkins, Baltimore, MD
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—Tenner Guillaume, MD, spine surgeon at Gillette

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2020 SYMPOSIA PROGRAM

PEDIATRIC BONE HEALTH FOR THE ORTHOPAEDIC SURGEON
— 90 minutes

Co-Chairs: Barbara Minkowitz, MD, Jenn Beck, MD, and Laura Tosi, MD

This year’s Pediatric Bone Health for the Orthopedic Surgeon Symposium will focus on the following topics: Bone health quality versus quantity including determinants of bone strength and toughness; Current bone health screening addressing work-up with consideration of labs and imaging (DEXA and QCT); Bone acquisition during childhood and adolescence including factors that affect bone mass that are nonmodifiable and modifiable and populations at risk for reduced bone mass; Treatment of children with fragility fractures using bone health in children with disabilities as a model for reducing fracture rates and improving quality of life in children with a primary bone disorder; Options for diagnosing, treating, and managing children at high risk for recurrent fracture; Bone health in trauma including delayed/nonunion risk fractures in fracture patients and non-weight bearing effects on bone healing; Bone health in the young athlete and update on NSAIDS and healing; Metabolic considerations for deformity correction, regenerate consolidation/osteotomy healing. We will conclude with a review of evidence-based protocols for supplementation.

Welcome
Barbara Minkowitz, MD

Bone Health: Quality vs. Quantity
Alessandra Carriero, PhD

Bone Acquisition During Childhood & Adolescence
L. Reid Boyce Nichols, MD

Treating Children with Fragility Fractures
Laura Tosi, MD

Bone Health in Trauma
Christen Russo, MD

Bone Health in the Young Athlete
Jenn Beck, MD

Metabolic Considerations for Deformity Correction
Christopher Iobst, MD

Protocols for Supplementation
Julie Samora, MD

* may be used for external trauma-related CMEs.
PEDIATRIC ORTHOPEDIC GLOBAL OUTREACH (POGO)
DELIVERY OF OUTREACH CARE IN 2020 AND BEYOND
— 130 minutes
Co-Chairs:  Eric Fornari, MD and Michael Heffernan, MD

Pediatric orthopedists have been at the forefront in global health for the last half century and have helped our profession and society in meaningful and impactful ways. In 2001, the Children's Orthopedics in Underserved Regions (COUR) committee was formed to help POSNA members carry out this work in resource-limited environments. The COUR committee recently changed its the name to the Pediatric Orthopedic Global Outreach (POGO) committee in order to better reflect the evolved role the committee has for our membership and the Society. The mission of POGO will be carried out through a combination of Education, Coordination, and Research. This year's symposium will focus on how to develop a sustainable global outreach program. We will cover the ethics of getting involved with such work as well as ideas for how to track outcomes to ensure all goals are being met. Finally, we will give our members a chance to present some of the programs they have developed with the goal of stimulating discussion, collaboration, and engagement. This is an opportunity to build on the work of the visionary leaders who laid the foundation for us to shape the future.

Welcome and Introduction to Symposium
   Eric Fornari, MD (POGO Chair)

Resources for Orthopaedic Surgeons Interested in Getting Involved.
   How POGO Can Help You!
   Michael Heffernan, MD (POGO Vice-Chair)

   Pierre Marie Woolley, MD

Development of “Care Pathways”
   Kevin Shea, MD

Development of Registry/Multicenter Research?
   How to Help Start a Research Program in Resource Limited Environments
   Kishore Mulpuri, MD

Current Pediatric Orthopedic Programs. This is How We Run our Program…
   Matthew Schmitz, MD – Ecuador
   Collin May, MD – Colombia
   Maryse Bouchard – Vietnam
   Josh Murphy – El Salvador
   Mark Barry – Tanzania
   Gerald Harris – Colombia, Mumbai, Manila and Mexico City
POPS
THE PHYYSIS: FROM BASIC BIOLOGY TO ADVANCED SURGICAL INTERVENTION
– 90 minutes
Co-Chairs:  Jessica Staschak, CPNP and Ray Kleposki, CPNP

POPS is pleased to offer a symposium on “the physis”. The symposium will start with a discussion of the basic biology of the physis and fracture repair. The second talk will focus on genetic and traumatic diagnoses that impact the physis. The final talk will discuss surgical interventions to address a multitude of physeal issues and injuries.

Physeal Biology and Fracture Repair
Jonathan Schoenecker, MD, PhD

Genetic and Traumatic Diagnoses that Impact the Physis
Jorge Fabregas, MD

Surgical Intervention to Address Physeal Pathology
David Podeszwa, MD
PRACTICE MANAGEMENT
ENHANCING PRACTICE AND PROFESSIONAL DEVELOPMENT
— 90 minutes

Co-Chairs: Wade Shrader, MD and Pooya Hosseinzadeh, MD

This year’s Practice Management Symposium will address the common challenges in the busy practice of a pediatric orthopedic surgeon. The first part of the symposium will provide attendees with an update on coding and billing for 2020 and the second half is dedicated to professional and practice development across the career span. The novel and broad topics covered in this symposium will be of interest to pediatric orthopedic surgeons in a variety of practice settings. Experts will share their knowledge and personal experience on the topics.

CODING AND BILLING UPDATE

Welcome
Wade Shrader, MD

Proposed E&M Coding Changes
Dale Blasier, MD
Brien Rabenhorst, MD

Fracture Billing
Kevin Neal, MD

Shared Billing with PA/NP
Kevin Neal, MD

PROFESSIONAL AND PRACTICE DEVELOPMENT

Balancing Academic Advancement and Productivity
John (Jack) Flynn, MD

Value of MPH/MBA
Mininder Kocher, MD, MPH

How to Foster/Integrate Junior Partners
John Lubicky, MD
Daniel Grant, MD

Negotiations – How to be Your Own Advocate
Mike Jofe, MD
TRAUMA
DISASTER RESPONSE FOR THE PEDIATRIC ORTHOPAEDIC SURGEON
– 109 minutes

Co-Chairs: Chris Souder, MD, Stephanie Holmes, MD and Mark Sinclair, MD

This year’s Trauma Symposium is focused on aspects of disaster response and mass casualty care that impact pediatric orthopaedic surgeons. We will review what care will need to be provided to pediatric patients in these circumstances and what government regulatory agencies expect from trauma centers. We will review past disasters in the United States, discuss what went well and what did not, and discuss how to use simulation in preparation for disasters that are most likely to affect your hospital and community. We will discuss international disaster response using knowledge gained from the Haitian earthquake of 2010. We will then conclude by reviewing how course participants can prepare themselves, their departments and hospitals, and their community in providing a well-organized and effective disaster response.

**Pediatric Mass Casualty Care Considerations**
Mark Sinclair, MD

**Joint Commission and Centers for Medicare and Medicaid Services: Why They Care About This Topic and What Are the Rules in 2020**
Susan Scherl, MD

**Standards of Care in a Crisis-What You Need to Know and Do**
Robert Winfield, MD

**Boston Marathon Bombing: What Worked and What Didn’t**
Benjamin Shore, MD, MPH, FRCSC

**Hurricane Katrina: What Worked and What Didn’t**
Raoul Rodriguez, MD

**School Shootings: Columbine, Sandy Hook, and Parkland: What Have We Learned?**
Stephanie Holmes, MD

**Mass Casualty Simulations: Best Ways to Prepare for Disaster**
Robert Winfield, MD

**2010 Haiti Earthquake: Disaster Response Goes International**
Scott Nelson, MD

**2020 COVID-19 Pandemic: How to Respond with Resource Limitations**
Eric Fornari, MD

**Preparing Yourself, Your Department, and Your Hospital to Provide a Well-Organized Disaster Response**
Chris Souder, MD

**Community and Regional Considerations in Disaster Response Preparedness**
Robert Winfield, MD

* may be used for external trauma-related CMEs.
POSNA Membership Benefits
With over 20% of our membership comprised of women, we offer unparalleled access FOR ALL to the following range of benefits:

• Reduced registration fees for POSNA Annual Meeting and International Pediatric Orthopaedic Symposia (IPOS).

• Opportunity to serve as faculty and present at POSNA Annual Meeting, Pre-Course, and IPOS.

