



# POSNA

PEDIATRIC ORTHOPAEDIC SOCIETY  
OF NORTH AMERICA



VIRTUAL  
**2020  
ANNUAL  
MEETING**

OPENS: MAY 13

PROGRAM CHAIR:  
JEFFREY MARTUS, MD

PRECOURSE CHAIR:  
A. NOELLE LARSON, MD

SUBSPECIALTY  
DAY CHAIR:  
WUDBHAV SANKAR, MD

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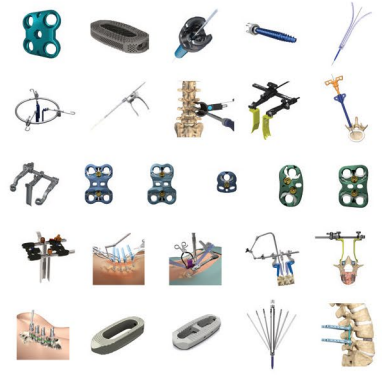
## Complex



## Enabling technologies



## Minimally invasive



## Degenerative



## Biologics

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Redefining spine

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**POSNA**  
PEDIATRIC ORTHOPAEDIC SOCIETY  
OF NORTH AMERICA

## PRE-COURSE COMMITTEE

### Chair

A. Noelle Larson, MD

### Committee

Lindsay Andras, MD

Julie Balch Samora, MD, PhD

Brian P. Scannell, MD

## PROGRAM COMMITTEE

### Chair

Jeffrey Martus, MD

### Committee

Michelle Caird, MD

Wudbhav (Woody) Sankar, MD

Matthew Oetgen, MD

## 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](https://www.linkedin.com/company/posna)  [posna\\_ortho](https://www.instagram.com/posna_ortho)

Websites: [POSNA.org](https://www.POSNA.org), [orthokids.org](https://www.orthokids.org) and [posnacademy.org](https://www.posnacademy.org)

# WELCOME

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 department chair and residency program director at Upstate since 2000.

Dr. Albanese received his undergraduate degree in electrical engineering 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.

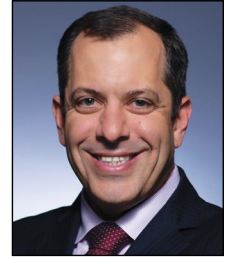
Dr. Albanese's academic interests have focused on education, accreditation and certification. He has chaired the AAOS Committee on Evaluation (1996-2001), been a mentor in the AAOS leadership fellows program and completed two terms as a member of the AAOS Council on Education (1996-2001, 2005-09). Dr. 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 Management 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.

# BIOGRAPHY

## 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.

# BOARD OF DIRECTORS



## POSNA

PEDIATRIC ORTHOPAEDIC SOCIETY  
OF NORTH AMERICA

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# ACKNOWLEDGMENTS



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.

**HOWARD STEEL FOUNDATION**  
**ST. GILES FOUNDATION**  
**ANGELA S.M. KUO MEMORIAL FUND**

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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

# GENERAL MEETING INFORMATION

## 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 (ie., 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.

# ANNUAL MEETING POLICIES

◆ 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).

## 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

## LEVELS OF EVIDENCE FOR PRIMARY RESEARCH QUESTIONS

Levels of Evidence for Primary Research Question <sup>1,2</sup>						
Study Type	Question	Level I	Level II	Level III	Level IV	Level V
Diagnostic— Investigating a diagnostic test	Is this (early detection) test worthwhile?	<ul style="list-style-type: none"> <li>Randomized controlled trial</li> </ul>	<ul style="list-style-type: none"> <li>Prospective<sup>3</sup> cohort<sup>4</sup> study</li> </ul>	<ul style="list-style-type: none"> <li>Retrospective<sup>5</sup> cohort<sup>4</sup> study</li> <li>Case-control<sup>6</sup> study</li> </ul>	<ul style="list-style-type: none"> <li>Case series</li> </ul>	<ul style="list-style-type: none"> <li>Mechanism-based reasoning</li> </ul>
	Is this diagnostic or monitoring test accurate?	<ul style="list-style-type: none"> <li>Testing of previously developed diagnostic criteria (consecutive patients with consistently applied reference standard and blinding)</li> </ul>	<ul style="list-style-type: none"> <li>Development of diagnostic criteria (consecutive patients with consistently applied reference standard and blinding)</li> </ul>	<ul style="list-style-type: none"> <li>Nonconsecutive patients</li> <li>No consistently applied reference standard</li> </ul>	<ul style="list-style-type: none"> <li>Poor or nonindependent reference standard</li> </ul>	<ul style="list-style-type: none"> <li>Mechanism-based reasoning</li> </ul>
Prognostic— Investigating the effect of a patient characteristic on the outcome of a disease	What is the natural history of the condition?	<ul style="list-style-type: none"> <li>Inception<sup>3</sup> cohort study (all patients enrolled at an early, uniform point in the course of their disease)</li> </ul>	<ul style="list-style-type: none"> <li>Prospective<sup>3</sup> cohort<sup>4</sup> study (patients enrolled at different points in their disease)</li> <li>Control arm of randomized trial</li> </ul>	<ul style="list-style-type: none"> <li>Retrospective<sup>5</sup> cohort<sup>4</sup> study</li> <li>Case-control<sup>6</sup> study</li> </ul>	<ul style="list-style-type: none"> <li>Case series</li> </ul>	<ul style="list-style-type: none"> <li>Mechanism-based reasoning</li> </ul>
Therapeutic— Investigating the results of a treatment	Does this treatment help? What are the harms? <sup>7</sup>	<ul style="list-style-type: none"> <li>Randomized controlled trial</li> </ul>	<ul style="list-style-type: none"> <li>Prospective<sup>3</sup> cohort<sup>4</sup> study</li> <li>Observational study with dramatic effect</li> </ul>	<ul style="list-style-type: none"> <li>Retrospective<sup>5</sup> cohort<sup>4</sup> study</li> <li>Case-control<sup>6</sup> study</li> </ul>	<ul style="list-style-type: none"> <li>Case series</li> <li>Historically controlled study</li> </ul>	<ul style="list-style-type: none"> <li>Mechanism-based reasoning</li> </ul>
Economic	Does the intervention offer good value for dollars spent?	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 (QALYs) and uncertainty examined using probabilistic sensitivity analyses	Computer simulation model (Monte Carlo simulation, Markov model) with inputs derived from Level-II studies, lifetime time duration, outcomes expressed in dollars per QALYs and uncertainty examined using probabilistic sensitivity analyses	Computer simulation model (Markov model) with inputs derived from Level-II studies, relevant time horizon, less than lifetime, outcomes expressed in dollars per QALYs and stochastic multilevel sensitivity analyses	Decision tree over the short time horizon with input data from original Level-II and III studies and uncertainty is examined by univariate sensitivity analyses	Decision tree over the short time horizon with input data informed by prior economic evaluation and uncertainty is examined by univariate sensitivity analyses

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.cebm.net/ocbm-levels-of-evidence/>. A glossary of terms can be found here: <http://www.cebm.net/glossary/>.

2. Level I through IV studies may be graded downward on the basis of study quality, imprecision, indirectness, 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, a high-quality randomized controlled trial (RCT) should have ≥80% follow-up, blinding, and proper randomization. The Level of Evidence assigned to systematic reviews reflects the ranking of studies included in the review (i.e., 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.

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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	SYMPOSIA PROGRAM	SUBSPECIALTY DAY
Trauma	Bone Health	Hand
Infections/Tumor	POGO	Foot
QSVI	POPS	Hip
Spine	Practice Management	Neuromuscular
Sports/Trauma	Trauma	Lower Extremity
Upper and Lower Extremity		Spine
Neuromuscular		Sports
Hip		Trauma

*\*Program subject to change*



# WELCOME

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.**

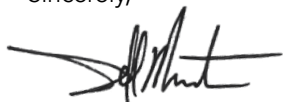
A record number of abstracts (1,061) were submitted and graded by volunteer readers. All 170 podium presentations, 40 posters, and 80 ePosters are outstanding. Now in its 2nd year, there will be 17 surgical technique videos presented in the Video Theater. The virtual meeting structure follows:

- 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

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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*

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**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*

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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*

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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*

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7:25 PM–7:33 PM Discussion

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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*

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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*

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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 Cherkashin, MD; Vaida Glatt; Satbir Singh, BS*  
*Nationwide Children's Hospital, Columbus, OH*

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7:48 PM–7:56 PM Discussion

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**14** ◆ 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).

