

2022 POSNA Annual Meeting

Vancouver, BC, Canada | May 11-14, 2022



Program Chair

Matthew Oetgen, MD, MBA

Subspecialty Day Chair

Nicholas Fletcher, MD

Pre-Course Chair

Julie Samora, MD, PhD, MPH, FAAOS, FAOA

Local Hosts

Kishore Mulpuri, MBBS, MHSc, FRCSC

Firoz Miyanji, MD, FRCSC



POSNA
PEDIATRIC ORTHOPAEDIC SOCIETY
OF NORTH AMERICA

Final Program



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ABOUT POSNA

The Pediatric Orthopaedic Society of North America (POSNA) is a group of professionals comprised mostly of pediatric orthopaedic surgeons. We are board certified in orthopaedic surgery and have participated in additional training to become specialized in the care of children's musculoskeletal health, and our practice reflects this dedication. We, as a group, strive to become the authoritative source on such care through appropriate research that will lead to the best evidence-based patient care.

ANNUAL MEETING VISION

To advance the musculoskeletal care of children worldwide through the discussion and dissemination of pediatric orthopaedic research.

ANNUAL MEETING MISSION

To be the preeminent international platform for the exchange of research and ideas related to the orthopaedic care of children.

CONNECT WITH POSNA DURING THE MEETING AND SHARE YOUR EXPERIENCES

#POSNA2022



POSNA



posna_org



POSNA



posna_ortho

Websites: [POSNA.org](https://www.posna.org), [Orthokids.org](https://www.Orthokids.org), [JPOSNA.org](https://www.JPOSNA.org) and [POSNAcademy.org](https://www.POSNAcademy.org)

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The Pediatric Orthopaedic Society of North America gratefully acknowledges **NuVasive** as the 2022 Sponsor of the Annual Meeting Final Program

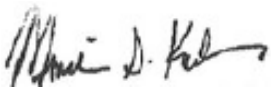
WELCOME

The 2022 POSNA Annual Meeting in Vancouver Is Going to Be Amazing. Don't Miss It! The theme that I proposed when I assumed the presidency of POSNA in May 2021 was "back on our feet." The upheaval of COVID had resulted in pivoting on short notice to a Virtual Annual Meeting in May 2020, cancelling IPOS® in December 2020, creating a hybrid Annual Meeting in May 2021, and switching to virtual board meetings. I was looking forward to getting more proactive as an organization instead of reactive realigning with our strategic plan developed just before COVID. Instead, the Omicron variant of COVID kept our feet shuffling. Nevertheless, I have been amazed at the incredible resilience and dedication of the POSNA staff, board of directors, and member volunteers. POSNA has continued to thrive—adapting to virtual education, launching JPOSNA®, progressing on the POSNA Safe Surgery Program (PSSP), discussing best practices in organizational leadership, advancing DEI initiatives, and streamlining our organizational structure.

"Shuffling our feet" has included planning for the Annual Meeting in May 2022 in Vancouver. Fortunately, COVID prevalence and policies are heading in the right direction. On February 15, British Columbia relaxed COVID restrictions that will allow us to have a full-capacity, in-person meeting. Conditions may be relaxed more in the future depending on COVID epidemiology. We will be sure to communicate frequently as conditions change. For now, pay attention to the details mentioned in the registration announcement: passport with an expiration date 6 months after the meeting, to enter Canada, and proof of COVID-19 vaccination.

Did I mention that the meeting in Vancouver will be amazing?!? Vancouver is a stunning city in an amazing setting of mountains, ocean, and forests. The outdoor opportunities are endless with hiking, biking, sea kayaking, float planes, and Stanley Park. The restaurants (sushi!), cultural institutions, and shopping are fabulous. Our local hosts, Kishore Mulpuri, MBBS, MHSc, FRCSC and Firoz Miyanji, MD, FRCSC, have steered us in the right direction. I can't wait for an amazing Steel Lecture by Suzanne Simard, PhD, author of *Finding the Mother Tree: Discovering the Wisdom of the Forest*. Dr. Simard is a Professor of Forest Ecology at the University of British Columbia. Her work has been groundbreaking: showing how trees cooperate and the interconnectedness of the ecosystem. I also can't wait for a thought-provoking Presidential Guest Lecture by Jack Flynn, MD, filled with his signature wisdom. Congratulations to Julie Samora, MD, PhD, MPH, who has organized an outstanding Pre-Course in a priority area for POSNA: highlighting important issues in diversity, equity, and inclusion. Congratulations to Matt Oetgen, MD, who has organized a dynamic, engaging, and highly educational scientific program.

I was very engaged in the development of our strategic plan with our consultant and the board in 2020 and then realigning our efforts back to the strategic plan as we emerge from COVID. The upside of COVID is that it has taught us as an organization to be flexible, resilient, and focused on our core values. As management educator Peter Drucker said, "culture eats strategy for breakfast." I am amazed by the culture of POSNA—collaboration, friendship, science, and education. These values are reflected in the Annual Meeting, which is an opportunity to come together as colleagues and friends, to discuss research and ideas in pediatric orthopaedics.



Mininder Kocher, MD, MPH
POSNA President

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ACKNOWLEDGEMENTS

The Pediatric Orthopaedic Society of North America gratefully acknowledges the following for their generous financial support in 2022.

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Central Texas Pediatric Orthopedics

Gillette Children's Specialty Healthcare
Nemours Children's Health
Shriners Hospital for Children
Stanford Children's Health

*Provided an educational grant for the Annual Meeting

WELCOME FROM YOUR LOCAL HOSTS

We're very excited to be the local hosts for the POSNA 2022 Annual Meeting this May in beautiful Vancouver, and we can't wait to see everyone together again in person! The program committee has done yet another incredible job ensuring a rich, academic, and scientifically crisp agenda in all aspects of children's musculoskeletal care. The Pre-Course meeting will kick-off our 4-day focused research and educational festivities with plenty of time built in to enjoy the serene outdoors that Vancouver has to offer. We hope you will have a great time in our city with new connections, long-time colleagues, and old friends!

Early summer in Vancouver is fair, fresh, and green, so don't forget to take time to get outside. Maybe stroll the world-famous seawall or visit Stanley Park—both are just around the corner from the convention centre. Enjoy early morning treats at the many local cafes, and catch an afternoon hike up the "grouse grind." Experience the local Gastown, Crosstown, and Yaletown neighbourhoods and Vancouver's many world-famous sushi hotspots!

While we look forward to hosting this gathering, we note at this time that our thoughts and prayers are also directed to our patients, colleagues, friends, families, and strangers alike who may be affected by the current world events. We hope everyone stays healthy and safe.

Firoz and Kish

Firoz Miyanji, MD, FRCSC
Kishore Mulpuri, MBBS, MHSc, FRCSC





MININDER KOCHER, MD, MPH, PRESIDENT

Mininder Kocher, MD, MPH, is the Chief of the Division of Sports Medicine and the O'Donnell Family Endowed Chair at Boston Children's Hospital, and a Professor of Orthopaedic Surgery at Harvard Medical School.

He was born and raised in Rochester, New York. He graduated from McQuaid Jesuit High School where he received the Father Noonan Distinguished Alumni Award. He graduated Phi Beta Kappa from Dartmouth College where he was a member of the basketball and track & field teams, and from the Duke University School of Medicine where he was a Davidson Scholar. He did his orthopaedic surgery residency at the Harvard Combined Orthopaedic Surgery Program. He completed clinical fellowships in pediatric orthopaedics at Boston Children's Hospital and sports at the Steadman Hawkins Clinic in Vail, Colorado. He completed an MPH in clinical epidemiology at the Harvard School of Public Health and the Program in Leadership Development at the Harvard Business School. He has been on staff at Boston Children's Hospital since 2000.

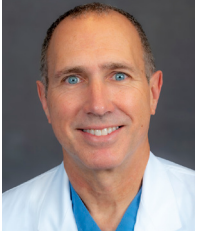
His clinical practice focuses on pediatric sports medicine and pediatric orthopaedic trauma. He has developed novel techniques for meniscus transplantation in children, growth plate sparing ACL reconstruction, patellofemoral stabilization, hip arthroscopy in children, and peroneal tendon subluxation repair. He is the team physician for numerous high schools, colleges, and U.S. Olympic teams. He has been featured in the *New York Times*, *Scientific American*, *San Francisco Chronicle*, *Boston Globe*, *Wall Street Journal*, *Chicago Herald*, *ABC World News with Diane Sawyer*, *HBO Real Sports*, and *Sports Illustrated*.

His research focuses on clinical epidemiology and biostatistics. Dr. Kocher has published over 270 scientific peer-reviewed articles, 100 book chapters, and 7 textbooks. He has received research grants from the NIH, OREF, Aircast Foundation, AOSSM, and POSNA. He published a widely used algorithm to differentiate septic arthritis and transient synovitis of the hip in children, "Kocher Criteria." He is the principal investigator for PLUTO, a prospective multicenter cohort study of ACL injuries in children. He has received numerous research awards including the Angela S.M. Kuo Memorial Award and the Arthur H. Huene Memorial Award from POSNA, the Vernon Thompson Award, the Richard Kilfoyle Award, and the Kappa Delta Award.

He is an educator, teaching orthopaedic surgery, sports medicine, clinical epidemiology, and biostatistics to medical students, residents, fellows, and visiting orthopaedic surgeons. He is director of the sports medicine fellowship at Boston Children's Hospital, core faculty for HCORP, and teaches courses at Harvard Medical School and Harvard School of Public Health.

As a leader, Dr. Kocher is a Division Chief and on the Physician Organization Board at Boston Children's Hospital. He served on the Board of Directors of AAOS and AOSSM. He served as President of POSNA and founded and served as the second President of PRISM. He is an elected member of IPOTT, Herodicus Society, and the 20th Century Orthopaedic Association. Within POSNA, he has served on multiple committees and on the board of directors twice as at-large member and research council chair.

Personally, Dr. Kocher loves spending time with his wife, Mich, and five children (ages 13-23). They live at Frog Rock Farm with horses, sheep, ducks, bunnies, cats, and dogs. He enjoys anything in the outdoors (skiing, hiking, mountain biking, camping, and fishing) and coaching youth sports. His hobbies include tuning skis, chopping and stacking wood, and driving his Kubota tractor.



JEFFREY R. SAWYER, MD INCOMING PRESIDENT

Jeffrey R. Sawyer, MD, was born in Rochester, New York, and attended college at Rochester Institute of Technology, and Medical School at the University of Rochester School of Medicine, where he graduated with Distinction in Research and spent an additional year as a Howard Hughes Research Fellow. He completed residency at the Hospital of the University of Pennsylvania in

Philadelphia and with the mentorship of Denis Drummond, MD, and others at CHOP, discovered his passion for pediatric orthopaedics. He then completed a clinical fellowship at the Campbell Clinic under Drs. Terry Canale, James Beaty, and William Warner Jr., which included a month as an OREF International Traveling Fellow in Malawi, Africa, where he taught and performed surgery.

Dr. Sawyer began clinical practice at Rush University in Chicago and continued his international work in both Nigeria and the UAE. In 2005, he returned to the Campbell Clinic where his clinical focus has been pediatric trauma and spinal deformity, areas in which he is considered a national/international expert and earned the ranking of “Top Doctor” by Castle and Connolly and *Memphis* magazine. His work has appeared in *USA Today* and *Parents* magazine.

Dr. Sawyer has held leadership positions at the Campbell Clinic, including several terms on the Board of Directors as well as on the Board of the Campbell Clinic Foundation. In addition to the institutional leadership roles, he also completed the AOA Apex Leadership Program in conjunction with the USC Marshall School of Business.

With over 125 peer-reviewed publications, 30 book chapters, and over 200 presentations at national/international meetings, he also serves on the editorial board of several orthopaedic journals. Most recently, he has been involved in the evolution of *JPOSNA*[®] becoming the official journal of POSNA. His numerous research projects include long-term outcomes of early onset scoliosis patients and the pediatric orthopaedic workforce/diversity. Dr. Sawyer has challenged long-held beliefs in practice regarding the role of spiral femur fractures in non-accidental trauma and the surgical treatment of posterior sternoclavicular dislocations. He has received several POSNA and industry-supported grants. Currently, he serves on the Board of the Pediatric Spine Foundation.

In addition, Dr. Sawyer is directly involved in education at all levels of training and has served as the fellowship director at Campbell Clinic and frequently as faculty at IPOS[®] and Top Gun. He is one of the co-founders of the Pediatric Orthopedic Surgical Techniques (POST) course focusing on surgical skill development.

Within POSNA, Dr. Sawyer has served on and chaired numerous committees, including Practice Management, Membership, and the Traveling Fellowship committees and was one of the founders of the Mentorship Committee. As an EPOS/POSNA traveling fellow, his strong relationships with his EPOS colleagues still exist today. He was the half day course chair at the first EPOSNA meeting in 2017 in Barcelona and the program chair for the 2018 POSNA Annual Meeting in Austin, Texas. For his work in the Pediatric Orthopaedic Workforce, he was awarded the POSNA Special Effort and Achievement Award in 2015.

Personally, Dr. Sawyer receives the greatest satisfaction from spending time with his wife, Julie, and their three sons—Lucas, Zac, and Jake (ages 8-14). He enjoys outdoor activities such as hiking, mountain biking, boating, skiing, fishing, and chasing their two highly energetic rescue dogs. He participates in Ironman competitions and has completed four Full Ironman and 13 Half-Ironman Triathlons. Being in the top 10 percent in his age group worldwide, he is currently ranked as an Ironman Bronze All-World Athlete.

Past, Present, and Future in Pediatric Orthopaedics



**Congratulations
Dr. Jeffrey Sawyer on
your new position as
President of POSNA!**

As the fourth Campbell Clinic physician to serve in this role, Dr. Sawyer continues a legacy of leadership in the Pediatric Orthopaedic Society of North America (POSNA).

He is already recognized as a national authority in pediatric trauma and spinal deformities — and we are confident his talents will benefit the entire industry in this new leadership position.



Campbell Clinic pediatric orthopaedic team

Back row from left to right: William C. Warner, Jr., M.D., Derek M. Kelly, M.D., James H. Beaty, M.D., Jeffrey R. Sawyer, M.D.

Seated from left to right: Benjamin W. Sheffer, M.D., David D. Spence, M.D.



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HOUSING & TRANSPORTATION

MEETING INFORMATION

Majestic mountains, sparkling ocean, rainforests and beautiful foliage throughout all four seasons make Vancouver one of the most beautiful cities in the world. Catering to any interest throughout the year, you can enjoy world class shopping, gourmet meals, outstanding live entertainment, sporting events, theatre, outdoor adventure, spectacular sights and attractions—it's all waiting for you in Vancouver.

HOUSING INFORMATION

We have four hotels to choose from for your stay in Vancouver. Each hotel is within walking distance to the Convention Centre. Please [Click here](#) for additional information and to book your housing.

TRANSPORTATION

Airport

If you're arriving by air, you'll most likely be flying into Vancouver International Airport (YVR). YVR is located 25 minutes from downtown.

Air Canada is your best choice to fly to Vancouver with the most non-stop flights and access from over 190 cities worldwide.

If you are flying into Vancouver from a short-haul, domestic destination such as Victoria or other parts of Vancouver Island, the Gulf Islands or Whistler, you can also travel via scheduled floatplane or helicopter services. Both offer departures from downtown Vancouver or from Richmond—close to YVR.

Ground Transportation to/from Airport

A variety of ground transportation options are available to/from YVR airport, [Click Here](#)



TRANSPORTATION

GETTING AROUND TOWN

Attractions, shopping, outdoor activities - everything you want to do and see in Vancouver is easily accessible - within walking distance, a short drive, quick ferry ride or convenient trip on [our local Transit System](#).

Vancouver is known for being a very walkable city with a compact downtown core, so you'll likely find many of the places you want to go are just a short walk from your hotel. Visit our [Maps](#) section to help plan your route.

Taxis (including accessible wheelchair taxis) are plentiful and can be hailed on the street, as well as found at designated stands, and called for pick-up. If you prefer to drive yourself around, you'll find that most major car rental companies have offices in Vancouver. Parking is available at most hotels and is easy to find around most attractions. The [EasyPark Parking App](#) is especially handy for locating parking lots throughout the City of Vancouver.

Visit our [Transit System](#) page for more information about using Vancouver's public transportation system to get around. Visit our [Air and Boat](#) page to explore other modes of getting around in Vancouver.

Vancouver's moderate climate makes it a great city to cycle almost year-round. The City of Vancouver has a comprehensive system of [bike routes, paths, dedicated bike lanes and greenways](#) for you to use to get around on two wheels. Vancouver also has a bike share program that provides a convenient and inexpensive way to get around.



IN-PERSON REGISTRATION *Sponsored by Stryker*

Full meeting registration includes sessions starting Wednesday afternoon, May 11, 2022 through Saturday morning, May 14, 2022 and includes course material, Wednesday Opening Ceremony & Reception, Thursday Subspecialty Day, Friday Closing Event, coffee breaks, and three breakfasts.

Please Note: The Half Day Pre-Course requires a separate registration and fee. Attendance at the Pre-Course only does not meet the member meeting attendance requirement.

SUBSPECIALTY DAY

We have a special One-Day ONLY registration rate for those who wish to attend the meeting only on Thursday. This registration rate will include breakfast and sessions. See registration rates. Please Note: Registration and attendance at Subspecialty Day only does not meet the member meeting requirement.

DISCLOSURE OF PERSONAL INFORMATION

When registering for the Annual Meeting, your personal identifying information is retained by POSNA. You understand and agree that POSNA may disclose your name, address, and contact information to your hotel and other service providers to confirm hotel room reservations.

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. No financial or other personal identifying information is disclosed. POSNA takes reasonable steps to ensure that our sponsors protect your information on POSNA's behalf.

CANCELATION POLICY

A full refund will be granted if notification is received in writing to Natalia Eicker at eicker@posna.org through April 30, 2022. A 20% administrative fee will be charged after May 1, 2022. No refunds will be given after May 10, 2022.

*Residents/Fellows must have the phone number and signature of their chief of service on their registration form to qualify for the reduced fee. Without a signature and phone number, you will be charged the non-member fee.

Pre-registration closes on May 9, 2022. Any registration received after that date may not be recorded, and you will be asked to pay on site. There will be an additional fee of \$50 added.

If you need to pay with a check, email Natalia Eicker at eicker@posna.org for a registration form. All checks must be in US dollars drawn on a US Bank. If paying by check, please mail your registration to:

POSNA, 1 Tower Lane, Suite 2410, Oakbrook Terrace, IL 60181

VIRTUAL REGISTRATION *Sponsored by Stryker*

VIRTUAL MEETING

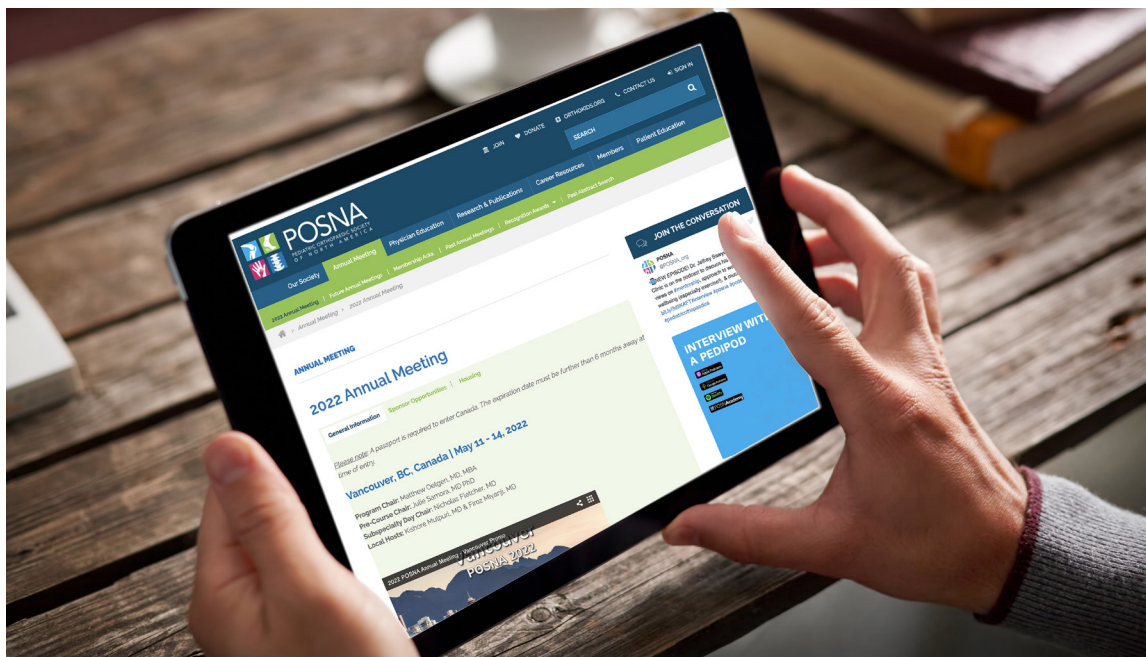
The virtual meeting will follow the in-person meeting schedule. **ALL** sessions will be broadcast live (access to all session rooms). **Virtual attendees will have to tune in at the scheduled time to view presentations.** The pre-recorded content includes symposia, video abstracts, and ePosters.

VIRTUAL REGISTRATION FEES (US DOLLARS)

POSNA Member	\$ 400
Non-Member	\$ 500
Resident/Fellow*	\$ 400
RN/PA/Allied Health	\$ 400
Delegates from Reduced Rate Countries: Low Income	\$ 400
Senior Member	\$ 400

*Residents/Fellows must have the phone number and signature of their chief of service on their registration form to qualify for the reduced fee. Without a signature and phone number, you will be charged the non-member fee.

If you need to pay with check, email Natalia Eicker at eicker@posna.org for a registration form. for a registration form. All checks must be in US dollars drawn on a US Bank. If paying by check, please mail your registration to: POSNA, 1 Tower Lane, Suite 2410, Oakbrook Terrace, IL 60181



GENERAL MEETING INFORMATION

REGISTRATION

Tuesday, May 10	4:00 PM – 6:00 PM
Wednesday, May 11	7:00 AM – 5:00 PM
Thursday, May 12	7:00 AM – 12:00 PM
Friday, May 13	7:00 AM – 3:30 PM

EXHIBIT HALL

Join your colleagues in the Exhibit Hall for fellowship and discovery of new pediatric orthopaedic products and services. Meals and breaks will be served in the Exhibit Hall located in West Ballroom CD.

Wednesday, May 11	7:00 AM – 4:00 PM
Thursday, May 12	7:00 AM – 12:00 PM
Friday, May 13	7:00 AM – 3:30 PM

SPEAKER READY ROOM

POSNA requires all electronic presentations to be uploaded using the central computer system. No laptop computers will be allowed.

Note: All presentations (including concurrent sessions) MUST be uploaded in the Speaker Ready Room located in **101-102**.

Wednesday, May 11	7:00 AM – 8:00 PM
Thursday, May 12	7:00 AM – 12:00 PM
Friday, May 13	7:00 AM – 4:30 PM
Saturday, May 14	7:00 AM – 11:30 AM

POSNA MEMBERSHIP REQUIREMENT

Full meeting attendance at the 2022 Annual Meeting fulfills your POSNA membership meeting attendance requirement. Registration and attendance at the Pre-Course or Subspecialty Day only does not meet the member meeting attendance requirement.

ONSITE REGISTRATION FEES

(US DOLLARS)

POSNA MEETING REGISTRATION	
POSNA Member	\$ 800
Non-Member	\$ 1400
Resident/Fellow*	\$ 600
RN/PA/Allied Health	\$ 600
Delegates from Reduced Rate Countries: Low Income	\$ 500
Accompanying Person**	\$ 350
Senior Members	\$ 525
Children 6-12, per child	\$10
Children 13-17, per child	\$100
PRE-COURSE REGISTRATION	
Member	\$ 275
Non-Member	\$ 315
RN/PA/Allied Health	\$ 215
Resident/Fellow*	\$ 215
SUBSPECIALTY DAY REGISTRATION***	
THURSDAY ONLY–Member	\$ 365
THURSDAY ONLY–Non-Member	\$ 415
THURSDAY ONLY–Allied Health	\$ 315
THURSDAY ONLY–Resident/Fellow	\$ 315

* Residents/Fellows must have the phone number and signature of their chief of service on their registration form to qualify for the reduced fee. Without a signature and phone number, you will be charged the non-member fee.

** Accompanying Persons must be registered to attend any function, including optional events.

*** Subspecialty Day registration is Thursday only, and includes breakfast and sessions.

GENERAL MEETING INFORMATION

LEARNING OBJECTIVES

Objective 1: Learn about the latest advances in pediatric orthopaedic surgery.

Objective 2: Interact and learn with world-renowned thought leaders in the field.

Objective 3: Use the information obtained to make improvements in your own practices.

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

In-Person/Virtual Annual Meeting (inclusive of Subspecialty Day)

The American Academy of Orthopaedic Surgeons designates this live activity for a maximum of **15.5 AMA PRA Category 1 Credits™**. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Subspecialty Day Only

The American Academy of Orthopaedic Surgeons designates this live activity for a maximum of **3.75 AMA PRA Category 1 Credits™**. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

On-Demand Content

ePosters, Virtual Symposia, Video Abstracts

The American Academy of Orthopaedic Surgeons designates this enduring activity for a maximum of **13.5 AMA PRA Category 1 Credits™**. Physicians should claim only the credit commensurate with the extent of their participation in the activity.



5.8 hours may be used for external trauma-related CMEs.

Presentations denoted with the trauma symbol are eligible for these credits.

GENERAL MEETING INFORMATION

FDA STATEMENT

Some drugs or medical devices demonstrated at this meeting may not have been cleared by the FDA or have been cleared by the FDA for specific purposes only. The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or medical device he or she wishes to use in clinical practice. Academy policy provides that “off label” uses of a drug or medical device may be described in the Academy’s CME activities so long as the “off label” use of the drug or medical device is also specifically disclosed (i.e., it must be disclosed that the FDA has not cleared the drug or device for the described purpose). Any drug or medical device is being used “off label” if the described use is not set forth on the product’s approval label.

- ◆ Indicates a presentation in which the FDA has not cleared the drug and/or medical device for the use described (i.e., the drug or medical device is being discussed for an “off label” use).

LANGUAGE

English is the official language of POSNA.

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. POSNA disclaims any and all liability for injury or other damages resulting to any individual attending the Annual Meeting and for all claims which may arise out of the use of the techniques demonstrated therein by such individuals, whether these claims shall be asserted by a physician or any other person.

DISCLOSURE

Each presenter 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.



Bringing Stanford Excellence to Vancouver

Our Presentations:

POSNA Safe Surgery Quality Improvement Program—First Year Results

Kevin Shea, MD, May 11, General Session: QSVI

Can Caregivers Forecast Child Postoperative Disability After Elective Orthopaedic Surgery?