• Access to the POSNA Job Board

• Ability to participate in the POSNA Traveling Fellowship in conjunction with the European Paediatric Orthopaedic Society (EPOS), the Asia Pacific Pediatric Orthopaedic Society (APPOS), and the Sociedad Latin America Ortopedia y Traumatologia Infantil (SLAOTI)). For more information, please visit posna.org/Resources/Traveling-Fellowship.

• Access to the POSNA member directory

• Leadership opportunities: Have a voice in over 30 POSNA committees including Education, Advocacy, Quality, Safety and Value Initiative, and more. Additionally, members are eligible to be elected to serve on the POSNA Board of Directors.

• Complimentary online access to all current and past issues of the Journal of Pediatric Orthopaedics (JPO), the source for the best research and up-to-date treatments of musculoskeletal problems in children.

POSNA Education and Resources
• POSNA Annual Meeting
• IPOS (International Pediatric Orthopaedic Symposium)
• POSNA Mentorship Program
• Webinars
• Tutorials
• POSNAcademy.org: Pediatric Orthopaedic Online Learning Portal
• OrthoKids.org: POSNA’s website for parents and patients
• Opportunity for Global Outreach

POSNA Research
• POSNA funded Research Grants
• Industry funded Research Grants
• Foundation funded Awards

POSNA Mission
To improve the care of children with musculoskeletal disorders through education, research, and advocacy.

POSNA Vision
A world with fewer pediatric musculoskeletal disabilities.

Apply today to join over 1,400 of your friends and colleagues in one of the most diverse orthopaedic subspecialty societies.
Conditions of the pediatric upper limb span from congenital to traumatic presentations, and creates challenging, and at times, controversial treatment approaches. This session will include presentation of 6 chosen abstracts, followed by discussion. Subsequently, four case presentations of interesting pediatric upper extremity cases will be presented – ranging from the shoulder to the fingers – followed by lively discussion of treatment approaches by the expert panel. Pre-operative assessment, surgical technique, and pure opinion (somewhat literature based) will be discussed and debated.

PAPER 72
Trapezius Muscle Activity in Children and Adolescents with Chronic Obstetrical Brachial Plexus Birth Palsy
Jasmine Lin; Alex Lin; Brittany Ward; Gromit Yeuk-Yin Chan, BS; Claudio Silva, PhD; Luis Gustavo Nonato, PhD; Preeti Raghavan, MD; Aleksandra McGrath, MD; Alice Chu, MD
Rutgers New Jersey Medical School, Newark, NJ

PAPER 73
Contractures in Brachial Plexus Birth Injury Are a Problem of Muscle Length, not Muscle Strength: Translating Findings from an Animal Model to Humans
Athanasia Nikolau, PhD; Jason Long, PhD; Kendra Eckstein, BS; Roger Cornwall, MD
Cincinnati Children’s Hospital Medical Center, Cincinnati, OH

PAPER 74
Carpal Tunnel Syndrome in Mucopolysaccharidosis Type II [Hunter Syndrome] and the Effect of Enzyme Replacement Therapy
Benan Dala-Ali, FRCS (Ortho); Shivan Jassim, MBBS; Alexios Iliadis, MBBS; Vasiliki Tsiokou, MBBS; Deborah Eastwood, FRCS
Great Ormond Street Hospital, London, United Kingdom

PAPER 75
A Comparative Analysis of 150 Thumb Polydactyly Cases Using the Wassel-Flatt, Rotterdam, and Chung Classifications
Charles Goldfarb, MD; Eliza Thompson, BS; Deborah Bohn, MD; Julie Agel, ATC; Andrea Bauer, MD; Caroline Hu, MD; Amy Moeller, MD; Susan Novotny, MA; Ann Van Heest, MD
Gillette Children's Specialty Healthcare, Minneapolis, MN

PAPER 76
Association of Radial Longitudinal Deficiency and Thumb Hypoplasia: An Update Using the Congenital Upper Limb Differences (CoULD) Registry
Michelle James, MD; Malka Forman, BS; Maria Canizares, MD; Deborah Bohn, MD; Julie Samora, MD; Suzanne Steinman; Lindley Wall, MD; Andrea Bauer, MD
Boston Children’s Hospital, Boston, MA

PAPER 77
Functional Workspace of Reconstructed Hypoplastic Thumbs
Patrick Curran, MD; Madeleine Ball, BS; Anita Bagley, PhD; Mary Manske, MD; Laura Lewallen, MD; Mitelli Sison-Williamson, MS; Michelle James, MD
Shriners Hospitals for Children Northern California, Sacramento, CA
HAND SUBSPECIALTY DAY, CONTINUED

CASES/DIDACTICS
Panel: Kevin Little, MD and Apurva Shah, MD
Moderators: Claire Manske, MD and Lindley Wall, MD

Case 1 and discussion
6 year-old child with bilateral radial longitudinal deficiency, with a type 2 hypoplastic thumb and a unclassifiable thumb. Discussion of surgical approach and favored techniques.

Case 2 and discussion
3 year-old with birth brachial plexus palsy glenohumeral dysplasia and limited function. Discuss surgical considerations, functional implications, and expected long term outcome.

Case 3 and discussion
7 year-old with spastic hemiplegia. Address approach to assessment, clinic set-up, and surgical options to improve function and cosmesis.

Case 4 and discussion
14 year-old with medial epicondyle non-union. Work through treatment options and subsequent complications; discuss approach to optimizing motion and function through surgical decision making.

FOOT/ANKLE SUBSPECIALTY DAY – 44 minutes

Co-Chairs: Derek Kelly, MD and Jennifer Laine, MD

To Fuse or Not To Fuse?
As pediatric orthopaedic surgeons, our treatment goals often involve maximizing long-term function and minimizing pain. Arthrodesis in the pediatric or adolescent foot and ankle has the risk of stiffness, early degeneration of neighboring joints, and pain. Unfortunately, in some cases, joint sparing procedures either do not give adequate correction or allow for early recurrence. In this year’s Foot and Ankle symposium, “To Fuse or Not to Fuse?,” we will focus on the complexity of this decision-making process. Our foot and ankle specialists, through a case-based approach, will illustrate when joint-sparing surgery should be employed, and when it is time to proceed with arthrodesis. Our experts will highlight their indications, treatment algorithms and surgical techniques for fusions in the foot.

At the end of this session:
1. The attendee will gain a better understanding of the appropriate indications for hindfoot and forefoot fusions
2. The participant will learn arthrodesis surgical technique pearls and potential pitfalls
3. The attendee will be able to explain the potential risks associated foot arthrodesis, especially when poorly indicated

PAPER 78
The Development of a Clubfoot Outcome Score for Ponseti Treated Idiopathic Clubfeet: Results of a Pilot Study with 40 Unilateral Clubfeet
Christine Douglas, CPS; Roisin Delaney; Neil Segaren, FRCS (Ortho); Matt Thornton; Sally Tennant, MD
Royal National Orthopaedic Hospital, Stanmore, UK, United Kingdom
FOOT/ANKLE SUBSPECIALTY DAY, CONTINUED

PAPER 79
Pedobarographic and Ankle Kinematic Analyses of Idiopathic Clubfoot after a Soft Tissue Release Procedure
Noppachart Limpaphayom, MD
Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

PAPER 80
Functional Implications of the Flat-Topped Talus Following Treatment of Idiopathic Clubfoot Deformity
Matthew Siebert, BS; Jacob Zide, MD; Claire Shivers, BS; Kirsten Tulchin-Francis, PhD;
Wilshaw Stevens, BS; Justine Borchard, BS; Anthony Riccio, MD
Texas Scottish Rite Hospital for Children, Dallas, TX

PAPER 81
Do We Really Need to Worry About Calcaneocuboid Subluxation During Lateral Column Lengthening for Planovalgus Foot Deformity?
Brittany Hedrick, MD; Jacob Zide, MD; Danielle Thomas, MD; Claire Shivers, BS; Matthew Siebert, BS;
William Pierce; Mitchell Harris, MD; Anthony Riccio, MD
Texas Scottish Rite Hospital for Children, Dallas, TX

PAPER 82
Redefining the Juvenile Bunion
Caitlin Hardin, DO; Jacob Zide, MD; Claire Shivers, BS; Kirsten Tulchin-Francis, PhD; Chan-Hee Jo, PhD;
Anthony Riccio, MD
Texas Scottish Rite Hospital for Children, Dallas, TX

PAPER 83
Proximal Fifth Metatarsal Fracture Review and Healing Outcomes
Hannah Lee; Matthew Buczek, BS; Divya Talwar, MPH; Bernard Horn, MD; Richard Davidson, MD
Children’s Hospital of Philadelphia, Philadelphia, PA

To Fuse or Not to Fuse?
The Limits of Joint Sparing in Hindfoot Deformities
Maryse Bouchard, MD

To Fuse or Not to Fuse?
The Forefoot
Michael Conklin, MD
HIP SUBSPECIALTY DAY – 61 minutes
Co-Chairs: Travis Matheney, MD and Rachel Goldstein, MD

This session will have two aims. The first will be to provide a comprehensive overview of how we assess hip cartilage and arthrosis in preservation surgery. We will be discussing the latest updates in imaging, bio markers, and biologics. Experts in the field will review the latest developments and discuss their applicability to difficult to manage hip preservation cases. The second aim will be to address the use of ultrasound imaging in the infant hip, both in and out of the operating room. We will focus on how ultrasound may improve our ability to assess hip reductions and perfusion in the operating room, as well as how to include it in your clinical practice.