# LIVE SESSION

## LIVE SESSION, CONTINUED

### 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*

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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*

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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*

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8:14 PM–8:22 PM

Discussion

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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*

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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*

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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*

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8:40 PM–8:48 PM

Discussion

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# LIVE SESSION

8:49 PM–8:54 PM **PAPER 62**

**Hunger Games: Impact of Fasting Guidelines for Orthopaedic Procedural Sedation in the Pediatric Emergency Department (PED)**

*Jeffrey Sawyer, MD; Robert Stewart, MD; Carson Strickland, MD; Rudy Kink, MD; Padam Kumar, BS; Busra Gungor, BA; Derek Kelly, MD*  
Campbell Clinic Orthopaedics, Memphis, TN

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8:55 PM–9:00 PM **PAPER 63**

**Do Routine Nutrition Consults for Neuromuscular Scoliosis Help the Patient or Just the Rankings?**

*Kavish Gupta, BA; David Skaggs, MD, MMM; Stephen Stephan, MD; Kenneth Illingworth, MD; Lindsay Andras, MD*  
Children's Hospital Los Angeles, Los Angeles, CA

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9:01 PM–9:06 PM **PAPER 64**

**Prospective Randomized Controlled Trial of Implant Density in AIS: Results of the Minimize Implants Maximize Outcomes Study**

*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*  
University of Minnesota, Minneapolis, MN

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9:07 PM–9:12 PM **PAPER 65**

**Effect of Reducing Urban Speed Limit on Pedestrian Collisions: A Controlled Study**

*Andrew Howard, MD; Liraz Fridman, PhD; Linda Rothman, PhD; Brent Hagel, PhD; Marie Soleil Cloutier, PhD; Colin Macarthur, MBBS*  
Hospital for Sick Children, Toronto, Ontario, Canada

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9:12 PM–9:20 PM Discussion

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9:20 PM–9:30 PM **PRESIDENTIAL TRANSFER**

*Stephen Albanese, MD*

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# Always Evolving With You



## 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*


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 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*

---

## Spine

Neuromuscular Minimally Ambulatory Patient – Fuse to the Pelvis

*Rachel Thompson, MD*

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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*

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What Happens to our Neuromuscular Patients in Adulthood:

Pathway to Independence and Maximal Function

*Wade Schrader, MD*

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References: 1. Jelin AC, O'Hare E, Blakemore K, et al. Skeletal dysplasias: growing therapy for growing bones. *Front Pharmacol*. 2017;8(79):1-6. 2. Krakow D. Skeletal dysplasias. *Clin Perinatol*. 2015;42(2):301-319.

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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*

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#### Arabella Leet Memorial

*Margaret Siobhan Murphy-Zane, MD*

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#### Developing a Career Action Plan: Academic and Professional Advancement

*Stephen Albanese, MD*

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#### Getting to Yes: Negotiation with your Practice and Administration

*David Skaggs, MD, MMM*

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#### Mentors, Networking, and POSNA

*Michelle Caird, MD*

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#### Success at Home and Work: How to be a Great Mom/Dad/Surgeon

*Amy McIntosh, MD*

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#### Lessons Learned: Mistakes from My First 10 Years

*John (Jack) Flynn, MD*

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#### Concluding Remarks

*Megan Johnson, MD*

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# SPEAKERS & AWARD RECIPIENTS



## 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.







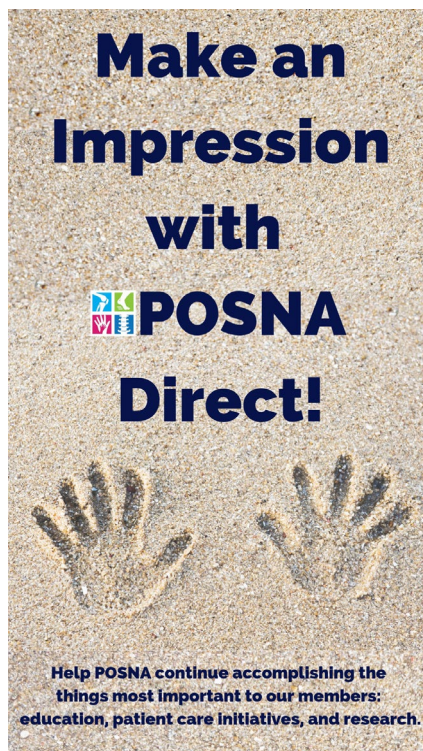
## DONALD BAE, MD SPECIAL EFFORT AND EXCELLENCE AWARD

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.



## CHARLES E JOHNSTON, MD HUMANITARIAN AWARD



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.



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## 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**

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or by calling **(844) 41-ORTHO**.



# PRESENTATIONS

## 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

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### 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

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### 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

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### 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

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### 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

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### 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

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## 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

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# 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*

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### 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*

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### 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*

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### 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*

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### 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*

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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*

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### 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*

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## 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*

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### 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*

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### 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*

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### 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 Stunden, MPH; Eva Habib, BS; John Jacob, MSc; Kishore Mulpuri, FRCSC  
BC Children's Hospital, Vancouver, BC, Canada*

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### 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*

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### 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*

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### 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*

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# PRESENTATIONS, CONTINUED

## 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

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### 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

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### 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

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### 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

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## SPINE – 60 minutes

### PAPER 26

#### ◆ Surgical Complications of Anterior Vertebral Body Growth Modulation for Skeletally Immature Patients with Idiopathic Scoliosis

**Stefan Parent, MD**; Abdulmajeed Alzakri, MD; Marjolaine Roy-Beaudry, MSc; Isabelle Turgeon, BS;  
Marie Beausejour, PhD; Olivier Turcot, MD  
CHU Sainte-Justine, Montreal, Quebec, Canada

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### 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

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### 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

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◆ 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).



## SPINE, CONTINUED

### 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

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### 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 Akbarnia, 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

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### 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

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### 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

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### PAPER 33

#### Is Growth-Friendly Surgery Effective for the Treatment of Spinal Deformity in Patients with Arthrogyrosis 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

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### 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

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# 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*

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### 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*

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### 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*

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### 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*

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### 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*

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### 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 Shufflebarger, MD; Burt Yaszay, MD; Patrick Cahill, MD  
Children's Hospital of Philadelphia, Philadelphia, PA*

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## 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*

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## 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 Sankarankutty; Benton Heyworth, MD; Matthew Milewski, MD; **Mininder Kocher, MD, MPH**  
Boston Children's Hospital, Boston, MA

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### 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

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### 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

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### 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

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### 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

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### 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

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### 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

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## 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

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### 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

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### 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

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### 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

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### 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 Henrikus, MD  
PennState Hershey Medical Center, Hershey, PA

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### 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

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### 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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# SYMPOSIA PROGRAM

## 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*



## 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 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)*

### An Orthopedic Journey in a Low Income Country and the Way Forward for Long Term Sustainable Change: The Haitian Experience

*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*

# SYMPOSIA PROGRAM, CONTINUED

## POPS

### THE PHYSIS: 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*

# SYMPOSIA PROGRAM, CONTINUED

## 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*

# SYMPOSIA PROGRAM, CONTINUED

## 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-10 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*





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- 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](https://posna.org/Resources/Traveling-Fellowship).
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To improve the care of children with musculoskeletal disorders through education, research, and advocacy.

## POSNA Vision

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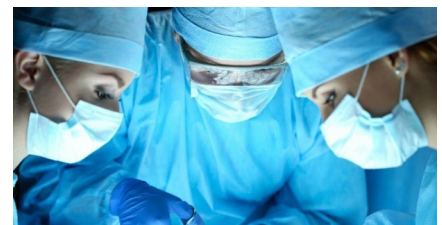
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## POSNA Education and Resources

- [POSNA Annual Meeting](#)
- [IPOS \(International Pediatric Orthopaedic Symposium\)](#)
- POSNA Mentorship Program
- [Webinars](#)
- [Tutorials](#)
- [POSNAcademy.org: Pediatric Orthopaedic Online Learning Portal](https://posnaacademy.org)
- [OrthoKids.org: POSNA's website for parents and patients](https://ortho-kids.org)
- Opportunity for Global Outreach

## POSNA Research

- [POSNA funded Research Grants](#)
- [Industry funded Research Grants](#)
- [Foundation funded Awards](#)



# 2020 SUBSPECIALTY DAY PROGRAM

## HAND SUBSPECIALTY DAY – 59 minutes

Co-Chairs: *Claire Manske, MD* and *Lindley Wall, MD*

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*

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### 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 Nikolaou, PhD; Jason Long, PhD; Kendra Eckstein, BS; Roger Cornwall, MD*  
*Cincinnati Children's Hospital Medical Center, Cincinnati, OH*

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### 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*

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### 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*

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### 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*

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### PAPER 77

#### Functional Workspace of Reconstructed Hypoplastic Thumbs

*Patrick Curran, MD; Madeleine Ball, BS; Anita Bagley, PhD; Mary Manske, MD; Laura Lewallen, MD; Mitell Sison-Williamson, MS; Michelle James, MD*  
*Shriners Hospitals for Children Northern California, Sacramento, CA*

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# SUBSPECIALTY DAY PROGRAM, CONTINUED

## 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.

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## 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*

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## 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*

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### 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*

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### 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*

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### 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*

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### 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*

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#### 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*

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## 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*

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### 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*

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### 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*

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### 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*

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### 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*

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### 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*

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## 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*

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### 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*

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### 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*

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### 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*

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### 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*

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### 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*

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### 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*

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# SUBSPECIALTY DAY PROGRAM, CONTINUED

## 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

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## 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

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### 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

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### 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

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### 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

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# SUBSPECIALTY DAY PROGRAM, CONTINUED

## 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*

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### PAPER 101

#### Correction of Mild/Moderate Arthrogyrotic Knee Flexion Contractures with Guided Growth

*Harold Van Bosse, MD*

*Shriners Hospital for Children, Philadelphia, PA*

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#### Debate: Physeal Bar Excision: Is it Necessary?