Steven Frick, MD, May 11, General Session II: QSVI/ Infection-Tumor I

Pre-operative Anxiety and Depression Predict Functional Outcomes After Periacetabular Osteotomy and Hip Arthroscopy Surgery

Stephanie Pun, MD, May 12, Hip Subspecialty Program

Our Posters and Abstracts:

Biomechanical Forces of the Lateral Knee Joint Following Complete Meniscectomy and Subsequent Meniscal Transplant in Pediatric Cadavers | **Kevin Shea, MD**

POSNA Safe Surgery Program – Quality Metric Solution Variation | **Kevin Shea, MD**

Evaluation of Deformity in Adolescent Idiopathic Scoliosis Using Mobile Device Based Surface Topography | **John Vorhies, MD**

Learn more at ortho.stanfordchildrens.org or by calling **(844) 41-ORTHO**.



MEETING INFORMATION & POLICIES

EVENT CANCELTATION

Due to circumstances beyond our control, POSNA may elect to cancel the 2022 Annual Meeting. These circumstances may include but are not limited to disaster, severe weather, civil commotion or government laws or regulations. In the event of such cancellation, all Annual Meeting registrants will be notified by email at the address noted in the POSNA database and registration fees will be refunded in full. Other costs incurred by the registrant, such as airline or hotel penalties, are the responsibility of the registrant.

MEMBERS BUSINESS MEETING

All POSNA members are invited to attend the Members Business Meeting on Wednesday, May 11, 2022, from 12:00 PM–1:30 PM. Committee chairs will share reports of their recent activities. Lunch will be served.

ACCOMPANYING PERSONS BREAKFAST

Breakfast will be provided on Thursday, Friday, and Saturday from 8:00 AM-10:00 AM at the Fairmont Waterfront for all spouses, children, and accompanying persons who are registered and have a badge.

INSURANCE / LIABILITIES

POSNA will not be held liable for personal injuries or for loss of or damage to property incurred by participants or guests at the Pre-Course or Annual Meeting, including those participating in tours and social events. Participants and guests are encouraged to take out insurance to cover losses incurred in the event of cancellation, medical expenses, or damage to or loss of personal effects when traveling outside their own country. "POSNA cannot be held liable for any hindrance or disruption of the 2022 Annual Meeting arising from natural, political, social or economic events or other unforeseen incidents beyond its control. Registration of a participant implies acceptance of this condition."

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POSNA reserves any and all rights to materials presented at the 2022 Annual Meeting, including ePosters and Videos. 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. Cameras or video cameras may not be used in any portion of the scientific sessions. Persons violating this policy may have their badge confiscated and be escorted from the meeting. No unapproved surveys, handouts, or literature may be distributed at the meeting.

MEETING INFORMATION & POLICIES

PHOTOGRAPHY

Registration and attendance at, or participation in, POSNA activities constitutes an agreement by the registrant to allow POSNA to capture, retain, and utilize (both now and in the future) the attendees' image, likeness, voice, and actions, whether captured live or recorded and in any format, during the 2022 Annual Meeting, for display, exhibition, publication, or reproduction in any medium or context for any purpose, including but not limited to, POSNA member communications, commercial or promotional purposes.

NO CAMERAS OR VIDEO CAMERAS

Cameras or video cameras may not be used in any portion of the scientific session.

NO SMOKING POLICY

Smoking is not permitted during any meeting or event.

SAFETY INFORMATION

Emergency Numbers

#7500 from a house phone

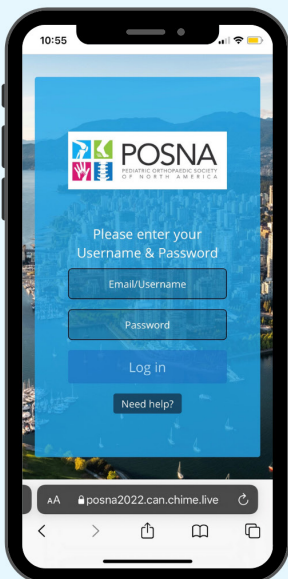
Nearest Hospital and Urgent Care

St. Paul's Hospital
1081 Burrard Street, Vancouver, BC

Rexall Pharmacy

Waterfront Centre, 200 Burrard St. Unit #R010, Vancouver, BC

Access the Virtual Platform:



The full program, abstracts, ePosters, video abstracts, and the virtual symposia will be available on the web-based virtual platform sponsored by Stryker.



SCAN or visit:

<https://posna2022.can.chime.live/>



POSNA MEMBERSHIP INFORMATION

The Pediatric Orthopaedic Society of North America (POSNA) is a not-for-profit professional organization of over 1,400 surgeons, physicians, and allied health members passionately dedicated to advancing musculoskeletal care for children and adolescents through education, research, and quality care.

Mission: To advance pediatric orthopaedics by promoting education, research, and quality care.

Vision: A world with optimal musculoskeletal health for all children.

Become a POSNA Member and Advance Your Pediatric Orthopaedic Career!

Applications for 2023 membership open in June 2022 at POSNA.org.

POSNA members benefit from a robust and diverse array of resources that advance and fulfill the society's commitment to education, research, and quality care. There are excellent opportunities to forge enduring professional relationships and mentorship. Many members utilize the POSNA platform and its collegial network of colleagues to develop innovative, multi-institution, and multi-national programs.

BENEFITS

With a culture that is committed to embracing diversity, inclusion, and equity for POSNA members, we offer unparalleled access for all to the following range of benefits:

- Reduced registration fees for Annual Meeting and International Pediatric Orthopaedic Symposium (IPOS®)
- \$400,000+ in research funding awarded annually
- Committee Appointment Program (CAP) – make your voice heard in 40+ committees
- Participate in the POSNA-Sponsored Traveling Fellowship Program
- Reduced subscription rate to the Journal of Pediatric Orthopaedics
- Become a mentor or mentee through the Mentorship Program
- Be a part of the POSNA Safe Surgery Program (PSSP)

ADDITIONAL EDUCATION:

- POSNA.org Study Guide – over 100 topics available!
- *JPOSNA*® - The official Journal of POSNA. Now accepting original research submissions
- POSNAcademy - POSNA's video education platform featuring webinars, tutorials, past meeting content, podcasts, and more!
- The Resident Review blog

WEBSITES:

POSNA.org
Orthokids.org
JPOSNA.org
POSNAcademy.org



POSNA



posna_org



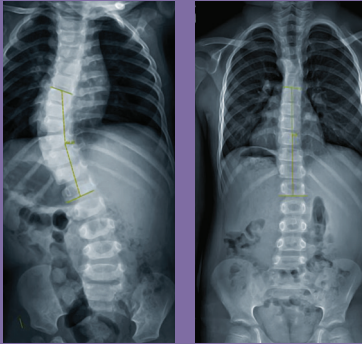
POSNA



posna_ortho

“They straightened his spine without surgery!”

– Michelle, Max’s mom



Max’s scoliosis was treated with Mehta casting.



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Spine Center



Akron
Children’s
Hospital

MEETING AT A GLANCE

* All meetings will be held at the Convention Centre unless otherwise noted

TUESDAY, MAY 10		
Registration	4:00 PM–6:00 PM	Ballroom Foyer
POPS Meeting	8:00 AM–5:00 PM	118-120
WEDNESDAY, MAY 11		
Registration	7:00 AM–5:00 PM	Ballroom Foyer
Pre-Course Breakfast/Exhibits	7:00 AM–8:00 AM	West Ballroom CD
Pre-Course	8:00 AM–11:50 AM	West Ballroom AB
Coffee Break/Exhibits	10:05 AM–10:25 AM	West Ballroom CD
Members Business Meeting	12:00 PM–1:30 PM	211-214
Scientific Program	1:40 PM–5:35 PM	West Ballroom AB
Coffee Break/Exhibits	3:30 PM–3:50 PM	West Ballroom CD
Opening Ceremony	6:30 PM–8:00 PM	West Ballroom AB
Welcome Reception	8:00 PM–9:30 PM	West Pacific Terrace
THURSDAY, MAY 12		
Registration	7:00 AM–12:00 PM	Ballroom Foyer
Breakfast/Exhibits	7:00 AM–7:45 AM	West Ballroom CD
Subspecialty Day		
Hand	7:50 AM–9:45 AM	217-219
Foot	10:18 AM–12:00 PM	217-219
Hip	7:50 AM–12:00 PM	301-305
Lower Extremity	7:50 AM–12:00 PM	109-110
Neuromuscular	7:50 AM–12:00 PM	220-222
Spine	7:50 AM–12:00 PM	West Ballroom AB
Sports	7:50 AM–12:00 PM	118-120
Trauma	7:50 AM–12:00 PM	211-214
Accompanying Persons Breakfast	8:00 AM–10:00 AM	Fairmont Waterfront Mackenzie Ballroom
Coffee Break/Exhibits	9:45 AM–10:10 AM	West Ballroom CD

MEETING AT A GLANCE

FRIDAY, MAY 13		
Registration	7:00 AM–3:30 PM	Ballroom Foyer
Breakfast/Exhibits	7:00 AM–8:00 AM	West Ballroom CD
Scientific Program Award Papers	8:00 AM–11:29 AM	West Ballroom AB
Accompanying Persons Breakfast	8:00 AM–10:00 AM	Fairmont Waterfront Mackenzie Ballroom
Coffee Break/Exhibits	10:05 AM–10:25 AM	West Ballroom CD
Distinguished Achievement Award	11:30 AM–11:50 AM	West Ballroom AB
2023 Meeting Announcements	11:51 AM–11:56 AM	West Ballroom AB
Award Announcements	11:57 AM–12:03 PM	West Ballroom AB
Presidential Speaker	12:04 PM–12:24 PM	West Ballroom AB
Presidential Transfer	12:25 PM–12:35 PM	West Ballroom AB
Interview with a Pedipod Live Podcast Recording	12:40 PM–1:30 PM	211-214
Concurrent Session Spine	2:00 PM–4:17 PM	West Ballroom AB
Concurrent Session Sports	2:00 PM–2:52 PM	211-214
Concurrent Session Hip	3:30 PM–4:17 PM	211-214
Coffee Break/Exhibits	3:00 PM–3:20 PM	West Ballroom CD
Evening Closing Event	7:00 PM–11:00 PM	Vancouver Aquarium
SATURDAY, MAY 14		
Breakfast	7:00 AM–8:00 AM	West Ballroom D
POSNA Critical Issue Symposia: “What Would We Like to Know? Defining Research Priorities for POSNA”	7:30 AM–8:30 AM	West Ballroom AB
Accompanying Persons Breakfast	8:00 AM–10:00 AM	Fairmont Waterfront Mackenzie Ballroom
Scientific Program	8:30 AM–11:36 AM	West Ballroom AB
Break	10:10 AM–10:20 AM	West Ballroom D

**Program subject to change*

LEVELS OF EVIDENCE FOR PRIMARY RESEARCH QUESTIONS

THE JOURNAL OF BONE & JOINT SURGERY · JBJS.ORG
VOLUME 97-A · NUMBER 1 · JANUARY 7, 2015

UPDATING THE ASSIGNMENT OF LEVELS OF EVIDENCE

Levels of Evidence for Primary Research Question^{1,2}

Study Type	Question	Level I	Level II	Level III	Level IV	Level V
Diagnostic— Investigating a diagnostic test	Is this (early detection) test worthwhile? Is this diagnostic or monitoring test accurate?	<ul style="list-style-type: none"> Randomized controlled trial Testing of previously developed diagnostic criteria (consecutive patients with consistently applied reference standard and blinding) 	<ul style="list-style-type: none"> Prospective³ cohort⁴ study Development of diagnostic criteria (consecutive patients with consistently applied reference standard and blinding) 	<ul style="list-style-type: none"> Retrospective⁵ cohort⁴ study Case-control⁶ study Nonconsecutive patients No consistently applied reference standard 	<ul style="list-style-type: none"> Case series Poor or nonindependent reference standard 	<ul style="list-style-type: none"> Mechanism-based reasoning Mechanism-based reasoning
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"> Inception³ cohort study (all patients enrolled at an early, uniform point in the course of their disease) 	<ul style="list-style-type: none"> Prospective³ cohort⁴ study (patients enrolled at different points in their disease) Control arm of randomized trial 	<ul style="list-style-type: none"> Retrospective⁵ cohort⁴ study Case-control⁶ study 	<ul style="list-style-type: none"> Case series 	<ul style="list-style-type: none"> Mechanism-based reasoning
Therapeutic— Investigating the results of a treatment	Does this treatment help? What are the harms? ⁷	<ul style="list-style-type: none"> Randomized controlled trial 	<ul style="list-style-type: none"> Prospective³ cohort⁴ study Observational study with dramatic effect 	<ul style="list-style-type: none"> Retrospective⁵ cohort⁴ study Case-control⁶ study 	<ul style="list-style-type: none"> Case series Historically controlled study 	<ul style="list-style-type: none"> Mechanism-based reasoning
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

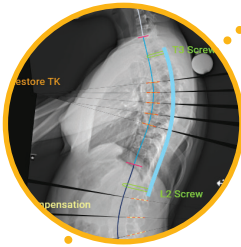
1. This chart was adapted from OCEBM Levels of Evidence Working Group, "The Oxford 2011 Levels of Evidence," Oxford Centre for Evidence-Based Medicine, <http://www.cebm.net/ocbml-levels-of-evidence/>. A glossary of terms can be found here: <http://www.cebm.net/glossary/>.
2. Level-I through IV studies 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.

References

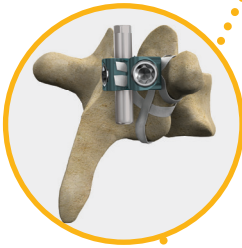
1. Sackett DL, Rosenberg WM, Gray JA, Haynes RB, Richardson WS. Evidence based medicine: what it is and what it isn't. *BMJ*. 1996 Jan 13;312(7023):71-2.
2. Wright JG, Swiontkowski MF, Heckman JD. Introducing levels of evidence to the journal. *J Bone Joint Surg Am*. 2003 Jan;85(1):1-3.
3. OCEBM Working Group. The Oxford 2011 Levels of Evidence. Oxford Centre for Evidence-Based Medicine. 2011. <http://www.cebm.net/ocbml-levels-of-evidence/>. Accessed 2014 Oct 23.
4. Howick J, Chalmers I, Glasziou P, Greenalgh T, Heneghan C, Liberati A, Moschetti I, Phillips B, Thornton H. Explanation of the 2011 Oxford Centre for Evidence-Based Medicine (OCEBM) Levels of Evidence (Background Document). Oxford Centre for Evidence-Based Medicine. <http://www.cebm.net/wp-content/uploads/2014/06/OCEBM-Levels-of-Evidence-Background-Documents-2.1.pdf>. Accessed 2014 Oct 23.
5. Edwards TB. What is the value of a systematic review? *J Shoulder Elbow Surg*. 2014 Jan;23(1):1-2. Epub 2013 Nov 4.
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8. Caro JJ, Briggs AH, Siebert U, Kuntz KM; ISPOR-SMDM Modeling Good Research Practices Task Force. Modeling good research practices—overview: a report of the ISPOR-SMDM Modeling Good Research Practices Task Force—1. *Value Health*. 2012 Sep-Oct;15(6):796-803.

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PRE-COURSE PROGRAM *Sponsored by Medtronic*

Improving Patient Care through Diversity, Equity, and Inclusion

Chair: Julie Samora, MD, PhD, MPH, FAAOS, FAOA

WEDNESDAY, MAY 11 • 8:00 AM–11:50 AM

DESCRIPTION

Diversity can relate to race/ethnicity, gender, age, socioeconomic status, sexual orientation, disability, work experience, and political beliefs. The current composition of the physician workforce does not reflect the US population. Healthcare has suffered from a general lack of cultural competence, which is the ability to successfully interact with individuals from diverse backgrounds.

Diversity of the workforce can improve productivity, innovation, communication, patient satisfaction, equitable care, and can reduce health disparities, increase care for the underserved, and enhance overall population health. Equity refers to fairness and justice focusing on outcomes, keeping in mind that everyone faces different challenges and has unique needs. Inclusion involves authentic and empowered participation, with a true sense of belonging and full access to opportunities.

This pre-course will focus on enhancing diversity, equity, and inclusion in pediatric orthopaedics, minimizing our own biases, building diverse teams, crafting a welcoming, supportive environment, and increasing access to care for those individuals in non-majority populations, with the overall goal of improving outcomes for all of pediatric patients with musculoskeletal conditions.

LEARNING OBJECTIVES

Upon completion of this program, participants should be able to:

- Objective 1:** Differentiate between diversity, equity, and inclusion and appreciate how cultivating each can not only enhance the learning and work environment in pediatric orthopaedics but can also improve patient outcomes.
- Objective 2:** Assess and appreciate our individual implicit biases and develop tools to minimize unconscious biases when working with others, training young surgeons, and caring for patients.
- Objective 3:** Develop the knowledge and skills to address unique needs and considerations of individuals in non-majority populations to improve healthcare outcomes.

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.

CONTINUING MEDICAL EDUCATION

The American Academy of Orthopaedic Surgeons designates this live activity for a maximum of **3.5 AMA PRA Category 1 Credits™**. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

PRE-COURSE PROGRAM CONTINUED

WEDNESDAY, MAY 11

SESSION 1: DIVERSITY, EQUITY, AND INCLUSION: BACKGROUND, STATISTICS, AND BENEFITS

8:00 AM–8:50 AM

Moderator: Ellen M. Raney, MD

eModerator: Qusai Hammouri, MBBS, MD

8:00 AM–8:08 AM

Making the Case for Diversity

Julie Samora, MD, PhD, MPH, FAAOS, FAOA

8:09 AM–8:17 AM

Current State of Diversity in Orthopaedics

Monica Payares-Lizano, MD

8:18 AM–8:26 AM

Choosing Orthopaedics: The Effect of Implicit Biases and Current Culture

Selina Poon, MD, MPH, MS

8:27 AM–8:35 AM

Inclusion and Allyship in Training and Medicine

Aliya Feroe, MPH

8:36 AM–8:45 AM

Question and Answer Session

SESSION II: NON-MAJORITY POPULATIONS AND HEALTH EFFECTS

8:46 AM–10:15 AM

Moderator: George D. Gantsoudes, MD

eModerator: Laura E. Gill, MD

8:46 AM–8:55 AM

Equity vs. Equality in Medicine

Coleen S. Sabatini, MD, MPH

8:56 AM–9:05 AM

Stereotype Threat

Jaysson T. Brooks, MD

9:06 AM–9:15 AM

Disparity in Access and Poorer Health Status in Non-Majority Populations

David Fralinger, MD

9:16 AM–9:25 AM

Poorer Health in the LGBTQ+ Community due to Fear of Mistreatment

Corinna C. Franklin, MD

PRE-COURSE PROGRAM CONTINUED

WEDNESDAY, MAY 11

- 9:26 AM–9:35 AM **Understanding and Confronting our Biases to Improve Clinical Care and the Work and Learning Environment**
Lisa Lattanza, MD
- 9:36 AM–9:45 AM Question and Answer Session
- 9:46 AM–10:15 AM **Small Group Break-out Discussions with Faculty and Moderators**
- 10:16 AM–10:30 AM Break

SESSION III: BEING THE CHANGE

10:31 AM–11:50 AM

Moderator: Howard Epps, MD

eModerator: Folorunsho Edobor Osula, MD, MPH

- 10:31 AM–10:40 AM **How to Recruit and Train Diverse Pediatric Orthopaedic Surgeons**
Suken A. Shah, MD
- 10:41 AM–10:50 AM **Choosing a Path Within Medicine: Addressing the Myths**
Daniel J. Sucato, MD, MS
- 10:51 AM–11:00 AM **How to Build Diverse, Inclusive Teams and Create a Culture that Supports Diversity of Background and Thought**
John M. Flynn, MD
- 11:01 AM–11:20 AM **Equity, Diversity, and Inclusion Initiatives in a Pediatric Academic Medical Center: Priorities Addressed and Lessons Learned**
Valerie L. Ward, MD, MPH
- 11:21 AM–11:35 AM **Next Steps for POSNA**
Mininder S. Kocher, MD, MPH
- 11:36 AM–11:50 AM Question and Answer Session

SCIENTIFIC PROGRAM

WEDNESDAY, MAY 11

1:40 PM–1:45 PM Introduction and Opening Remarks

GENERAL SESSION I: QSVI I

Moderator: Kevin G. Shea, MD
Co-Moderator: Christine Ho, MD

-
- 1**
1:46 PM–1:50 PM  **Safe and Simple Radiographic Evaluation of Pediatric Patients with Suspected Fractures**
Jody Litrenta, MD; Jamie Schlacter; Demetrios Roussos; Mara Karamitopoulos, MD; Cordelia Carter, MD; Andrew Price, MD; Pablo Castañeda, MD; Karim Masrouha, MD
New York University, New York, NY
-
- 2**
1:51 PM–1:55 PM  **Abbreviated Outpatient Upper Extremity Fracture Care During COVID-19: A New Approach For The Future?**
Kathryn Anderson; Viviana Bompadre, PhD; Cheryl Parker, PA-C; Shing Varakitsomboon; Walter Krengel, MD; John Lockhart; Christopher Tremonti; Gregory Schmale, MD
Seattle Children's Hospital, Seattle, WA
-
- 3**
1:56 PM–2:00 PM  **A Telemedicine Solution to Minimize Unnecessary Emergency Department Transfers for Low-Acuity Pediatric Orthopaedic Trauma Patients: A Cost-Minimization Analysis**
Yushane Shih, MD; Arlene Maheu; Drake LeBrun; Peter Fabricant, MD; Alfred Atanda, MD
Nemours/Alfred I. duPont Hospital for Children, Wilmington, DE
-
- 2:01 PM–2:09 PM Discussion
-
- 4**
2:10 PM–2:14 PM **A Modified Enhanced Recovery After Surgery Protocol Reduces Length of Stay and Opioid Consumption in Adolescents with Idiopathic Scoliosis (AIS)**
David Lebel; Natasha Bath; Masayoshi Machida; Martin Koyle; Fiona Campbell; Lisa Isaac; David Levin; Sarah Brennenstuhl; Danielle Ruskin; Jennifer Stinson
The Hospital for Sick Children, Toronto, Ontario, Canada
-
- 5**
2:15 PM–2:19 PM **Pre-operative Carbohydrate Drink for Early Recovery in Pediatric Spine Fusion: Randomized Control Trial**
Jennifer Bauer, MD; Kathryn Anderson; Eliot Grigg
Seattle Children's Hospital, Seattle, WA

SCIENTIFIC PROGRAM

WEDNESDAY, MAY 11 CONTINUED

6

2:20 PM–2:24 PM

A dedicated surgical team for posterior spinal fusion for adolescent idiopathic scoliosis improves OR efficiency.

*Benjamin Martin, MD; Matthew Oetgen, MD; Shannon Kelly, MD; Jessica Cronin; Ariana Mirzada; Sophie Pestieau; Heather Gordish-Dressman
Children's National Hospital, Washington, DC*

2:25 PM–2:33 PM

Discussion

7

2:34 PM–2:38 PM

Baby Hippy Quality Improvement Project - Getting all Breech Births Ultrasonographically Screened for DDH

*Shafique Pirani, MD; Queenie Lai; Janice Eng; Anna Stonehouse; Lindsay Brimblecombe; Mandip Rai; Irene Cheung; Kenneth Wong; Sudha Muly; Catherine Clelland; Zenon Cieslak; Lisa Shackerley-Bennett
Royal Columbian Hospital, New Westminster, British Columbia, Canada*

8

2:39 PM–2:43 PM

What is the Interobserver Reliability of an Ultrasound-enhanced Physical Examination of the Hip in Infants? A prospective study on the ease of acquisition of skills to diagnose hip dysplasia

*Pablo Castañeda, MD; Monica Rubio Lorenzo; Christina Herrero; Mara Karamitopoulos, MD; Cordelia Carter, MD
New York University Grossman School of Medicine, New York, NY*

9

2:44 PM–2:48 PM

Use of an organized perioperative protocol to decrease surgical time, blood loss, and radiation exposure during a periacetabular osteotomy

*Rachael Martino BA; Sayan De, MD; Nathan Donaldson, DO; Courtney Selberg, MD
Children's Hospital Colorado, Aurora, CO*

2:49 PM–2:57 PM

Discussion

10

2:58 PM–3:02 PM

Checking our Bias: An Examination of Implicit Racial Attitudes Amongst Pediatric Orthopedic Surgeons

*Ryan Guzek; Christine Goodbody; Lori Jia; Coleen Sabatini, MD; Wudbhav Sankar, MD; Brendan Williams, MD; Apurva Shah, MD
The Children's Hospital of Philadelphia, Philadelphia, PA*

SCIENTIFIC PROGRAM

WEDNESDAY, MAY 11 CONTINUED

11

3:03 PM–3:07 PM

Dedicated Pediatric Orthopaedic Access Coordinator Improve Patient Access and Decrease Health Disparity

*Haleh Badkoobehi, MD; Kristen Combs; Louis Kwong; Lynne Smith; Selina Poon, MD
Harbor UCLA, Torrance, CA*

12

3:08 PM–3:12 PM

POSNA Safe Surgery Quality Improvement Program–First Year Results

*Kali Tileston, MD; Abhishek Tippabhatla; Matthew Rohde; Brian Brighton, MD; Michael Vitale, MD; Robert Cho, MD; Kevin Shea, MD
Stanford Children's Health, Palo Alto, CA*

3:13 PM–3:21 PM

Discussion

3:30 PM–3:50 PM

Break

GENERAL SESSION II: OSVI/INFECTION-TUMOR I

Moderator: Michelle Caird, MD

Co-Moderator: Ryan Muchow, MD

13

4:00 PM–4:04 PM

How Safe is Regional Anesthesia in Pediatric Orthopaedics: A Review of Prospective Data from the Sports Cohort Outcome Registry (SCORE)–A Quality Improvement Initiative

*Jennifer Beck, MD; Savannah Cooper; Lizzie Adsit; Matthew Ellington, MD; Jeremy Frank, MD; Matthew Milewski, MD; Eric Edmonds, MD; Peter Fabricant, MD; Theodore Ganley, MD; Gregory Schmale, MD; Emily Niu, MD; Benton Heyworth, MD; Donna Pacicca, MD; Shital Parikh, MD; Kevin Shea, MD; Philip Wilson, MD; Henry Ellis, MD
Scottish Rite for Children, Dallas, TX*

14

4:05 PM–4:09 PM

Noninvasive Hemoglobin Monitoring for Post-Operative Pediatric Orthopedic Patients: A Pain-Free Screening Tool

*Anthony Stans, MD; Smitha Mathew; Natalie Pulido; A. Noelle Larson, MD; A Larson, MD; William Shaughnessy, MD; Todd Milbrandt, MD
Mayo Clinic, Rochester, MN*

SCIENTIFIC PROGRAM

WEDNESDAY, MAY 11 CONTINUED

15

4:10 PM–4:14 PM

Can Caregivers Forecast Child Postoperative Disability After Elective Orthopaedic Surgery?