PAPER 84
Development and External Validation of a Novel Clinical Score to Quantify the Presence of Instability Characteristics in Patients with Borderline Acetabular Dysplasia
Maria Schwabe, BS; Elizabeth Graesser, MD; Lee Rhea, PhD; Cecilia Pascual-Garrido, MD; ANCHOR Study Group; John Clohisy, MD; Jeffrey Nepple, MD
Washington University Department of Orthopaedic Surgery, Saint Louis, MO

PAPER 85
Modified Dunn Procedure for Stable Slipped Capital Femoral Epiphysis (SCFE) – 100 Cases with a Minimum of 1-Year Follow-up
Oliver Birke, FRACS; Justine St George, MBBS; Paul Gibbons, MBBS; David Little, MBBS, FRACS, PhD
The Childrens Hospital at Westmead, Sydney, NSW, Australia

PAPER 86
Borderline Acetabular Dysplasia: Three-Dimensional Deformity Predictors of the Diagnosis of Symptomatic Instability Treated with Periacetabular Osteotomy
John Clohisy, MD; Elizabeth Graesser, MD; Maria Schwabe, BS; Cecilia Pascual-Garrido, MD; Jeffrey Nepple, MD
Washington University School of Medicine, Saint Louis, MO

PAPER 87
FAI Surgery in the Adolescent Patient Population: Mild Deformities and Lack of Sports Participation are Associated with an Increased Risk of Treatment Failure
Yi-Meng Yen, MD; Jeffrey Nepple, MD; Ira Zaltz, MD; David Podeszwa, MD; Ernest Sink, MD; Young Jo Kim, MD; Daniel Sucato, MD, MS; ANCHOR Study Group; John Clohisy, MD
Washington University School of Medicine, Saint Louis, MO

PAPER 88
Increased Biomarker Levels of Cartilage Breakdown and Inflammation are Present in Patients with Stable Slipped Capital Femoral Epiphysis
Devon Nixon, MD; Perry Schoenecker, MD; Craig Smith, MD; Meghan Merklein, MD; John Clohisy, MD; Jeffrey Nepple, MD
Washington University School of Medicine, Saint Louis, MO

PAPER 89
Do Weight-Bearing and Activity Restriction Treatments Affect Health-Related Quality of Life Measures in Patients with Legg-Calvé-Perthes Disease (LCPD)?
Dang-Huy Do, BA; Molly McGuire; Chan-Hee Jo, PhD; Harry Kim, MD
Texas Scottish Rite Hospital for Children, Dallas, TX
HIP SUBSPECIALTY DAY, CONTINUED

The Future of Arthrosis in Hip Preservation Surgery

Introduction
Rachel Goldstein, MD

What’s New in Imaging
Stephanie Pun, MD

What’s New in Biomarkers
Jeffrey Nepple, MD

What’s New in Biologics
Jonathan Schoenecker, MD, PhD

PAPER 90
MRI Assessment of Inverted Labrum Following Closed Reduction of DDH After Femoral Head “Docking”
Zhe Fu, MD; Jianping Yang, MD; Zhongli Zhang
Department of Pediatric Orthopedics, Tianjin Hospital, Tianjin City, People’s Republic of China

PAPER 91
MRI Hip Morphology is Abnormal in Unilateral DDH and Increased Asymmetric Lateral Cartilage Thickness is Associated with Residual DDH at Minimum 10-Year Followup: A Proof of Concept Study
Florian Schmaranzer, MD; Mariana Ferrer, MD; Young Jo Kim, MD; Patricia Miller, MS; Jennifer Kallini; Pedro Justo, MD; Eduardo Novais, MD
Boston Childrens Hospital, Boston MA

PAPER 92
Verification of Hip Reduction Using Medial Ultrasound in Spica Cast Treatment for Developmental Dysplasia of Hip
Gang Fu, MD
Beijing Jishuitan Hospital, Beijing, People’s Republic of China

PAPER 93
Investigating the Radiation Risk from Repeated Pelvic Imaging in Developmental Dysplasia of the Hip
Alexander Aarvold, FRCS (Ortho); Elizabeth Vogel; Tom Leaver, MBBS; James Lampard, BS; Ben Johnson, BS; Mike Uglow, FRCS (Ortho)
Southampton Children’s Hospital, Southampton, United Kingdom

PAPER 94
Comparative Evaluation of Perioperative Continuous Epidural Versus Continuous Lumbar Plexus Block for Complex Hip Surgeries in Children: A Retrospective Review
Mihir Thacker, MD; Dinesh K. Choudhry, MD; Karen Sacks; Bruce R. Brenn, MD
Alfred I. duPont Hospital for Children, Wilmington, DE

PAPER 95
Single-Incision Triple Innominate Osteotomy: Outcomes of an Updated Technique
Wudbhav (Woody) Sankar, MD; Ira Zaltz, MD
Children’s Hospital of Philadelphia, Philadelphia, PA
HIP SUBSPECIALTY DAY, CONTINUED

Infant Hip Imaging Introduction
Travis Matheney, MD

Potential Uses and Efficacy of In Clinic Ultrasound
Pablo Casteñeda, MD

Assessing Infant Hips After Operative Reduction
Suzanne de Vos-Jakobs, MD

How Do We Assess Hip Perfusion After Infant Hip Reduction
Travis Matheney, MD

Why Do We Bother to Assess Hip Perfusion? Don’t Most Cases Do Okay In the Long Run
Vidyadhar Upasani, MD

LOWER EXTREMITY SUBSPECIALTY DAY – 45 minutes

Co-Chairs: Christopher Iobst, MD and Phil McClure, MD

This session will be a mixture of scientific papers, debates and panel discussion regarding lower extremity deformity issues. The debate will attempt to answer the question of whether excision of a physeal bar should be attempted or not. A panel of experienced limb deformity surgeons will provide an update on the current techniques for surgical management tibial deformity using plates, nails, and external fixators.

PAPER 96
♦ Explanted PRECICE Magnetic Limb Lengthening Nails: Can They Be Reactivated?
Hady Eltayeby, MBChB; Hamza Alrabai, MD; John Herzenberg, MD
Rubin Institute for Advanced Orthopedics, Sinai Hospital of Baltimore, Baltimore, MD

PAPER 97
Metallosis in PRECICE Nail Implants: An Endoscopic, Histologic, and Explanted Nail Analysis
Kyle Miller, MD; Melih Eriten, PhD; Lejie Liu, PhD; Ahmet Deniz Usta, PhD; Shixuan Chen; Darya Buehler, MD: Ken Noonan, MD, FAAOS
The University of Wisconsin, Madison, WI

PAPER 98
Does Plate Position Affect Sagittal Alignment of Distal Femur During Growth Tethering Surgery?
Wang Chun-Chieh, MD; Kuan-Wen Wu, MD; Ting-Ming Wang, MD; Ken Kuo, MD
National Taiwan University Hospital, Taipei, Taiwan

PAPER 99
Medial Metaphyseal Beak Angle as a Predictor for Langenskiold Stage II of Blount’s Disease
Jidapa Wongcharoenwatana, MD; Thanase Ariyawatkul, MD
Siriraj Hospital, Mahidol University, Bangkok, Thailand

♦ Indicates those faculty presentations in which the FDA has not cleared the drug and/or medical device for the use described (i.e. the drug or medical device is being discussed for an “off label” use).
LOWER EXTREMITY SUBSPECIALTY DAY, CONTINUED