**PRO:** *William Shaughnessey, MD, Mayo Clinic*

**CON:** *John Birch, MD, FRCS, 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*

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## 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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◆ 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).



## 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; **Julianne Sees, DO**  
Nemours/Al duPont Hospital for Children, Wilmington, DE

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### 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, Sunnam, Republic of Korea

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### 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

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### 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

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### 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

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#### 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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# SUBSPECIALTY DAY PROGRAM, CONTINUED

## 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*

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### 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*

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### 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*

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### 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*

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### 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*

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### 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*

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## 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*

# SUBSPECIALTY DAY PROGRAM, CONTINUED

## SPINE SUBSPECIALTY DAY, CONTINUED

### Radiographic vs Biologic Markers for Growth Prediction in Idiopathic Scoliosis

Michelle Welborn, MD

### Vertebral Body Tethering -- How to and Early Results

Kevin Smit, MD

### Posterior Dynamic Deformity Correction – How to and Early Results

Jeffrey Sawyer, MD

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#### 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

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#### 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

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#### 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

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#### 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

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#### 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

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#### 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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# SUBSPECIALTY DAY PROGRAM, CONTINUED

## 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*

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## 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*

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### 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*

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### 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*

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## SPORTS SUBSPECIALTY DAY, CONTINUED

### 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*

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### 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*

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### 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*

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#### 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*

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### 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*

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### 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 Sankarankutty*

*Boston Children's Hospital, Boston, MA*

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# SUBSPECIALTY DAY PROGRAM, CONTINUED

## 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*

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### 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*

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### PAPER 130

**Quadriceps 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*

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### 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*

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## 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*

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## 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*

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### 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*

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### 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*

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### 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*

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### 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*

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# SUBSPECIALTY DAY PROGRAM, CONTINUED

## 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

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#### 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

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### 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

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### 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

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### 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

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## TRAUMA SUBSPECIALTY DAY, CONTINUED

### 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*

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### 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*

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### 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*

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### 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*

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## 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

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### 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

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### 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

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### 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

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### 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

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### 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

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### 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

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### 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

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## 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*

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## 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*

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### 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*

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### 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*

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### 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*

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### 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*

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## 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 Mulpuri, MBBS, MS*  
BC Children’s Hospital, Vancouver, BC, Canada

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### 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

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### 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 Nuñez de Armas, MD; Mar Perez Martin-Buitrago, PhD; Maria Salcedo, MD; Gaspar Gonzalez-Moran, MD*  
Hospital Universitario La Paz, Madrid, Spain

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### PAPER 162

#### AI-Augmented 2D Cine Ultrasound Improves the Reliability and Accuracy of Hip Dysplasia Diagnosis

*Sukhdeep Dulai, FRCSC; Siyavash Nia, MSc; Abhilash Rakkunedeth, PhD; Jacob L. Jaremko, MEd*  
University of Alberta, Edmonton, Alberta, Canada

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### PAPER 163

#### Updated Normal Values of the Pediatric Hip Joint: A Retrospective Cohort Study

*Derek Hesse, BS; Ian Hollyer; Jamie Burgess, PhD; Joseph Janicki, MD*  
Ann & Robert H. Lurie Children’s Hospital, Chicago, IL

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### PAPER 164

#### Part-Time Abduction Bracing in Infants with Residual Acetabular Dysplasia: Does Compliance Monitoring Support a Dose-Dependent Relationship?

*Ishaan Swarup, MD; Divya Talwar, MPH; Wudbhav (Woody) Sankar, MD*  
Children’s Hospital of Philadelphia, Philadelphia, PA

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### PAPER 165

#### Inverted Acetabular Labrum is Predictive of Pavlik Harness Treatment Failure for Children with Developmental Hip Dysplasia

*Ali Siddiqui, BS; Lillian Lai, MD; Rachel Goldstein, MD*  
Children’s Hospital Los Angeles, Los Angeles, CA

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## HIP, CONTINUED

### PAPER 166

#### Hip Dysplasia at 4 Years in Patients with Perinatal Risk Factors for DDH

*Simon Humphry, FRCS (Ortho); Tim Hall, MBBS; Margaret Hall-Craggs, MD; Andreas Roposch, MD*  
Great Ormond Street Hospital, London, United Kingdom

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### PAPER 167

#### Long Term Outcomes Following Successful Closed or Open Reduction of Late Detected Developmental Dysplasia of the Hip

*William Morris, MD; Sean Hinds, BS; Hannah Worrall, MPH; Chan-Hee Jo, PhD; Harry Kim, MD*  
Texas Scottish Rite Hospital for Children, Dallas, TX

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### PAPER 168

#### Intermediate Outcomes following Surgical Hip Dislocation Approach for the Treatment of Hip Deformity in Healed Legg-Calve-Perthes Disease

*Eduardo Novais, MD; Pedro Justo, MD; Young Jo Kim, MD; Michael Millis, MD; Whitney Hovater; Daniel Maranhão, MD; Mariana Ferrer, MD; Patricia Miller, MS; Roya Dastjerdi*  
Boston Childrens Hospital, Boston MA

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### PAPER 169

#### Reoperations Following Periacetabular Osteotomy Secondary to Impingement

*Jeffrey Lamping, MD; Erika Daley, MD; Ira Zaltz, MD*  
Beaumont Health, Royal Oak, MI

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### PAPER 170

#### Surgical Treatment of Femoroacetabular Impingement: Arthroscopy vs. Surgical Hip Dislocation – A Propensity Matched Analysis

*Ira Zaltz, MD; Asheesh Bedi; Jeffrey Nepple, MD; Paul Beaulé, MD; Michael Millis, MD; Rafael Sierra, MD; Ernest Sink, MD; ANCHOR Study Group; John Clohisy, MD*  
Washington University School of Medicine, Saint Louis, MO

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Richard M. Schwend, MD  
Orthopaedic Surgery



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## ePOSTERS

### ePoster 1

#### An Ovine Study of Locked Intramedullary Implants Across the Distal Femoral Growth Plate

Raymond Liu, MD; Alex Benedick, MD; Chang-Yeon Kim, MD; Kouami Amakoutou, MD; Derrick Knapik, MD; Lewis Zirkle, MD

Rainbow Babies and Children's Hospital/Case Western Reserve University, Cleveland, OH

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### ePoster 2

#### Increased Frequency of SHOX Duplications in Clubfoot

Matthew Dobbs, MD

Washington University School of Medicine, Saint Louis, MO

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### ePoster 3

#### The Effect of Physeal Biopsy on Limb Growth in a Lamb Model

Peter Stevens, MD; Richard Epperson; Dustin Williams, PhD

University of Utah, Salt Lake City, UT

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### ePoster 4

#### The Importance of Genetic Whole Genome-based Diagnosis in Epiphyseal Dysplasia

Amelia Lindgren, MD; Shimul Chowdhury, PhD; Lauge Farnaes; Mari Tokita; Katarzyna Ellsworth, PhD; Meredith Wright, PhD; Stephen Kingsmore, MBChB; Vidyadhar Upasani, MD

Rady Children's Hospital, San Diego, San Diego, CA

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### ePoster 5

#### A Novel Cross-Linkable, Microfiber-Like Collagen Scaffold Supports Chondrocyte Differentiation and Growth

Daniel Weltsch, MD; John Todd Lawrence, MD; Mingkun Wang, ONP-C; Andrew Fok, BA;

Danielle Rux, PhD; Maurizio Pacifici, PhD; Li-Hsin Han, PhD

Children's Hospital of Philadelphia, Philadelphia, PA

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### ePoster 6

#### Comparison of the Load Delivered to Scoliosis Patients Using Different Halo Gravity Traction Systems: A Bench Study

Jonathan Poli, MSc; Tyler Morton, BS; Robert C. Aylor, BS; Christopher Howard, MBA; Walter Kregel; Klane White, MD; Gregory Redding, MD; Jennifer M. Bauer, MD

Seattle Children's Hospital, Seattle, WA

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### ePoster 7

#### Preoperative Antibiotic For Pediatric Supracondylar Humerus Fractures: A Prospective, Double-Blinded, Randomized Control Trial

Sumit Gupta, MD; Jayson Johnson, MD; Ennio Rizzo Esposito, MD; Daniel Hoernschemeyer, MD

Orthopedics Department at the University of Missouri-Columbia, Columbia, MO

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### ePoster 8

#### Occipito-Cervical Fusion In Morquio Syndrome

Vijay Sriram, MS; Kailash Sarathy, MS; Sriram Krishnaswamy, MD; Chidambaram Balasubramaniam, MBBS  
Kanchi Kamakoti Childs Trust Hospital, Chennai, Tamil Nadu, India