Steven Frick, MD; Danika Baskar; Shayna Mehta; Nicole Segovia; Robin Kamal

Stanford University School of Medicine, Stanford, CA

4:15 PM–4:23 PM

Discussion

16

4:24 PM–4:28 PM

A Universal C-arm Language Improves OR Morale

Ena Nielsen; **Jennifer Bauer, MD**

Seattle Children's Hospital, Seattle, WA

17

4:29 PM–4:33 PM



Closed Reductions of Pediatric Wrist, Forearm, and Elbow Fractures in a Free-Standing Ambulatory Surgery Center is a Safe and Cost-effective Alternative to the Emergency Department

Derek Kelly, MD; Carson Strickland; Robert Neel; Evan Porter; Benjamin Sheffer, MD; David Spence, MD; Jeffrey Sawyer, MD

Campbell Clinic Orthopaedics, Germantown, TN

18

4:34 PM–4:38 PM

Magnetic Limb Lengthening Nails: Mechanical Failure Rate, Type of Failure And Management

Hamza Arabai; Oliver Sax; **John Herzenberg, MD** Rubin Institute For Advanced Orthopedics, Baltimore, MD

4:39 PM–4:37 PM

Discussion

19

4:48 PM–4:52 PM

Risk Factors for Venous Thromboembolic Events Among Children Hospitalized with Acute Hematogenous Musculoskeletal Infections

Sarah Purtell BS; Dianne Thornhill; John Kim; Michele Loi; Justin Lockwood; Christine MacBrayne; Mackenzie DeVine;

Julia Sanders, MD; Justin Searns

Children's Hospital Colorado, Aurora, CO

SCIENTIFIC PROGRAM

WEDNESDAY, MAY 11 CONTINUED

20

4:53 PM–4:57 PM

Identifying the Variables Associated with Improved Pathogen Identification in Children with Acute Hematogenous Osteomyelitis: Results from the CORTICES Multicenter Database

*Jessica Burns, MD; Vidyadhar Upasani, MD; Tracey Bastrom, MA; Brian Brighton, MD; Rachel Goldstein, MD; Benton Heyworth, MD; Mark Miller, MD; Julia Sanders, MD; Jonathan Schoenecker, MD, PhD; Benjamin Shore, MD; Walter Truong, MD
Rady Children's Hospital, San Diego, CA*

21

4:58 PM–5:02 PM

The Utility of IR-Guided Biopsy in Treatment of Pediatric Osteomyelitis

*Christopher Gajewski; Kevin Chen; Alexander Upfill-Brown; Mauricio Silva, MD; Rachel Thompson, MD
University of California, Los Angeles, Los Angeles, CA*

5:03 PM–5:11 PM

Discussion

22

5:12 PM–5:16 PM

A Comparison of the Oncological and Functional Outcomes Following Endoprosthetic Reconstruction or Rotationplasty for Paediatric Sarcoma

*Jong Min Lee; Eliane Rioux Trottier; Jonathan Perera; Kim Tsoi; Sevan Hopyan, MD
The Hospital for Sick Children, Toronto, Ontario, Canada*

23

5:17 PM–5:21 PM

Pathological Fractures Have No Long-Term Association with Adverse Oncological Outcomes in Ewing Sarcoma

*Dipak Ramkumar; Sean Kelly; Niveditta Ramkumar; Georges Basile; Kevin Raskin, MD; Mark Gebhardt, MD; Megan Anderson, MD; Santiago Lozano Calderon
Boston Children's Hospital, Boston, MA*

24

5:22 PM–5:26 PM

Quality of Life after treatment for Lower Extremity Sarcomas

*Nathan Donaldson DO; Nathan Rogers, MPH; Richie Fuld, MD
Childrens Hospital Colorado, Aurora, CO*

5:27 PM–5:35 PM

Discussion

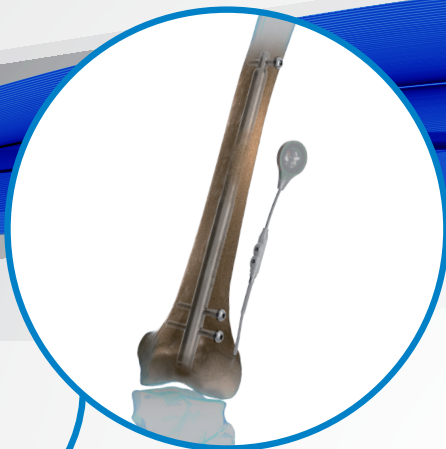
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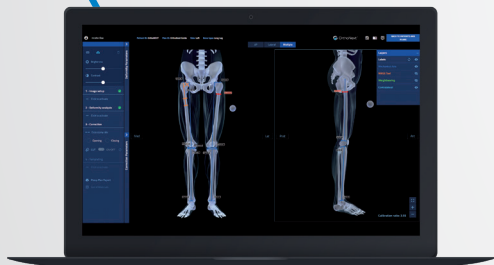


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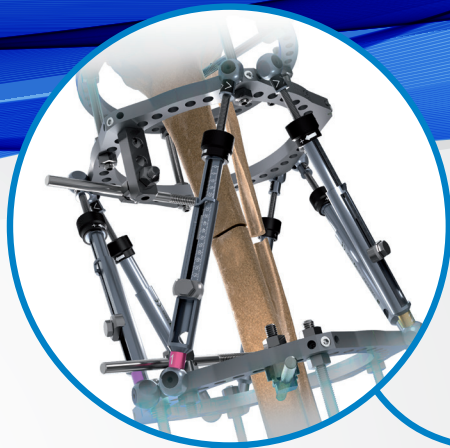
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OPENING CEREMONY

WEDNESDAY, MAY 11

- 6:30 PM–6:35 PM **Welcome**
POSNA President: Mininder S. Kocher, MD, MPH
Local Hosts: Kishore Mulpuri, MBBS, MHSc, FRCSC
Firoz Miyanji, MD, FRCSC
- 6:35 PM–6:40 PM **Introduction of Distinguished Guests**
- International Guests
 - New Members
 - POGO Scholars
 - Distinguished Achievement Award Recipient
 - Presidential Guest Speaker
 - Board of Directors
- 6:40 PM–6:45 PM **Introduction of POSNA Hall of Fame Inductees**
Mininder S. Kocher, MD, MPH
- 6:45 PM–6:50 PM **Presentation of the St. Giles Young Investigator Award**
Mininder S. Kocher, MD, MPH
- 6:50 PM–6:55 PM **Presentation of the Arthur H. Huene Memorial Award**
Mininder S. Kocher, MD, MPH
- 6:55 PM–7:00 PM **Presentation of Angela S.M. Kuo Memorial Award**
Mininder S. Kocher, MD, MPH
- 7:00 PM–7:05 PM **Presentation of the Humanitarian Award**
Mininder S. Kocher, MD, MPH
- 7:05 PM–7:10 PM **Presentation of the Special Effort and Excellence Award**
Mininder S. Kocher, MD, MPH
- 7:10 PM–7:25 PM **Recognition of Industry Sponsors**
Mininder S. Kocher, MD, MPH
- 7:25 PM **Introduction Steel Lecturer**
Mininder S. Kocher, MD, MPH
- 7:26 PM–8:00 PM **2021 Steel Lecture**
Finding the Mother Tree
Suzanne Simard
Professor of Forest Ecology at the University of British Columbia
- 8:05 PM–9:30 PM **Welcome Reception**

SPEAKERS AND AWARDS



JOHN "JACK" FLYNN, MD PRESIDENTIAL GUEST SPEAKER

John "Jack" Flynn, MD, is the Chief of Orthopedic Surgery at The Children's Hospital of Philadelphia and Professor of Orthopedic Surgery at the University of Pennsylvania. He went to Johns Hopkins University to play football and baseball and met his wife Mary the first week of college. Next, was Pittsburgh for med school, Mary's Master's in Applied Mathematics, and marriage. It was on to Boston for the Harvard

Combined Orthopaedic Surgery Program 1989-1995, Chief Residency at Boston Children's 1995, Mary's career, and two children. After this, was a fellowship at DuPont Hospital for Children (one more baby), then CHOP in 1996 (one more baby).

Dr. Flynn's clinical focus includes spine deformity, early onset scoliosis/thoracic insufficiency, fractures, and baby hips. He is the author of over 300 peer-reviewed papers, reviews, and chapters, and editor of the seminal texts in pediatric orthopaedics: *Lovell and Winter's Pediatric Orthopaedics*, *Rockwood and Wilkins' Fractures in Children*, *Operative Techniques in Orthopaedic Pediatric Surgery*, as well as *OKU 10* and *Staying Out of Trouble in Pediatric Orthopaedics*. A winner of multiple teaching awards, Dr. Flynn lectures nationally and internationally on management of spinal disorders, pediatric fracture care, safety and value in spine care, and life-work integration for surgeons.

He has served as president of the Pediatric Orthopaedic Society of North America, vice president of the American Board of Orthopaedic Surgery, president of the Pediatric Spine Foundation, chair of the International Pediatric Orthopaedic Symposium, chair of the AAOS CME Courses Committee, and president of the Children's Spine Study Group.

Jack and Mary have been married for over 30 years and are the embarrassingly proud parents of Erin (30), Colleen (27), John (25), and Kelly (22).

SPEAKERS AND AWARDS



R. BAXTER WILLIS, MD DISTINGUISHED ACHIEVEMENT AWARD

R. Baxter Willis, MD, grew up in London, Ontario, Canada, the youngest of three brothers. He completed his bachelor's (1967) and medical degrees (1971) at the University of Western Ontario (now Western University). Following a rotating internship at St. Paul's Hospital in Vancouver, Dr. Willis returned to London where he completed his orthopaedic residency training in 1976.

His career was influenced greatly by the mentorship of Robert Salter, MD, and many teachers at the Hospital for Sick Children where Dr. Willis did a pediatric orthopaedic fellowship in 1977.

He returned to London in 1978 as the first full-time pediatric orthopaedic surgeon and where he remained in academic practice until 1994. His colleagues in London remain close to his heart as some of the finest people with whom he has worked.

During his 16 years in London, Dr. Willis became active in many POSNA committees, eventually becoming president of the society in 2007-2008—a professional highlight.

In 1994, Dr. Willis was recruited to New Orleans as the G. Dean MacEwen Chair in Pediatric Orthopaedics at Louisiana State University Health Centre, Professor of Orthopaedic Surgery at LSU, and Chief of Orthopaedic Surgery at the Children's Hospital in New Orleans. While there, he helped develop the academic and educational program, training many fellows in the process. The friendship and advice of Dr. MacEwen were vital to the success of that venture.

In 2004, Dr. Willis returned to Canada as the Chief of Surgery at the Children's Hospital of Eastern Ontario (CHEO), a position he held until 2015. He continued in an administrative capacity as Interim Chief of Pediatric Orthopaedics at the University of Ottawa and CHEO from 2015 until 2017.

Dr. Willis has authored over 80 peer-reviewed articles and numerous book chapters. He serves on the editorial boards of the *Journal of Pediatric Orthopaedics* and the *Journal of Children's Orthopaedics*.

His interests include pediatric hip disorders, limb and foot deformities, and trauma.

He continues to practice part-time at CHEO and still loves his interaction with patients and their families. He enjoys teaching and education in all aspects, especially to residents and fellows. He is actively involved in international outreach education in pediatric orthopaedics in Southeast Asia and South America.

Dr. Willis is married to his lovely wife, Sue, who has been an integral partner in international travel for POSNA courses. Dr. Willis and Sue have three children—Chris, Caroline, and Andrew and two grandchildren, Magdalena and Frances.

On a personal note, Dr. Willis feels very blessed in his career and blessed to choose pediatric orthopaedics which became a professional passion. He has had the honour to work with incredible people in London, New Orleans, and Ottawa.

SPEAKERS AND AWARDS



EDWARDS PARK SCHWENTKER, MD HUMANITARIAN AWARD

Edwards (Ned) Schwentker, MD, is an Emeritus Professor of Orthopaedics and Rehabilitation at the Penn State College of Medicine. He received a BS degree at Haverford College in 1963 and graduated from the Johns Hopkins School of Medicine in 1968. He completed residency training in orthopaedic surgery at the University of Pittsburgh in 1973 and a pediatric orthopaedic fellowship at the Hospital for Sick Children in Toronto in 1974. Following fellowship, he spent 2 years as a staff surgeon working at the duPont Institute. In 1976, he joined the orthopaedic and rehabilitation faculty at Penn State's College of Medicine where he served as a pediatric orthopaedic surgeon and for a time as the Medical Director of Rehabilitation until retiring in 2008.

During the last year of his orthopaedic residency, Dr. Schwentker had the unique opportunity to spend 3 months on the orthopaedic service at the Princess Margaret Hospital in the Bahamas where he received considerable exposure to pediatric patients, sunshine, and a different culture—all giving him a desire to include global health work in his career. An opportunity to do so came in November 1989, when in response to a devastating earthquake the previous December, Project HOPE sent a team of rehabilitation professionals to set up a pediatric rehabilitation program. Dr. Schwentker joined three other pediatric orthopaedic surgeons (Drs. Denis Drummond, Bob Clark, and Mike Sussman) for a week in Armenia to assess pediatric orthopaedic support. He returned to work with Armenian surgeons for 2 weeks each in 1990 and 1991. He was hooked on global health work but wanted a location a bit easier to get to.

In 1995, under the sponsorship of Medical Group Missions, he traveled to San Pedro Sula, Honduras, where working in a small government hospital, he spent 2 weeks evaluating children and performing surgery. Over the next 12 years, he led twenty-one 2-week pediatric orthopaedic projects. For each project, the team would evaluate up to 200 children and perform up to twenty operations. The teams always included his wife, Bunny, who served as a general helper and chief recruiter of POSNA members, at least one medical student, and frequently a Penn State orthopaedic resident. Over the years, eight other POSNA members participated including Kaye Wilkins, a previous POSNA Humanitarian Award recipient. All projects included a Honduran orthopaedic surgeon to identify patients, assist with procedures in the operating room, and provide postoperative care.

Sponsor affiliations changed from Medical Group Missions to Medical Ministry International and in 2004, to CURE International. In 2008, after Dr. Schwentker and Bunny made a 2-year commitment to live and work in Honduras full-time, CURE International built a 20-bed, fully equipped hospital with living quarters above two beautiful operating rooms. It was the only full-time/year-round pediatric orthopaedic facility providing elective care for poor children in Central America.

Unfortunately, in the second year of their commitment, Bunny developed ovarian cancer and they had to return home. CURE International replaced Dr. Schwentker with other North American surgeons, but then in 2013, CURE abruptly closed the hospital for reasons that remain obscure. Dr. Schwentker resumed short-term missions working at the Ruth Paz Foundation Hospital, another NGO. With the onset of the COVID pandemic, trips to Honduras were put on hold. Hopefully, they will be able to resume soon.

SPEAKERS AND AWARDS



KEVIN G. SHEA, MD SPECIAL EFFORTS AND EXCELLENCE AWARD

Kevin G. Shea, MD, is an orthopaedic surgeon at Stanford University Medical Center Lucile Packard Children's Hospital. Dr. Shea grew up in Montana and California, graduated from the UCLA School of Medicine, and completed his orthopaedic residency at the University of Utah School. His training includes pediatric orthopaedics at Rady Children's

Hospital in San Diego, AO Fellowship in Bern Switzerland with Drs. Ganz (hip), Dr. Diego Fernandez (trauma), and Dr. Hans Staubli (sports), and Ilizarov training in Lecco, Italy.

He was the AOSSM Traveling Sports Medicine Fellow in 2008, and practiced in Boise, Idaho, prior to joining the Stanford Faculty in 2018. Dr. Shea is a founding member of the PRiSM Society (Pediatric Research in Sports Medicine), ROCK (Research in OsteoChondritis of the Knee) Multi-center Study Group, and SCORE Pediatric Sports Outcomes Prospective Cohort. He is a member of the AAOS (American Academy of Orthopaedic Surgeons), POSNA (Pediatric Orthopaedic Society of North America), and the AOSSM (American Orthopaedic Society for Sports Medicine).

He has over 15 years of experience in local and national quality committees for the AAOS Evidence-Based Quality and Value Committee and the POSNA Quality Safety Value Council. He has significant experience with health care system performance/quality improvement efforts and continues to work on metric development for health systems to evaluate better care, outcomes for patients, and families. He has authored more than 200 scientific papers and book chapters.

SPEAKERS AND AWARDS



SUZANNE SIMARD STEEL LECTURER

Suzanne Simard is a Professor of Forest Ecology at the University of British Columbia and the leader of The Mother Tree Project, which researches forest renewal practices that protect biodiversity against climate change.

Dr. Simard's work has been published widely, with over 170 scientific articles in peer-reviewed journals, including *Nature*, *Ecology*, and *Global Biology*. She is also co-author of the book *Climate Change and Variability*. Her latest book, *Finding the Mother Tree: Discovering the Wisdom of the Forest*, brings us into the intimate world of trees, exploring the ways in which trees learn and adapt their behaviors, remember the past, demonstrate agency over the future, and cooperate with a sophistication typically ascribed to humans.

Dr. Simard's research has been communicated broadly through TED Talks and TED Experiences as well as articles and interviews in *The New Yorker*, *National Geographic*, *The Globe and Mail*, *NPR*, *CNN*, *CBC*, and many more.



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SUBSPECIALTY DAY PROGRAM

THURSDAY, MAY 12

SUBSPECIALTY DAY - HAND

7:50 AM–9:45 AM

Surgeons often change their practice through their career as they gain experience and based on new research. We have enlisted a panel of pediatric hand surgeons to discuss, “What I Know That I Wish I Knew Then.” Our discussion will consist of topics ranging from trigger thumb release to radial dysplasia treatment with our panelists discussing changes in practice from when they started to today, confirmations or discontinuation of treatments, or changes in philosophy.

Chair: Joshua M. Abzug, MD

Co-Chair: Suzanne Steinman, MD

7:50 AM–7:55 AM Welcome and Remarks

25

7:56 AM–8:00 AM

The Natural History of Pediatric Hand and Wrist Ganglion Cysts: Longitudinal Follow-up of a Prospective, Multicenter Cohort

*Marissa Dearden; Benjamin Chang; Jennifer Ty, MD; Ines Lin; Zoe Belardo; Melissa Hoxha; **Apurva Shah, MD***
The Children’s Hospital of Philadelphia, Philadelphia, PA

26

8:01 AM–8:05 AM

Treatment of Ulnar Bow in Patients with Multiple Hereditary Exostosis

***Aaron Huser DO**; Claire Shannon, MD; Dror Paley, MD; Katherine Miller; Craig Robbins, MD; David Feldman, MD*
The Paley Institute, West Palm Beach, FL

27

8:06 AM–8:10 AM

Patient health & functional status in congenital radial head dislocation: factors associated with parent-reported outcomes

*Naveen Jasty; Deborah Bohn, MD; Julie Samora, MD, PhD, MPH, FAAOS, FAOA; Apurva Shah, MD; Suzanne Steinman, MD; Lindley Wall, MD; Angela Wang; Michelle James, MD; **Donald Bae, MD***
Boston Children’s Hospital, Boston, MA

8:11 AM–8:19 AM Discussion

SUBSPECIALTY DAY PROGRAM

THURSDAY, MAY 12 CONTINUED

28

8:20 AM–8:24 AM

Prevalence and Distribution of Risk Factors in Brachial Plexus Birth Injuries

*Mary Claire Manske, MD; Patricia Miller MS; Andrea Bauer, MD
Shriners Hospital for Children Northern California,
Sacramento, CA*

29

8:25 AM–8:29 AM

At What Age is Stereognosis a Reliable Measure in the Pediatric Population?

*Alisa Forsberg; Rebecca Li; Samara Kass; Catherine May;
Joshua Abzug, MD
University of Maryland School of Medicine, Baltimore, MD*

30

8:30 AM–8:34 AM



A Comparative Cost Analysis of IMN Versus Plate in Operatively Treated Forearm Fractures using the Pediatric Health Information System (PHIS)

*Andy Lalka; LORI SILVEIRA; Sarah Sibbel, MD
Children's Hospital Colorado, Aurora, CO*

8:35 AM–8:43 AM

Discussion

8:45 AM–8:50 AM

Introduction

Joshua Abzug, MD

8:51 AM–9:01 AM

Radial Dysplasia

*Peter Waters, MD; Michelle James, MD; Andrew Koman, MD
and Terry Light, MD*

9:02 AM–9:12 AM

Trigger Thumb

*Peter Waters, MD; Michelle James, MD; Andrew Koman, MD
and Terry Light, MD*

9:13 AM–9:23 AM

Syndactyly

*Peter Waters, MD; Michelle James, MD; Andrew Koman, MD
and Terry Light, MD*

9:24 AM–9:34 AM

Brachial Plexus

*Peter Waters, MD; Michelle James, MD; Andrew Koman, MD
and Terry Light, MD*

9:35 AM–9:45 AM

MHE or Dealers Choice

*Peter Waters, MD; Michelle James, MD; Andrew Koman, MD
and Terry Light, MD*

9:45 AM–10:10 AM

Break

SUBSPECIALTY DAY PROGRAM

THURSDAY, MAY 12 CONTINUED

SUBSPECIALTY DAY - FOOT

10:18 AM–11:58 AM

This year's panelists come from across globe. They will debate the management of uncommon congenital malformations of the foot and ankle and share their pearls for treating the sequelae of severe trauma of the pediatric foot.

Chair: Maryse Bouchard, MD, MSc, FRCSC

Co-Chair: L. Reid Nichols, MD

31

10:18 AM–10:22 AM

Clubfoot Practices Across North America: a POSNA Survey

Oliver Sax; Larysa Hlukha; John Herzenberg, MD

Rubin Institute For Advanced Orthopedics, Baltimore, MD

32

10:23 AM–10:27 AM

Objectively measured sleep metrics in Infants and Toddlers undergoing Night-time Boots and Bar Brace Treatment for Clubfoot compared to Age Matched Controls

Charlotte Sununu; Natalie Barnett; Emily Dodwell, MD;

Clare Kehoe; David Scher, MD

Hospital for Special Surgery, New York, NY

33

10:28 AM–10:32 AM

The Ponseti Method for the Treatment of Clubfeet Associated with Down Syndrome

Edwin Portalatin; Sarah Parenti; Jordan Polk; Chan-Hee Jo;

Anthony Riccio, MD

Scottish Rite for Children, Dallas, TX

10:33 AM–10:41 AM

Discussion

34

10:42 AM–10:46 AM

The Effectiveness of Serial Casting in the Treatment of Recurrent Equinovarus in Children with Arthrogyposis

Chris Church; Christina Bourantas; Stephanie Butler;

Jose Salazar-Torres; John Henley; Maureen Donohoe;

Freeman Miller, MD; L Reid Nichols, MD

Nemours duPont Hospital for Children, Wilmington, DE

SUBSPECIALTY DAY PROGRAM

THURSDAY, MAY 12 CONTINUED

35

10:47 AM–10:51 AM **Efficacy of a Photograph-Based Triage System Initiated During the COVID-19 pandemic to Identify and Streamline Urgent Pediatric foot and Ankle Referrals**

Luandrya Egea Martins; Barb Harvey, PT; Marwah Sadat; Maryse Bouchard, MD, MSc, FRCSC
The Hospital for Sick Children, Toronto, Canada

36

10:52 AM–10:56 AM **Surgical Treatment of Pediatric Ankle Instability: Intermediate-Term Outcomes of a Modified Broström Procedure**

Kelly Boutelle; Kathleen Rickert, MD; Alyssa Carroll; Andrew Pennock, MD; Eric Edmonds, MD
Rady Children's Hospital San Diego, San Diego, CA

10:57 AM–11:04 AM Discussion

Panel Discussion: Cinderella complex: How to make that foot fit in the shoe?

11:05 AM–11:11 AM **When the Foot is too Big! How I Approach Overgrowth Syndromes in the Foot**

Alpesh Kothari, MD

11:12 AM–11:18 AM **When the Foot is too Small! How I Approach Ectrodactyly and Deficiencies of the Foot**

Norgrove Penny, MD

11:19 AM–11:25 AM **When the Toes Won't Fit in the Shoe! How I Approach Polydactyly and Hallux Varus in the Older Child**

Anthony Riccio, MD

11:26 AM–11:41 AM **Case Discussion**

Maryse Bouchard, MD, MSc, FRCSC and L. Reid Nichols, MD

11:42 AM–11:58 AM



Sequelae of the Extreme Pediatric Foot Trauma: Case Discussions

Panel

SUBSPECIALTY DAY PROGRAM

THURSDAY, MAY 12 CONTINUED

SUBSPECIALTY DAY - HIP

Period 1: 7:50 AM–9:40 AM

Sponsored by OrthoPediatrics

This session will focus on intra-operative decision-making points during common pediatric and adolescent hip surgeries. The discussion will focus on how to decide when to take the next step in order to optimize the outcome.

Chair: Scott Rosenfeld, MD

Co-Chair: Jonathan Schoenecker, MD, PhD

7:50 AM–7:55 AM Welcome and Remarks

37

7:56 AM–8:00 AM

TULIPPS: Testing of an Ultrasound- Limited Imaging Protocol for Pavlik Harness Supervision. A Randomised Controlled Trial

Amy Behman; Connor Maddock; Smriti Sharma; Catharine Bradley; Simon Kelley, MD

The Toronto Hospital for Sick Children (SickKids), Toronto, Ontario, Canada

38

8:01 AM–8:05 AM

Does A Normal Hip Ultrasound at 3-6 Months of Age Predict a Normal X-ray?

Conner Paez; Cody Hansen; James Bomar, MPH;

Vidyadhar Upasani, MD; Maya Pring, MD

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

39

8:06 AM–8:10 AM

Composite Test of Sonographic and Radiographic Measures at 6 Months Proves the Best Predictor of Residual Dysplasia at 2 Years of Age

Patrick Carry; Reba Salton; Nancy Miller, MD; Christopher Brazell;

Eduardo Novais, MD; M. Siobhan Murphy-Zane, MD;

Gaia Georgopoulos, MD

Children's Hospital Colorado, Aurora, CO

8:11 AM–8:19 AM

Discussion

40

8:20 AM–8:24 AM

Prophylactic Pinning for Slipped Capital Femoral Epiphysis: A Delicate Balance Between Slip Prevention and Femoral Morphologic Changes

Joshua Klatt, MD; Allan Metz; Jenna Cheminant; Stephen Aoki, MD
University of Utah, Salt Lake City, UT

SUBSPECIALTY DAY PROGRAM

THURSDAY, MAY 12 CONTINUED

41

8:25 AM–8:29 AM

Remodeling of Proximal Femoral Morphology After Slipped Capital Femoral Epiphysis

*Emmalynn Sigrist; Andrew Block; Perry Schoenecker, MD; Jeffrey Nepple, MD
Washington University in St. Louis, St. Louis, MO*

42

8:30 AM–8:34 AM

Does Controlled Repositioning and Primary Osteoplasty have a Role in the Management of Unstable Slipped Capital Femoral Epiphysis?

*Venkatadass Krishnamoorthy, MD; V. Durgaprasad; Deepak Jain; S. Rajasekaran
Ganga Hospital, Coimbatore, Tamilnadu, India*

8:35 AM–8:43 AM

Discussion

A: Intra-operative Decision-Making: How to Decide When It Is Necessary to...