PAPER 100
Depression of the Medial Tibial Plateau in Infantile Blount Disease: Can Pathologic Bony Changes be Reversed with Guided Growth Treatment?
Regina Hanstein, PhD; Christopher Schneble, MD; Jacob Schulz; Adrienne Socci, MD; Melinda Sharkey, MD
Montefiore Medical Center/Albert Einstein College of Medicine, Bronx, NY

PAPER 101
Correction of Mild/Moderate Arthrogrypotic Knee Flexion Contractures with Guided Growth
Harold Van Bosse, MD
Shriners Hospital for Children, Philadelphia, PA

Debate: Physeal Bar Excision: Is it Necessary?
PRO: William Shaughnesssey, MD, Mayo Clinic
CON: John Birch, MD, FRCSC, Texas Scottish Rite

Case Discussion: Surgical Approach for Tibial Deformity
Osteotomy and Plating
Mark Dahl, MD, Gillette Children’s Hospital

Osteotomy and Nailing
Christopher Iobst, MD, Nationwide Children’s Hospital

Osteotomy and External Fixation
Simon Kelley, MBChB, FRCS, Sick Kids, Toronto, ON Canada

NEUROMUSCULAR SUBSPECIALTY DAY – 61 minutes
Co-Chairs: Vineeta T. Swaroop, MD and Andrew Georgiadis, MD

This session will be a mixture of scientific papers, debates and discussion regarding neuromuscular orthopaedics, with a focus on treatment of patients with greater motor disability. The debate will focus on unilateral versus bilateral proximal femoral surgery for hip subluxation in non-ambulatory patients with cerebral palsy. Other presentations will focus on difficult complications of proximal femoral surgery, a review of publications that may change your practice, discussion of patient reported outcomes, and pre-operative optimization of high-risk patients.

PAPER 102
♦ Long Term Outcomes of Ambulatory Function in Adults with Cerebral Palsy: Evaluating Change from Adolescence
Michael Shrader, MD; Nancy Lennon, PT; Chris Church, PT; William Robinson; Jose Salazar-Torres, PhD; John Henley, PhD; Timothy Niiler, PhD; Jason Howard, MD; Freeman Miller, MD
Nemours duPont Hospital for Children, Wilmington, DE

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NEUROMUSCULAR SUBSPECIALTY DAY, CONTINUED

PAPER 103
Single Event Multilevel Surgery in Cerebral Palsy: Value Added by a Co-Surgeon
Nickolas Nahm, MD; Meryl Ludwig, MD; Freeman Miller, MD; Rachel Thompson, MD; Kenneth Rogers, PhD; Julieanne Sees, DO
Nemours/Al duPont Hospital for Children, Wilmington, DE

PAPER 104
Remodeling of Femoral Head Deformity After Hip Reconstructive Surgery In Patients with Cerebral Palsy
Jae Jung Min, MD; Soonsun Kwon, PhD; Ki Hyuk Sung, MD; Kyoung Min Lee, MD; Chin Youb Chung, MD; Moon Seok Park, MD
Seoul National University Bundang Hospital, Sungnam, Republic of Korea

PAPER 105
Clinical Outcomes of the Triple C Osteotomy for the Treatment of Pediatric Neuromuscular Foot Deformity: A Single Center, Retrospective Study
Ian Hollyer; Derek Hesse, BS; Jill Larson, MD
Ann & Robert H. Lurie Children’s Hospital of Chicago, Northwestern University Feinberg School of Medicine, Chicago, IL

PAPER 106
Botulinum Toxin and Casting may Delay or Prevent Surgery in Spastic Hemiplegic Cerebral Palsy
Robert Wimberly, MD; Anthony Riccio, MD; Stephen Gates, MD; Jonathan Van Pelt, BA; Mauricio Delgado, MD
Texas Scottish Rite Hospital, Dallas, TX

PAPER 107
Survivorship of Gastrocnemius Soleus Fascial Lengthening (GSFL) for Equinus in Ambulatory Cerebral Palsy (CP): Factors Affecting Success in Long Term Follow-up
Kristen Carroll, MD; Emma Naatz; Alan Stotts, MD; Bruce MacWilliams; Sierra Pond, BS
Shriners Hospital for Children- Salt Lake City, Salt Lake City, UT

Debate: Spastic Hip Subluxation (in GMFCS IV and V): Unilateral vs Bilateral VDRO?
Unilateral – Lori Karol, MD
Bilateral – Robert Kay, MD

Removal of Proximal Femoral Implants - Should This Be Routine and How to Manage Peri-implant Fracture
Walter Truong, MD

Publications This Year that Might Change your Practice
Pooya Hosseinzadeh, MD

How and Which Patient Reported Outcomes to Collect in Neuromuscular Patients
Unni Narayanan, MSc, MBBS, FAAOS, FRCSC

Pre-operative Optimization for Neuromuscular Surgical Patients
Wade Shrader, MD

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SPINE SUBSPECIALTY DAY – 114 minutes

Co-Chairs: Ron El-Hawary, MD and Sumeet Garg, MD

Do you feel overwhelmed by all the new technologies offered for pediatric spinal deformity? How do you decide who will progress, who can be braced, and who should get non-fusion surgery? Your colleagues will challenge and debate dogma on natural history, non-fusion treatment, and navigation technologies.

PAPER 108
Safety of Pedicle Screw Placement in a Large Series of AIS Patients: Is Navigation Necessary?
Daniel Sucato, MD, MS; Kiley Poppino, BS
Texas Scottish Rite Hospital for Children, Dallas, TX

PAPER 109
Does Navigation Make Spinal Fusion for Adolescent Idiopathic Scoliosis Safer? Insights from 17,400 Cases in a National Database
Japsimran Kaur, BS; Jayme Koltsov, PhD; Ivan Cheng; John Vorhies, MD
Stanford, Stanford, CA

PAPER 110
Power Pedicle Tract Preparation and Screw Placement: A Multicenter Study of Early Adopters
Edward Compton, BS; Lindsay Andras, MD; Michael Vitale, MD, MPH; Sumeet Garg, MD; Joseph Stone, MD; Nicholas Fletcher, MD; Kenneth Illingworth, MD; Roxana Martinez, BA; Eun Kim, BA; Lukas Keil, MD; Hilary Harris, BS; David Skaggs, MD, MMM
Children’s Hospital Los Angeles, Los Angeles, CA

PAPER 111
Bracing Decreases Back Pain in Adolescents with Idiopathic Scoliosis
Lori Dolan, PhD; Kelsey Sheets; Stuart Weinstein, MD
University of Iowa, Iowa City, IA

PAPER 112
Pregnancy Outcomes in Operative vs. Nonoperative Scoliosis Patients at Mean 30-Year Follow-Up
A. Noelle Larson, MD; Lauren Swany; Pawel Grabala, MD; Suken Shah, MD; Todd Milbrandt, MD; Michael Yaszemski
Mayo Clinic, Rochester, MN

PAPER 113
Surgeon Volume Affects Short- and Long-term Surgical Outcomes in Idiopathic Scoliosis
Alexander Satin, MD; Vishal Sarwahi, MD; Aaron Atlas, MS; Sayyida Hasan, BS; Jesse Galina, BS; Dean Perfetti, MD; Terry Amaral, MD
Cohen Children’s Medical Center, Queens, NY

Challenging the Dogma of Idiopathic Scoliosis

Natural History of 35-50 Degree Curves in Idiopathic Scoliosis
Stefan Parent, MD, PhD

Predicting Brace Success versus Failure in Idiopathic Scoliosis
Ron El-Hawary, MD, FRCSC
PAPER 114
Using the Sanders Maturity Scale (SMS) to Predict Progression of Adolescent Idiopathic Scoliosis (AIS) in Girls: What Final Curve Size is Important?
Kevin Neal, MD; Gary Kiebzak, PhD
Nemours, Jacksonville, FL

PAPER 115
♦ Do Patients with Anterior Vertebral Body Growth Modulation have a better Quality of Life than Patients with a Posterior Spinal Fusion?
Marjolaine Roy-Beaudry, MSc; Julie Joncas, BSN; Isabelle Turgeon, BS; Abdulmajeed Alzakri, MD; Stefan Parent, MD
CHU Sainte-Justine, Montreal, Quebec, Canada