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## ePoster 9

### Use of Recombinant Human Bone Morphogenetic Protein for Revision Cervical Spine Fusion in Children with Trisomy 21: A Case Series

Lara Cohen, BS; Brian Yang, MD; Nora O'Neill, BA; Michael Glotzbecker, MD; Daniel Hedequist, MD  
Boston Children's Hospital, Boston, MA

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## ePoster 10

### Classifying Vertebral Artery Anatomy Abnormality in Children with Skeletal Dysplasias

Jennifer Bauer, MD; Ekamjeet Dhillon, MD; Shawn Kamps, MD; Ezekiel Maloney, MD; Melody Hsu, BS; Viviana Bompadre, PhD; Klane White, MD  
Seattle Children's Hospital, Seattle, WA

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## ePoster 11

### Intramedullary Nailing with Supplemental Plate and Screw Fixation of Long Bones of Patients with Osteogenesis Imperfecta: Short-term Follow-up

Jeanne Franzone, MD; Kenneth Rogers, PhD; Richard Kruse  
Alfred I duPont Hospital for Children, Wilmington, DE

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## ePoster 12

### Intraoperative Non-Invasive Blood Pressure Cuff and Tourniquet Use: What is the Risk in the Pediatric OI Population?

Kirsten Ross, MD; Joseph Gibian, BS; Jeffrey Martus, MD  
Vanderbilt University Medical Center, Nashville, TN

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## ePoster 13

### Peri-Operative Management of Children with SMA

Matthew Halanski, MD; Scott Hetzel, MS; Rewais Hanna, BS  
University of Wisconsin-Madison, Madison, WI

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## ePoster 14

### The Effect of Selective Dorsal Rhizotomy on Spinal Deformities in Children with Cerebral Palsy: A Long Term Follow Up Study

Stacey Miller, PT; Jonathan Lau, MD; Maria Juricic, PT; Bejaan Jivraj, MBBS; Paul Steinbok; Firoz Miyanji, MD; Kishore Mulpuri, MBBS, MS  
BC Children's Hospital, Vancouver, BC, Canada

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## ePoster 15

### A New Radiographic Measurement for Quantitative Assessment of Forefoot Splay in Children with Persistent Idiopathic Toe Walking

Jon Davids, MD; Donald Kephart, MD; Sean Brown, BS; Anita Bagley, PhD; Vedant Kulkarni, MD  
Shriners Hospital Northern California, Sacramento, CA

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## ePoster 16

### Treatment and Outcomes of Clubfeet Associated with Amniotic Band Syndrome

Elaine Tran, MD; Melissa Esparza, MD; B. Stephens Richards, MD; Anthony Riccio, MD  
Texas Scottish Rite Hospital, Dallas, TX

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## **ePoster 17**

### **The Five Year Outcome of the Ponseti Method in Children with Idiopathic Clubfoot and Arthrogyposis**

*Chris Church, PT; Abigail McGowan; John Henley, PhD; Maureen Donohoe, DPT; Timothy Niiler, PhD; Michael Shrader, MD; Reid Nichols, MD*

*Nemours duPont Hospital for Children, Wilmington, DE*

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## **ePoster 18**

### **The Relationship Between Initial Treatment, Calf Circumference, Ankle Power and Single Leg Hop Distance: A Study of 40 Ponseti Treated Unilateral Clubfeet**

*Neil Segaren, FRCS (Ortho); Christine Douglas, CPS; Matt Thornton; Roisin Delaney; Sally Tennant*  
*Royal National Orthopaedic Hospital, Stanmore, London, United Kingdom*

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## **ePoster 19**

### **The Effect of Lateral Column Lengthening on Subtalar Motion: Are We Trading Deformity for Stiffness?**

*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*

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## **ePoster 20**

### **Surgical Outcomes and Predictive Factors in Polysyndactyly of the Fifth Toe**

*Kyung Rae Ko, MD; Jong Sup Shim, MD; Minkyu Seo, MD*

*Samsung Medical Center, Seoul, Republic of Korea*

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## **ePoster 21**

### **Minimal Correlation Between Pediatric Outcomes Data Collection Instrument and the Shriners Hospital Upper Extremity Evaluation Scores in Children with Unilateral Cerebral Palsy**

*Julianne Sees, DO; Rameez Qudsi, MD; Timothy Niiler, PhD; John Kee, BA; Nancy Lennon, PT; Jennifer Ty, MD*

*Nemours Alfred I duPont Hospital for Children, Wilmington, DE*

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## **ePoster 22**

### **Clinically Relevant Change in the Pediatric and Adolescent Shoulder Survey (PASS)**

*Tracey Bastrom, MA; Andrew Pennock, MD; Kelly Boutelle, BS; Abigail Wagle, BS; Eric Edmonds, MD*  
*Rady Children's Hospital, San Diego, San Diego, CA*

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## **ePoster 23**

### **Pediatric Proximal Phalanx Base Fractures in Fingers: Identifying the Need for Surgical Management**

*Nicole Look, MD; Andy Lalka, MPH; Micah Sinclair, MD; John Schutz, BS; Hannah Korrell, BA; Jennifer Nance, DNP; Sarah Sibbel, MD*

*Children's Hospital Colorado, Aurora, CO*

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## **ePoster 24**

### **Fresh Osteochondral Allograft Transplantation for Osteochondritis Dissecans of the Capitellum – Best Fit Based on Radius of Curvature**

*Zachary Goldstein, BS; Austin Thompson, BS; Michael Robbins, MD; Scott Yang, MD; Omar Nazir, MD; Adam Mirarchi, MD*

*Oregon Health & Science University, Portland, OR*

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## ePoster 25

### ◆ Pediatric Trigger Thumb with Metacarpophalangeal Joint Hyperextension or Instability

Sheng Jin, MD; Xu Yunlan; Wang Zhigang, MD  
Shanghai Children's Medical Center, Pudong New Area,  
Shanghai, People's Republic of China

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## ePoster 26

### Access to Occupational Therapy Services Are Limited for Pediatric Patients Regardless of Insurance Status

Meghan McCullough, MD; Ashley Caron, BS; Marilan Luong, MPH; Cynthia Nguyen, MD; Ruby Shin; Katherine Au, MD; Selina Poon, MD  
Shriners for Children Medical Center - Pasadena, Pasadena, CA

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## ePoster 27

### Characterization of Pediatric Extension Trigger Thumb: An Update Insight of a Rare Phenotype from Prospective Cohorts of 1,280 Trigger Thumb Patients

Xu Yunlan; Kaiying Shen, MD; Sheng Jin  
Shanghai Children's Medical Center, Shanghai, People's Republic of China

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## ePoster 28

### Declining Rates of Legg-Calvé-Perthes Surgery: National Trends Using the Kids' Inpatient Database

Jaren Lagreca, MD; Amanda Nickel, MPH; Michael Finch, PhD; Benjamin Martin, MD; Jennifer Laine, MD  
Gillette Children's Specialty Healthcare, St. Paul, MN

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## ePoster 29

### Epiphyseal Translation as a Risk Factor for Avascular Necrosis (AVN) in Unstable Slipped Capital Femoral Epiphysis (SCFE)

Preetha Sinha, MD; Ahmed Khedr; Tanya Kenkre, PhD; Natalie Novak, BS; Michael McClincy, MD; Patrick Bosch, MD  
UPMC Children's Hospital of Pittsburgh, Pittsburgh, PA

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## ePoster 30

### Are We Attaining Patient Satisfaction and Using Effective Outcome Measures? Defining the Minimal Clinically Important Difference and Substantial Clinical Benefit and Their Relationship to Satisfaction After a Periacetabular Osteotomy

Jeffrey Peck, MD; Stacy Robustelli, BS; Joseph Nguyen, MPH; Ernest Sink, MD  
Hospital for Special Surgery, New York, NY

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## ePoster 31

### Prospective Evaluation of In Situ Screw Fixation for Stable Slipped Capital Femoral Epiphysis

Samuel Baird, BS; Clarabelle Devries, MD; James Bomar; Vidyadhar Upasani, MD  
Rady Children's Hospital, San Diego, San Diego, CA

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## ePoster 32

### Seamlessly Weaving Research into Clinical Care

Brenda Matthews; Kiley Poppino, BS; Dominic Chittilappilly, BS; Brandon Ramo, MD  
Texas Scottish Rite Hospital for Children, Dallas, TX

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## **ePoster 33**

**Where Should we Aim to Penetrate the Epiphysis for Pinning a Stable SCFE? A Clinical and FE Analysis Study of Failed SCFE Fixation Focused on the Epiphyseal Tubercle vs. the Epiphyseal Center**

*Eduardo Novais, MD; Young Jo Kim, MD; Ali Kiapour, PhD; Yi-Meng Yen; William Morris, MD; Ata Kiapour, PhD*