8:45 AM–8:48 AM

Introduction

Scott Rosenfeld, MD

8:49 AM–8:56 AM

Transition From a Closed Reduction to Open Reduction

Perry Schoenecker, MD

8:57 AM–9:04 AM

Add a Femoral Pelvic Osteotomy to an Open Reduction

Emily Dodwell, MD

9:05 AM–9:12 AM

Add a Femoral Osteotomy to a Rotational Pelvic Osteotomy (PAO or Triple)

Stephanie Pun, MD

9:13 AM–9:20 AM

Add a Femoral Osteotomy to Open or Arthroscopic SCFE Osteochondroplasty

Courtney Selberg, MD

9:21 AM–9:28 AM

Transition From a Closed Reduction of an Acute Unstable SCFE to Open

Wudbhav Sankar, MD

9:29 AM–9:45 AM

Discussion

Scott Rosenfeld, MD

9:45 AM–10:10 AM

Break

SUBSPECIALTY DAY PROGRAM

THURSDAY, MAY 12 CONTINUED

SUBSPECIALTY DAY - HIP (CONTINUED)

Period 2: 10:18 AM–11:58 AM

This session will focus on interpreting and acting upon pre-operative, intra-operative, and post-operative diagnostic studies that are commonly used in the workup and surgical management of pediatric and adolescent hip problems.

43

10:18 AM–10:22 AM **Factors Affecting Slip Progression After in Situ Screw Fixation of Slipped Capital Femoral Epiphysis**

*Eric Wait; Graham Fedorak, MD; Bruce MacWilliams
University of Utah, Salt Lake City, UT*

44

10:23 AM–10:27 AM **Pre-operative Anxiety and Depression Predict Functional Outcomes After Periacetabular Osteotomy and Hip Arthroscopy Surgery**

*Ann Richey; Nicole Segovia; Katherine Hastings;
Stephanie Pun, MD
Stanford University, Palo Alto, CA*

45

10:28 AM–10:32 AM **Femoral Version Abnormalities in the Adolescent Hip: Where is the location of the true deformity?**

*Jeffrey Nepple, MD; Caleb Grote; Travis Turner; John Clohisy, MD
Washington University School of Medicine, St. Louis, MO*

10:33 AM–10:41 AM Discussion

46

10:42 AM–10:46 AM **Does Arthroscopic Labral Repair Improve Patient Reported Outcomes in the setting of Periacetabular Osteotomy?**

*Alison Dittmer Flemig, MD; Anthony Essilfie; Stacy Robustelli BS;
Brandon Schneider; Ernest Sink, MD
Hospital for Special Surgery, New York City, NY*

47

10:47 AM–10:51 AM **Treatment of Borderline Acetabular Dysplasia: Outcomes of Periacetabular Osteotomy**

*Frank Parilla; Jeffrey Nepple, MD; Gail Pashos; John Clohisy, MD
Washington University School of Medicine, St. Louis, MO*

SUBSPECIALTY DAY PROGRAM

THURSDAY, MAY 12 CONTINUED

48

- 10:52 AM–10:56 AM **Periacetabular Osteotomy (PAO) for Adolescent Hip Dysplasia: The Role of Hip Joint Center Medialization in Gait, Hip Strength and Functional Outcomes**
Emmanouil Grigoriou, MD; Kirsten Tulchin-Francis, PhD; Daniel Sucato, MD
Texas Scottish Rite Hospital for Children, Dallas, TX
- 10:57 AM–11:04 AM Discussion
- 11:06 AM–11:13 AM **How to Determine with Diagnostics if a SCFE Is Alive or Dead—Pre, During, and After**
Tim Schrader, MD
- 11:14 AM–11:21 AM **Clinical Relevance of Perfusion Studies for DDH reduction**
Travis Matheney, MD
- 11:22 AM–11:29 AM **How to Interpret and Act Upon an MRI for Mature DDH**
Jeffrey Nepple, MD
- 11:30 AM–11:37 AM **How to Measure Rotational Deformities of the Hip and Femur**
Rachel Goldstein, MD
- 11:38 AM–11:58 AM **Discussion**
Jonathan Schoenecker, MD, PhD



SUBSPECIALTY DAY PROGRAM

THURSDAY, MAY 12 CONTINUED

SUBSPECIALTY DAY - NEUROMUSCULAR

Period 1: 7:50 AM–9:40 AM

This session will be a mixture of scientific presentations and discussion on the orthopaedic care of patients with neuromuscular disorders. A variety of topics will be presented, including surgical indications for common surgical interventions in CP and SDR and review of this year's journal articles which will change clinical practice.

Chair: Benjamin Shore, MD, MPH, FRCSC

Co-Chair: Jill Larson, MD

7:50 AM–7:55 AM Welcome and Remarks

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7:56 AM–8:00 AM

Hip Displacement in Spinal Muscular Atrophy: The Influence of Genetic Severity and Functional Level

*Armagan Ulusaloglu, MD; Ali Asma; M Shrader, MD; Mena Scavina; William Mackenzie, MD; Amanda Erb; Jason Howard, MD
Nemours Children's Health, Wilmington, DE*

50

8:01 AM–8:05 AM

Fascia Iliaca Pain Block Results in Lower Overall Opioid Usage and Shorter Hospital Stays Than Epidural Anesthesia After Hip Reconstruction in Children with Cerebral Palsy

*Dominique Laron, MD; Jennifer Kelley; Vidya Chidambaran; James McCarthy, MD
Cincinnati Children's Hospital Medical Center, Cincinnati, OH*

51

8:06 AM–8:10 AM

Does Intrathecal Baclofen Therapy Decrease the Progression of Hip Dysplasia in Young Patients with Cerebral Palsy?

*Freeman Miller, MD; Ali Asma; Armagan Ulusaloglu, MD; Kenneth Rogers, PhD; Jason Howard, MD; Maura McManus; M. Wade Shrader, MD
Nemours Children's Health, Wilmington, DE*

8:11 AM–8:19 AM

Discussion

52

8:20 AM–8:24 AM

Patients and Parents' Satisfaction and Self-Reported Evaluation After Single-Event Multilevel Surgery in Cerebral Palsy

*Mauro Morais Filho, MD; Marcelo Fujino; Francesco Blumetti, MD; Catia Kawamura; Daniela Benavides; Jose Augusto Lopes
AACD, São Paulo, Brazil*

SUBSPECIALTY DAY PROGRAM

THURSDAY, MAY 12 CONTINUED

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8:25 AM–8:29 AM

The Effect of Medial Only versus Medial and Lateral Hamstrings Lengthening on Transverse Plane Gait Parameters in Cerebral Palsy
Louis Bezuidenhout; Chris Church; John Henley; Jose Salazar-Torres; Nancy Lennon; Freeman Miller, MD; Thomas Shields; M. Shrader, MD
Nemours Children's Health, Wilmington, DE

54

8:30 AM–8:34 AM

Patients GMFCS III Are More Susceptible to Gait Deterioration After Single-Event Multilevel Surgery in Cerebral Palsy
Mauro Morais Filho, MD; Francesco Blumetti, MD; Marcelo Fujino; Catia Kawamura; Jose Augusto Lopes
AACD, São Paulo, Brazil

8:35 AM–8:43 AM

Discussion

8:45 AM–8:47 AM

Introduction
Benjamin Shore, MD, MPH, FRCSC

8:47 AM–9:07 AM

Mission Impossible: Achieving Consensus for Surgical Indications in Cerebral Palsy
James McCarthy, MD

9:07 AM–9:27 AM

NM Journal Club—Articles You Need to Know About
Amanda Whitaker, MD

9:27 AM–9:35 AM

Master's Technique: Who is Best for SDR?
Tom Novacheck, MD

9:35 AM–9:40 AM

Discussion
Benjamin Shore, MD, MPH, FRCSC and Jill Larson, MD

9:45 AM–10:10 AM

Break

SUBSPECIALTY DAY - NEUROMUSCULAR (CONTINUED)

Period 2: 10:18 AM–11:58 AM

This second session will involve a mixture of scientific presentations and animated debates regarding guided growth around the proximal femur and surgical hip management in patients with Spinal Muscular Atrophy.

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10:18 AM–10:22 AM

Progression of hip displacement after triradiate cartilage closure in non-ambulatory cerebral palsy (CP): who needs continued radiographic surveillance?
Ali Asma; Armagan Ulusaloglu, MD; M. Wade Shrader, MD;

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SUBSPECIALTY DAY PROGRAM

THURSDAY, MAY 12 CONTINUED

*Kenneth Rogers, PhD; Freeman Miller, MD; Jason Howard, MD
Nemours Children's Health, Wilmington, DE*

56

10:23 AM–10:27 AM

Lumbar Plexus Nerve Blocks for Perioperative Pain Management in Cerebral Palsy Patients Undergoing Hip Reconstruction: More Effective than General Anesthesia and Epidurals

*Remy Zimmerman; Kelly Gillock; Alison Gattuso; Aysha Hasan;
Arianna Trionfo, MD
St. Christopher's Hospital for Children, Philadelphia, PA*

57

10:28 AM–10:32 AM

Long-term Results of Hip Reconstruction into Adulthood in Patients with Cerebral Palsy

*Patrick Curran; Stefano Stallone, MD; James Bomar, MPH;
Vidyadhar Upasani, MD; Henry Chambers, MD
Rady Children's Hospital, San Diego, San Diego, CA*

10:33 AM–10:41 AM

Discussion

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10:42 AM–10:46 AM

Concurrent Hip Dysplasia and Scoliosis in Children with Cerebral Palsy: Should We Fix the Hip or Spine First?

*Freeman Miller, MD; M. Wade Shrader, MD; Ali Asma; Armagan Ulusaloglu, MD; Kenneth Rogers, PhD; Jason Howard, MD; Mutlu Cobanoglu, MD;
Suken Shah, MD
Nemours Children's Health, Wilmington, DE*

59

10:47 AM–10:51 AM

Health-related Quality of Life and Caregiver Burden Following Hip Reconstruction and Spinal Fusion in Children with Cerebral Palsy: Five-Year Outcome Study

*Brian Snyder, MD; Rachel DiFazio, PhD; Judith Vessey;
Patricia Miller, MS; Benjamin Shore, MD
Boston Children's Hospital, Boston, MA*

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10:52 AM–10:56 AM

Proximal Femoral Screw Hemiepiphysiodesis in children with Cerebral Palsy alters the natural history of hip dysplasia.

*James McCarthy, MD; Allyson Zakrzewski, MD
Cincinnati Children's Hospital, Cincinnati, OH*

10:57 AM–11:04 AM

Discussion

SUBSPECIALTY DAY PROGRAM

THURSDAY, MAY 12 CONTINUED

- 11:05 AM–11:30 AM **Guided Growth for the Proximal Femur in Cerebral Palsy Debate:**
Pro- Jon Davids, MD
Con- Vineeta Swaroop, MD
- 11:30 AM–11:55 AM **All SMA Hips need surgical intervention**
Pro- Brian Snyder, MD
Con- Matthew Halanski, MD
- 11:55 AM–11:58 PM **Discussion**
Jill Larson, MD

SUBSPECIALTY DAY - SPINE

Period 1: 7:50 AM–9:40 AM

Innovation drives what we can do to help our patients. Innovation over recent years is staggering—magnetically controlled growing rods, tethering, and other technology have the potential to revolutionize patient care. At the same time, long-term data is lacking, and the surgeon must balance the ethical responsibility he or she has to the patient with the need to drive care forward. The ethics of bringing new technology from bench to bedside will be discussed in detail. From development, to learning from early cases, to honest outcome evaluation, our panel of experts will tackle these and other ethical dilemmas involved in innovating.

The importance of sagittal profile is well understood. Applying principles of sagittal balance to drive successful outcomes in AIS, EOS, neuromuscular scoliosis, and tethering is the focus of our second session. Our panel will share tips and tricks for success in this exciting session.

Chair: Craig Ebersson, MD

Co-Chair: Michelle Welborn, MD

7:50 AM–7:55 AM Welcome and Remarks

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7:56 AM–8:00 AM **Pain Catastrophizing Influences Preoperative and 2-Year Postoperative Patient Reported Outcomes in Adolescent Idiopathic Scoliosis**
Brandon Ramo, MD; Chan-Hee Jo
Texas Scottish Rite Hospital, Dallas, TX

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8:01 AM–8:05 AM **Adolescents Utilizing Narcotic Medications At 2-Years Post-AIS Surgery Can Be Identified on Pre-Operative SRS Mental Health, Pain And Function Scores**
Tracey Bastrom MA; Vidyadhar Upasani, MD; Peter Newton, MD
Rady Children's Hospital, San Diego, CA

SUBSPECIALTY DAY PROGRAM

THURSDAY, MAY 12 CONTINUED

63

8:06 AM–8:10 AM

More Than Just Medication: Exploring the Potential of a Perioperative Psychosocial Intervention Following Major Pediatric Orthopaedic Surgery

*Alex Gornitzky; Jennifer O'Donnell; Alejandro Cazzulino; Mohammad Diab, MD
University of California, San Francisco, San Francisco, CA*

8:11 AM–8:19 AM

Discussion

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8:20 AM–8:24 AM

Early Adherence to Prescribed Brace Wear for Adolescent Idiopathic Scoliosis Predicts Future Brace Wear Adherence

*Gabriel Linden; John Emans, MD; Lawrence Karlin, MD; Nora O'Neill; Kathryn Williams; M. Timothy Hresko, MD
Boston Children's Hospital, Boston, MA*

65

8:25 AM–8:29 AM

Issues with Big Data: Variations in Demographics and Complications Associated with Posterior Spinal Fusion in Pediatric Patients

*Ishaan Swarup, MD; Kian Niknam; Sanjeev Sabharwal, MD
UCSF Benioff Children's Hospital, Oakland, CA*

66

8:30 AM–8:34 AM

T1 Tilt and Clavicle Angle are the Best Predictors of Postoperative Shoulder and Neck Balance in AIS Patients

*Vishal Sarwahi MBBS; Sayyida Hasan; Terry Amaral, MD; Yungtai Lo
Northwell Health, New Hyde Park, NY*

8:35 AM–8:43 AM

Discussion

8:45 AM–8:47 AM

Introduction

Craig Ebersson, MD

8:48 AM–8:55 AM

Ethically Developing New Technology—from Benchtop to Patient

Peter Newton, MD

8:56 AM–9:03 AM

Responsibility to the Patient—How to Recommend an “Experimental” Treatment

A. Noelle Larson, MD

SUBSPECIALTY DAY PROGRAM

THURSDAY, MAY 12 CONTINUED

- 9:04 AM–9:11 AM **How Well Does This Have to Work? The Learning Curve for Innovation to be Better Than What We Do Now**
Caglar Yilgor, MD
- 9:12 AM–9:19 AM **When to Give Up-Abandoning the New for the Tried and True**
Charles Johnston, MD
- 9:20 AM–9:40 AM **Panel Discussion**
Patrick Cahill, MD and Panel
-
- 9:45 AM–10:10 AM Break
-

SUBSPECIALTY DAY - SPINE (CONTINUED)

Period 2: 10:18 AM–11:58 AM

The sagittal plane has a significant impact on HRQoL, but it is not a fixed target. The ideal sagittal plane evolves over time, changes based on underlying disease process, and treatment modality. The goal of this session will be to help minimize adding on, improve HRQoL, and optimizing outcomes. Lastly, to define what degree of deviation from the norm are exclusion criteria for different technologies.

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- 10:18 AM–10:22 AM **The Effect of Idiopathic Scoliosis on the Delivery Experience in Pregnant Women**
Jeffrey Kessler, MD; Adam Kessler; Selina Poon, MD; Robert Cho, MD
Kaiser Los Angeles Medical Center, Los Angeles, CA
-

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- 10:23 AM–10:27 AM **Spinal Fusion Effects on Pulmonary Function and Breathing Mechanics in Adolescent Idiopathic Scoliosis**
Vincent Prusick, MD; Joel Eastman; Hank White; Sam Augsburger; Ryan Muchow, MD; Vishwas Talwalkar, MD; Henry Iwinski, MD
Shriners Hospital for Children Medical Center, Lexington, KY
-

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- 10:28 AM–10:32 AM **Roids are the Rage: Postoperative Steroids in Patients with Severe Neuromuscular Scoliosis Undergoing Posterior Spinal Fusion Reduced Opioid Usage by 70%**
Nicholas Fletcher, MD; Tracy Ruska; Thomas Austin; Robert Bruce, MD
Children's Healthcare of Atlanta, Atlanta, GA
-

- 10:33 AM–10:41 AM Discussion
-

SUBSPECIALTY DAY PROGRAM

THURSDAY, MAY 12 CONTINUED

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10:42 AM–10:46 AM **Impact of Surgical Treatment on Parent-Reported Health Outcome Measures in Early-Onset Scoliosis: Stable but No Improvement at 2 Years**

*K. Aaron Shaw, DO; Brandon Ramo, MD; Anna McClung; Chan-Hee Jo; Matthew Oetgen, MD
Texas Scottish Rite Hospital for Children, Dallas, TX*

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10:47 AM–10:51 AM **Fewer Complications in Simultaneous Detethering and Spinal Deformity Correction Surgery than in Staged Approach in Patients with Early Onset Scoliosis**

*Jennifer Kunes; Adam Fano; Rajiv Iyer; Hiroko Matsumoto, PhD; Mark Erickson, MD; Richard McCarthy, MD; Michael Vitale, MD; Richard Anderson
Columbia University, New York, NY*

72

10:52 AM–10:56 AM **What Does Adulthood Look Like for Early Onset Scoliosis Patients? Long-term Follow-Up on Patient Reported Outcome Measures**

*Kyle Miller, MD; Dmitri Falkner; George Thompson, MD; John Emans, MD; John Smith, MD; John Flynn, MD; Jeffrey Sawyer, MD
Campbell Clinic Orthopaedics, Memphis, TN*

10:57 AM–11:04 AM Discussion

11:05 AM–11:13 AM **The Sagittal Plane and Neuromuscular Scoliosis—Staying Out of Trouble in Aspiration, Sitting Balance, and How to Plan Optimal Contour for Progressive Disease**

Brian Snyder, MD

11:14 AM–11:22 AM **The Sagittal plane and AIS—the Impact of Pelvic Incidence, Lumbar Lordosis on Thoracic Kyphosis, Adding on and Outcomes**

Michael Kelly, MD

11:23 AM–11:31 AM **The Sagittal Plane and Growing Instrumentation- Avoiding PJK, the Role of HGT, Rod Contouring and How to Optimize Outcomes**

Peter Sturm, MD

11:31 AM–11:39 AM **The Sagittal Plane and Tethering—What Are Contraindications to Tethering and How to Optimize Outcomes**

Stefan Parent, MD, PhD

11:40 AM–11:58 AM **Discussion**

Panel

SUBSPECIALTY DAY PROGRAM

THURSDAY, MAY 12 CONTINUED

SUBSPECIALTY DAY - SPORTS

Period 1: 7:50 AM–9:40 AM

What Not To Do: Complications in Pediatric Sports

Complications and unexpected events happen to every surgeon. The goal of this section will be to discuss complications in pediatric sports medicine, preventative measures to avoid them, and pearls to manage them once they happen. Speakers will discuss intra-operative complications (graft complications in ACL surgery, fixation failure, etc.) and postoperative complications (infections, stiffness, DVT, etc.) and how to prevent and manage them.

Chair: Jennifer Beck, MD

Co-Chair: Cliff Willimon, MD

7:50 AM–7:55 AM Welcome and Remarks

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7:56 AM–8:00 AM

The Impact of Graft Choice on Return to Sport Testing After Adolescent ACL Reconstruction

*Brendan Shi; Kevin Chen; Abbie Bennett; Nakul Talathi; Alexander Upfill-Brown; Jennifer Beck, MD
UCLA, Los Angeles, CA*

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8:01 AM–8:05 AM

Use of cryotherapy in postoperative management of pediatric anterior cruciate ligament reconstruction

*Kai Yet Lam; Mohammad Ashik; Neeraj Mishra; Nicole Lee; Joel Yat Seng Wong
KK Women's and Children's Hospital, Singapore*

75

8:06 AM–8:10 AM

MPFL Reconstruction and Guided Growth in Skeletally Immature Patients with Patellar Instability and Genu Valgum

*Dayna Phillips; Matthew Veerkamp; Eric Wall, MD; Matthew Ellington, MD; Nicole Friel; John Schlechter DO; Daniel Green, MD; Javier Masquijo, MD; Shital Parikh, MD
Cincinnati Children's Hospital Medical Center, Cincinnati, OH*

8:11 AM–8:19 AM Discussion

SUBSPECIALTY DAY PROGRAM

THURSDAY, MAY 12 CONTINUED

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8:20 AM–8:24 AM

Surgical Management of Patellar Instability in Adolescents with High Grade Trochlear Dysplasia

Benjamin Wilson, MD; Kianna Nunally; Danielle Cook; Zaamin Hussain; Evan Zheng; Yi-Meng Yen, MD; Dennis Kramer, MD; Lyle Micheli, MD; Mininder Kocher, MD; Benton Heyworth, MD Boston Children's Hospital, Boston, MA

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8:25 AM–8:29 AM

Arthroscopic deepening trochleoplasty combined with MPFL reconstruction; a novel solution to patellofemoral instability with trochlear dysplasia in the adolescent population

Neeraj Mishra; CHLOE CHAN; Kevin Lim FRCS; Mohammad Ashik, MD KK Women's and Children's Hospital, Singapore

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8:30 AM–8:34 AM

Radiographic Predictors of Failure of Patellar Instability Surgery in Adolescents

Benjamin Wilson, MD; Evan Zheng; Danielle Cook; Zaamin Hussain; Kianna Nunally; Benton Heyworth, MD; Lyle Micheli, MD; Yi-Meng Yen, MD; Dennis Kramer, MD; Mininder Kocher, MD Boston Children's Hospital, Boston, MA

8:35 AM–8:43 AM

Discussion

8:45 AM–8:47 AM

Introduction to Complications

Jennifer Beck, MD

8:48 AM–8:58 AM

Intraoperative ACL Autograft Harvest Complications

Jay Albright, MD

8:58 AM–9:08 AM

Intra-operative ACL Graft Fixation Complications

Allison Crepeau, MD

9:09 AM–9:19 AM

Preop, IntraOp, Postop Infection Prevention and Treatment

Henry Ellis, MD

9:20 AM–9:30 AM

Postop Stiffness: How to Avoid, When to Treat, How to Treat

Cordelia Carter, MD

9:31 AM–9:40 AM

Case Presentations: What Not To Do

Panel

9:45 AM–10:10 AM

Break

SUBSPECIALTY DAY PROGRAM

THURSDAY, MAY 12 CONTINUED

SUBSPECIALTY DAY - SPORTS (CONTINUED)

Period 2: 10:18 AM–11:58 AM

Revision Surgery

Failures will happen to everyone in this young, athletic, high-risk population. How can we learn from these failures and how do we approach revision surgery? Panelists will discuss reasons for failure, how to prevent them, and how to approach revision surgery. Evidence-based decision-making will be presented. Considerations to intrinsic and extrinsic patient factors will be discussed. Preoperative workup and surgical planning, postoperative protocols, as well as return to sports recommendations will be presented.

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10:18 AM–10:22 AM **Magnetic Resonance Imaging Surveillance of Allograft Cartilage Matrix Implantation after Repair of Articular Cartilage Defects**
Sean Waldron, MD; Bhumit Desai
Ochsner Medical Center, New Orleans, LA

80

10:23 AM–10:27 AM **Suture-Bridge Fixation of Osteochondral Fractures and Osteochondritis Dissecans in the Knee: Excellent Rates of Early Lesion Stability and Osseous Union**
Philip Wilson, MD; Charles Wyatt NP; Benjamin Johnson; Savannah Cooper; Connor Carpenter; Henry Ellis, MD
Scottish Rlte for Children, Dallas, TX

81

10:28 AM–10:32 AM **Quadriceps Tendon Autograft in Pediatric Anterior Cruciate Ligament Reconstruction: Graft Dimensions and Prediction of Size on Preoperative MRI**
Theodore Ganley, MD; David VanEenenaam; J Todd Lawrence, MD; Brendan Williams, MD; Kathleen Maguire, MD; Theodore Ganley, MD
The Children's Hospital of Philadelphia, Philadelphia, PA

10:33 AM–10:41 AM Discussion

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10:42 AM–10:46 AM **Management Of Sublime Tubercle Injuries In Adolescents: Hints Of A Classification Scheme**
Sarah Fogleman; Eric Edmonds, MD; Alyssa Carroll; Andrew Pennock, MD
Rady Children's Hospital San Diego, San Diego, CA


SUBSPECIALTY DAY PROGRAM

THURSDAY, MAY 12 CONTINUED

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10:47 AM–10:51 AM **Comparison of Knotless versus Knotted Suture Anchors in the Arthroscopic Management of Adolescent Shoulder Instability**
Claudio Ghetti; Richard Michelin; Sarah Fogleman; Bryn Gornick; Alyssa Carroll; Eric Edmonds, MD; John Schlechter, DO
Rady Children's Hospital, San Diego, CA

84

10:52 AM–10:56 AM  **Early Knee Range of Motion Following Operative Treatment For Tibial Tubercle Avulsion Fractures is Safe**
Kevin Huang; Nathan Houlihan; Alexandre Arkader, MD; John Flynn, MD; Brendan Williams, MD
Children's Hospital of Philadelphia, Philadelphia, PA

10:57 AM–11:04 AM Discussion

11:05 AM–11:07 AM **Introduction to Revision Sports Medicine Surgery**
Cliff Willimon, MD

11:08 AM–11:17 AM **Revision Shoulder Stabilization: Whats Next After a Failed Arthroscopic Bankart? When to Latarjet?**
Crystal Perkins, MD

11:18 AM–11:27 AM **Revision Patella Stabilization: Whats Next After a Failed Isolated MPFL? When and How to Address Lateral Retinaculum?**
Nicole Friel, MD

11:28 AM–11:37 AM **Revision ACL Reconstruction: Graft Choices? When to Address the ALL?**
Neeraj Patel, MD

11:38 AM–11:47 AM **Revision Hip Arthroscopy: When to Repeat Scope vs. Move to Open Procedures?**
Yi-Meng Yen, MD

11:48 AM–11:58 AM **Complex Cases**
Panel

SUBSPECIALTY DAY PROGRAM

THURSDAY, MAY 12 CONTINUED

SUBSPECIALTY DAY - TRAUMA

Period 1: 7:50 AM–9:40 AM

The Trauma Subspecialty session will consist of three different components of interest to pediatric orthopaedic surgeons involved in trauma care. There will be scientific paper presentations leading into an interactive discussion about the latest findings in trauma care. There will also be two didactic sessions. The first will discuss innovative approaches and lively debate regarding tough pediatric trauma problems involving the upper and lower extremities (Unstable SCFE, radial neck fractures, distal tibia fractures, and Monteggia injuries). The second will be an all-star panel of trauma experts (two adult and two pediatric specialists) discussing “adult-like” trauma in the pediatric/adolescent patient population (Lisfranc ORIF vs. primary fusion, tibial plateau, distal humerus, calcaneus fractures, syndesmotic injury screws vs. suture-button device).