PAPER 116
Vertebral Body Tethering: Truly Motion Preserving or Rather Motion Limiting?
Firoz Miyanji, FRCSC; Paul Rushton, MBBS; Maty Petcharaporn, BS; Michelle Marks, PT
British Columbia Children’s Hospital, Vancouver, BC, Canada

PAPER 117
T1 Tilt and Clavicle Angle are the Best Predictors of Postoperative Shoulder Balance in AIS Patients: A Review of 347 Cases
Vishal Sarwahi, MD; Aaron Atlas, MS; Jesse Galina, BS; Sayyida Hasan, BS; Yungtai Lo, PhD; Spencer Stein, MD; Terry Amaral, MD
Cohen Children’s Medical Center, Queens, NY

PAPER 118
Bigger is Better: Larger Thoracic Height is Associated with Increased Health Related Quality of Life at Skeletal Maturity
Matthew Simhon, BS; Hiroko Matsumoto, MA; Sumeet Garg, MD; Gregory Redding, MD; Amer Samdani, MD; John Smith, MD; Paul Sponseller, MD, FAAOS; Michael Vitale, MD, MPH; Benjamin Roye, MD; Pediatric Spine Study Group
Columbia University Medical Center, New York, NY

PAPER 119
Single Rod Constructs in Severe EOS Produce Similar Cobb Correction and Spinal Growth as Dual MCGR Constructs
Scott Luhmann, MD; David Skaggs, MD, MMM; Charles Johnston, MD; Joshua Pahys; John Smith, MD; Amer Samdani, MD; Ron El-Hawary, MD; Pediatric Spine Study Group
Washington University School of Medicine, Saint Louis, MO

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SPINE SUBSPECIALTY DAY, CONTINUED

Pediatric Scoliosis Debates

Navigation Improves Quality and Safety: Point
Jason Anari, MD

Navigation Improves Quality and Safety: Counterpoint
Jennifer Bauer, MD, MS

Navigation Improves Teaching: Point
A. Noelle Larson, MD

Navigation Improves Teaching: Counterpoint
Dominick Tuason, MD

Bracing is as Effective as Casting for EOS: Point
John Thometz, MD

Bracing is as Effective as Casting for EOS: Counterpoint
Graham Fedorak, MD

SPORTS SUBSPECIALTY DAY – 102 minutes
Co-Chairs: Cordelia Carter MD and Peter Fabricant MD, MPH

This session aims to provide a comprehensive approach to the management of re-tears of the ACL graft following primary ACL reconstructive surgery – one of the most difficult problems to treat in young athletes. From the epidemiology of these injuries to the preoperative assessment and intraoperative decision-making algorithms, experts in the field will review in detail their own evidence-based approaches to the problem. Participants will leave this session with a “toolkit” of practical recommendations for incorporation into their own pediatric sports medicine practices.

PAPER 120
Athlete Burnout Is Associated with Perceived Likelihood of Future Injury Among Healthy Adolescent Athletes
Aaron Provance, MD; Morgan Potter, BA; Gregory Walker, MD; Katherine Dahab, MD; David Howell, ATC University of Colorado Department of Orthopedics, Aurora, CO

PAPER 121
Pediatric Shoulder Instability and Arthroscopic Shoulder Instability Surgery Across the United States: A PHIS Database Study
Ryan Coene; Kelly McFarlane, BS; Kathryn Williams, MS; Lanna Feldman, MS; Matthew Milewski, MD Boston Children’s Hospital, Boston, MA

PAPER 122
Arthroscopic Shoulder Stabilization in High School Football Players: Recurrent Instability with Return to Contact Sport
Jessica Stambaugh, MD; Eric Edmonds, MD; Andrew Pennock, MD Rady Children’s Hospital, San Diego, San Diego, CA
PAPER 123
Pediatric Meniscus Ramp Lesions: Incidence, Risk Factors, and Magnetic Resonance Imaging (MRI) Sensitivity
Margaret Wright, MD; Joshua Bram, BS; Jie Nguyen, MD; Tomasina Leska, BS; Julien Aoyama, BA; Theodore Ganley, MD
Children’s Hospital of Philadelphia, Philadelphia, PA

PAPER 124
Open Osteochondral Autograft Transfer Results in More Frequent Reoperation than Open Allograft Transfer in the Pediatric Knee
Tyler Hall, BA; Max Hyman; Neeraj Patel, MD
Ann & Robert H. Lurie Children’s Hospital of Chicago, Chicago, IL

PAPER 125
Increased Tibiofemoral Rotation with Increasing Severity of Pediatric Patellar Instability
Daniel Green, MD; Kenneth Lin, MD; Evan James, MD; Alexandra Aitchison, BS; Lindsay Schlichte, MS; Grace Wang, BA
Hospital for Special Surgery, New York, NY

Instructional Course Lecture: Pediatric Revision ACL
What Do We Know About Revision ACLs in Kids?
Andrew Pennock, MD
Preoperative Evaluation: From Diagnostic Imaging to Biomechanical Assessment
John Todd Lawrence, MD, PhD
Psychological Assessment and Cognitive Skills Training: Practical Applications for You and Your Patients
Melissa Christino, MD
My Approach to Tunnel Management in Revision ACL Reconstruction
Eric Edmonds, MD
Operative Decision-making: Graft Choice and the Role for Associated Stabilization Procedures
Philip Wilson, MD

PAPER 126
Discoid Meniscus Repairs in Children and Adolescents: Minimum 2 Year Outcomes
Crystal Perkins, MD; Michael Busch, MD; Samuel Willimon, MD
Children’s Healthcare of Atlanta, Atlanta, GA

PAPER 127
Long Term Follow Up After Discoid Lateral Meniscus Preservation Surgery
Mininder Kocher, MD, MPH; Laura Lins, MPH; Brian Yang, MD; Kathryn Williams, MS; Saritha Sankaranakutty
Boston Children’s Hospital, Boston, MA
SPORTS SUBSPECIALTY DAY, CONTINUED

PAPER 128
Does Discoid Morphology Affect Performance on Return to Sport Testing After Meniscus Repair?
Megan Kuba, MD; Jordan Snetselaar, DPT; Andrew Gupta, MD; Viviana Bompadre, PhD;
Gregory Schmale, MD; Michael Saper, DO
Seattle Children’s Hospital, Seattle, WA

PAPER 129
Concomitant Meniscectomy Results in Delayed Return To Sport Compared to Meniscus Repair in
Primary Pediatric ACL Reconstruction
Brendan Williams, MD; Margaret Wright, MD; Joshua Bram, BS; Neeraj Patel, MD; Theodore Ganley, MD
Children’s Hospital of Philadelphia, Philadelphia, PA

PAPER 130
Quadricep Strength in Adolescent Patients Undergoing Anterior Cruciate Ligament
Reconstruction After a Femoral Nerve Versus Adductor Canal Block
Paul Fleissner, MD
Crystal Clinic Orthopaedic Center, Akron, OH

PAPER 131
Comparison of 6-Month Return to Sports Testing Following ACL Reconstruction in Adolescents with
Quadriceps Tendon Autograft versus Hamstring Autograft
Elizabeth Liotta; Dai Sugimoto; Kathleen Maguire, MD; Mininder Kocher, MD, MPH; Lyle Micheli, MD;
Benton Heyworth, MD
Boston Children’s Hospital, Boston, MA

Masters Techniques for Patellofemoral Instability: Beyond the MPFL
This Masters Techniques session will feature a wide variety of state-of-the-art approaches to the
management of patellar instability in children and adolescents by leaders in the field of pediatric sports
medicine. Participants will leave this session armed with the tools to evaluate and manage patellar
instability in children regardless of its etiology and the physeal status.

Nonoperative Treatment (with an Emphasis on ‘Treatment’)… The Keys to Maximizing Success of
Rehabilitation, Bracing, and Return to Play in First Time Dislocators
Joseph T. Molony Jr, PT, MA, SCS, CSCS

Treating Our Youngest Patients: How Studying Pediatric Knee Anatomy Has Changed My Approach
to Patellofemoral Instability In Children Under 10 Years Old
Kevin Shea MD

Management of Coronal and Axial Bony Deformity: When and How to Treat
Corinna Franklin MD

Managing Chondral Injuries In the Setting of Patellofemoral Instability
Aristides Cruz MD

An Algorithmic Approach To Treating Our Most Challenging Patients: Syndromic Patellar Instability
and Instability in Flexion
Daniel Green MD
TRAUMA SUBSPECIALTY DAY – 118 minutes

Co-Chairs: Mauricio Silva, MD and Mark Sinclair, MD

The Trauma Subspecialty session will consist of three different components, all of which should be of interest to pediatric orthopaedic surgeons involved in trauma care. There will be scientific paper presentations, with our two experienced discussants leading a lively question and answer segment about the latest controversies in trauma care.