*Boston Childrens Hospital, Boston, MA*

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## **ePoster 34**

**Treat the Image or the Infant: Ultrasonographic Abnormalities in Stable Hips**

*Elizabeth Hubbard, MD; Robert Lark, MD; Robert Fitch, MD*

*Duke University Medical Center, NC*

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## **ePoster 35**

**Telehealth & Teleradiology Services at a Tertiary Care Centre**

*Eva Habib, BS; Wendy Krishnaswamy, BSN; Emily Schaeffer, PhD; Kishore Mulpuri, FRCSC*

*BC Children's Hospital Vancouver, BC Canada*

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## **ePoster 36**

**Descriptive Epidemiology of Upper Extremity Septic Arthritis in Children – Review of the CORTICES Database**

*Ying Li, MD; Danielle Cook, BS; Allan Beebe, MD; Jaime Denning; Joseph (Jay) Janicki, MD; Megan Johnson, MD; Antoinette Lindberg, MD; Cortices Study Group*

*C.S. Mott Children's Hospital, Michigan Medicine, Ann Arbor, MI*

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## **ePoster 37**

**Risk Factors for Complicated Osteo-articular Infections in Children**

*Vinitha Shenava, MD; Elsayed Attia, MD; Ahmed Elabd, MD*

*Texas Children's Hospital, Houston, TX*

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## **ePoster 38**

**Osteo-articular MRSA infections in Children. Does It Really Matter?**

*Vinitha Shenava, MD; Elsayed Attia, MD; Ahmed Elabd, MD*

*Texas Children's Hospital, Houston, TX*

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## **ePoster 39**

**Utility of Serum Biomarkers in Monitoring Response to Treatment for Pediatric Osteoarticular Infections**

*Nicholas Gajewski, MD; Vivian Hu, BS; Sierra Pinal, BA; Paul Krogstad, MD;*

*Annabelle De St Maurice, MD; Mauricio Silva, MD; Rachel Thompson, MD*

*UCLA, Los Angeles, CA*

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## **ePoster 40**

**Prevalence of Intra-canal Spinal Exostoses in Pediatric MHE: Prospective Spine at Risk Program**

*Catphuong Vu, MD; Antoinette Lindberg, MD; Viviana Bompadre, PhD; Klane White, MD;*

*Jennifer M. Bauer, MD*

*Seattle Children's Hospital, Seattle, WA*

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## **ePoster 41**

### **The Modified Kocher Criteria is a Good Predictor of Both Septic Hip and Knee**

Roy Bisht; **Jessica Burns, MD**; Paul Kang; Mohan Belthur, MD; Michael Shrader, MD  
Phoenix Children's Hospital, Phoenix, AZ

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## **ePoster 42**

### **Poor Outcomes of Acute Compartment Syndrome in the Setting of Extracorporeal Membrane Oxygenation: A Multicenter Case Series**

**Kacy Peek, MD**; Viviana Bompadre, PhD; Marilyn Elliott; Christine Ho, MD; Antoinette Lindberg, MD; Mark Miller; Gregory Schmale, MD; Suzanne Steinman  
University of Washington Seattle Children's Hospital, Seattle, WA

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## **ePoster 43**

### **Novel Sagittal Plane Radiographic Analysis of Guided Growth for Knee Flexion Contractures: Utilization of Blumensaat-Femoral Angle**

Jacob Cohen, BS; Nicholas Casler; Gabriel Glaun, BS; Mark Birnbaum, MD; Denise Lopez, NP; **Jonathan H. Phillips, MD**  
Orlando Health, Orlando, FL

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### **Outcomes of Non-operative Treatment for Stable Osteochondritis Dissecans Lesions in Adolescent Patients**

Alexia Gagliardi; Victor Quach, BS; Gregory Walker, MD; Katherine Dahab, MD; David Howell; **Jay Albright, MD**  
Children's Hospital Colorado, Aurora, CO

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### **Prevalence of Vitamin D Deficiency in Pediatric Limb Lengthening and Deformity Correction Patients**

Jessica Rivera, MD; Nequesha Mohamed, MD; Iciar Davila Castrodad, MD; Noelle DiGioia, DO; Nancy Campbell, DO; Megha Abraham; Thea Recai, BS; Jennifer Etcheson, MD; **John Herzenberg, MD**  
Rubin Institute for Advanced Orthopedics, Sinai Hospital of Baltimore, Baltimore, MD

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## **ePoster 46**

### **Increased Prevalence of Juvenile Osteochondritis Dissecans in Patients with Juvenile Idiopathic Arthritis**

Andrew Hinkle, BS; Celeste Quitiquit Dickason, MD; Thomas Jinguji, MD; Susan Shenoj, MBBS; Mahesh Thapa, MD; Michael Saper, DO; Viviana Bompadre, PhD; **Gregory Schmale, MD**  
Seattle Children's, Seattle, WA

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### **Smart Phone Accelerometers Used to Monitor Postoperative Weight-bearing Protocol**

Kristine Khieu, BS; Surabhi Kalyan, BS; Alan Lunardi, BS; **Vidyadhar Upasani, MD**  
Rady Children's Hospital, San Diego, CA

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### **How Much Change is Important? Calculating the Minimal Clinically Important Difference of the GMFM, PODCI, and CPCHILD after Orthopedic Surgery in Children with Cerebral Palsy**

Jodie Shea, BS; Rachel Tombeno; Patricia Miller, MS; Maria Fragala-Pinkham, DPT; Colyn Watkins, MD; Brian Snyder; Travis Matheny, MD; Benjamin Shore, MD, MPH, FRCSC  
Boston Children's Hospital, Boston, MA

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## ePoster 49

### Adding Value in Single Event Multi Level Surgery (SEMLS) for Cerebral Palsy Patients with Crouch Gait: Value Added by a Second Surgeon

*Keith Baldwin, MD; Kimberly Stevenson, MD; David Spiegel, MD; Divya Talwar, MPH; Apurva Shah, MD, MBA  
Children's Hospital of Philadelphia, Philadelphia, PA*

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## ePoster 50

### Long Term Patient Reported Outcomes of Physical Function, Life Satisfaction, and Pain in Young Adults with Cerebral Palsy

*Michael Shrader, MD; Nancy Lennon, PT; Chris Church, PT; William Robinson; John Henley, PhD; Timothy Niiler, PhD; Julieanne Sees, DO; Jason Howard, MD; Freeman Miller, MD  
Nemours duPont Hospital for Children, Wilmington, DE*

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## ePoster 51

### Treatment of Severe Knee Flexion Contractures in Patients with Arthrogyrosis

*Harold Van Bosse, MD  
Shriners Hospital for Children, Philadelphia, PA*

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### Effect of Pediatric Orthopedic Intervention on Ambulatory Adults with Cerebral Palsy: A Long-term Longitudinal Assessment

*Tanyawat Saisongcroh, MD; Michael Shrader, MD; Nancy Lennon, PT; Chris Church, PT; Julieanne Sees, DO; Freeman Miller, MD  
Alfred I duPont Hospital for Children, Wilmington, DE*

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### Cerebral Palsy (CP) Hip Outcomes Project (CHOP): Centre Variability in Baseline Presentation and Management

*Maria Juricic, PT; Emily Schaeffer, PhD; Stacey Miller, PT; Jeffrey Bone, MSc; Benjamin Shore, MD, MPH, FRCSC; Unni Narayanan, MSc, MBBS, FAAOS, FRCSC; Kishore Mulpuri, FRCSC  
BC Children's Hospital, Vancouver, BC, Canada*

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## ePoster 54

### The Ponseti Method: What Is Happening Worldwide?

*Yael Gelfer, FRCS; Katie Hughes, MBBS; Tobin Mangel, MBBS; Andreas Fontalis, MD; Shlomo Wientroub; Deborah Eastwood, FRCS  
St. George's University Hospital NHS Trust, London, United Kingdom*

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### Evaluation of the Burden of Foot and Ankle Deformity in Fibular Hemimelia: Is it Time to Broaden the Clinical Spectrum?

*Alpesh Kothari, FRCS (Ortho); Maryse Bouchard, MD  
Hospital for Sick Children, Toronto, Ontario, Canada*

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### A Quality Improvement Project to Reduce the Use of Combination Acetaminophen-Opioid Medications within a Large Health System

Sunny Trivedi, BS; Kevin Shea, MD; Whitney Chadwick, MD; Shabnam Gaskari, PhD; Ellen Wang, MD; Thomas Caruso, MD

Lucile Packard Children's Hospital, Stanford University School of Medicine, Palo Alto, CA

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### Pediatric Venous Thromboembolism: Variable Rates of Incidence, Risk Factors, and Prophylaxis between Orthopaedic and Non-Orthopaedic Surgical Cohorts

Aneesh Samineni, BA; Ryan Sanborn, BA; Danielle Cook, BS; Daniel Hedequist, MD; Collin May, MD; Benton Heyworth, MD; Benjamin Shore, MD, MPH, FRCSC

Boston Children's Hospital, Boston, MA

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Melissa Cuevas, MS; Maria Cattell, PhD; Elizabeth Terhune, MS; Cambria Wethey, BS; Justin Casey, MS; Brittan Sutphin, BA; Shreyash Pradhan, BA; Robin Baschal; Anna Monley; Kenneth Jones, PhD;

Erin Baschal, PhD; Bruce Appel, PhD; Nancy H. Miller, MD

University of Colorado, Aurora, Colorado

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### Administration of Intraoperative Adjuvant Antibiotics Reveals No Change in Postoperative Surgical Site Infection Rate: A National Analysis of Posterior Spinal Fusions for Scoliosis

Max Hyman; Jamie Burgess, PhD; Joseph (Jay) Janicki, MD

Ann & Robert H. Lurie Children's Hospital, Chicago, IL

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### Postoperative Outcomes in Diabetic Pediatric Orthopaedic Surgery Patients: A Pediatric NSQIP Study

Farzam Farahani, BS; Junho Ahn, BS; Paul Nakonezny, PhD; Dane Wukich, MD; Robert Wimberly, MD; Anthony Riccio, MD

University of Texas Southwestern Medical Center, Dallas, TX

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### Does Topical Vancomycin Reduce Surgical Site Infection in Pediatric Spine Fusion Patients?