Chair: Jaime Rice Denning, MD

Co-Chair: Keith Baldwin, MD

7:50 AM–7:55 AM Welcome and Remarks

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7:56 AM–8:00 AM



Less Common Than Expected: Late Displacement After Pediatric Lateral Condyle Fractures of the Elbow

R. Justin Mistovich, MD; Robert Burkhart; David Kolin;

Raymond Liu, MD

Case Western University, Cleveland, OH

86

8:01 AM–8:05 AM



K wire or Screw Fixation for Humerus Lateral Condyle Fractures: A Multicenter Experience

Maria Schwabe; Jason Cummings; Andrew Landau; Kevin Neal, MD;

Asdrubal Rivera Dones; Adrian Lin; Jaime Denning, MD;

Julia Sanders, MD; Rachel Goldstein, MD; Pooya Hosseinzadeh, MD

Washington University in St. Louis, St. Louis, MO

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8:06 AM–8:10 AM



A Multi-Institutional Study Establishing Construct Validity of a Novel Pediatric Elbow Pinning Simulator

Heather Kowalski, MD; Steven Long; Emily Connor;

Ahmed Abood, MD; Emily Wagstrom; Geb Thomas;

Donald Anderson; Jan Rolwing

University Of Iowa, Iowa City, IA

8:11 AM–8:19 AM Discussion

SUBSPECIALTY DAY PROGRAM

THURSDAY, MAY 12 CONTINUED

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8:20 AM–8:24 AM



Medial Epicondyle Fractures in the Pediatric and Adolescent Population– A Multicenter Prospective Analysis of Patient Demographics and Current Treatment Patterns

Joseph Yellin, MD; Leta Ashebo, BA; Divya Talwar; Scott McKay, MD; Peter D. Fabricant, MD; Eric W. Edmonds, MD; Benton E. Heyworth, MD; Michael Saper; Elaine Joughin, MD; Lisa Phillips, MD; Donna M. Pacicca, MD; Kevin H. Latz, MD; Stephanie Watson Mayer, MD; Daryl Osbahr, MD; J. Todd Lawrence, MD; MEMO Study Group
Children's Hospital of Philadelphia, Philadelphia, PA

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8:25 AM–8:29 AM



Outcomes and Cost of Reduction of Overriding Pediatric Distal Radius Fractures

Hallie Bradley; Courtney Hartman; Shellye Crawford, NP;
Brandon Ramo, MD
Scottish Rite for Children, Dallas, TX

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8:30 AM–8:34 AM



A Randomized Clinical Trial Comparing Outcomes of Supracondylar Humerus Fractures Treated Postoperatively with Cylindrical and Standard Casts

Virginia Casey, MD; Susan Odum; Brian Brighton, MD; Brian Scannell, MD; Michael Paloski DO
OrthoCarolina, Charlotte, NC

8:35 AM–8:43 AM

Discussion

8:45 AM–8:50 AM

Introduction

Jaime Denning, MD and Keith Baldwin, MD

8:51 AM–9:27 AM



Adult Type Trauma (pelvic fractures, Lisfranc, tibial plateau, distal humerus, calcaneus fx)

Mara Schenker, MD, FACS; Mike Archdeacon, MD; Julia Sanders, MD; and Derek Kelly, MD

9:28 AM–9:35 AM



SHII Ankle Fractures (Fix Them)

Maryse Bouchard, MD, MSc, FRCSC

9:36 AM–9:42 AM



SHII Ankle Fracture (Cast Them)

Jennifer Laine, MD

9:45 AM–10:10 AM

Break

SUBSPECIALTY DAY PROGRAM

THURSDAY, MAY 12 CONTINUED

SUBSPECIALTY DAY - TRAUMA (CONTINUED)

Period 2: 10:18 AM–11:58 AM

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10:18 AM–10:22 AM



Forearm Fractures in Older Children and Adolescents: ORIF is Safer than IMN with Equivalent Outcomes

*Stephen Chen; Matthew LaBarge; Jacquelyn Pennings;
Jeffrey Martus, MD
Vanderbilt Children's Hospital, Nashville, TN*

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10:23 AM–10:27 AM



Modifiable and Non-Modifiable Risk Factors for Failure of Non-Operative Treatment of Pediatric Forearm Fractures: Where Can We Do Better?

*Nakul Talathi; Jeremy Policht; Brendan Shi; Kevin Chen; Bailey Mooney;
Mauricio Silva, MD; Rachel Thompson, MD
UCLA Department of Orthopaedic Surgery, Los Angeles, CA*

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10:28 AM–10:32 AM



Routine Removal of Orthopaedic Implants in Pediatric Trauma Patients with Fracture Union: Who, When, and Why

*Stephanie Ihnow, MD; Austin Wallace; Brittany Raymond;
MaryBeth Horodyski; Jessica McQuerry, MD
University of Florida, Gainesville, FL*

10:33 AM–10:41 AM

Discussion

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10:42 AM–10:46 AM



Intramedullary Fixation for Pediatric Femoral Nonunion in Low- and Middle-Income Countries

*Ryan Furdock; Lauren Huang; George Ochenjele; Lewis Zirkle;
Raymond Liu, MD
Rainbow Babies & Children's Hospital, Case Western Reserve University
School of Medicine, Cleveland, OH*

95

10:47 AM–10:51 AM



Minimizing Risk of Vascular Injury: Anatomical Study of the Popliteal Artery in the Pediatric Knee

*Frederick Mun; Sukrit Suresh; Majd Marrache;
Krishna Vangipuram Suresh; Ijezie Ikwuezunma;
Aaron Brandt, MD; R. Jay Lee, MD
Johns Hopkins University, Baltimore, MD*

SUBSPECIALTY DAY PROGRAM

THURSDAY, MAY 12 CONTINUED

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10:52 AM–10:56 AM



Outcomes of Flexible Nailing Pediatric Tibial Shaft Fractures: Open Fracture as a Key Variable

*Pooya Hosseinzadeh, MD; Rachel Goldstein, MD; Andrew Landau; Adrian Lin
Washington University in St. Louis, St. Louis, MO*

10:57 AM–11:04 AM

Discussion

11:05 AM–11:15 AM



Proximal Humerus Fractures (data for treatment in tweener kids)

Pooya Hosseinzadeh, MD

11:16 AM–11:26 AM



Leadbetter Closed Reduction Technique for Unstable SCFE

Nathan Lempert, MD

11:27 AM–11:37 AM



Radial Neck Fractures Strategies for the Best Result

Apurva Shah, MD

11:38 AM–11:48 AM



Length Stable Displaced Monteggia Fracture Dislocation (Fix 'em all)

Julie Samora, MD, PhD, MPH, FAAOS, FAOA

11:49 AM–11:58 AM



Length Stable Displaced Monteggia Fracture Dislocation (CR cast 'em all)

Vidyahar Upasani, MD

SUBSPECIALTY DAY - LOWER EXTREMITY

Period 1: 7:50 AM–9:40 AM

Guided growth is a widely popular method of treating deformity in skeletally immature patients for its ease of application and low risk profile. The aim of this session is to explore the current trends in guided growth and to illustrate when it works or fails to avoid osteotomy in complex lower extremity deformity. Presentations and interactive case discussions will highlight the controversies and limitations of guided growth in pathologic bone and Blount's disease.

Chair: Megan Young, MD

Co-Chair: Klane White, MD

7:50 AM–7:55 AM

Welcome and Remarks

97

7:56 AM–8:00 AM

Comparing Green-Anderson Tibial and Femoral Lengths to a Modern Population of U.S. Children

*A. Noelle Larson, MD; Stephanie Duong; Dirk Larson; Hamlet Peterson; Anthony Stans, MD; William Shaughnessy, MD; Todd Milbrandt, MD
Mayo Clinic, Rochester, MN*

SUBSPECIALTY DAY PROGRAM

THURSDAY, MAY 12 CONTINUED

98

8:01 AM–8:05 AM

Deformity Correction with Lateral Tension Band Plating (LTBP) for Early-Onset Blount Disease- Predictive Factors from a Multi-Center Study

Janet Walker, MD; David Dueber; Lindsay Stephenson, MD; Allison Scott, MD; Joel Lerman, MD; Kenneth Powell, MD; Jeffrey Ackman, MD; David Westberry, MD; Sarah Nossov, MD; Corinna Franklin, MD
Shriners Hospitals for Children Medical Centers- Multiple, Lead Site, Lexington, KY

99

8:06 AM–8:10 AM

Beyond The Two Year 'Rule': Can Guided Growth Implants Safely Be Retained Longer?

Cynthia Nguyen, MD; Kelsey Davidson, BS; Marilan Luong; Kerry ORourke; Kory Bettencourt; Selina Poon, MD; Joel Lerman, MD
Shriners for Children Medical Center, Pasadena, Pasadena, CA

8:11 AM–8:19 AM

Discussion

100

8:20 AM–8:24 AM

The Precice Plate: An Initial Experience

Claire Shannon, MD; Aaron Huser, DO; Dror Paley, MD
The Paley Institute, West Palm Beach, FL

101

8:25 AM–8:29 AM

Does Focal Osteolysis in a Stainless-Steel Lengthening Device Resolve After Explantation?

Oliver Sax; Larysa Hlukha; Kyle Kowalewski; Philip McClure, MD; John Herzenberg, MD
Rubin Institute For Advanced Orthopedics, Baltimore, MD

102

8:30 AM–8:34 AM

Pediatric Limb Reconstruction Surgery Coding Survey Results: What A Fine Mess

Christopher Iobst, MD; Anirejuoritse Bafor; Mallory Rowan; Molly Duncan
Nationwide Children's Hospital, Columbus, OH

8:35 AM–8:43 AM

Discussion

8:45 AM–8:46 AM

Introduction

Klane White, MD

SUBSPECIALTY DAY PROGRAM

THURSDAY, MAY 12 CONTINUED

- 8:46 AM–8:55 AM **Trends in Guided Growth...Techniques, Controversies, Limitations**
Pooya Hosseinzadah, MD
- 8:56 AM–9:05 AM **Pearls and Pitfalls of Guided Growth in Metabolic Bone Disease and Skeletal Dysplasias**
Klane White, MD
- 9:06 AM–9:15 AM **How to Analyze and Treat Sagittal Plane Deformity**
Philip McClure, MD
- 9:15 AM–9:40 AM **Case Discussions**
Klane White, MD
-
- 9:45 AM–10:10 AM Break
-

SUBSPECIALTY DAY - LOWER EXTREMITY (CONTINUED)

Period 2: 10:18 AM–11:58 AM

- 103**
10:18 AM–10:22 AM **Transphyseal Heim-Epiphysiodesis Screws Allow for Faster Rate of Correction Than Plates in the Knee For an Age- and Sex Matched Cohort of Skeletally Immature Patients**
James McGinley; Hannah Worrall; Claire Althoff; Chan-Hee Jo; John Birch, MD; Philip Wilson, MD; Henry Ellis, MD
Scottish Rite for Children, Dallas, TX
-
- 104**
10:23 AM–10:27 AM **Tension Band Implant Breakage Is Correlated With Pre-op Body Mass Index and Severity of Varus Deformity in Patients with Blount Disease-A Multi-Center Study**
Janet Walker, MD; Paige Chapman; David Dueber; Lindsay Stephenson, MD; Allison Scott, MD; Joel Lerman, MD; Kenneth Powell, MD; Sarah Nossov, MD; Corinna Franklin, MD; David Westberry, MD; Jeffrey Ackman, MD
Shriners Hospitals for Children Medical Centers- Multiple, Lexington KY
-
- 105**
10:28 AM–10:32 AM **Knee Pain Outcomes Following Suprapatellar versus Infrapatellar Approach for Tibial Nail Insertion in Limb Length Discrepancy**
Larysa Hlukha; Oliver Sax; Kyle Kowalewski; John Herzenberg, MD; Philip McClure, MD
Rubin Institute For Advanced Orthopedics, Baltimore, MD

SUBSPECIALTY DAY PROGRAM

THURSDAY, MAY 12 CONTINUED

10:33 AM–10:41 AM Discussion

106

10:42 AM–10:46 AM **Functional Outcomes of Femoral Derotational Osteotomies for Idiopathic Torsional Deformities Using 3D Gait Analysis**
Jeremy Bauer, MD; Patrick Do; Jehan Hamid
Shriners Hospitals for Children - Portland, Portland, OR

107

10:47 AM–10:51 AM **The Effect of Knee Height Asymmetry on Gait Biomechanics**
Haluk Altiok, MD; Jeremy Bauer, MD; Jacqueline Simon;
Abdalwahab Kawaiah; Susan Sienko; Robert Burnham;
Ann Flanagan; Cathleen Buckon; Joseph Krzak; Karen Kruger
Shriners Hospitals for Children - Chicago, Chicago, IL

108

10:52 AM–10:56 AM **The Fate of Bent Telescopic Rods in Children with Osteogenesis Imperfecta: Do All Bent Rods Need to be Revised?**
David Fralinger; Denver Burton; Kenneth Rogers, PhD;
Richard Kruse, DO; Jeanne Franzone, MD
Nemours Hospital for Children, Wilmington, DE

10:57 AM–11:04 AM Discussion

11:05 AM–11:15 AM **Evolution of Treatment for Early Onset Blount's Disease...Increased Role of Guided Growth**
Charles Johnston, MD

11:16 AM–11:25 AM **Evaluation and Management of Intraarticular Deformity in Advanced Stage Blount's Disease**
Sanjeev Sabharwal, MD

11:26 AM–11:35 AM **Adolescent Blount's Disease...When to Guide and When to Cut**
Jill Flanagan, MD

11:35 AM–11:58 AM **Case Discussions**
Megan Young, MD

SCIENTIFIC PROGRAM

FRIDAY MAY 13

AWARDS PART 1

Moderator: Ken Noonan, MD

Co-Moderator: Jennifer Laine, MD

8:00 AM–8:05 AM Welcome and Remarks

109

8:05 AM–8:10 AM

MRI Predictors of Residual Dysplasia in Developmental Dysplasia of the Hip Following Open and Closed Reduction

Mitchell Johnson; Shivani Gohel; Jie Nguyen;

Wudbhav Sankar, MD

Children's Hospital of Philadelphia, Philadelphia, PA

110

8:11 AM–8:16 AM

Brace Treatment Does Not Improve Acetabular Coverage or Reduce the Rate of Secondary Surgery Following Closed Reduction of Developmental Dysplasia of the Hip

Arnav Kak; William Morris, MD; Laura Mayfield, MPH; Harry Kim, MD
Scottish Rite for Children, Dallas, TX

8:17 AM–8:25 AM

Discussion

111

8:26 AM–8:30 AM

◆ **The sex-dependent role of myostatin signaling in contractures following neonatal brachial plexus injury**

Marianne Emmert; QINGNIAN GOH; Kritton Shay-Winkler;

Parul Aggarwal; Roger Cornwall, MD

Cincinnati Children's Hospital Medical Center, Cincinnati, OH

112

8:31 AM–8:35 AM

Obesity delays revascularization and bone healing via an LDL mediated mechanism in a mouse model of ischemic osteonecrosis

ZHUO DENG; Maria Aguirre-Flores; Harry Kim, MD; Yinshi Ren

Texas Scottish Rite Hospital for Children, Dallas, TX

8:36 AM–8:43 AM

Discussion

113

8:44 AM–8:49 AM

Understanding Functional Outcomes of Bracing in Spinal Muscular Atrophy Patients: A Dual Center Perspective

Mitchell Johnson; Carina Lott; Michael Troy; Patrick Curran;

Brian Snyder, MD; Patrick Cahill, MD; Jason Anari, MD

Children's Hospital of Philadelphia, Philadelphia, PA

◆ Indicates a presentation 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.)

SCIENTIFIC PROGRAM

FRIDAY, MAY 13 CONTINUED


114
8:50 AM–8:55 AM **Complications Of MCGRs And TGRs In The Management Of EOS: A Multicenter Database Study Of 800 Patients**
Matthew Oetgen, MD; Smitha Mathew; Craig Birch, MD; David Skaggs, MD; Pediatric Spine Study Group Children's National Hospital, Washington, DC


8:56 AM–9:03 AM Discussion

115
9:04 AM–9:08 AM **Reverse Dynamization Accelerates Distraction Osteogenesis Regenerate Bone Maturation in a Large Animal Model**
Christopher lobst, MD; Anirejuoritse Bafor; Mikhail Samchukov, MD; Alexander Cherkashin, MD; Vaida Glatt; Satbir Singh BS Nationwide Children's Hospital, Columbus, OH

116
9:09 AM–9:13 AM **The impact of growth, cessation of growth and bracing on curve progression in idiopathic scoliosis**
Michelle Welborn, MD; Ryan COGHLAN; Amer Samdani, MD; Joseph Stone, MD; Robert Cho, MD; Selina Poon, MD; Vishwas Talwalkar, MD; James Sanders, MD; Susan Sienko Shriners Hospital for Children, Portland, OR

9:14 AM–9:21 AM Discussion

117
9:22 AM–9:27 AM  **FORCE: A Randomised Controlled Trial of Offer of Bandage Versus Rigid Immobilisation in the Treatment of Torus Fractures of the Distal Radius in Children**
Deborah Eastwood, MD
University of Oxford, Oxford, United Kingdom

118
9:28 AM–9:33 AM  **Functional Bracing of Femur Fractures in Young Children Avoids Anesthesia and Spica Casting with Equivalent Outcomes: A Randomized Prospective Study**
Lindsay Andras, MD; Vivian Chen; Julia Sanders, MD; David Skaggs, MD; Robert Kay, MD
Children's Hospital Los Angeles, Los Angeles, CA

9:34 AM–9:42 AM Discussion

SCIENTIFIC PROGRAM

FRIDAY, MAY 13 CONTINUED

119

9:43 AM–9:47 AM

MSC Exosomes Promote Functional Osteochondral Repair in a Clinically Relevant Porcine Model

*James Hui; Shipin Zhang; Keng Lin Wong; Xiafei Ren; Ruenn Chai Lai; Sai Kiang Lim; Wei Seong Toh
National University of Singapore, Singapore*

120

9:48 AM–9:52 AM

Treatment of Large Osteochondral Defects Using 3D Printed Bioinductive Scaffolds in an Adolescent Porcine Model

*Patrick Whitlock, MD; Sumit Murab; Jenna Hall; Chia-Ying Lin
Cincinnati Children's Hospital Medical Center, Cincinnati, OH*

9:53 AM–10:00 AM

Discussion

10:05 AM–10:25 AM

Break

AWARDS PART 2

Moderator: Ken Noonan, MD

Co-Moderator: Jennifer Laine, MD

121

10:30 AM–10:35 AM

Patient-reported outcomes of over 900 adults who had childhood Legg-Calve-Perthes disease (LCPD)

*Harry Kim, MD; Molly McGuire; Roi Almakias; Michael Millis, MD; Bella Vakulenko-Lagun
Scottish Rite for Children, Dallas, TX*

122

10:36 AM–10:41 AM

Comparison of Trunk Range of Motion and Patient Outcomes After Anterior Vertebral Body Tethering vs. Posterior Spinal Fusion Using Computerized 3D Motion Capture Technology

*Joshua Pahys, MD; Amer Samdani, MD; Steven Hwang; Spencer Warshauer; Ross Chafetz
Shriners Hospital for Children, Philadelphia, PA*

10:42 AM–10:50 AM

Discussion

SCIENTIFIC PROGRAM

FRIDAY, MAY 13 CONTINUED

123

10:51 AM–10:55 AM

Multi-Needle Bone Wash and Injection of Ibandronate Decreases Bone Void and Increases Endochondral Bone Formation in a Piglet Model of Legg-Calvé-Perthes disease

*Yinshi Ren; ZHUO DENG; Chi Ma; Jaime Baeza; Harry Kim, MD
Texas Scottish Rite Hospital for Children, Dallas, TX*

124

10:56 AM–11:00 AM



Anatomic Level of Periosteal Resection Affects Magnitude and Duration of Growth Response

*Matthew Halanski, MD; Max Twedt; Jay Byrd; Grant Ozaki;
Ellen Leiferman
University of Nebraska Medical Center, Omaha, NE*

11:01 AM–11:08 AM

Discussion

125

11:09 AM–11:14 AM

Remodeling Of Adolescent Displaced Clavicle Fractures: A FACTS Study

*Andrew Pennock, MD; Donald Bae, MD; Kelly Boutelle; Alyssa Carroll;
Eric Edmonds, MD; Henry Ellis, MD; Mininder Kocher, MD; Ying Li, MD;
Jeffrey Nepple, MD; Nirav Pandya, MD; Crystal Perkins, MD;
Samuel Polinsky; Coleen Sabatini, MD; David Spence, MD;
Samuel Willimon, MD; Philip Wilson, MD; Benton Heyworth, MD
Rady Children's Hospital, San Diego, CA*

126

11:15 AM–11:20 AM

Elastic Lumbar Support versus Rigid Thoracolumbar Orthosis for Acute Pediatric Spondylolysis. A Prospective Controlled Study

*Ella Virkki; Milja Holstila; Olli Pajulo;
Turku University Hospital, Turku, Finland*

11:21 AM–11:29 AM

Discussion

11:30 AM–11:50 AM

Distinguished Achievement Award

11:51 AM–11:56 AM

2023 Meeting Announcements

11:57 AM–12:03 PM

Award Announcements

12:04 PM–12:24 PM

Presidential Speaker

12:25 PM–12:35 PM

Presidential Transfer

SCIENTIFIC PROGRAM

FRIDAY, MAY 13 CONTINUED

CONCURRENT SESSION: SPINE I

Moderator: Ron El-Hawary, MD

Co-Moderator: Ying Li, MD

2:00 PM–2:04 PM Welcome and Remarks

127

2:05 PM–2:09 PM

Getting their Back in the Game: Baseline Functional Testing in Patients with Adolescent Idiopathic Scoliosis for Safe Return to Activities

*Anthony Catanzano, MD; Helena Barber; Benjamin Alman, MD; Robert Fitch, MD; Robert Lark, MD
Duke University, Durham, NC*

128

2:10 PM–2:14 PM

Upper Instrumented Vertebra (UIV) Selection Matters: Increased Risk of Proximal Junctional Kyphosis When UIV Is Below T2 in Scheuermann's Kyphosis

*Adam Fano; Hiroko Matsumoto, PhD; Lisa Bonsignore-Opp; Benjamin Roye, MD; Lawrence Lenke, MD; Elizabeth Herman; Afrain Boby; Andrew Luzzi; Peter Newton, MD; Baron Lonner, MD; Michael Vitale, MD; Harms Study Group
Columbia University, New York, NY*

129

2:15 PM–2:19 PM

Proximal Junctional Kyphosis After Spinal Deformity Correction in Cerebral Palsy: Incidence and Predictive Analytics

*Nicholas Gajewski, MD; Ali Asma; Margaret Baldwin; Paul Sponseller, MD; Amit Jain, MD; Patrick Cahill, MD; Amer Samdani, MD; Burt Yaszay, MD; Suken Shah, MD
Nemours/Al duPont Hospital for Children, Wilmington, DE*

2:20 PM–2:28 PM

Discussion

130

2:29 PM–2:33 PM

Use of Robotics Coupled with Navigation for Pediatric Spine Surgery: Initial Intraoperative Experience with 162 Cases

*Nicole Welch; Frank Mota; Craig Birch, MD; Lauren Hutchinson, MPH; Daniel Hedequist, MD
Boston Children's Hospital, Boston, MA*

131

2:34 PM–2:38 PM

Sacral-Alar-Iliac (SAI) Fixation in Children with Spine Deformity: Minimum 10-Year Follow-Up

*Frederick Mun; Ashish Vankara; Krishna Vangipuram Suresh; Adam Margalit; Khaled Kebaish; Aaron Brandt, MD; Paul Sponseller, MD
Johns Hopkins University, Baltimore, MD*

SCIENTIFIC PROGRAM

FRIDAY, MAY 13 CONTINUED

132

2:39 PM–2:43 PM

Surgical Outcomes for Spinal Deformity in Osteogenesis Imperfecta

*Susan Sienko; Carole Tucker; **Michelle Welborn, MD**
Shriners Hospital for Children, Portland, OR*

2:44 PM–2:52 PM

Discussion

3:00 PM–3:20 PM

Break

CONCURRENT SESSION: SPINE II

Moderator: Chris Hardesty, MD

Co-Moderator: Firoz Miyanji, MD

133

3:30 PM–3:34 PM

◆ **Spontaneous Lumbar Curve Correction Following Vertebral Body Tethering of Main Thoracic Curves**

*Anthony Catanzano, MD; Peter Newton, MD; Tracey Bastrom MA;
Carrie Bartley; Stefan Parent, MD; Firoz Miyanji, MD;
Daniel Hoernschemeyer, MD; Ahmet Alanay; Laurel Blakemore, MD;
Kevin Neal, MD; Baron Lonner, MD; Lawrence Haber, MD;
Suken Shah, MD; Harms Study Group; Burt Yaszay, MD
Rady Children's Hospital, San Diego, CA*

134

3:35 PM–3:39 PM

Intervertebral Disc Health Following Vertebral Body Tethering for Adolescent Idiopathic Scoliosis

*Taylor Jackson; Smitha Mathew; Todd Milbrandt, MD; A. Noelle, MD
Mayo Clinic, Rochester, MN*

135

3:40 PM–3:44 PM

Anterior Vertebral Body Tethering for Idiopathic Scoliosis: How Well Does the Tether Hold Up?

*Dhruv Shankar; Lily Eaker; Theodor Di Pauli Von Treuheim;
Jared Tishelman; **Zacharia Silk, FRCS**; Baron Lonner, MD
Mount Sinai Hospital, New York, NY*

3:45 PM–3:53 PM

Discussion

◆ Indicates a presentation 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.)