There will also be two didactic sessions. The first will discuss turning your trauma M&M into trauma QI (Quality Improvement). This is an area that is highly stressed in ACS verification. Three specific types of complications seen in trauma care will be discussed, and applicable techniques of turning complications into improvement opportunities will be stressed.

The second will discuss variations of common fracture care, highlighting three injuries seen almost daily in a pediatric orthopaedic practice. Is this just benign practice variation or should there be more specific treatment protocols for these common injuries?

PAPER 132
Lowering the Default Dose Quantity Decreases the Number of Opioids Prescribed in the Pediatric ED
Wee-Jhong Chua, MD; Cornelius Groenewald, MBChB; Shing Varakitsomboon, BS; Jacob Harris, BS; Anna Faino, MS; Linda Quan, MD; Gary Walco, PhD; Ted Sousa, MD
Seattle Children's Hospital, Seattle, WA

PAPER 133
Demographic Changes in US Trampoline Related Injuries 1998 through 2017: Cause for Alarm
Ryan Fitzgerald, MD; Serena Freiman, BS; Robert Kulwin, MD; Randall Loder, MD
Riley Children's Hospital, Indianapolis, IN

PAPER 134
Predictive Factors of Reconstructive Surgery for Chronic Monteggia Fracture in Children
Kyung Rae Ko, MD; Jong Sup Shim, MD; Minkyu Seo, MD
Samsung Medical Center, Seoul, Republic of Korea

PAPER 135
Randomized Clinical Trial Comparing Intramedullary Kirschner-Wires to Titanium Elastic Nails for Pediatric Femur Fractures in Dar es Salaam, Tanzania: A Preliminary Analysis
Edmund Eliezer, MD; Msami Evarist, MD; Bryson Mcharo, MD; Revocatus Bernard, MD; John Ibrahim, MD; David Shearer, MD; Saam Morshed, MD; Patrick Curran, MD
Muhimbili Orthopaedic Institute, Dar es Salaam, Tanzania

PAPER 136
Flexible Versus Rigid Nailing of Femur Fractures in 8 to 12-Year Olds: Where are We Now?
Katherine Schroeder, MD; Ramesh Ghanta, BS; Barkha Chhabra, MD; Nicole Montgomery, MD
Texas Children’s Hospital, Houston, TX

* may be used for external trauma-related CMEs.
TRAUMA SUBSPECIALTY DAY, CONTINUED

PAPER 137
“Length Unstable” Pediatric Femoral Shaft Fractures Treated with Flexible Elastic Nails Have Few Complications
Philip Fontenot, MD; Omar Atassi, MD; Gennadiy Busel, MD; Guadalupe De La Fuente, MD; Anjan Shah, MD; David Watson, MD; Katheryne Downes, PhD; Roy Sanders, MD; Hassan Mir, MD University of South Florida, Tampa, FL

Session 1: Turning Punitive M&M Conference into Trauma Quality Improvement Conference: It’s Easy If You Know How
The Orthopaedic Surgeon’s Guide to Quality Improvement
Caroline Tougas, MD

The “One-Off” Complication: Case Presentation
Caroline Tougas, MD

Tracking and Trending the One-Off Complication To Ensure It Doesn’t Happen Again
John Kemppainen, MD

The Provider-Caused Complication: Case Presentation
Caroline Tougas, MD

Rogue Agent or Flawed Policy/Procedure: Appropriate Management of the Provider-Caused Complication
Brad Olney, MD

The Systems Issue Complication: Case Presentation
Caroline Tougas, MD

How to Solve a Complication That Wasn’t Your Fault: Bringing the Systems Related Complication Around to Full Loop Closure
Stephanie Holmes, MD

PAPER 138
Spica Casting Results in More Unplanned Reoperations than Elastic Intramedullary Nailing: A National Analysis of Femur Fractures in the Preschool Population
David Lyons, DO; Konstantin Brnjoš, BS; Max Hyman; Neeraj Patel, MD Ann & Robert H. Lurie Children’s Hospital of Chicago, Chicago, IL

PAPER 139
Early Failure of Proximal Femoral Locking Compression Plates in Pediatric Proximal Femur Fractures
Benjamin Sheffer, MD; Derek Kelly, MD; Seth Cope, MD; Matthew Wideman; James Beaty, MD; William Warner, MD; David Spence, MD; Jeffrey Sawyer, MD Campbell Clinic Orthopaedics, Memphis, TN

PAPER 140
Functional Outcomes of Tillaux and Triplane Fractures with 2-5mm of Intra-Articular Gap
Vidyadhar Upasani, MD; Benjamin Lurie, BA; Noelle Van Rysselberghe, BA; Andrew Pennock, MD Rady Children’s Hospital, San Diego, San Diego, CA
PAPER 141
Titanium Elastic Nails System (TENS) in Adolescent Forearm Fractures: Using Bone Age as an Objective Guide to Its Limits
Chin Chuen Tan; Kenneth Wong, FRCS; John Allen, PhD; Arjandas Mahadev, FRCS
KK Women’s and Children’s Hospital, Singapore, Singapore

PAPER 142
Outcomes of Displaced Lateral Condyle Humerus Fractures Treated with Closed Versus Open Reduction
Adam Thiessen, MD; Marilyn Elliott; Shawn Funk, MD; Brandon Ramo, MD
Texas Scottish Rite Hospital, Dallas, TX

PAPER 143
Treatment of Forearm Fractures in Children: Is Single Bone Fixation Adequate?
Tsung-yu Lan, MD
Far-eastern Memorial Hospital, Department of Orthopedic Surgery, New Taipei City, Taiwan

Session 2: Variations in Common Fracture Care: Benign Practice Variability or Failure of Trauma Practice Protocols?
Closed Management Without Fixation
Katherine Schroeder, MD
Operative Management with Fixation
Kristin Livingston, MD
Forearm Fracture: Closed Management Without Fixation
Shawn “Skip” Gilbert, MD
Forearm Fracture: Operative Management with Fixation
Patrick Bosch, MD
Distal Tibial Physeal Fracture: Closed Management Without Fixation
Matt Ellington, MD
Distal Tibial Physeal Fracture: Operative Management with Fixation
Scott Yang, MD
UPPER/LOWER EXTREMITY – 36 minutes

**PAPER 144**
What is the Value of Nonsurgical Interventions in the Treatment of Pediatric Ganglion Cysts?
Carolyn Shanks, BS; Tyler Schaeffer, BA; Danielle Hogarth, BS; Marilyn Elliott; Andrea Bauer, MD; Joshua Abzug, MD; **Christine Ho, MD**
Texas Scottish Rite Hospital for Children, Dallas, TX

**PAPER 145**
Functional Outcomes of Tendon Transfer for Brachial Plexus Birth Palsy Using the Hoffer Technique
Nina Lightdale-Miric, MD; Ram Alluri, MD; **Erin Meisel, MD**; Gina Kim, MA; Jesse Kaplan, MD; Sofia Bougioukli, MD; Milan Stevanovic, MD
Children’s Hospital Los Angeles (CHLA), Los Angeles, CA

**PAPER 146**
Sprengel’s Deformity: An Analysis of Surgically and Non-surgically Treated Patients
Carley Vuillermin, MBBS; Kemble Wang, MD; Kathryn Williams, MS; Michael Hresko, MD; Peter Waters, MD
Boston Children’s Hospital, Boston, MA

**PAPER 147**
Comparison of the Prediction Accuracy of Lower Extremity Segment Length at Maturity of the Sanders Skeletal Stage/Multiplier, Paley Multiplier/Greulich and Pyle Skeletal Age, and White/Menelaus Formulae
John Birch, FRCSC; Marina Makarov; David Podeszwa, MD; James Sanders, MD; Chan-Hee Jo, PhD
Texas Scottish Rite Hospital for Children, Dallas, TX

**PAPER 148**
Dual Plate Epiphysiodesis for Limb Length Inequality: Followed to Maturity
Peter Stevens, MD; Matias Desperes, MD; Philip McClure, MD; Angela Presson, PhD; Jennifer Herrick, BA
University of Utah, Salt Lake City, UT