William Shaughnessy, MD; Smitha Mathew, MBBS; A. Noelle Larson, MD; Todd Milbrandt, MD; Anthony Stans, MD

Mayo Clinic, Rochester, MN

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### 1 to 30 Years Post-Surgical HRQoL of Adolescent Idiopathic Scoliosis (AIS) with SRS-22 - A Study of 1315 Patients

Tsz Ping Lam; Kin-Wah Bobby Ng, FRCS (Ortho); Alec Hung, MD; Wai Wang Chau, MSc; Jack Cheng, MD

Department of Orthopaedics and Traumatology, Chinese University of Hong Kong, Shatin, N.T., Hong Kong

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Eli Cahan, BA; Amanda Chawla, MA; Ly Nguyen, MS; James Lee, BS; Vignesh Rajagopalan, MS; Kevin Shea, MD

Stanford School of Medicine, Stanford, CA

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Matthew Simhon, BS; Benjamin Roye, MD; Hiroko Matsumoto, MS; Cynthia Almonte, PT; Prachi Bakarania, DPT; Hagit Berdishevsky, PT; Lori Dolan, PhD; Sabrina Donzelli, MD; Kelly Grimes, DPT; Theodoros Grivas, MD; Matthew Halsey, MD; Michael Hresko, MD; Elizabeth Janssen; Lori Karol, MD; Andrea Lebel; Michael Mendelow, MD; Stefano Negrini, MD; Peter Newton, MD; John Tunney; Stuart Weinstein; Grant Wood, CO; Fabio Zaina, MD; Michael Vitale, MD

Columbia University Medical Center, New York, NY

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Norman Ramirez-Lluch, MD; Ryan Fitzgerald, MD; Gerardo Olivella, MD; John Smith, MD; Peter Sturm; Paul Sponseller, MD, FAAOS; Lawrence Karlin, MD; Scott Luhmann, MD;

Tricia St. Hilaire, MPH; Pediatric Spine Study Group  
Pediatric Spine Study Group, Valley Forge, PA

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### Uncorrected Pelvic Obliquity is Associated with Lower Health Related Quality of Life in Ambulatory but not in Non-Ambulatory Patients After Surgical Treatment in Patients with Early Onset Scoliosis

Hiroko Matsumoto, MS; Jacob Ball, BS; Benjamin Roye, MD; Sumeet Garg, MD; Mark Erickson, MD; Amer Samdani, MD; David Skaggs, MD, MMM; David Roye; Michael Vitale, MD;

Pediatric Spine Study Group  
Columbia University, New York, NY

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### Liposomal Bupivacaine for Adolescent Idiopathic Scoliosis Does Not Effectively Decrease Post-Operative Pain

David Macknet, MD; Richard Mcknight, MD; Susan Odum, PhD; Michael Paloski, DO  
OrthoCarolina, Charlotte, NC

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### Nationwide Ethnic/Racial Differences in the Surgical Treatment of Discoid Meniscus in Children: A PHIS Database Study

Matthew Milewski, MD; Ryan Coene; Kathryn Williams, MS; Lanna Feldman, MS; Kelly McFarlane, BS; Jennifer Beck, MD

Boston Children's Hospital, Boston, MA

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### A Practical Pre-Operative Predictive Model for Determining Hamstring Autograft Size for Anterior Cruciate Ligament Reconstruction in Children and Adolescents

Benjamin Sherman, DO; Kevin Kwan; **John Schlechter, DO**  
Children's Hospital of Orange County, Orange, CA

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### Is Percutaneous Medial Collateral Ligament (MCL) Relaxation During Anterior Cruciate Ligament Reconstruction a Safe Option for Gaining Access to the Medial Knee Compartment in Children?

**John Schlechter, DO**; Benjamin Sherman, DO; Bryn Gornick, BS; Tanner Harrah, DO  
Children's Hospital of Orange County, Orange, CA

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Yukiko Matsuzaki, DPT; Madison Heath, BS; **Peter Fabricant, MD**  
Hospital for Special Surgery, New York, NY

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### Do Delays to Operative Management Affect Rates of Meniscal Injury in Pediatric and Adolescent ACL Reconstructions?

Joshua Park, BA; Brody Dawkins, BA; Peter Fabricant, MD; Allison Gilmore, MD; Mark Seeley, MD;  
**R. Justin Mistovich, MD**  
Case Western Reserve University School of Medicine, Rainbow Babies and Children's Hospital,  
Cleveland, OH

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### The Other Leg: Higher Rates of Contralateral ACL Tears in Adolescent Soccer Players Following ACL Reconstruction

**Henry Ellis, MD**; K. John Wagner, BS; Claire Althoff; Chan-Hee Jo, PhD; Philip Wilson  
Texas Scottish Rite Hospital for Children, Dallas, TX

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### Can MRIs Accurately Diagnose Meniscal Pathology in Pediatric Patients with ACL Tears?

Joshua Park, BA; Brody Dawkins, BA; Peter Fabricant, MD; Allison Gilmore, MD; Mark Seeley, MD;  
**R. Justin Mistovich, MD**  
Case Western Reserve University School of Medicine, Rainbow Babies and Children's Hospital,  
Cleveland, OH

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### Sagittal Plane Alignment Affects Stability in Supracondylar Humerus Fracture Pinning

**Rushyuan Lee, MD**; Alexander Bitzer, MD; Stephen Belkoff, PhD; Christa Librizzi, BS;  
Chimelie Chibututu, BS  
Johns Hopkins Hospital, Baltimore, MD

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**Kristin Livingston, MD**; Emily Edwards, MD; Michael Griffith, BA; John MacKenzie, MD; Matthew Zapala  
UCSF Benioff Children's Hospital, San Francisco, CA

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### A Single Education Session of Orthopaedic Residents Does Not Improve Patient Outcomes in Pediatric Distal Radius Fractures

Edward Compton, BS; Adrian Lin; Kenneth Illingworth, MD; Melissa Bent, MD  
Children's Hospital Los Angeles, Los Angeles, CA

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### Checklists in Femur Fractures: High Adherence after Implementation of Computer Based Pediatric Femur Guidelines

Kimberly Jacobsen, MD; Andrew Gupta, MD; Michael Goldberg; Ted Sousa, MD  
Seattle Childrens Hospital, Seattle, WA

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Keith Orland, MD; Adam Boissonneault, MBChB; Andrew Schwartz, MD; Rahul Goel, MD;  
Robert Bruce, MD; Nicholas Fletcher, MD  
Children's Healthcare of Atlanta, Atlanta, GA

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### Predicting Failure of Closed Reduction in Paediatric Diaphyseal Forearm Fracture Elastic Stable Intramedullary Nailing (ESIN)

Ling Hui Tay, MBBS; Nicole Lee; Darryl Chew, MD; Arjandas Mahadev, FRCS;  
Kenneth Pak Leung Wong, FRCS (Ortho)  
KK Women's and Children's Hospital, Singapore

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### Structural Effects of Periosteal Resection on Bone

Matthew Halanski, MD

University of Wisconsin, Madison, WI

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### Are Serum Ion Levels Elevated in Pediatric Patients with Growing Spine Implants versus Controls?