SCIENTIFIC PROGRAM

FRIDAY, MAY 13 CONTINUED

136

3:54 PM–3:58 PM

Early versus Late Scoliosis Correction in Duchenne Muscular Dystrophy (DMD): Comparison of Post-operative Outcomes in the Steroid Era

Ali Asma; Armagan Ulusaloglu, MD; M Shrader, MD; William Mackenzie, MD; Robert Heinle; Mena Scavina; Jason Howard, MD Nemours Children's Health, Wilmington, DE

137

3:59 PM–4:03 PM

Validation of Examination Maneuvers for Adolescent Idiopathic Scoliosis in the Telehealth Setting

Grant Hogue, MD; Semhal Ghessese; Gabriel Linden; Stephanie Wong; Michael Hresko, MD; Daniel Hedequist, MD; Craig Birch, MD; Danielle Cook Boston Children's Hospital, Boston, MA

138

4:04 PM–4:08 PM

Spinal Fusion in Pediatric Patients with Down Syndrome

Helyn Grissom; Hilary Harris; Adrian Lin; David Skaggs, MD; Lindsay Andras, MD; John Flynn, MD; Nicholas Fletcher, MD Children's Healthcare of Atlanta, Atlanta, GA

4:09 PM–4:17 PM

Discussion

CONCURRENT SESSION: SPORTS

Moderator: Theodore Ganley, MD

Co-Moderator: Melissa Christino, MD

2:00 PM–2:04 PM

Welcome and Remarks

139

2:05 PM–2:09 PM

Delays in Anterior Cruciate Ligament Reconstruction Are Associated with Higher Rates of Meniscus and Chondral Pathology in Skeletally Immature Patients

Matthew Milewski, MD; Andrew Pennock, MD; Lauren Hutchinson, MPH; Patricia Miller MS; Mininder Kocher, MD Boston Children's Hospital, Boston, MA

140

2:10 PM–2:14 PM

A Prospective Evaluation of Lower Limb Alignment in Children and Adolescents Surgically Managed with Anterior Cruciate Ligament Reconstruction

Ivan Astori FRCS; Liam Johnson BS; Sheanna Maine; Alexander Seeto; Kylie Bradford; Christopher Carty; David Bade, MD Queensland Children's Hospital, Brisbane, Queensland, Australia

SCIENTIFIC PROGRAM

FRIDAY, MAY 13 CONTINUED

-
- 141**
2:15 PM–2:19 PM **Pediatric partial ACL Tears: Outcomes and Management Practices**
Megan Hannon, MD; Nicholas Sullivan; Emily Chang; Patricia Miller MS; Melissa Christino, MD; William Meehan Boston Children's Hospital, Boston, MA
-
- 2:20 PM–2:28 PM Discussion
-
- 142**
2:29 PM–2:33 PM  **Anterior Displacement of Tibial Spine Fractures, Does Anatomic Reduction Matter?**
Shannon McGurty; Theodore Ganley, MD; Indranil 'Neel' Kushare, MD; Tomasina Leska; Julien Aoyama BA; Henry Ellis, MD; Benjamin Johnson; Jilan Shimberg; Aristides Cruz, MD; Peter Fabricant, MD; Daniel Green, MD; R. Jay Lee, MD; Scott McKay, MD; Todd Milbrandt, MD; Neeraj Patel, MD; Jason Rhodes, MD; Brant Sachleben, MD; Jessica Traver, MD; R. Justin Mistovich, MD; Gregory Schmale, MD; Danielle Cook; Yi-Meng Yen, MD Boston Children's Hospital, Boston, MA
-
- 143**
2:34 PM–2:38 PM **A Modified Lemaire Lateral Extra-Articular Tenodesis in High-Risk Adolescents Undergoing Anterior Cruciate Ligament Reconstruction: Two-Year Clinical Outcomes**
Daniel Green, MD; Sofia Hidalgo Perea; Danielle Chipman; Christopher Brusalis; Frank Cordasco Hospital for Special Surgery, New York, NY
-
- 144**
2:39 PM–2:43 PM **Psychological Readiness to Return to Sport at 6 months is Higher after Bridge-Enhanced ACL Repair than Autograft ACL Reconstruction**
Ryan Sanborn BA; Gary Badger; The BEAR Trial Team; Yi-Meng Yen, MD; Martha Murray, MD; Melissa Christino, MD Boston Children's Hospital, Boston, MA
-
- 2:44 PM–2:52 PM Discussion
-
- 3:00 PM–3:20 PM Break
-

SCIENTIFIC PROGRAM

FRIDAY, MAY 13 CONTINUED

CONCURRENT SESSION: HIP

Moderator: Kishore Mulpuri, MBBS, MHSc, FRCSC

Co-Moderator: Benjamin Martin, MD

145
3:30 PM–3:34 PM **Comparison of Pavlik Harness Treatment Strategies for Developmental Dysplasia of the Hip**
Reba Salton; Gaia Georgopoulos, MD; Patrick Carry; Nancy Miller, MD; M. Siobhan Murphy-Zane, MD
Children's Hospital Colorado, Aurora, CO

146
3:35 PM–3:39 PM **Late Dysplasia after Successful Pavlik Harness (PH) Treatment for Infantile Developmental Dysplasia of the Hip (DDH)**
Emmanouil Grigoriou, MD; Zachary Meyer; Laura Mayfield, MPH; William Morris, MD; Daniel Sucato, MD; Harry Kim, MD
Texas Scottish Rite Hospital for Children, Dallas, TX

147
3:40 PM–3:44 PM **Prolonged Brace Treatment Does Not Result In Improved Acetabular Indices In Infantile Dislocated Hips**
Vidyadhar Upasani, MD; James Bomar, MPH; Ryan Fitzgerald, MD; Alexander Schupper; Simon Kelley, MD
Rady Children's Hospital, San Diego, San Diego, CA

3:45 PM–3:53 PM Discussion

149
3:59 PM–4:03 PM **Significance of Isolated Hip Click as a Sign of DDH: Implications on Referral Guidelines for Pediatricians**
William Morris, MD; Laura Mayfield, MPH; Harry Kim, MD
Scottish Rite for Children, Dallas, TX

150
4:04 PM–4:08 PM **Two Surgical Alternatives for Perthes Disease: Intertrochanteric Osteotomy vs. Trochanteric Tethering**
Peter Stevens, MD; Olivia Grothaus
University of Utah Health, Salt Lake City, UT

SCIENTIFIC PROGRAM

SATURDAY, MAY 14

POSNA CRITICAL ISSUE SYMPOSIUM

“What Would We Like to Know? Defining Research Priorities for POSNA”

Objectives: The subject of the research symposium for the 2022 annual meeting is entitled “What would we like to know?” Presenters were tasked to generate the top three to five clinical research questions in each sub-specialty area of pediatric orthopaedics and the most effective methods to answer each of these questions. In this session, we will highlight the top clinical research priorities identified, engage the invited panel of experts to respond to the findings of the symposium, and to discuss the best ways for POSNA to promote, fund and facilitate a research agenda that will address these research priorities. We will invite the audience to weigh in with a general question and answer session.

7:30 AM–7:33 AM

Introduction

Unni Narayanan, MD

7:34 AM–7:46 AM

Clinical Research Priorities: The Highlights

Raymond Liu, MD

7:47 AM–8:17 AM

Panel Discussion

James Wright, MD

Benjamin Alman, MD

Matthew Dobbs, MD

Mininder Kocher, MD, MPH

Paul Sponseller, MD

8:18 AM–8:30 AM

Question and Answer Session

SCIENTIFIC PROGRAM

SATURDAY, MAY 14 CONTINUED

GENERAL SESSION: TRAUMA I

Moderator: Steve Albanese, MD

Co-Moderator: Brandon Ramo, MD

8:30 AM–8:35 AM Welcome and Remarks

151

8:36 AM–8:40 AM



How Long is Long Enough? A Modern-Day Timeline for Monitoring the Perfused, Pulseless Supracondylar Humerus Fracture Postoperatively

Jessica Heyer, MD; Stuart Mitchell; John Flynn, MD; Jason Anari, MD

Children's Hospital of Philadelphia, Philadelphia, PA

152

8:41 AM–8:45 AM



From Controversy to Clarity: Management of Pulseless Supracondylar Fractures Based on our Experience

Venkatadass Krishnamoorthy, MD; Deepak Jain; S Rajasekaran

Ganga Hospital, Coimbatore, Tamilnadu, India

153

8:46 AM–8:50 AM



Risk Factors for Open Reduction of Pediatric Supracondylar Humerus Fractures: A Multicenter Study

Amirhossein Misaghi, MD; Jason Anari, MD; Michael Carter; Jessica Heyer, MD; Arianna Trionfo, MD; Jordan Manning;

Dallyn Udall; Ashwin Madhan; Yuyang Chu; Neeraj Patel, MD

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

8:51 AM–8:59 AM Discussion

154

9:00 AM–9:04 AM



Non-Operative versus Operative Treatment of Type 2A Supracondylar Humerus Fractures: A Prospective Evaluation of 99 Patients

Julia Sanders, MD; Ryan Ouillette; Roland Howard; Kelly Boutelle; Alyssa Carroll; Tracey Bastrom MA; Andrew Pennock, MD;

Vidyadhar Upasani, MD

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

SCIENTIFIC PROGRAM

SATURDAY, MAY 14 CONTINUED

155

9:05 AM–9:09 AM



Changes in Management Based on X-rays after Pinning of Supracondylar Humerus Fractures: Rare, but More Common in Complex Injuries

*Ashwin Madhan; Yuyang Chu; Jason Anari, MD; Michael Carter; Jessica Heyer, MD; Arianna Trionfo, MD; Jordan Manning; Amirhossein Misaghi, MD; Dallyn Udall; **Neeraj Patel, MD** Ann & Robert H. Lurie Children's Hospital of Chicago, Chicago, IL*

156

9:10 AM–9:14 AM



Fully Displaced Pediatric Supracondylar Humerus Fractures: Which ones Need to Go at Night?

Susan Mahan, MD; Patricia Miller MS; Jiwoo Park; Nicholas Sullivan; Carley Vuillermin FRACS Boston Children's Hospital, Boston, MA

9:15 AM–9:23 AM

Discussion

157

9:24 AM–9:28 AM



Anesthesia and secondary interventions can be avoided by casting overriding distal metaphyseal radius fractures in children under 11 without reduction in emergency department

*Topi Laaksonen, MD; Nicolas Nietosvaara; Jani Puhakka; Antti Stenroos; Jussi Kosola; **Aarno Nietosvaara, MD** New Children's Hospital, Helsinki, Finland*

158

9:29 AM–9:33 AM



Medial Epicondyle Fractures in Children: Outcomes of Operative Versus Non-operative Treatment

*Emily Chang; Patricia Miller MS; Evan Stieler; Nicholas Sullivan; Benjamin Shore, MD; Carley Vuillermin, FRACS; **Collin May, MD** Boston Children's Hospital, Boston, MA*

159

9:34 AM–9:38 AM



Pediatric Elbow Pinning Simulator Improves Early Stage Resident Performance

Heather Kowalski, MD; Emily Connor; Steven Long; Geb Thomas; Donald Anderson University Of Iowa, Iowa City, IA

9:39 AM–9:47 AM

Discussion

SCIENTIFIC PROGRAM

SATURDAY, MAY 14 CONTINUED

160

9:48 AM–9:52 AM



Outcomes of Suture-Button Versus Screw Fixation of Pediatric and Adolescent Syndesmosis Injuries

Emily Chang; Amy Steele; Blair Stewig; Patricia Miller MS; Dennis Kramer, MD; Yi-Meng Yen, MD; Benjamin Shore, MD; Collin May, MD
Boston Children's Hospital, Boston, MA

161

9:53 AM–9:57 AM



Variations in the Management of Closed Salter-Harris II Distal Tibia Fractures

Ishaan Swarup, MD; Ryan Sanborn BA; Benjamin Shore, MD
UCSF Benioff Children's Hospital, Oakland, CA

9:58 AM–10:06 AM

Discussion

10:10 AM–10:20 AM

Break

GENERAL SESSION: TRAUMA II/INFECTION-TUMOR II/HIP

Moderator: Tom McPartland, MD

Co-Moderator: Sukhdeep Dulai, MD

162

10:25 AM–10:29 AM



Vascular Safe Zone During Percutaneous Pinning of the Distal Femur

Gabrielle Allred; Jenna Feldman; Martin Herman, MD; Dustin Greenhill, MD
St. Christopher's Hospital for Children, Philadelphia, PA

163

10:30 AM–10:34 AM



Unplanned Return to the Operating Room (UpROR) After Pediatric Diaphyseal Femoral Fractures

Wudbhav Sankar, MD; Mahmoud Mahmoud; John Flynn, MD; Alexandre Arkader, MD
The Children's Hospital of Philadelphia, Philadelphia, PA

164

10:35 AM–10:39 AM



The Feasibility of Utilizing Malunion Criteria to Limit Radiographs After Spica Casting for Pediatric Femur Fractures

Scott Barnett; Michael Heffernan, MD; Bryant Song; Justin Yan; Claudia Leonardi; Muayad Kadhim, MD
Children's Hospital New Orleans Department of Orthopaedics, New Orleans, LA

SCIENTIFIC PROGRAM

SATURDAY, MAY 14 CONTINUED

10:40 AM–10:48 AM Discussion

GENERAL SESSION TRAUMA II

165

10:49 AM–10:53 AM **Lyme versus Septic Arthritis in the Pediatric Knee: Clinical and MR Imaging Differentiators**
Yi-Meng Yen, MD; Ryan Sanborn, BA; Kyna Donohue; Patricia Miller, MS; Matthew Milewski, MD; Kirsten Ecklund Boston Children's Hospital, Boston, MA

166

10:54 AM–10:58 AM **Does Intraoperative Vancomycin Powder Affect Postoperative Infections in Adolescent Idiopathic Scoliosis?**
Supriya Singh; Garshana Rajkumar; Sachini Jayasinghe; Arvinder Ghag, MD; Michael Glotzbecker, MD; Baron Lonner, MD; Amer Samdani, MD; Peter Newton, MD; Firoz Miyanji, MD BC Children's Hospital, Vancouver, Canada

167

10:59 AM–11:03 AM **Surgical Decision-Making: Arthroscopic or Open Dislocation in the Management of Benign Intra-Articular Tumors of the Hip**
Megan Anderson, MD; Kiauntee Murray; Mitchell Fourman; Katherine Koritz; Jacqueline Drew Boston Children's Hospital, Boston, MA

11:04 AM–11:12 AM Discussion

168

11:13 AM–11:17 AM **The Optimal Age for Surgical Management of DDH Differs by Treatment Method**
Rachael Martino BA; Patrick Carry; Aaron Brandt; Ernest Sink, MD; Courtney Selberg, MD Children's Hospital Colorado, Aurora, CO

SCIENTIFIC PROGRAM

SATURDAY, MAY 14 CONTINUED

169

11:18 AM–11:22 AM

Femoral Shortening As a Key Factor in Outcomes of Open Reduction of Dysplastic Hips: A Multicenter Report

*Rachel Goldstein, MD; Pooya Hosseinzadeh, MD; Afolayan Oladeji; Lindsay Stephenson, MD; Scott Rosenfeld, MD; Megan Johnson, MD; Gaia Georgopoulos, MD
Washington University in St. Louis, St. Louis, MO*

170

11:23 AM–11:27 AM

Open Reduction, Capsulorrhaphy & Acetabuloplasty (ORCA): A One Stop Surgical Treatment for Infant DDH

*Alexander Aarvold BSc, MBChB, FRCSEd; Nicholas Uren; Simone Penker; Amanda Rhodes; Edward Lindisfarne, MA; Kirsten Elliott; Nicholas Clarke
Southampton Children's Hospital, Southampton, United Kingdom*

11:28 AM–11:36 AM

Discussion



Credit: Tanya Goehring

CLOSING EVENT



Vancouver Aquarium
Friday, May 13, 2022
7:00 PM–11:00 PM

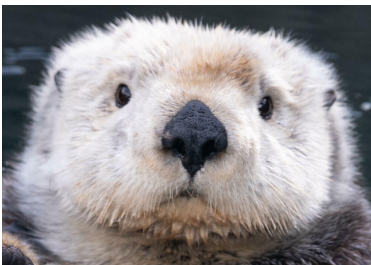
7:00 PM	Doors Open
7:00 PM–8:00 PM	Cocktails
8:00 PM–11:00 PM	Dinner/DJ

Come enjoy good times, great food, and drinks at the Vancouver Aquarium. With more than 30 exhibits ranging from the Tropics to the Arctic, hear the roar of the majestic sea lions, smell the warm Amazon air, and watch the playful sea otters. A full-sensory experience awaits.

Attire: Casual

*Included with attendee registration.

Accompanying Persons must be registered to attend.



SPECIAL VIRTUAL SYMPOSIA

LATE BREAKING POSNA CLINICAL TRIALS UPDATE – IMPACCT

90 Minutes

Chair: Joseph Janicki, MD, MS

Co-Chairs: Jim Wright, MD, MPH; Andrew Howard, MD; Jamie Burgess, PhD

The Infrastructure for Musculoskeletal Pediatric Acute Care Clinical Trials (IMPACCT) consortium seeks to reduce barriers for high-quality research by organizing infrastructure for multicenter, clinical trials that answers questions in pediatric orthopaedic surgery. After securing funding through the National Institutes of Health, IMPACCT and its 34 sites throughout POSNA will begin two clinical trials in 2022 – Distal Radius Interventions for Fracture Treatment (DRIFT) and Cast or Operation for Medial Epicondyle fracture Treatment in children (COMET). The IMPACCT consortium's process and infrastructure will be presented along with the current trials, lessons from research collaborators, and future study ideas. This symposium is intended for participants from sites involved in the current trials as well as those who may be interested in being a part of the trials or learning more about IMPACCT's process and research. A similar agenda, with availability for questions and discussion, will be presented during a live Study Group meeting during the Annual Meeting.

Introduction

Joseph Janicki, MD, MS

IMPACCT Principles

Joseph Janicki, MD, MS

Infrastructure for Clinical Trials

Jamie Burgess, PhD

DRIFT Study Overview

Andrew Georgiadis, MD and Walter Truong, MD, FRCS(C), FAOA

COMET Study Overview

Collin May, MD, MPH

Successes and Insights from Similar UK Studies

Daniel Perry, MBChB (Hons), MA(Oxon), PhD, FHEA, FRCS (Orth)

Equipoise in Clinical Trials

James Wright, MD, MPH

Disparities in Recruitment for Surgical Trials

Erin Paquette, MD, JD, MBe

Demo of E-Consent

Jamie Burgess, PhD and Jacob Wild, BS

VIRTUAL SYMPOSIA

POGO

IMPACTFUL OUTREACH: WHAT DOES EQUITY AND SUSTAINABILITY LOOK LIKE?

70 Minutes

Chair: Michael Heffernan, MD

Co-Chair: Jaysson Brooks, MD and Karen Bovid, MD

This year's POGO Symposium is focused on the concepts of equity and sustainability in global outreach. We have several experts discussing the topic from their unique perspective. A panel discussion will follow about developing equitable and sustainable partnerships. There will also be a research section to review recent global outreach research.

Introduction

Michael Heffernan, MD (USA)

Clubfoot: From Surgical Trips to Widespread Ponseti Treatment

Maryse Bouchard, MD, MSc, FRCSC (Canada)

The Importance of Training Programs to Sustainable Outreach

Coleen Sabatini, MD, MPH (USA)

What I Want My North American Colleague to Know about Global Outreach

Ian Neil, MD (Jamaica)

Global Connections: What the Ideal Partnership Looks Like

Joseph Theuri, MD (Kenya) and Shawn Gilbert, MD (USA)

Research Update

Karen Bovid, MD (USA); Julio Segovia, MD (Paraguay); Theodore Miclau, MD (USA)

Panel Discussion

Jaysson Brooks, MD (USA) and Michael Heffernan, MD (USA)

VIRTUAL SYMPOSIA

POPS

LESSONS LEARNED IN PEDIATRIC ORTHOPAEDICS: NAVIGATING PRACTICE CHANGES DURING THE PANDEMIC

60 Minutes

Chair: Gerad Montgomery, FNP-C

Co-Chairs: Jessica Lanson, PA-C

In this symposium we will explore how the pandemic affected the field of pediatric orthopedics. We will review changes to routine clinical approaches temporarily adopted out of necessity and discuss how some of these changes are now being implemented into standard clinical practice. Case studies will be used to highlight the situational complexities that orthopedic providers were faced with early in the pandemic and provide insights as to the thought processes used to develop alternative treatment plans and protocols.

Introduction

Gerad Montgomery, FNP-C

Practice Changes During COVID: Pediatric Orthopedics and Sports Medicine. Lessons Learned From The Pandemic. What Worked and Didn't Work.

Scott McKay, MD

Practice Changes During COVID: Telehealth in Pediatric Orthopedics and Sports Medicine. Where it Started, Where it is Now, and Where it is Heading

Alfred Atanda, MD

Questions/Discussion

Jessica Lanson, PA-C

VIRTUAL SYMPOSIA

PRACTICE MANAGEMENT

85 Minutes

Chair: Michael Jofe, MD

Co-Chair: Kevin M. Neal, MD, MBA

The POSNA Practice Management Symposium is designed to discuss topics relevant to pediatric orthopaedic clinicians in a broad range of practice settings. This year's symposium focuses on EHR technology, our internal practice management survey results, and contract negotiation.

Introduction

Kevin Neal, MD, MBA

Become an EHR Super-User

Randolph Cohen, MD

Outcome Surveys in EHRs

Ryan Calfee, DO, MSc

PM Survey Data

Wade Shrader, MD

Negotiating a Contract

Michael Jofe, MD

VIRTUAL SYMPOSIA

RESEARCH

WHAT WOULD WE LIKE TO KNOW?

90 Minutes

Chair: Unni Narayanan, MD

Co-Chair: Raymond Liu, MD

What are the top 3 to 5 research questions we should prioritize in each sub specialty area of pediatric orthopaedics and what would be the most effective methods to answer each of these questions?

Introductions

Unni Narayanan, MD and Raymond Liu, MD

The Imperative

James Wright, MD

Pediatric Trauma

Joseph Janicki, MD

Pediatric Spine

A. Noelle Larson

Cerebral Palsy

Vedant Kulkarni, MD and Benjamin Shore, MD, MPH, FRCSC

Pediatric Foot

Maryse Bouchard, MD, MSc, FRCSC

Hip Disorders

Kishore Mulpuri, MBBS, MHSc, FRCSC and Salil Upasani, MD

Pediatric Sport

Ted Ganley, MD and Kevin Shea, MD

Lower Limb Deformity

Sanjeev Sabharwal, MD

VIRTUAL SYMPOSIA

TRAUMA

90 Minutes



Chair: Christopher Souder, MD

Co-Chair: Patrick Bosch, MD

Members of the POSNA disaster and trauma committee present cases gone wrong. Pediatric trauma is a part of nearly everyone's practice and is generally straight forward and successful. We will discuss when it is not! The sequelae of pediatric trauma can have a profound impact on a surgeon's career. We will discuss such cases and strategies to avoid these complications.

Introduction

Patrick Bosch, MD

Volksmann's Ischemia

Patrick Bosch, MD

Fracture Nonunion

Christopher Souder, MD

Distal Tibial Physeal Injuries

Phillip McCCLure, MD

Supracondylar Humerus Fracture sequelae

R. Dale Blaiser, MD

Lateral Condyle of the Humerus Fractures

Gaia Georgopoulos, MD

Distal Femoral Physeal Injuries

Dustin Greenhill, MD

Musculoskeletal Infection

Brian Scannell, MD

Arthrofibrosis of the Knee

Theodore Ganley, MD

Acute Hip Dislocations

Matthew Ellington, MD

ePOSTERS

ePoster 1

“O.I. Wish Orthopaedic Surgeons Had Better Strategies to Help With...”

Results of a Patient and Parent-Based Survey

Maegen Wallace, MD; Jill Flanagan, MD; Jeanne Franzone, MD

University of Nebraska Medical Center, Omaha, NE

ePoster 2

3D Analysis of the Preoperative Deformity in AIS Can be Used to Guide Surgical Decision Making for Selective Thoracic Fusion

Vidyadhar Upasani, MD; Carrie Bartley; Tracey Bastrom, MA; Stephen George;

Stefan Parent, MD; Peter Newton, MD

Rady Children’s Hospital, San Diego, CA

ePoster 3

A Bigger Arm Does More Harm: A Large Soft Tissue Envelope and not BMI is Associated with Failure of Non-Operative Treatment in Pediatric Distal Third Forearm Fractures

Nakul Talathi; Brendan Shi; Jeremy Policht; Bailey Mooney; Kevin Chen; Mauricio Silva, MD;

Rachel Thompson, MD

UCLA Department of Orthopaedic Surgery, Los Angeles, CA

ePoster 4

A Thoracoscopic Anterior Approach to the Spine for Adolescent Idiopathic Scoliosis Does Not Have a Detrimental Effect on Pulmonary Function at 2 Years Compared to Posterior-Only Surgery

Harold Moore; Anna McClung; David Thornberg; Daniel Sucato, MD

Scottish Rite for Children, Dallas, TX

ePoster 5

ACL Reconstruction in Skeletally Immature Patients: Do Graft Tear and Complication Rates Differ Based on Surgical Technique? A Systematic Review

Ryan Coene; Joshua Pang; Peter Fabricant, MD; Jeffrey Nepple, MD; Matthew Matava;

Mininder Kocher, MD; Benton Heyworth, MD

Boston Children’s Hospital, Boston, MA

ePoster 6

Applicability of the Modified Fels and Optimized Oxford Skeletal Maturity Estimation Systems to the Modern Pediatric Population

Ryan Furdock; Andy Kuo; Alex Benedick; Raymond Liu, MD

Rainbow Babies & Children’s Hospital at Case Western Reserve University School of Medicine, Cleveland, OH

ePOSTERS

ePoster 7

Are There Modifiable Risk Factors for Perioperative Blood Transfusion During Posterior Spinal Fusion in Patients with Cerebral Palsy?

*Ali Asma; Nicholas Gajewski, MD; Denver Burton; Armagan Ulusaloglu, MD; Paul Sponseller, MD; Petya Yorgova; Amit Jain, MD; Burt Yaszay, MD; Amer Samdani, MD; Firoz Miyanji, MD; Suken Shah, MD
Nemours Children's Health, Wilmington, DE*

ePoster 8

Avascular Necrosis after Hip Containment Surgery in Children with Cerebral Palsy

*Jeremy Bauer, MD; Ellen Raney, MD; Dennis Roy, MD; Seth Tarrant; Susan Sienko
Shriners Hospitals for Children - Portland, Portland, OR*

ePoster 9

Biomechanical Forces of the Lateral Knee Joint Following Complete Meniscectomy and Subsequent Meniscal Transplant in Pediatric Cadavers

*Anshal Gupta; Mark Sanchez; Hunter Storaci; Matthew Rohde; Seth Sherman; Kevin Shea, MD
Stanford University, Stanford, CA*

ePoster 10

Building Better Pediatric Surgeons: a Sentiment Analysis of Online Physician Reviews

*Liam Butler; Skylar Hess; Justin Tang; Christopher White; Varun Arvind; Jun Kim; Samuel Cho; Elaine Lin; Sheena Ranade, MD
Icahn School of Medicine at Mount Sinai, New York, NY*

ePoster 11

Can We Rely Upon Clinical Screening for Early Detection of Developmental Dysplasia of the Hip?

*Alexander Aarvold, BSc, MBChB, FRCSEd; Brijil Joseph; Amanda Rhodes; Kirsten Elliott; Ho Ming Yuen; Julia Judd NP
Southampton Children's Hospital, Southampton, United Kingdom*

ePoster 12

Clinical Scores Predict Acute and Chronic Complications in Pediatric AHO: an External Validation

*Neeraj Vij; Ian Singleton; Jessica Burns, MD; Melissa Esparza, MD
University of Arizona College of Medicine - Phoenix, Phoenix, AZ*

ePoster 13

Community Water Fluoridation and Incidence of Pediatric Fractures

*Sarah Lindsay; Spencer Smith; Scott Yang, MD; Jung Yoo
Oregon Health and Science University, Portland, OR*

ePOSTERS

ePoster 14

Complications Following External Fixator Removal in Lower Limb Lengthening and Deformity Correction

Leslie Yuen; Blair Stewig; Lucas Annabell; Patricia Miller, MS; Brian Snyder, MD; Samantha Spencer, MD; Carley Vuillermin, FRACS; James Kasser, MD; **Collin May, MD**
Boston Children's Hospital, Boston, MA

ePoster 15

Congenital Scoliosis Patients Can Attain Similar Curve Correction and Perioperative Outcomes to AIS Patients without the Need for Hemivertebra Excision

Vishal Sarwahi, MBBS; Sayyida Hasan; Terry Amaral, MD; Yungtai Lo
Northwell Health, New Hyde Park, NY

ePoster 16

Continuous Peripheral Nerve Block vs. Continuous Epidural Analgesia for postoperative pain relief in Pediatric Unilateral Lower Limb Surgery: a matched case comparison study

Daniel Trif; **Neeraj Vij**; Aaron Cedric Llanes
Phoenix Children's Hospital, Phoenix, AZ

ePoster 17

Correction of Rib Prominence After Anterior Vertebral Tethering for Adolescent Idiopathic Scoliosis

Sofia Federico; Preetika Kulkarni; Jonathan Brodeur; Brian Grottkau, MD; **John Braun, MD**
Massachusetts General Hospital, Boston, MA

ePoster 18

Correlation of Tanner Stage and Hypermobility with Meniscal and Articular Cartilage Injury in the PLUTO Cohort

Joseph Gibian; Lauren Hutchinson, MPH; Patricia Miller, MS;
Mininder Kocher, MD
Washington University in St. Louis, St. Louis, MO

ePoster 19

Demographic and Clinical characteristics of patellar instability patients from prospective JUPITER (Justifying Patellar Instability Treatment by Early Results) cohort.