**PAPER 149**
Monitoring with Tantalum Beads Demonstrates No Clinically Significant Growth Following Percutaneous Transphyseal Screw Epiphysiodesis
Sreetha Sidharthan; Clare Kehoe; Grace Wang, BA; Roger Widmann, MD; John Blanco; **Emily Dodwell, MD**
Hospital for Special Surgery, New York, NY

**PAPER 150**
Growth Modulation for Fixed Flexion Contracture of the Knee: A Comparison of Two Techniques
Philip McClure, MD; Hamza Alrabai, MD; Martin Gesheff, BS; Shawn Standard, MD; John Herzenberg, MD
Rubin Institute for Advanced Orthopedics, Sinai Hospital of Baltimore, Baltimore, MD

**PAPER 151**
Successful Ponseti-treated Clubfeet at Age Two Years: What is the Rate of Surgical Intervention After This?
Matthew Siebert, BS; Chelsea Karacz, MS; **B. Stephens Richards, MD**
Texas Scottish Rite Hospital for Children, Dallas, TX
UPPER/Lower EXTREMITY, CONTINUED

PAPER 152
There Is No Benefit to Hip Dysplasia Screening in Children with Idiopathic Clubfoot
Dell McLaughlin, MD; Ruth Gremminger, MD; Marwah Sadat; Maryse Bouchard, MD
The Hospital for Sick Children, Toronto, Ontario, Canada

NEUROMUSCULAR – 24 minutes

PAPER 153
Predicted Life Expectancy in Patients with Cerebral Palsy and Neuromuscular Scoliosis Undergoing Spinal Fusion: An Exploratory Analysis from a Single Institution Over 15 Years
Arun Hariharan, MD; Carlos Pargas; Joseph Petfield, MD; Margaret Ann Baldwin, MD; Julio Jauregui, MD; Kenneth Rogers, PhD; Suken Shah, MD; Freeman Miller, MD; Michael Shrader; Julieanne Sees, DO
Nemours/A.I. duPont, Wilmington, DE

PAPER 154
In Search of a Warning Signal: Predicting Rapid Curve Progression in Neuromuscular Scoliosis
Joshua Bram, BS; Alexa Karkenny, MD; Ronit Shah; Divya Talwar, MPH; Keith Baldwin, MD; John (Jack) Flynn, MD
Children’s Hospital of Philadelphia, Philadelphia, PA

PAPER 155
Classifications of Motor Level in Myelomeningocele: Are they Indicative of Ambulatory Function?
Melissa Bent MD; Susan Rethlefsen PT; Nicole Mueske; Tishya Wren PhD
Children’s Hospital Los Angeles, Los Angeles, CA

PAPER 156
Impact of Hip Surveillance on Surgical Practice: What Makes a Difference?
Stacey Miller, PT; Maureen O’Donnell, MD; Kishore Mulpuri, MBBS, MS
BC Children’s Hospital, Vancouver, BC, Canada

PAPER 157
Nusinersin Does Not Mitigate Hip and Spine Pathoanatomy in Spinal Muscular Atrophy Patients
Michael Troy, BS; Patricia Miller, MS; Basil Darras, MD; Brian Snyder, MD, PhD
Boston Children’s Hospital, Boston, MA

PAPER 158
Gait Disturbances Following ‘Perc” Hamstring Lengthenings for Treatment of Cerebral Palsy
Allison Scott, MD; Judith Linton, PT; Christina Bickley, BOCO
Shriners Hospital for Children, Houston, Houston, TX
HIP—48 minutes

PAPER 159
Even “Experts” Can Be Fooled: The Reliability of Clinical Examination in Diagnosing Developmental Hip Dislocations in Newborns
Alexander Aarvold, FRCS (Ortho); Nicholas Clarke, FRCS (Ortho); Wudbhav (Woody) Sankar, MD; Philip Harper, MBBS; Jose Herrera-Soto, MD; Brijil Joseph, MMED (Ortho); Emily Schaeffer, PhD; Kishore Mulppuri, MBBS, MS
BC Children’s Hospital, Vancouver, BC, Canada

PAPER 160
Hip Click Is Not Significantly Associated with DDH Prevalence Among Infant Hips Referred for Evaluation of DDH
Margaret Siobhan Murphy-Zane, MD; Patrick Carry, MS; Kaley Holmes, BA; Brian Kohuth, PA; Debbie Burke, PA-C; Tyler Freeman, MD; Matthew Belton, MD; Nancy Miller, MD; Gaia Georgopoulos, MD
Children’s Hospital Colorado, Aurora, CO

PAPER 161
Ultrasonographically Reduced but Dysplastic Hip (Graf II) at 4-6 Weeks of Age: No Radiographic Differences Between Hips Treated with a Harness and Those Observed Without Treatment
Luis Moraleda, MD; Joaquin Núñez de Armas, MD; Mar Perez Martin-Buitrago, PhD; Maria Salcedo, MD; Gaspar Gonzalez-Moran, MD
Hospital Universitario La Paz, Madrid, Spain

PAPER 162
AI-Augmented 2D Cine Ultrasound Improves the Reliability and Accuracy of Hip Dysplasia Diagnosis
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Paley Orthopedic and Spine Institute, West Palm Beach, FL

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**Ishaan Swarup, MD; Divya Talwar, MPH; Lori Howell, DNP; Nick Adzick; Bernard Horn, MD**

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BC Children’s Hospital, Vancouver, BC, Canada

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NYU Langone Orthopedic Hospital, New York, NY

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Texas Scottish Rite Hospital for Children, Dallas, TX

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<td>University at Buffalo - State University of New York, Buffalo, NY</td>
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Indranil Kushare, MD; Shane Ford, PA-C; Kristen Kastan; John Shilt, PA-C
Texas Children’s Hospital, Houston, TX

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Graft Preparation Technique for All Soft Tissue Quadriceps Tendon Autograft for ACL Reconstruction
Benjamin Forst PA-C; Lauren Peters PA-C; Dennis Hiller; Tomasina Leska BS; Theodore Ganley, MD
Children’s Hospital of Philadelphia, Philadelphia, PA

Video Abstract 3
Pediatric Medial Epicondyle Humerus Fractures: Open Reduction and Internal Fixation
James Bomar, MPH; Andrew Pennock, MD; Eric Edmonds, MD
Rady Children’s Hospital, San Diego, San Diego, CA

Video Abstract 4
Surgical Management of Central Polydactyly of the Foot with Advancement Flaps
David Elbert Westberry, MD; Ashley M. Carpenter, BS; Allison Rodriguez, BS
Shriners Hospital for Children: Greenville, Greenville, SC

Video Abstract 5
Pediatric Trigger Thumb Release: Surgical Technique
Sonia Chaudhry, MD
Connecticut Children’s Medical Center, Hartford, CT

Video Abstract 6
Intra-articular Radial Head Fracture with an Entrapped Fragment in a 6-year-old Girl
Barbara Minkowitz, MD; Jennifer Rachelle Ristic, PA-C; Eytan Mendelow, BS; Camryn Myers
Atlantic Health Systems, Morristown, NJ

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Posterior Approach to the Lateral Condyle Fracture - A Pediatric Cadaver Video Simulation
Tyler Stavinoha, MD; Kevin G. Shea, MD
Stanford University Department of Orthopaedic Surgery, Stanford, CA

Video Abstract 8
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Barbara Minkowitz, MD; Jennifer Rachelle Ristic, PA-C; Eytan Mendelow, BS; Violet Wallerstein
Atlantic Health Systems, Morristown, NJ

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Barbara Minkowitz, MD; Anthony James Scillia, MD; Jennifer Rachelle Ristic, PA-C; Eytan Mendelow, BS; Camryn Myers
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<td>Sancheti Institute for Orthopaedics and Rehabilitation, Pune Maharashtra, India</td>
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<td>Rutgers- New Jersey Medical School, Newark, NJ</td>
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<td>William T. Baumgartner, MD; Brian Michael Haus, MD; Trevor J. Shelton, MD</td>
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<td>Sancheti Institute for Orthopaedics and Rehabilitation, Pune Maharashtra, India</td>
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POSNA ANTITRUST POLICY

It shall be the policy of the Pediatric Orthopaedic Society of North America (POSNA) to be in strict compliance with all Federal and State Antitrust laws, rules and regulations. Therefore: These policies and procedures apply to all membership, board, committee, and all meetings attended by representatives of the POSNA.