Geoffrey Haft, MD; Smitha Mathew, MBBS; A. Noelle Larson, MD; Yong Xie; Bangke Zhang, MD;  
Todd Milbrandt, MD; Matthew Abdel, MD; Andre Van Wijnen  
Mayo Clinic, Rochester, MN

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### Serum-Derived Exosomes of Congenital Pseudarthrosis of Tibia in Pediatric Patients Suppresses Bone Formation and Increases Bone Resorption via Alteration of Exosomal Bone-Related Proteins

Ge Yang, PhD; Qian Tan, MD; Hui Yu, PhD; Haibo Mei, MD

Department of Orthopedic, Hunan Children's Hospital, Changsha, People's Republic of China

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### Using a Selective Epigenetic Regulator in a Mouse Model to Reversibly Slow Physeal Growth

Todd Milbrandt, MD; Daniela Galeano Garces, MD; Catalina Galeano-Garces, BS;

Jennifer Grauberger, BA; A. Noelle Larson, MD; Andre Van Wijnen

Mayo Clinic, Rochester, MN

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### Chiari Osteotomy in Multiple Epiphyseal Dysplasia Including Pseudoachondroplasia with a Mean Follow-Up of 18 Years and Survival Analysis

*Aurélie Andrzejewski, MD; Georges Finidori, MD; Zagorka Péjin, MD; Alina Badina, MD; Philippe Wicart, PhD; Christophe Glorion, PhD  
Hôpital Necker Enfants Malades, Paris, France*

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### Patient Reported Outcomes Assessment of 243 Children and Adolescents with Lower Limb Deficiency: A Multi-Center Study

*Joel Lerman, MD; David Westberry, MD; Janet Walker; Sarah Nossov, MD; Nina Cung; Fiona Scott  
Shriners Hospitals for Children-Northern California, Sacramento, CA*

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### The Surgical Treatment of Severe Cervical Kyphosis in Diastrophic Dysplasia

*John Heydemann, MD; W.G. Stuart Mackenzie, MD; Kenneth Rogers, PhD; Colleen Ditro, NP; Jeffrey Campbell, MD; Suken Shah, MD; William Mackenzie, MD  
Nemours / Al duPont Hospital for Children, Wilmington, DE*

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### Introduction of Reasoned Percutaneous Achilles Tenotomy in the French Method of Idiopathic Congenital Cubfoot: Which Indication for Which Result?

*Virginie Nguyen Khac, MD; Marine De Tienda, MD; Zagorka Pejcin, MD; Valérie Merzoug, MD; Raphael Seringe, MD; Christophe Glorion, PhD; Philippe Wicart, PhD  
Hôpital Necker-Enfants Malade, Paris, France*

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### Talar-Tarsal Stabilization: Rationale and Preliminary Outcomes

*Peter Stevens, MD; Alex Lancaster, MD; Ansab Khwaja, MD  
University of Utah, Salt Lake City, UT*

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### Pediatric and Adolescent Lisfranc Injuries – Management and Outcomes

*Indranil Kushare, MD; Nicole Wunderlich, PA-C; Ahmed Elabd, MD; Elsayed Attia, MD  
Texas Children's Hospital, Houston, TX*

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## ePoster 91

### Clinical Presentation and Epidemiology of Hand and Wrist Ganglion Cysts in Children

*Joshua Bram, BS; David Falk, MD; Benjamin Chang; Jennifer Ty, MD; Ines Lin, MD; Apurva Shah, MD  
Children's Hospital of Philadelphia, Philadelphia, PA*

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### Paediatric Elbow Fractures: Public Playground Equipment Does Not Meet The Safety Standard

*Pardeep Sidhu; Jennifer Smith; Harpreet Chhina, MSc; Brittany Lim; Ian Pike, PhD; Anthony Cooper, FRCSC  
BC Children's Hospital, Vancouver, Canada*

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### The Effect of Social Deprivation on Pediatric PROMIS Scores in Children with Brachial Plexus Birth Injury

Mary Claire Manske, MD; Michelle James, MD  
Shriners Hospital for Children Northern California, Sacramento, CA

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### Defining the Deformity: Utility of the 45-degree Dunn View in Assessing Deformity in Slipped Capital Femoral Epiphysis

Craig Smith, MD; Perry Schoenecker, MD; John Clohisy, MD; Jeffrey Nepple, MD  
Washington University School of Medicine, Saint Louis, MO

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### Effect of Surgeon Performance in Salter Innominate Osteotomy on Long-Term Outcome

Daisuke Kobayashi, MD; Shinichi Satsuma; Ryosuke Sakata; Maki Kinugasa; Izumi Komoto, MD  
Kobe Children's Hospital, Kobe, Japan

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### Comparison of a Telescoping Screw Fixation System to Traditional In Situ Pinning for Stable Slipped Capital Femoral Epiphysis

Cody Hansen, BS; James Bomar, MPH; Vidyadhar Upasani, MD  
Rady Children's Hospital, San Diego, San Diego, CA

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### Prognostic Factors for Joint Deformity Following Pediatric Septic Arthritis

Ryosuke Yamaguchi, MD; Tomoyuki Nakamura, MD; Kazuyuki Takamura, MD; Yasuharu Nakashima, MD  
Kyushu University, Fukuoka, Japan

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### Predicting Which Children with Osteomyelitis Require Secondary Surgery— Results from the CORTICES Multicenter Database

Benjamin Shore, MD, MPH, FRCSC; Keith Baldwin, MD; Jennifer Laine, MD; David Spence, MD; Joshua Murphy MD; Jaclyn Hill; Cortices Study Group  
Boston Children's Hospital, Boston, MA

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### Pediatric Extremity Cellulitis: When Should the Orthopedic Surgeon Become Involved?

Ernest Young, MD; Tracey Bastrom, MA; Andrew Pennock, MD; Eric Edmonds, MD; Burt Yaszay, MD  
Rady Children's Hospital, San Diego, San Diego, CA

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### Fassier Duval Rod Placement in the Epiphysis: Does this Relate to Rod Failure?

Kaley Holmes, BA; Jane Gralla, PhD; Christopher Brazell, BA; Patrick Carry, MS; Suhong Tong, MS; Nancy Miller, MD; Gaia Georgopoulos, MD  
Children's Hospital Colorado, Aurora, CO

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### **Guided Growth for Ankle Valgus Deformity: The Challenges of Hardware Removal**

*David Westberry, MD; Ashley Carpenter; Erin Pichiotino, MD; George Graham; Jonathan Thomas, BS; Lauren Hyer, MD*

*Shriners Hospital for Children: Greenville, Greenville, SC*

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### **Extramedullary Implantable Limb Lengthening (EIILL) for Congenital Limb Length Discrepancy (LLD) is Safe and Effective**

*Claire Shannon, MD; Craig Robbins; Dror Paley, MD, FRCSC*

*Paley Orthopedic and Spine Institute, West Palm Beach, FL*

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*Megan Fischer-Colbrie; Scott Mubarak, MD; Kathleen Rickert, MD*

*Rady Children's Hospital, San Diego, CA*

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### **Orthopaedic Outcomes of Prenatal Versus Postnatal Repair of Myelomeningocele**

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

*Children's Hospital of Philadelphia, Philadelphia, PA*

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## **ePoster 105**

### **Progression of Hip Instability in Children with Spinal Muscular Atrophy**

*Sayan De, MD; Alexis Gerk, BS; Cosmo Kwok, MD; Wade Coomer, BS; Joyce Oleszek, MD*

*Children's Hospital Colorado, Aurora, CO*

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## **ePoster 106**

### **Does Patellar Tendon Advancement Improve the Outcomes Following Anterior Distal Femoral Hemiepiphyodesis in Children with CP?**

*Robert Kay, MD; Susan Rethlefsen, PT; Alison Hanson; Oussama Abousamra, MD*

*Children's Hospital Los Angeles, Los Angeles, CA*

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### **The Design and Validation of a Wire Navigation Simulator for Pediatric Supracondylar Humerus Fractures**

*Heather Kowalski, MD; Emily Connor, MD; Geb Thomas, PhD; Donald Anderson, PhD;*

*Matthew Karam; Steven Long; J. Lawrence Marsh, MD*

*University of Iowa, Iowa City, IA*

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## **ePoster 108**

### **Determinants of Caregiver Satisfaction in Pediatric Orthopedics**

*Ian Singleton, BS; Rachel Garfinkel, MD; Jason Malone, DO; M'Hamed Temkit; Mohan Belthur, MD*

*Phoenix Children's Hospital, Phoenix, AZ*

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### Addressing the Gender Gap in Academic Pediatric Orthopaedics: An Analysis on Female Representation at the Pediatric Orthopaedic Society of North America (POSNA) Annual Meetings

Judy Wu, BS; Manraj Randhawa, BS; Caitlyn Siu, BS; Hari Arneja, BS; Emily Schaeffer, PhD; Natalya Sarkisova, BS; Kishore Mulpuri, FRCSC; Jennifer Laine; Rachel Goldstein, MD  
BC Children's Hospital, Vancouver, BC, Canada

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## ePoster 110

### Implementation of a Multimodal Pain Protocol in Pediatric Orthopedic Surgery Decreases Inpatient Opioid Administration

Dalibel Bravo, MD; Ryan Roach, MD; James Feng, MD; Olga Solovyova, MD; David Godfried, MD; Mara Karamitopoulos  
NYU Langone Orthopedic Hospital, New York, NY

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### The Alarming Level of Pre- and Post-Operative Chronic Pain and Anxiety in Adolescent Idiopathic Scoliosis Patients: A Pilot Study

Shelby Cerza, MA; Kiley Poppino, BS; Heather Richard; Teresa Collins-Jones, PhD; Brandon Ramo, MD  
Texas Scottish Rite Hospital for Children, Dallas, TX