Meghan Bishop; Jacqueline Brady; Simone Gruber; Matthew Veerkamp; Joseph Nguyen;
Beth Shubin Stein; **Shital Parikh, MD**
Cincinnati Children's Hospital Medical Center, Cincinnati, OH

ePoster 20

Development of a Radiation Free Method for Simulating Distal Radius Fracture Reduction and Casting

James Stokman; **Ryan Koehler**; John Puccinelli; Kenneth Noonan, MD; Matthew Halanski, MD
Children's Hospital and Medical Center - Omaha, Omaha, NE

ePOSTERS

ePoster 21

Do All Femoral Shaft Fractures Need a CT Scan of the Ipsilateral Femoral Neck? Incidence of Ipsilateral Femoral Neck and Shaft Fractures

Benjamin Shore, MD, MPH, FRCSC; Danielle Cook; Lanna Feldman; Maria Canizares; Colyn Watkins, MD;

Boston Children's Hospital, Boston, MA

ePoster 22

Do All Patients Have Equal Access to Nonoperative Treatment for Pediatric Scoliosis?

Michael Heffernan, MD; Scott Barnett; Ryan Dewitz; Bryant Song; Claudia Leonardi; Manaf Younis, MD

Children's Hospital New Orleans, New Orleans, LA

ePoster 23

Do Removable Braces and Virtual Visits Improve Satisfaction and Outcomes in Management of Distal Radius Buckle Fractures?

Ernest Young, MD; Ryan Goodwin, MD; Thomas Kuivila, MD; David Gurd, MD; Robert Ballock, MD

Cleveland Clinic Foundation, Cleveland, OH

ePoster 24

Does a dedicated a "Scoliosis Team" and Surgical Standardization Improve Outcomes in Adolescent Idiopathic Scoliosis Surgery and is it Reproducible?

Vishal Sarwahi, MBBS; Sayyida Hasan; Terry Amaral, MD; Yungtai Lo

Northwell Health, New Hyde Park, NY

ePoster 25

Burosumab Improves Lower Limb Alignment in Children with X-Linked Hypophosphatemia

David Frumberg, MD; Mary Roberts; Angel Chen; Thomas Carpenter

Yale School of Medicine, New Haven, CT

ePoster 26

Evaluation of Deformity in Adolescent Idiopathic Scoliosis Using Mobile Device Based Surface Topography

Yousi Oquendo; Clayton Maschhoff; Christian Calderon; Malcolm DeBaun; Joanna Langner;

Nadine Javier; Xochitl Bryson; Ann Richey; Michael Gardner; John Vorhies, MD

Stanford University School of Medicine, Stanford, CA

ePOSTERS

ePoster 27

Hip Pain in Patients with Spinal Muscular Atrophy: Prevalence, Intensity, Interference, and Factors Associated with Moderate to Severe Pain

Amy Xu; Thomas Crawford

Johns Hopkins School of Medicine, Baltimore, MD

ePoster 28

From PHQ-2 to SRS-22: How a Depression Screening Tool Relates to SRS Scores in AIS Patients

Anthony Catanzano, MD; Peter Newton, MD; Burt Yaszay, MD; Carrie Bartley;

Tracey Bastrom, MA

Rady Children's Hospital, San Diego, CA

ePoster 29

Functional Outcomes in Severely Displaced Pediatric Lateral Condyle Fractures With and Without Elbow Dislocation

Joseph Miller; Charles Mehlman, DO

Cincinnati Children's Hospital Medical Center, Cincinnati, OH

ePoster 30

Gait Analysis Characteristics in Relapsed Clubfoot

Melissa Bent, MD; Maia Hauschild; Adriana Conrad-Forrest; Susan Rethlefsen, PT;

Tishya Wren PhD; Rachel Goldstein, MD; Robert Kay, MD

Children's Hospital Los Angeles, Los Angeles, CA

ePoster 31

High Frequency of Open Reduction/Surgical Intervention for Pediatric Metacarpophalangeal and Carpometacarpal Joint Dislocations

Rachel Silverstein, MD; Jessica McGraw; Indranil 'Neel' Kushare, MD

Texas Children's Hospital, Houston, TX

ePoster 32

High-Density and Moderate-Density Implant Constructs for Adolescent Idiopathic Scoliosis Curves Equivalent Clinical and Radiographic Outcomes at 2 years

A. Noelle Larson, MD; Taylor Jackson; Suken Shah, MD; Harry Shufflebarger, MD;

Daniel Sucato, MD; Sumeet Garg, MD; Paul Sponseller, MD; Nicholas Fletcher, MD;

Peter Newton, MD; Amer Samdani, MD; Harms Study Group

Mayo Clinic, Rochester, MN

ePoster 33

How are Pre-Operative Surgeon and Patient Expectations Related to Patient-Reported Outcomes After Periacetabular Osteotomy?

Samantha Ferraro, BS; Patricia Miller, MS; Michael Millis, MD

Boston Children's Hospital, Boston, MA

ePOSTERS

ePoster 34

Impact of Tissue Depth and Pre-Operative Flexibility on Intended Lengthening of Magnetically Controlled Growing Rods in Early Onset Scoliosis

*Zachary Crawford; Cameron Thomson; Sarah Gilday; Peter Sturm, MD
Cincinnati Childrens Hospital Medical Center, Cincinnati, OH*

ePoster 35

Improving Prediction of Progression of Adolescent Idiopathic Scoliosis Based on Curve Size and Skeletal Maturity

*Kevin Neal, MD; Emily Craver; Julia Crook
Nemours Children's Health, Jacksonville, FL*

ePoster 36

Incidence of Focal Osteolysis in a Titanium Limb Lengthening Device: A Comparison to a Stainless-Steel Model

*Philip McClure, MD; Larysa Hlukha; Kyle Kowalewski; Philip McClure, MD; John Herzenberg, MD
MD Rubin Institute For Advanced Orthopedics, Baltimore, MD*

ePoster 37

Increasing Efficiency and Decreasing Narcotic use in Treating Orthopaedic Trauma Patients with Supracondylar Fractures - A Quality, Safety, and Value Initiative

*Brian Haus, MD; Carter White; Holly Leshikar, MD; Spencer White; Karen Semkiw; Diana Farmer
UC Davis, Sacramento, CA*

ePoster 38

Leave it Alone: The Natural History of Growth Friendly Graduates Without a Final Fusion

*Christina Hardesty, MD; Bryan Ren; Robert Murphy, MD; Jeffrey Sawyer, MD; John Flynn, MD; John Emans, MD; John Smith, MD; Paul Sponseller, MD; Norman Ramirez-Lluch, MD
Rainbow Babies and Children's Hospital, Cleveland, OH*

ePoster 39

Left Sided Thoracic Curves: Are The Outcomes Different?

*Michael Glotzbecker, MD; Bryan Ren; Anne Dumaine; Jerry Du; Daniel Hedequist MD; Harms Study Group
Rainbow Babies and Children's Hospital Division of Pediatric Orthopedics, Cleveland, OH*

ePoster 40

Local Anesthetic Injection Prior to Incision Decreases General Anesthesia Requirements in Pediatric Hand Surgery: A Randomized Controlled Trial Evaluating Efficacy during Trigger Thumb Release

*Faris Fazal; Elaina Lin; Matthew Pearsall; Divya Talwar; Hannah Chang; Apurva Shah, MD
The Children's Hospital of Philadelphia, Philadelphia, PA*

ePOSTERS

ePoster 41

Measurements for Objective Diagnosis of Multidirectional Instability of Shoulder in Adolescent Patients

*Mason Yoder; Matthew Veerkamp; Colin McDonald; **Shital Parikh, MD**
Cincinnati Children's Hospital Medical Center, Cincinnati, OH*

ePoster 42

Multicenter Analysis of Operative and Non-Operative Treatment of Tarsal Navicular Bone Stress Injuries in 110 ADOLESCENTS

***Benton Heyworth, MD**; Shayna Mehta; Evan Zheng; Nicole Segovia; Katherine Rizzone;
Mark Halstead; Tiffany Bohon; Naomi Brown; Zachary Stinson, MD; Aaron Gray; Emily Kraus
Stanford University, Stanford, CA*

ePoster 43

Outcomes of Concomitant Quadriceps Lengthening and Medial Patellofemoral Ligament Reconstruction in Skeletally Immature Patients with Fixed or Obligatory Patellar Dislocations

*Sofia Hidalgo Perea; Bridget Ellsworth; Danielle Chipman; **Daniel Green, MD**
Hospital for Special Surgery, New York, NY*

ePoster 44

Outcomes of Pediatric Scaphoid Nonunions Treated with Distal Radius Cancellous Autograft

***James Lin, MD**; Greg Grenier; Julie Samora, MD, PhD, MPH, FAAOS, FAOA
Nationwide Children's Hospital, Columbus, OH*

ePoster 45

Patient-Reported Outcomes Following Surgical Excision of Pediatric Ganglion Cysts: Analysis of a Prospective, Multicenter Cohort

*Marissa Dearden; Benjamin Chang; Jennifer Ty, MD; Ines Lin; Zoe Belardo; Pooja Balar;
Apurva Shah, MD
The Children's Hospital of Philadelphia, Philadelphia, PA*

ePoster 46

POSNA Safe Surgery Program – Quality Metric Solution Variation

*Kali Tileston, MD; Abhishek Tippabhatla; Matthew Rohde; Brian Brighton, MD;
Michael Vitale, MD; Robert Cho, MD; **Kevin Shea, MD**
Stanford Children's Health, Palo Alto, CA*

ePoster 47

Predictors of Re-Operation in Adolescents Undergoing Hip Preservation Surgery for Femoroacetabular Impingement

***Henry Ellis, MD**; Philip Serbin; Savannah Cooper; Benjamin Johnson; Tyler Youngman;
Claire Althoff; Philip Wilson, MD; Daniel Sucato, MD; David Podeszwa, MD
Scottish Rlte for Children, Dallas, TX*

ePOSTERS

ePoster 48

Prevalence and Risk Factors of Pelvic Rod/Screw Loosening In Non-ambulatory Spastic Cerebral Palsy Scoliosis

*Armagan Ulusaloglu, MD; Ali Asma; Petya Yorgova; M Shrader, MD; Jason Howard, MD
Nemours Children's Health, Wilmington, DE*

ePoster 49

Publication Bias in Orthopedics: A Study on the Reporting of Positive Outcomes in Legg Calve Perthes Disease

*Peter Filtes; Keenan Sobol; Charles Lin; Utkarsh Anil; Pablo Castañeda, MD
New York University Grossman School of Medicine, New York, NY*

ePoster 50

Retrospective Evaluation of Targeted Muscle Reinnervation (TMR) at the Time of Major Limb Amputation as a Means to Avoid Neuroma and Phantom Limb Pain in Children

*Tom Scharschmidt; Kevin Klingele, MD; Kim Bjorklund; Satbir Singh, BS; Natasha Yanes; John Alexander
Nationwide Children's Hospital, Columbus, OH*

ePoster 51

Risk Factors for Early Symptomatic Femoroacetabular Impingement Following In Situ Fixation of Slipped Capital Femoral Epiphysis

*Melissa Allen, MD; Ramesh Ghanta; Matthew Lahey; Scott Rosenfeld, MD
Texas Children's Hospital, Houston, TX*

ePoster 52

Risk Factors for Rebound after Correction of Genu Valgum in Skeletal Dysplasia Patients Treated by Tension Band Plates

*Armagan Ulusaloglu, MD; Ali Asma; Kenneth Rogers, PhD; Mihir Thacker, MD; W.G. Stuart Mackenzie, MD; William Mackenzie, MD
Nemours Children's Health, Wilmington, DE*

ePoster 53

Rotator Cuff Injury in the Pediatric Population—A Retrospective Review of Patient Characteristics and Treatment at a Single Treatment Center

*Brendan Williams, MD; Kathleen Harwood; Karina Oganezova; Kevin Orellana; Katherine Ashe, PA-C; John Horneff
Children's Hospital of Philadelphia, Philadelphia, PA*

ePoster 54

Severity of Hip Dislocation is the Main Factor Affecting Outcome after Closed Reduction and Spica Casting: A Multicenter Report

*Pooya Hosseinzadeh, MD; Rachel Goldstein, MD; Scott Rosenfeld, MD; Lindsay Stephenson, MD; Megan Johnson, MD; Gaia Georgopoulos, MD; Afolayan Oladeji
Washington University School of Medicine, St. Louis, MO*

ePOSTERS

ePoster 55

Survey of Adult Function after Blount Disease in Childhood: An Exercise in Futility?

*John Birch, MD; Marina Makarov; Jordan Polk; Claire Shivers; Chan-Hee Jo
Texas Scottish Rite Hospital for Children, Dallas, TX*

ePoster 56

The Blade Quality Scale: A Visual Classification System for the Use-mediated Thermogenic Properties of Cast Saw Blades

*Annemarie Leonard; Ian Erkkila; Matthew Ravosa; Jill Larson, MD
Ann & Robert H. Lurie Children's Hospital of Chicago, Chicago, IL*

ePoster 57

The Effect of Surgeon Experience on Outcomes Following Growth Friendly Instrumentation for Early Onset Scoliosis

*Michael Heffernan, MD; Manaf Younis, MD; Michael Glotzbecker, MD; Sumeet Garg, MD; Claudia Leonardi; Selina Poon, MD; Jaysson Brooks, MD; Peter Sturm, MD; Paul Sponseller, MD; Michael Vitale, MD; John Emans, MD; Benjamin Roye, MD
Children's Hospital New Orleans/LSU Health Science Center, New Orleans, LA*

ePoster 58

The Effects of Blood Flow Restriction Training on Strength during Early ACL Rehabilitation in Adolescents

*Allison Crepeau, MD; Nicholas Giampetruzzi; Art Fredericks; Dylan Roman; Jennifer Prue; Adel Lolic; James Pace, MD; Adam Weaver
Connecticut Children's, Farmington, CT*

ePoster 59

The Forgotten Skill of Cast Wedging: Examining its Effectiveness in Pediatric Forearm and Tibia Fractures

*Benjamin Shore, MD; Sachin Pathangey; Michael Greenberg; Patricia Miller, MS; Colyn Watkins, MD; Daniel Hedequist, MD
Boston Children's Hospital, Boston, MA*

ePoster 60

The Free Gliding Screw for Slipped Capital Femoral Epiphysis – Is It Safe, Does it Glide and Does Patient Age Matter?

*Stephanie Buchan; Edward Lindisfarne, MA; Annabelle Stabler; Matthew Barry; Edward Gent; Alexander Aarvold, BSc, MBChB, FRCSEd
Southampton Children's Hospital, Southampton, United Kingdom*

ePoster 61

The Role of Calcium Signaling in the Muscle Of Duchenne Muscular Dystrophy

*Young Jae Moon; Jung-Ryul Kim, MD
Jeonbuk National University Hospital, Jeonju-si, Jeollabuk-do, Republic of Korea*

ePOSTERS

ePoster 62

The Utility of the Modified Fels Knee Skeletal Maturity System in Limb Length Prediction

Ryan Furdock; Elizabeth Cho; Alex Benedick; Jiao Yu; Abdus Sattar; **Raymond Liu, MD**

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

ePoster 63

Tibial Spine Fractures vs. ACL Tears: Does Ligamentous Laxity Play a Role?

Patrick England; **Joseph Yellin, MD**; Michael Carter; Ryan Guzek; Theodore

Ganley, MD

Children's Hospital of Philadelphia, Philadelphia, PA

ePoster 64

Too Hot to Handle: How Does Blade Type and Wear Effect Blade Temperature?

Michael Stevens; Brandon Collofello; Zeeshan Akhtar; **Vincent Prusick, MD**

University of Kentucky, Lexington, KY

ePoster 65

Transient Decrease in Cortical Bone Density and Mechanical Strength with Elevated Bone Turnover Markers at Peripubertal Peak Height Velocity: a Cross-Sectional and Longitudinal Cohort Study of 396 Girls with Adolescent Idiopathic Scoliosis

Kenneth Yang; Wayne Lee; Jack Cheng, MD; **Ping Lam, MBBS**

The Chinese Universty of Hong Kong, Hong Kong

ePoster 66

Treatment of Adolescent Clavicle Fractures: A Prospective Observational Study

Christopher Bray, MD; Erin Pichiotino, MD; David Lazarus, MD; Michael Beckish, MD;

Stephanie Tanner; Rebecca Snider; Kayla Pham

Prisma Health Upstate, Greenville, SC

ePoster 67

Treatment of Hip Instability in Children with Down Syndrome: Keys to Managing a Challenging Problem

Jessica Hughes, MD; James Bomar, MPH; Dennis Wenger, MD; Vidyadhar Upasani, MD

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

ePoster 68

Treatment of Proximal Tibial Buckle Fractures: Removable Knee Immobilizer Versus Long Leg Cast

Mitchell Rohrback; K. John Wagner; Abed Abdelaziz; Brian Kaufman, MD;

Christopher Souder, MD; **Matthew Ellington, MD**

Dell Medical School, Austin, TX

ePOSTERS

ePoster 69

Treatment, Associated Injuries, and Long-Term Sequelae of Pinning Mechanism Femur Fractures Secondary to Motor Vehicle vs. Pedestrian Injuries

*Justin Kong; Courtney Hartman; Brandon Ramo, MD; Corey Gill, MD
Scottish Rite for Children, Dallas, TX*

ePoster 70

Understanding and Meeting Patient-Specific Indications for Periacetabular Osteotomy: How Often are Personal Expectations Achieved After Surgery?

*Alison Dittmer Fleming, MD; Stacy Robustelli BS; Ernest Sink, MD
Hospital for Special Surgery, New York City, NY*

ePoster 71

Understanding the Learning Curve Associated with Anterior Vertebral Body Tethering for the Treatment of Scoliosis Across Multiple Centers

*David Weiner; Tracey Bastrom, MA; Lily Eaker; Stefan Parent, MD; Firoz Miyanji, MD; Ahmet Alanay; Peter Newton, MD; Harms Study Group; Baron Lonner, MD
Mount Sinai Hospital, New York, NY*

ePoster 72

Uninstrumented Proximal Thoracic Curve Correction Following VBT of Lenke 2 Main Thoracic Curves

*Daniel Hoernschemeyer, MD; Melanie Boeyer PhD; Dustin Kress; Ahmet Alanay; Kevin Neal, MD; Baron Lonner, MD; Stefan Parent, MD; Burt Yaszay, MD; Laurel Blakemore, MD; Firoz Miyanji, MD; Peter Newton, MD
University of Missouri, Columbia, MO*

ePoster 73

Variation in Operative and Non-Operative Treatment Rates for Paediatric Gartland Type II Supracondylar Humerus Fractures Across Multiple Centres: A Prospective Observational Study

*Sasha Carsen, MD; Caitlyn Siu; Emily Schaeffer PhD; Kishore Mulpuri, MBBS, MHSc, FRCSC; Christopher Reilly, MD
BC Children's Hospital, UBC, Vancouver, BC, Canada*

ePoster 74

Virtual Pediatric Orthopedic Fellowship Interviews During the Pandemic: What Did the Applicants and Programs Think?

*Paul Inclan; Jason Cummings; Pooya Hosseinzadeh, MD; Marcella Woiczik, MD
Washington University in St. Louis, St. Louis, MO*

ePOSTERS

ePoster 75

Waterproof Hip Spica Casts for Pediatric Femur Fractures

*Lorena Floccari, MD; Todd Ritzman, MD; Trinity Samson; Mark Adamczyk, MD
Akron Children's Hospital, Akron, OH*

◆ ePoster 76

Which Levels Should You Instrument in Lenke 1AR vs. 1AL VBT Cases?

*A. Noelle Larson, MD; John Smith, MD; Michelle Welborn, MD; Laurel Blakemore, MD;
Pediatric Spine Study Group; Stefan Parent, MD; Joshua Pahys, MD; Firoz Miyanji, MD
Pediatric Spine Study Group, Rochester, MN*

ePoster 77

Will Video Kill the Orthopedic Star? Most Trainees Report Being Filmed During a Pediatric Patient Encounter

*Christina Herrero; Taylor Wingo; Carlos Pargas; Joie Cooper; Cordelia Carter, MD
New York University, New York, NY*

ePoster 78

Worse Looking Flatfeet Are Not Necessarily More Painful

*Pooya Hosseinzadeh, MD; Matthew William
Washington University in St. Louis, St. Louis, MO*

◆ Indicates a presentation 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.)

VIDEO ABSTRACTS

Video Abstract 1

Tension Band Wiring Olecranon Process Fracture Using Polyethylene Sutures and Percutaneous Pins

*Barbara Minkowitz, MD; Christine Ho, MD; Jennifer Ristic; Allie Davanzo
Atlantic Medical Group, Morristown, NJ*

Video Abstract 2

Translation Step-Cut Osteotomy for Cubitus Varus

*Lauren Hyer, MD; David Westberry, MD
Shriners Hospitals for Children - Greenville, Greenville, SC*

Video Abstract 3

Terminal Syme Amputation in the Pediatric Population

*T. Whitney Gibson, DO; David Westberry, MD; Lisa Carson
Shriners Hospital for Children, Greenville, SC*

Video Abstract 4

Acute Correction of Multiplanar Proximal Tibia Deformity Using Fixator-Assisted Intramedullary Nailing

*Joseph Charla; Melinda Sharkey, MD
Montefiore Einstein, Bronx, NY*



Credit: Northern BC Tourism/Jeff Easingwood

RESEARCH GRANT ePOSTERS

POSNA research grant recipients are required to submit an ePoster at the conclusion of each grant cycle. The purpose of this presentation is to share the results of their research work and to highlight the types of research work supported by POSNA.

QSVI 2019 Research Grant

Dominick A. Tuason, MD

Prospective Analysis of Home Narcotic Consumption and Management of Excess Narcotic Prescription Following Adolescent Idiopathic Scoliosis Surgery

Rutgers Robert Wood Johnson University Hospital, Pediatric Orthopedic Associates, New Brunswick, NJ

QSVI 2020 Research Grant

Brian G. Smith, MD

Assessing Skeletal Maturity in Idiopathic Scoliosis Patients Utilizing the Proximal Humerus Ossification System

Texas Children's Hospital, Houston, TX

QSVI 2020 Research Grant

Kali Tileston, MD

The Role of Health Mindset in Adolescents' Compliance with Brace Wear for Adolescent Idiopathic Scoliosis

Stanford University School of Medicine, Stanford, CA

2019 Arthur H. Huene Memorial Award

B. Stephen Richards, III, MD

Opportunities to Optimize Ponseti Brace Wear Compliance & Success

Texas Scottish Rite Hospital for Children, Dallas, TX

2018 POSNA Research Grant

Raymond W. Liu, MD

Risk of Distal Femoral Physeal Arrest Following Intramedullary Rod Removal & Fat Grafting

Case Western Reserve University, Cleveland, OH

2019 Fall Micro Grant

Nina R. Lightdale-Miric, MD

Evaluating the Effects of Adaptive Rock Climbing on the Well-Being of Patients with Upper Limb Differences

Children's Hospital Los Angeles, Los Angeles, CA

RESEARCH GRANT ePOSTERS

2019 Fall Micro Grant

Christopher Makarewich, MD

[Remote Follow-up for SCH Fracture](#)

University of Utah, Dept. of Orthopaedics, Salt Lake City, UT

2019 Fall Micro Grant

Brian G. Smith, MD

[My Scoliosis Surgery Journey: The Video](#)

Texas Children's Hospital, Houston, TX

2020 Fall Micro Grant

Graham Andre, BS

[Ex-vivo Study of Detergent Based Intraosseous Bone Wash for Treatment of Ischemic Osteonecrosis](#)

Texas Scottish Rite Hospital for Children, Dallas, TX

2020 Fall Micro Grant

Romie F. Gibly, MD, PhD

[Rapid-sequence, Unsedated, Non-contrast MRI for Acute Musculoskeletal Infection Workup](#)

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

2020 Spring Micro Grant

Aharon Zvi Gladstein, MD

[Validation of Ultrasound Use for Evaluation of the Femoral Trochlea](#)

Baylor College of Medicine/Texas Children's Hospital, Houston, TX

2020 Spring Micro Grant

Patrick Cole McGregor, MD

[The Effect of Obesity on Closed Treatment of Pediatric Long Bone Fractures: A Retrospective Review](#)

Loyola University Medical Center, Maywood, IL

2021 POSNA AWARD RECIPIENTS

2021 POSNA RESEARCH GRANT WINNERS

2021 ANGELA S.M. KUO MEMORIAL AWARD

Joshua M. Abzug, MD

Physéal Injuries: Creation of an Animal Model and Subsequent Analysis
University of Maryland School of Medicine, Baltimore, MD

2021 ARTHUR H. HUENE MEMORIAL AWARD

Eric Edmonds, MD

Acute Interpositional Adipose Grafts To Reduce Arrest In Physeal Fractures
Rady Children's Hospital, San Diego, CA

2021 ST. GILES YOUNG INVESTIGATOR RESEARCH AWARD

Romie Gibly, MD

The impact of E-cigarette Vaping on Bone Metabolism
Lurie Children's Hospital, Chicago, IL

2021 POSNA/ZIMMER BIOMET SPINE RESEARCH GRANT

Nancy Miller, MD

Discovering Protein Signatures Within AIS Plasma Using SOMAScan Technology
Children's Hospital Colorado, Aurora, CO

2021 POSNA DIRECTED RESEARCH GRANTS

Daniel Hedequist, MD

Pediatric Robotic Spine Surgery Registry
Boston Children's Hospital/Harvard Medical School, Boston, MA

Christopher Iobst, MD

Biology of Distraction Osteogenesis in Intramedullary Limb Lengthening
Nationwide Children's Hospital, Columbus, OH

2021 POSNA RESEARCH GRANTS

Jonathan Rios, MD

Novel Mouse Models of Osteofibrous Dysplasia and Pseudarthrosis
Scottish Rite for Children, Dallas, TX

Kishore Mulpuri, MBBS, MHSc, FRCSC

Observation vs. Bracing in Dysplastic, Stable Hips in Infants
University of British Columbia, Vancouver, Canada