Discussions at POSNA meetings often cover a broad range of topics pertinent to the interests or concerns of orthopaedic surgeons. As a general rule, except as noted below, discussions at POSNA meetings can address topics without raising antitrust concerns if the discussions are kept scrupulously free of even the suggestion of private regulation of the profession. However, a number of topics that might be (and have been) discussed at POSNA meetings may raise significant complex antitrust concerns. These include:

- Membership admissions, rejections, restrictions, and terminations;
- Method of provision and sale of POSNA products and services to non-members;
- Restrictions in the selection and requirements for exhibitors at the POSNA Annual Meeting or in CME activities;
- Collecting and distributing certain orthopaedic practice information, particularly involving practice charges and costs;
- Obtaining and distributing orthopaedic industry price and cost information;
- Professional certification programs;
- Group buying and selling; and
- Inclusions or exclusion of other medical societies in organizational activities or offerings.

When these and related topics are discussed, the convener or members of the POSNA group should seek counsel from its General Counsel.

POSNA urges its Board, committees and other groups not to participate in discussions that may give the appearance of or constitute an agreement that would violate the antitrust laws. Notwithstanding this reliance, it is the responsibility of each POSNA Board or committee member to avoid raising improper subjects for discussion. This policy has been prepared to ensure that POSNA members and other participants in POSNA meetings are aware of this obligation.

The “Do Not’s” and “Do’s” presented below highlight only the most basic antitrust principles. POSNA members and others participating in POSNA meetings should consult with the General Counsel in all cases involving specific questions, interpretations or advice regarding antitrust matters.

Do Not’s
1. Do not, in fact or appearance, discuss or exchange information regarding:
   a. Individual company prices, price changes, price differentials, mark-ups, discounts, allowances, credit terms, etc. or any other data that may bear on price, such as costs, production, capacity, inventories, sales, etc.
   b. Raising, lowering or “stabilizing” orthopaedic prices or fees;
   c. What constitutes a fair profit or margin level;
   d. The availability of products or services; or
   e. The allocation of markets, territories or patients.
2. Do not suggest or imply that POSNA members should or should not deal with certain other persons or companies.
3. Do not foster unfair practices regarding advertising, standardization, certification or accreditation.
4. Do not discuss or exchange information regarding the above matters during social gatherings, incidental to POSNA-sponsored meetings.
5. Do not make oral or written statements on important issues on behalf of POSNA without appropriate authority to do so.

The Do's
1. Do adhere to prepared agenda for all POSNA meetings. It is generally permissible for agendas to include discussions of such varied topics as professional economic trends, advances and problems in relevant technology or research, various aspects of the science and art of management, and relationships with local, state or federal governments.

2. Do object whenever meeting summaries do not accurately reflect the matters that occurred.

3. Do consult with General Counsel on all antitrust questions relating to discussions at POSNA meetings.

4. Do object to and do not participate in any discussions or meeting activities that you believe violate the antitrust laws; dissociate yourself from any such discussions or activities and leave any meeting in which they continue.

Special Guidelines for Collecting and Distributing Information
The collection and distribution of information regarding business practices is a traditional function of associations and is well-recognized under the law as appropriate, legal and consistent with the antitrust laws. However, if conducted improperly, such information gathering and distributing activities might be viewed as facilitating an express or implied agreement among association members to adhere to the same business practices. For this reason, special general guidelines have developed over time regarding association’s reporting on information collected from and disseminated to members. Any exceptions to these general guidelines should be made only after discussion with General Counsel.

These general guidelines include:
1. Member participation in a statistical reporting program is voluntary. A statistical reporting program should be conducted without coercion or penalty. Non-members should be allowed to participate in a statistical reporting program if eligible; however, if a fee is involved, non-members may be charged a reasonably higher fee than members.

2. Information should be collected via a written instrument that clearly sets forth what is being requested.

3. The data that is collected should be about past transactions or activities; particularly if the survey deals with prices and price terms (including charges, costs, wages, benefits, discounts, etc.), it should be historic, i.e., more than three months old.

4. The data should be collected by either POSNA or an independent third party not connected with any one member.

5. Data on individual orthopaedic surgeons should be kept confidential.

6. There should be a sufficient number of participants to prevent specific responses or data from being attributable to any one respondent. As a general rule, there should be at least five respondents reporting data upon which any statistic or item is based, and no individual’s data should represent more than 25% on a weighted average of that statistic or item.

7. Composite/aggregate data should be available to all participants – both members and non-members. The data may be categorized, e.g., geographically, and ranges and averages may be used. No member should be given access to the raw data. Disclosure of individual data could serve to promote uniformity and reduce competition.

8. As a general rule, there should be no discussion or agreement as to how members and non-members should adjust, plan or carry out their practices based on the results of the survey. Each member should analyze the data and make business decisions independently.
2020 POSNA RESEARCH GRANT WINNERS

2020 KUO MEMORIAL RESEARCH AWARD
Apurva Shah, MD
“Opioid vs. Non-opioid Analgesia in Pediatric Supracondylar Humerus Fractures”
The Children’s Hospital of Philadelphia

2020 HUENE MEMORIAL RESEARCH AWARD
Theodore Ganley, MD
“Tibial Spine Fractures Prospective Cohort Study”
The Children’s Hospital of Philadelphia

2020 ST. GILES YOUNG INVESTIGATOR RESEARCH AWARD
Neeraj Patel, MD
“Anterolateral Ligament Reconstruction in Children: A Randomized, Controlled Trial”
Lurie Children’s Hospital

2020 POSNA/ZIMMER BIOMET SPINE RESEARCH GRANT
John Vorhies, MD
“Erector Spinae Plane Catheters and Clinical Outcomes after Spinal Fusion”
Stanford University

2020 CLINICAL TRIAL PLANNING RESEARCH GRANT
Firoz Miyanji, MD
“Effect of Mix-Metal Instrumentation on Blood Metal Ion Levels in Scoliosis”
University of British Columbia

2020 POSNA DIRECTED RESEARCH GRANTS
Peter Newton, MD
“Post-Op Flexibility & Segmental Motion in Idiopathic Scoliosis – Anterior Spinal Growth Tethering vs. Posterior Spinal Fusion”
Rady Children’s Hospital

Michael Vitale, MD
“Evaluation of Sagittal and Axial Parameters in Braced Adolescent Idiopathic Scoliosis Patient”
Columbia University Medical Center

2020 POSNA REGISTRY GRANT
Andrea Bauer, MD
“GUPI: Growing Up with a Plexus Injury”
Boston Children’s Hospital
2020 POSNA RESEARCH GRANTS - BASIC RESEARCH

Jason Howard, MD
"Muscle Stiffness in Cerebral Palsy: The Effect of Botulinum Toxin"
Nemours/Alfred I duPont Hospital for Children

Yinshi Ren, PhD; Harry Kim, MD, CoPI
"Determining the Effect of Obesity on Necrotic Bone Healing in Legg-Calvé-Perthes Disease"
Texas Scottish Rite Hospital for Children

Jennifer Laine, MD
"Development of a Minimally Invasive Model of Legg-Calvé-Perthes Disease"
Gillette Children’s Specialty Healthcare

2020 POSNA RESEARCH GRANT – CLINICAL RESEARCH

Kristen Tulchin-Francis, PhD
“Outcomes of Amputation or Limb Reconstruction in Severe Fibular Deficiency”
Texas Scottish Rite Hospital for Children

2020 POSNA START UP RESEARCH GRANTS

Stefan Parent, MD
“Lung Development & Congenital Spine Deformities: An In-vivo Ovine Model”
CHU Sainte-Justine, Montreal

Haluk Altiok, MD
“The Effect of Knee Height Asymmetry on Gait Biomechanics”
Shriners Hospital for Children, Chicago

17th Annual
IPOS
International Pediatric Orthopaedic Symposium
Dec 01 – 05, 2020 • Orlando, FL

Todd Milbrandt, MD
Course Director
FUTURE ANNUAL MEETINGS

May 11–15, 2021
Dallas, Texas

May 11–14, 2022
Vancouver, BC, Canada

April 26–29, 2023
Nashville, Tennessee

FUTURE IPOS MEETINGS

December 1–5, 2020
Orlando, FL

December 7–11, 2021
Orlando, FL

December 6–10, 2022
Orlando, FL