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## ePoster 112

### Microbiology of Spine Wounds in Paediatric Patients Undergoing Correction for Scoliosis

Haemish Crawford, MBChB; Tyler Rudolph, MBChB; Lorena Floccari, MD; Antony Field, MD; Sally Roberts, MBChB  
Starship Children's Hospital, Auckland, New Zealand

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### Intraoperative Hypothermia Reduction in Posterior Spinal Fusion for Adolescent Idiopathic Scoliosis: A Multidisciplinary Quality Value Safety Initiative (QVSI)

Christopher McLeod, DO; Charu Sharma; Kiley Poppino, BS; Daniel Sucato, MD  
Texas Scottish Rite Hospital for Children, Dallas, TX

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### Outcomes of MPFL Reconstruction via a Quadriceps Turndown Technique in the Adolescent/Pediatric Population

Kevin Klingele, MD; Michael Fisher, DO; Satbir Singh, BS; Leah Frischmann, BS; Cody Moore, MD; Matthew Beran  
Nationwide Children's Hospital, Columbus, OH

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### Not Just the Capitellum: Lateral Elbow Overuse Injuries in Pediatric Female Gymnasts

Philip Wilson, MD; Charles Wyatt, NP; William Searls, BS; Aaron Zynda, BS; Henry Ellis, MD  
Texas Scottish Rite Hospital for Children, Dallas, TX

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### Opioid Re-Prescription Following ACL Reconstruction is Associated with Subsequent Opiate Use Disorders

Eli Cahan, BA; Nicole Segovia, BS; Japsimran Kaur, BS; Charles Chan, MD; John Vorhies, MD  
Stanford School of Medicine, Stanford, CA

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## **ePoster 117**

### **Cast Univalve Location Matters: Determines Pressure at the Three-Point Mold**

*Blake Montgomery, MD; Kenneth Perrone, MD; Su Yang; Nicole Segovia, BS; Lawrence Rinsky, MD; Carla Pugh, FACS; Steven Frick, MD*  
Stanford University, Palo Alto, CA

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## **ePoster 118**

### **Where Is the Axillary Nerve Danger Zone with Fixation of the Pediatric Shoulder?**

*Tyler Stavinoha, MD; Aleksei Dingel, BS; Kevin Shea, MD*  
Stanford University School of Medicine Department of Orthopaedic Surgery, Stanford, CA

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### **3-D Biomechanical Analysis of Flexible Intramedullary Nailing in Length Unstable Pediatric Femur Fractures**

*Emmanouil Grigoriou, MD; Ameya Harendra Deshpande; Allison Binkley, MD; Robert Galpin, MD; Mark Ehrensberger, PhD; Jeremy Doak, MD*  
University at Buffalo - State University of New York, Buffalo, NY

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## **ePoster 120**

### **Neurological Assessments of Upper Limb in Young Children**

*Ignacio Sanpera-Trigueros, MD; Jean Maria Gomez-Alessandri, MD; Miguel Garcia-Cancho, MD*  
Hospital Universitari Son Espases, Palma de Mallorca, Spain

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## **ePoster 121**

### **2016 POSNA Clinical Research Grant**

#### **JUPITER (Justify Patellar Instability Treatment by Early Results**

*Shital N. Parikh, MD*

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## **ePoster 122**

### **2016 POSNA Directed Research Grant**

#### **Comprehensive Coagulation Profile (including Thromboelastinograph) in Patients Receiving Tranexamic Acid**

*Patrick Bosch, MD*

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### **2017 Kuo Award Research Grant**

#### **A Bioinspired Approach to Large Pediatric Osteochondral Injuries**

*Patrick Whitlock, MD*

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## **ePoster 124**

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#### **Recovery of Alveolar Size & Number Following Spinal Fusion for Adolescent Idiopathic Scoliosis**

*Peter Sturm, MD*

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Measuring Priorities & Goals of Children with Duchenne Muscular Dystrophy to Develop a Meaningful Patient Reported Outcome Measure

*Unni Narayanan, MD*

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*Wade Schrader, MD*

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Utilization of Laser Doppler Flowmetry for Dynamic Assessment of Femoral Head Perfusion to Predict the Osteonecrosis Rate Following Modified Dunn Procedure

*Courtney Selberg, MD*

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**2018 POSNA Start Up Research Grant**

Evaluating the Role of Patellar Realignment in Patients with CP

*Joshua Hyman, MD*

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# VIDEO ABSTRACTS

## Video Abstract 1

### Talo-Calcaneal Coalition Resection with Ankle Arthroscopy

*Indranil Kushare, MD; Shane Ford, PA-C; Kristen Kastan; John Shilt, PA-C*

*Texas Children's Hospital, Houston, TX*

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## Video Abstract 2

### 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*

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## 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*

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## 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*

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## Video Abstract 5

### Pediatric Trigger Thumb Release: Surgical Technique

*Sonia Chaudhry, MD*

*Connecticut Children's Medical Center, Hartford, CT*

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## 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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## Video Abstract 7

### 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*

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## Video Abstract 8

### Fully Waterproof One-legged Spica Cast for Femur Fractures

*Barbara Minkowitz, MD; Jennifer Rachelle Ristic, PA-C; Eytan Mendelow, BS; Violet Wallerstein*

*Atlantic Health Systems, Morristown, NJ*

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## Video Abstract 9

### Roux-Goldthwait Procedure and MPFL Reconstruction in a Skeletally Immature Female for Recurrent Patella Dislocation

*Barbara Minkowitz, MD; Anthony James Scillia, MD; Jennifer Rachelle Ristic, PA-C;*

*Eytan Mendelow, BS; Camryn Myers*

*Atlantic Health Systems, Morristown, NJ*

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## Video Abstract 10

### Open Reduction and Fixation of Acute Sternoclavicular Fracture-Dislocations in Children

*Ishaan Swarup, MD; Michael S. Hughes, MD; Alejandro Cazzulino, BA; David Andrew Spiegel, MD; Apurva Shah, MD  
Children's Hospital of Philadelphia, Philadelphia, PA*

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## Video Abstract 11

### Operative Fixation of a Triphalangeal Thumb

*Andrew Anthony Dobitsch, BA; Ashok Para; Daniel Coban; Yaroslav Basyuk, MD; Alice Chu, MD  
Rutgers New Jersey Medical School, Newark, NJ*

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## Video Abstract 12

### A Case of Bilateral Acrosyndactyly from Constriction Ring Syndrome

*Daniel Coban; Ashok Para; Andrew Anthony Dobitsch, BA; Yaroslav Basyuk, MD; Alice Chu, MD  
Rutgers New Jersey Medical School, Newark, NJ*

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## Video Abstract 13

### Anterior Approach and Capital Realignment for Severe Slips

*Sandeep Patwardhan, MS; Ashok Shyam, MS  
Sancheti Institute for Orthopaedics and Rehabilitation, Pune Maharashtra, India*

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## Video Abstract 14

### Medial Soft Tissue Imbrication with Lateral Release for Pediatric Patellofemoral Instability

*Folorunsho Edobor-Osula, MD; Zuhdi Abdo, MD  
Rutgers- New Jersey Medical School, Newark, NJ*

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## Video Abstract 15

### Technique for Elongation, Derotation, Flexion Casting Using a Modified Jackson Table

*Blake Montgomery, MD; Kali R Tileston, MD; Japsimran Kaur, BS; Nicole Alexandria Segovia, BS; Dan Kym, BS; Meghan N. Imrie, MD; James Policy, MD; Lawrence A. Rinsky, MD; John Vorhies, MD  
Stanford University School of Medicine, Stanford, CA*

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## Video Abstract 16

### Osteochondral Allograft with Open Surgical Hip Dislocation

*William T. Baumgartner, MD; Brian Michael Haus, MD; Trevor J. Shelton, MD  
University of California, Davis, Sacramento, CA*

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## Video Abstract 17

### Armboard Technique for Reduction Pinning Paediatric Supracondylar Fractures

*Sandeep Patwardhan, MS; Parag Sancheti, MD; Ashok Shyam, MS  
Sancheti Institute for Orthopaedics and Rehabilitation, Pune Maharashtra, India*

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# POSNA ANTITRUST POLICY

## 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 AWARD WINNERS

## 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 AWARD WINNERS, CONTINUED

## 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



**POSNA**  
PEDIATRIC ORTHOPAEDIC SOCIETY  
OF NORTH AMERICA





# POSNA

PEDIATRIC ORTHOPAEDIC SOCIETY  
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## FUTURE ANNUAL MEETINGS

May 11–15, 2021  
Dallas, Texas

May 11–14, 2022  
Vancouver, BC, Canada

April 26–29, 2023  
Nashville, Tennessee

[posna.org](http://posna.org)

[orthokids.org](http://orthokids.org)

[posnacademy.org](http://posnacademy.org)

[ipos.posna.org](http://ipos.posna.org)

## FUTURE IPOS MEETINGS

December 1–5, 2020  
Orlando, FL

December 7–11, 2021  
Orlando, FL

December 6–10, 2022  
Orlando, FL