Jeffrey Martus, MD

Pain Control in Infants Undergoing Tendoachilles Lengthening for Clubfoot
Vanderbilt University Medical Center, Nashville, TN

Henry B. Ellis Jr., MD

Compliance and Biomechanical Efficacy of Unloader Brace for Stable OCD
Scottish Rite for Children, Dallas, TX

2021 POSNA AWARD RECIPIENTS

2021 POSNA START UP RESEARCH GRANT

Anuradha Dayal, MD

3-D Analysis of Clubfoot: Technological Advancements to Improve Care

Children's National Medical Center and Children's Research Institute, Washington, DC

2021 SPRING MICRO GRANT RECIPIENTS

Alexa Karkenny, MD

Can We Safely Use "Soft Cast" More Often in Pediatric Orthopaedics?: A Pilot Lab Study on the Structural Failure of "Soft Cast"

Montefiore Medical Center, Bronx, NY

Verena Schreiber, MD

The Effect of Methylnaltrexone on Opioid Induced Constipation and Length of Hospital Stay in Patients with Cerebral Palsy Undergoing Hip Reconstruction Surgery

Nicklaus Children's Hospital, Miami, FL

Jeffrey Sawyer, MD

Intraoperative Noise Levels and the Effect on Team Communication During Pediatric Spine Deformity Surgery

University of Tennessee Campbell Clinic, Nashville, TN

Carter Clement, MD, MBA

Best Practices in Pediatric Orthopaedic Surgery, a POSNA Podcast Series

Children's Hospital of New Orleans, New Orleans, LA

Robert Murphy, MD

Home-Based Pulmonary Function Testing for "Graduates" of Growth Friendly Surgery for Early Onset Scoliosis

Medical University of South Carolina, Charleston, SC

Benjamin Martin, MD

Evaluation of the Physiologic Response to Surgical Practice Among Pediatric Orthopaedic Surgeons Using a Wearable Device

Children's National Medical Center, Washington, DC

Ennio Rizzo Esposito, MD & Sumit K. Gupta, MD, MPH

Socioeconomic Variables Associated with Failure of the Ponseti Method in the Management of Idiopathic Clubfoot Deformity

The Curators of the University of Missouri, Columbia, MO

Michael Heffernan, MD

Taking POSNA's OrthoKids to the People: Overcoming Knowledge Disparities in Pediatric Fracture Care

Children's Hospital New Orleans, New Orleans, LA

2021 POSNA AWARD RECIPIENTS

2021 SPRING MICRO GRANT RECIPIENTS CONTINUED

Aharon Gladstein, MD

[You're Going to What? Preparing Young Patients and Their Families for Pin Removal Post Elbow Fracture](#)

Baylor College of Medicine/Texas Children's Hospital, Houston, TX

Njalalle Baraza FRCS & Shafique Pirani, MD

[Usefulness of Ponseti Clubfoot Navigator \(PCN\) in Reducing Clinical Decision Errors—a Proof of Principle Study](#)

Royal Columbian Hospital, British Columbia Children's Hospital, Vancouver, BC, Canada

2021 QSVI GRANT WINNERS

Scott Rosenfeld, MD

Funded by POSNA

[Risk Factor Screening for NAT in Young Children with Femur Fractures](#)

Texas Children's Hospital, Houston, TX

Amy McIntosh, MD

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[Accuracy of Non-Invasive Hemoglobin Monitoring in an AIS Population](#)

Scottish Rite for Children, Dallas, TX

Maryse Bouchard, MD, MSc, FRCSC Funded by POSNA

[Reducing Unplanned ED Visits for Bone and Joint Infections After Discharge](#)

The Hospital for Sick Children, Toronto, Ontario, Canada

Jason Anari, MD

Funded by Medtronic

[Managing Failure to Lengthen in MCGR: Best Practice Guidelines](#)

Children's Hospital of Philadelphia, Philadelphia, PA

2021 POSNA AWARD RECIPIENTS

FALL 2021 MICRO GRANT WINNERS

John Herzenberg, MD

**Incidence of Focal Osteolysis in a Titanium Limb Lengthening Device:
A Comparison to a Stainless-Steel Model**

International Center for Limb Lengthening, Rubin Institute for Advanced Orthopedics,
Sinai Hospital of Baltimore, MD

Candice Legister, BS

**Policies, Practices, and Attitudes related to Parental Leave for Practicing Pediatric
Orthopaedic Surgeons**

Gillette Children's Specialty Healthcare, St. Paul, MN

Grant Hogue, MD

**Prevalence of Marijuana Use and Associated Complications in Adolescent Idiopathic
Scoliosis: A Pilot Study**

Boston Children's Hospital-Harvard Medical School, Boston, MA

Aaron Lam, MD

**Anatomical Study of New Operative Approach for Pediatric Distal Radius Diaphyseal
Metaphyseal Junction Fractures**

Maimonides Medical Center, Brooklyn, NY

Rebecca Clinton, MD

Assessing and Affecting Burnout in a Pediatric Orthopaedic Practice

Randall Children's Hospital at Legacy Emanuel, Portland, OR

Edwin Portalatin, MD

Cerebral Palsy Hip Surveillance Program in Puerto Rico

Mayaguez Medical Center, Mayaguez, Puerto Rico

Christopher McDonald, MD

**The Use of Variable Pressure Technology to Monitor Compliance and Increase Brace
Effectiveness with the Providence Bracing System in the Treatment of Adolescent
Idiopathic Scoliosis**

Brown University/Rhode Island Hospital, Providence, RI

Bryan Tompkins, MD

**Continuous Epidural Analgesia for Scoliosis Correction Surgery: Does it Reduce Opioid
Requirements, Complications, and Length of Stay?**

Shriners Hospitals for Children, Spokane, WA

EXHIBITOR LISTING



AquaCast Liner

Now more than ever, AquaCast® Liner's waterproof & breathable cast padding is trusted by leading pediatric hospitals and clinics as a proven option to improve hygiene and reduce unscheduled visits to your facility for costly recasts. Our innovative solutions are easy

to use and enable patients to wash their hands, shower, swim, and exercise. Our remodeled Hipster® pantaloons, used for DDH, femur fractures, and other body casts, make application quicker and easier, reducing skin excoriation, and improving patient satisfaction— while simultaneously lowering overall costs. AquaCast is the standard of care in modern casting. Visit www.aquacastliner.com to learn more.



Axial 3D

Axial3D is a multi-award winning medical imaging technology SME with a mission to transform outcomes for 3 million complex surgeries around the world.

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to-understand 2D medical scans of patient anatomy into incredibly precise and data-rich 3D visualisations. Surgeons globally use Axial3D models to improve pre-operative planning and diagnosis, reduce surgery times and costs, and to enhance patient outcomes.



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BioMarin Pharmaceutical

BioMarin is a world leader in developing and commercializing innovative therapies for rare diseases driven by genetic causes. With a 20-year history, BioMarin remains steadfast to its original mission—to

bring new treatments to market that will make a big impact on small patient populations. These conditions are often inherited, difficult to diagnose, progressively debilitating, have few, if any, treatment options, and are usually ignored. Visit www.biomin.com to learn more.

EXHIBITOR LISTING



Clubfoot Cares

Clubfoot C.A.R.E.S. is a US-based, nonprofit advocacy group created by moms who have children with clubfoot. We promote public awareness of clubfoot and the Ponseti method of treatment, and we work to educate and empower patients and their families. Visit www.clubfootcares.org/ to learn more.



CurveBeam

CurveBeam designs and manufactures weight bearing CT imaging systems for orthopedics. Scans are low dose and virtually equivalent to a plain X-Ray exam. Evaluate conditions such as hip dysplasia and congenital foot deformities with unprecedented clarity. Systems provide high resolution 3D views of the boney anatomy, yet plug into a standard wall outlet. Visit www.curvebeam.com to learn more.”



DePuy Synthes

DePuy Synthes, part of the Johnson & Johnson Medical Devices Companies, provides one of the most comprehensive orthopaedics portfolios in the world. DePuy Synthes solutions, in specialties including joint reconstruction, trauma, craniomaxillofacial, spinal surgery, and sports medicine, are designed to advance patient care while delivering clinical and economic value to health care systems worldwide. For more information, visit www.depuysynthes.com.



Gillette Children's Specialty Healthcare

Gillette Children's Specialty Healthcare, located in St. Paul, Minnesota, specializes in treating children who have complex conditions, rare disorders, and traumatic injuries. Our expertise makes us a resource and partner for health systems across Minnesota, nationally, and internationally. Gillette's skilled team of health care professionals work proactively with families to help children achieve their goals and realize their potential. Gillette has one of the nation's largest concentrations of pediatric orthopedic surgeons and board-certified pediatric rehabilitation medicine specialists. As a result, our surgeons can focus on specific areas of the body and on highly complex procedures. Our team is composed of world-leading experts who've chosen to specialize in the unique needs of children, teens and adults who have conditions such as cerebral palsy, neuromuscular conditions, epilepsy, spina bifida, lower extremity conditions, hip and spine conditions and upper-extremity conditions. Whether our patients need long-term treatment for a chronic condition or disability or short-term care to help them through an immediate health issue, Gillette can help. Please visit www.gillettechildrens.org.

EXHIBITOR LISTING



MD Orthopaedics, Inc.

MD Orthopaedics, based in Wayland, Iowa, is an orthopedic device company focused on design, manufacture, assembly, and distribution of Ponseti Method clubfoot products. Founded in 2004 by John Mitchell, MD Orthopaedics is advancing footwear devices for non-surgical clubfoot treatment and is an industry leader in the production of ankle and foot orthotics in North America. MD Orthopaedics works closely with the orthopedic and prosthetic community and aspires to be continually innovative to offer the best possible products for the teaching, training, and implementation of the Ponseti Method of Clubfoot Treatment. Please visit www.mdorthopaedics.com for more information.

Medtronic

Medtronic

Medtronic Cranial and Spinal Technologies (CST), the market leader in spinal implants, robotics, and navigation is redefining cranial and spinal procedures to reduce variability and improve outcomes with the goal of restoring long-term quality of life for more patients. Medtronic is the first company to offer an integrated solution that includes artificial intelligence-driven surgical planning, personalized spinal implants, and robotic-assisted surgical delivery to make patient care more customized. As a global leader in medical technology, we improve the lives and health of millions of people each year—with our innovative therapies, services, and solutions. Learn how we're taking healthcare Further, Together at medtronic.com.



Merete Technologies, Inc.

Merete demonstrates a passion for solutions. Our stated aim is to discover and react to market demands at any time. As a manufacturer, the health and the mobility of the patient is top priority. Our latest innovation for simpler and faster guided growth and growth arrest is PediatrOS FlexTack™ and RigidTack™. These novel staples work on the same tension-band principle of a plate to correct leg length discrepancies and angular deformities. Furthermore, Merete's PediatrOS staples offer a safer and more effective alternative for your patients. www.MereteUSA.com

The MHE Research Foundation



Wings of HOPE as we REACH for the CURE to Multiple Hereditary Exostoses

MHE Research Foundation

The MHE Research Foundation is a nonprofit 501(c)(3) organization dedicated to the support of Researchers, Physicians & Families dealing with Multiple Hereditary Exostoses Syndrome (MHE) Multiple Osteochondroma Syndrome (MO) a rare genetic bone disease.

EXHIBITOR LISTING



NuVasive

NuVasive (NASDAQ: NUVA) is the leader in spine technology innovation, with a mission to transform surgery, advance care, and change lives. The Company's less-invasive, procedurally integrated surgical solutions are designed to deliver reproducible and clinically proven outcomes. The Company's comprehensive procedural portfolio includes surgical access instruments, spinal implants, fixation systems, biologics, software for surgical planning, navigation and imaging solutions, magnetically adjustable implant systems for spine and orthopedics, and intraoperative neuromonitoring technology and service offerings. With more than \$1 billion in net sales, NuVasive has approximately 2,700 employees and operates in more than 50 countries serving surgeons, hospitals, and patients. Please visit www.nuvasive.com for more information.



nView medical

nView medical unveils nView s1 with true-map™ navigation, a breakthrough surgical imaging and guidance system specifically designed for pediatrics. By providing instant 3D intraoperative imaging that utilizes AI technologies, along with an integrated navigation solution, nView medical is able to increase the efficiency, quality, and accuracy of surgery. At nView medical, our mission is to make surgeries safer, faster, and consistently accurate. <https://www.nviewmed.com/>



Orthofix Medical Inc.

Orthofix Medical Inc. is a global medical device and biologics company with a spine and orthopaedics focus. The Company's mission is to deliver innovative, quality-driven solutions as we partner with health care professionals to improve patients' lives. Please visit www.orthofix.com for more information.



OrthoPediatrics

Founded in 2006, OrthoPediatrics is an orthopedic company focused exclusively on advancing the field of pediatric orthopedics. As such it has developed the most comprehensive product offering to the pediatric orthopedic market to improve the lives of children with orthopedic conditions. OrthoPediatrics currently markets 35 surgical systems that serve three of the largest categories within the pediatric orthopedic market. This product offering spans trauma and deformity, scoliosis, and sports medicine/other procedures. OrthoPediatrics' global sales organization is focused exclusively on pediatric orthopedics and distributes its products in the United States and 44 countries outside the United States. Please visit www.orthopediatrics.com for more information.

EXHIBITOR LISTING



Pega Medical

For more than two decades, Pega Medical has been offering innovative deformity correction solutions in Pediatric Orthopedics. Pega's family of IM Nails (Fassier-Duval Telescopic Rod, SLIM, GAP Endo-Exo

Medullary Systems) are specifically designed for small bones, often seen with metabolic and genetic diseases. The Hinge Plate and the Free-Gliding SCFE Screw complete our portfolio of growth modulating orthopedic devices. For limb deformity and length discrepancy, the Paley's Osteotomy System offers unique instrumentation for complex procedures. The LolloPOP modular hip plating system is our latest innovation, as part of forward-thinking technologies developed in collaboration with orthopedic surgeons from around the world. Please visit www.pegamedical.com for more information.



Rubin Institute for
Advanced Orthopedics

CARE BRAVELY

Sinai Hospital of Baltimore

The International Center for Limb Lengthening (ICLL) is located at the Rubin Institute for Advanced Orthopedics, Sinai Hospital of Baltimore (Maryland). The ICLL is world-renowned for its pediatric orthopedics practice. We treat children who are struggling with the most severe and rare orthopedic conditions. The Center is recognized for its innovative treatments for such issues as clubfoot, congenital femoral deficiency, fibular hemimelia, Perthes

disease, and deformities associated with achondroplasia. The ICLL offers clinical and research fellowship opportunities. Our physicians facilitate the annual, CME-accredited Baltimore Limb Deformity Course, and will co-host the inaugural Essentials of Lower Extremity Reconstruction Course for orthopedic residents and fellows (January 2023). The Multiplier and Bone Ninja apps were developed here. Please visit: www.limblength.org for more information.



SpineVision

SpineVision is an ambitious spine company focused on the advancement of surgery through surgeon inspired, patient centered, innovative solutions. Utilizing latest scientific evidence, high quality engineering, and state-

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We are a global leader of complex spine and minimally invasive solutions focused on achieving three-dimensional Total Body Balance. Our spine business

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EXHIBITOR LISTING



Texas Children's Hospital

Texas Children's Hospital, a not-for-profit health care organization, is committed to creating a healthier future for children and

women throughout the global community by leading in patient care, education and research. Consistently ranked as the best children's hospital in Texas, and among the top in the nation, Texas Children's has garnered widespread recognition for its expertise and breakthroughs in pediatric and women's health. The hospital includes the Jan and Dan Duncan Neurological Research Institute; the Feigin Tower for pediatric research; Texas Children's Pavilion for Women, a comprehensive obstetrics/gynecology facility focusing on high-risk births; Texas Children's Hospital West Campus, a community hospital in suburban West Houston; and Texas Children's Hospital The Woodlands, the first hospital devoted to children's care for communities north of Houston. The organization also created Texas Children's Health Plan, the nation's first HMO for children; has the largest pediatric primary care network in the country, Texas Children's Pediatrics; Texas Children's Urgent Care clinics that specialize in after-hours care tailored specifically for children; and a global health program that's channeling care to children and women all over the world. Texas Children's Hospital is affiliated with Baylor College of Medicine. For more information visit www.texaschildrens.org.



WISHBONE

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WishBone Medical is a global pediatric orthopedic company committed to providing anatomically appropriate implants and instruments in single-use, sterile-packed procedure kits that are designed to prevent infection, reduce overall costs for customers, and achieve the best outcomes for children everywhere. Offering a comprehensive "head-to-toe" product portfolio, WishBone works to raise industry standards by equipping surgeons with

proper solutions to safely treat their patients who are still growing... Because kids are not just little adults. Please visit www.wishbonemedical.com for more information.



ZimVie

ZimVie Spine is dedicated to enhancing the quality of life for patients through comprehensive spinal solutions with a focus on education, training, and clinical support for surgeons. Along with cervical disc

replacement, vertebral body tethering, fusion devices, and comprehensive spinal fixation for adult and pediatric complex spines; ZimVie Spine offers minimally invasive focused procedural solutions and a complete suite of biologic solutions.

VANCOUVER INFORMATION

Experiences beyond the boardroom



Whether you have one hour or 72 hours outside your professional commitments, we've got all kinds of experiences to fit your schedule. From cultural attractions to sporting events, and one-of-a-kind adventures to only-in-Vancouver amusements, here are just a few ways you can fill your time (and your memory bank).

TOP ATTRACTIONS

- > Capilano Suspension Bridge
- > Grouse Mountain
- > Vancouver Aquarium
- > Granville Island Public Market
- > Stanley Park
- > HarbourAir Seaplane Tour

 [Attractions](#)

CULTURAL ATTRACTIONS

- > Museum of Anthropology at UBC
- > Bill Reid Gallery of Northwest Coast Art
- > Museum of Vancouver
- > Takaya Tours

 [Indigenous tourism](#)

PERFORMING ARTS & CULTURE

- > Festivals
- > Symphony & Opera

VAN AT NIGHT

- > Cocktail Scene
- > Live Music
- > Casinos and Gaming

 [Nightlife](#)

ACTIVITIES IN NATURE

- > Seawall run or walk
- > Kayaking
- > Paddle Board or SUP
- > Mountain Biking

 [Outdoor activities](#)

SHOPPING

- > First Nations Art
- > Local Brands with Global Reach
- > Unique Artisan Pieces

 [Shopping](#)

SPORTING EVENTS

- > BMO Marathon
- > Rugby Sevens
- > RBC Gran Fondo

 [Sporting events](#)

VANCOUVER INFORMATION

Dining

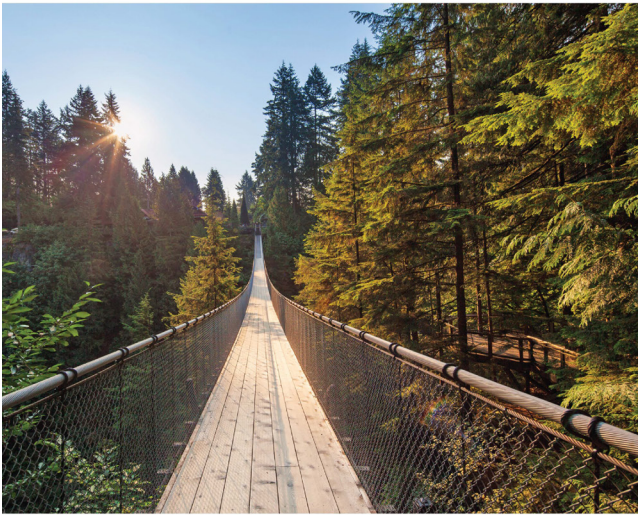
From the best Chinese and Japanese dining outside of Asia, to our dedication to locally sourced and cultivated ingredients, prepared to be spoiled for choice when it comes to experiencing the flavours of Vancouver's endless options (and flavours).



	CUISINE TYPE	NEIGHBORHOOD	PRICE RANGE	DISTANCE FROM VCC (KM)
1. ANCORA WATERFRONT DINING & PATIO	SEAFOOD	DOWNTOWN	\$\$\$	2.3
2. AL PORTO RISTORANTE	ITALIAN	GASTOWN	\$	<1
3. BLACK + BLUE	STEAK	DOWNTOWN	\$\$\$	1.1
4. BLUE WATER CAFÉ + RAW BAR	SEAFOOD	YALETOWN	\$\$\$	2
5. CACTUS CLUB CAFÉ COAL HARBOUR	WEST COAST	DOWNTOWN	\$	<1
6. CHAMBAR RESTAURANT	BELGIAN/FRENCH	DOWNTOWN	\$\$\$	1.3
7. CHEWIES STEAM & OYSTER BAR	SEAFOOD	DOWNTOWN	\$	<1
8. CINCIN RISTORANTE + BAR	ITALIAN	DOWNTOWN	\$\$\$	1.4
9. CIOPPINO'S MEDITERRANEAN GRILL	ITALIAN	YALETOWN	\$\$\$	2.1
10. COAST RESTAURANT	SEAFOOD	DOWNTOWN	\$\$\$	1.2
11. EARLS KITCHEN + BAR	WEST COAST	DOWNTOWN	\$	1.4
12. FIVE SAILS RESTAURANT	WEST COAST	DOWNTOWN	\$\$\$	<1
13. FLOATA	CHINESE	CHINATOWN	\$	1.8
14. GLOWBAL	WEST COAST	DOWNTOWN	\$\$\$	1.2
15. GOTHAM STEAKHOUSE & COCKTAIL BAR	STEAK	DOWNTOWN	\$\$\$	1
16. HAWKSWORTH RESTAURANT	WEST COAST	DOWNTOWN	\$\$\$	1
17. HY'S STEAKHOUSE & COCKTAIL BAR	STEAK	DOWNTOWN	\$\$\$	<1
18. KEG STEAKHOUSE + BAR YALETOWN	STEAK	YALETOWN	\$\$\$	2
19. LA TERRAZZA	ITALIAN	YALETOWN	\$\$\$	2.1
20. LABATTOIR RESTAURANT	FRENCH/WEST COAST	GASTOWN	\$\$\$	1.2
21. MAHONY	PUB	DOWNTOWN	\$	<1
22. MIKU	JAPANESE	DOWNTOWN	\$\$\$	<1
23. MINAMI	JAPANESE	YALETOWN	\$\$\$	2.2
24. PROVENCE MARINASIDE	FRENCH/SEAFOOD	YALETOWN	\$\$\$	2.5
25. ROGUE KITCHEN & WET BAR	PUB	GASTOWN	\$	<1
26. STEAMWORKS BREWING COMPANY	PUB	GASTOWN	\$	<1
26. THE TEAHOUSE RESTAURANT	WEST COAST	STANLEY PARK	\$\$\$	4.3

VANCOUVER INFORMATION

Hourly Excursions



HARBOUR AIR SEAPLANE TOUR

Enjoy the quintessential Vancouver tour of spectacular aerial views of the city's busy downtown skyline and iconic landmarks including Stanley Park, English Bay, Lions Gate Bridge and the North Shore Mountains.

CAPILANO SUSPENSION BRIDGE

Appreciate nature from breathtaking perspectives - Capilano Suspension Bridge, Treetops Adventure and the exciting new Cliffwalk.

GRANVILLE ISLAND PUBLIC MARKET

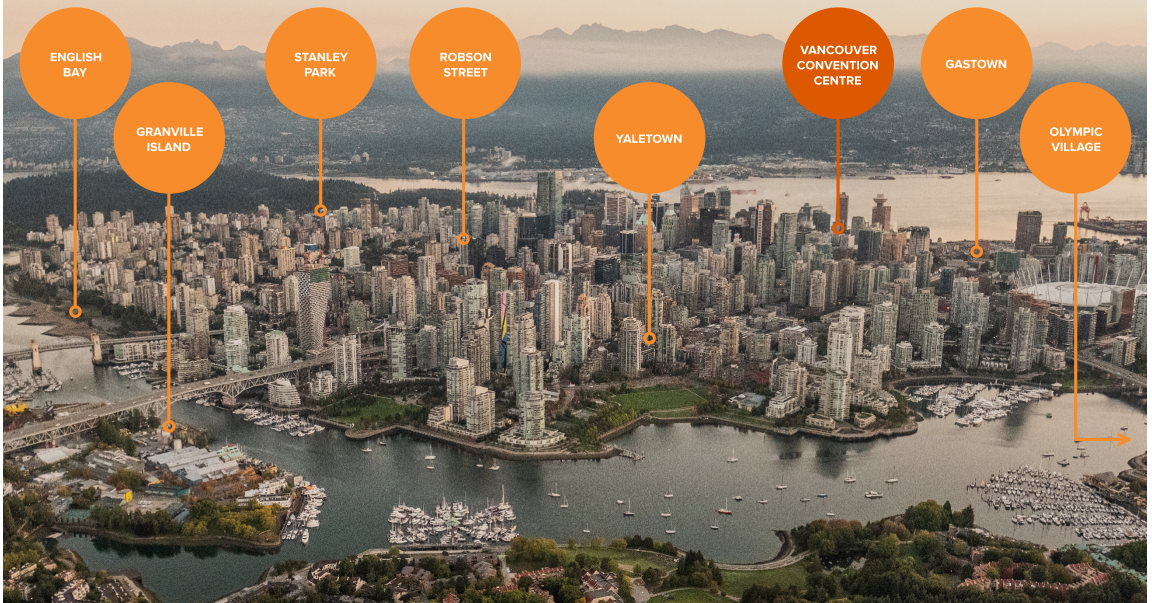
A jewel in the island's crown. Explore the indoor market that features a fascinating assortment of colourful food and produce stores, showcasing handcrafted products and the very finest in unique gifts. All fresh from the ocean, the oven or the field.

GROUSE MOUNTAIN

Just 15 minutes from downtown, Vancouver's premier attraction offers the perfect destination for a truly rewarding and memorable experience with a variety of cultural, educational and outdoor adventures to choose from.

VANCOUVER INFORMATION

Notable (and walkable) neighbourhoods & landmarks



Taste exotic flavours from around the world, window shop the latest couture, or simply soak in the sunset after a day's work. Here are some hotspots you can visit by foot in under 30 minutes (or 3km) from the Vancouver Convention Centre.

STANLEY PARK

Our 400-hectare urban park and rainforest, surrounded by a 9km seawall.

ENGLISH BAY

Our most popular seaside neighbourhood for soaking in the sunset.

GRANVILLE ISLAND

Home to our famous public market and all the seafood you can eat.

ROBSON STREET

Our fashion runway (shop all things designer here).

YALETOWN

Once an industrial district, now a trendy destination for wining and dining.

GASTOWN

Find shops, restaurants and bars along historic cobbled streets.

OLYMPIC VILLAGE

Previously home to Olympic athletes, now one of the greenest communities in the world.

POSNA ANTI-TRUST 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 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.

POSNA ANTI-TRUST POLICY

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 a 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.

FUTURE ANNUAL MEETINGS

April 26–29, 2023
Nashville, TN

EPOSNA
May 7–11, 2024
Washington, DC

FUTURE IPOS® MEETINGS

December 6–10, 2022
Orlando, FL

December 5–9, 2023
Orlando, FL

December 3–7, 2024
Orlando, FL



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