

# 17<sup>th</sup> Annual International Congress on Early Onset Scoliosis and the Growing Spine

November 8–10, 2023 | Charleston, South Carolina

Wednesday, November 8

2:00–6:30 pm	Registration	Grand Hall Foyer
<b>Session 1</b>	<b>ICEOS Opening Session</b>	<b>Magnolia/Willow Ballroom</b>
	<i>Moderators: A. Noelle Larson, Rob Murphy</i>	
	<i>Not CME-accredited</i>	
4:40 pm	Welcome	N. Larson, MD
4:45	Case Presentations	
	John Smith, Bob Cho, Amy McIntosh, David Skaggs	
5:45	Non-CME Tech Update: Post-Surgical Pain Management in Pediatric Spine Surgery	
	Supported by Pacira Biosciences	N. Larson, MD
5:51	Study Group Update	T. St. Hilaire, MPH
6:00	Corporate Recognition and Thank-You to Top Supporters	N. Larson, MD
6:05	Introduction to Smith Family Lecture	J. Smith, MD
<b>6:10</b>	<b>Smith Family Lecture   Pearls of the Lowcountry: Sustainable Oyster Farming</b>	<b>Kendra L. Tidwell</b>
6:25	Adjourn	
6:30 pm	Welcome Reception	Live Oak Ballroom

Thursday, November 9

6:45 am	Registration	Grand Hall Foyer
7:00	Continental Breakfast and Exhibit Viewing	Live Oak Ballroom
<b>Session 2</b>	<b>EOS—It's Complex</b>	<b>Magnolia/Willow Ballroom</b>
	<i>Moderators: Behrooz Akbarnia, Michael Glotzbecker</i>	
7:30 am	Welcome	N. Larson, MD
7:35	Kyphectomy for Myelomeningocele Deformity	M. Yazici, MD
7:42	Anterior Approaches for Spinal Deformity in Skeletal Dysplasia	K. White, MD
7:49	Timing of Hemivertebra Excision	M. Oetgen, MD
7:56	Discussion	
8:11	Life after MCGR in the UK	C. Nnadi, MD
8:18	Detecting and Solving Problems when Lengthening MCGRs	M. Welborn, MD
8:25	How to Avoid PJK	J. Flynn, MD
8:32	Discussion	

**Scientific Papers**

8:47	Paper #1   3D Analysis on Changes in Spine Morphology of Early Onset Scoliosis Patients After Spring Distraction System Treatment	René M. Castelein
8:52	Paper #2   Lessons Learned from 20 Years of History Using Vertical Expandable Prosthetic Titanium Rib (VEPTR) in Early Onset Scoliosis Patients	Norman F. Ramirez-Lluch
8:57	Paper #3   Risk of Proximal Junctional Kyphosis After Revision of Growing Rod Constructs	Benjamin Roye
9:02	Paper #4   Increased Thoracic Sagittal Spine Length Improves Pulmonary Function in Early-Onset Scoliosis	Matt Holloway
9:07	Paper #5   Activity Capacity in Children with Early Onset Scoliosis Compared to Pulmonary Function (Spirometry) and Patient Reported Outcomes	Jim Sanders
9:12	Discussion	
<b>9:15 am</b>	<b>Refreshment Break and Exhibit Viewing</b>	<b>Live Oak Ballroom</b>

<b>Session 3</b>	<b>Scientific Papers</b>	<b>Magnolia/Willow Ballroom</b>
	<i>Moderators: Lindsay Andras, Randy Betz</i>	
9:45 am	Paper #6   Documenting the Variation of Proximal Foundation Construct and Their Correlation with Unplanned Return to the Operating Room in Children with Magnetically Controlled Growing Rods	Fernando Rios
9:50	Paper #7   To Crosslink or Not, That Is the Question	Rob Lark
9:55	Paper #8   Why Do Some Magnetically Controlled Growing Rods (MCGR) Lengthen While Others Stall? A Clinical and Nano-CT Cross-Tabulation Analysis of MCGR Explants	Conor Shea Locke
10:00	Paper #9   Growing Construct Forces in Early Onset Scoliosis: How Do TGR and VEPTR Compare to MCGR?	Jason Anari
10:05	Discussion	
10:11	Paper #10   Preserving Pulmonary Function in Mini Open Thoracoscopic Assisted Vertebral Body Tethering	Juan Carlos Rodriguez-Olaverrri
10:16	Paper #11   Have We Improved Anterior Vertebral Body Tethering Outcomes over Time? An Examination of Survivorship Trends	Joshua Tadlock
10:21	Paper #12   Impact of Tether Breakage on Successful Outcomes in Anterior Vertebral Body Tethering for Adolescent Idiopathic Scoliosis	Brett Lullo
10:26	Paper #13   Growth Modulation Response in Thoracic VBT Depends on Magnitude of Concave Vertebral Body Growth	Craig Louer
10:31	Discussion	
10:37	Paper #14   Risk of Unplanned Return to the Operating Room Following MCGR Treatment in Ambulatory Patients Is Equivalent Across C-EOS Etiologies	Sumeet Garg
10:42	Paper #15   Lateral Atlanto-axial Dislocation as a Compensatory Mechanism for Congenital Cervicothoracic Scoliosis	Michael Ruf

10:47	Paper #16   Range of Motion After Occipitocervical and C1-2 Posterior Spinal Instrumentation and Fusion in Children	Hammad A. Khan
10:52	Paper #17   Cervicothoracic Kyphosis in Patients with Hurler’s Syndrome	Viral Jain
10:57	Discussion	
11:02	Paper #18   Safety and Efficacy of Growth Friendly Instrumentation in Patients with SMA Type 1 in the Disease-Modifying Treatment Era	Muharrem Yazici
11:07	Paper #19   Case-Matched Comparison of Spinal Fusion versus Growing Rods for NF1 Scoliosis in 8-11 Years of Age	Ziming Yao
11:12	Paper #20   Impact of Co-morbidities on Mortality in Neuromuscular Patients with Early Onset Scoliosis	Brian Snyder
11:17	Paper #21   Scoliosis in Osteogenesis Imperfecta: Identifying the Factors Affecting Severity and Progression from Longitudinal Radiographic Data	Michael Kai-Tsun To
11:22	Discussion	
<b>11:40 am</b>	<b>Pick Up Lunch in the Exhibit Hall, Move to Workshop Space</b>	<b>Live Oak Ballroom</b>

**Lunch with Non-CME Workshops**

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12:00 pm	Workshop #1  3D imaging and guidance, what are the available technologies for pediatric spine and when to use them. Let's debate!   Supported by NView L. Floccari, MD; S. Luhmann, MD; J. Vorhies, MD; M. Oetgen, MD	<b>Cypress</b>
12:00 pm	Workshop #2  Practical Idealism: Challenging Assumptions and Patient Specific Treatment of EOS  Supported by NuVasive D. Marks, MD; J. Pahys, MD; Paul Sponseller, MD; M. Welborn, MD	<b>Dogwood</b>
12:00 pm	Workshop #3  Complex Correction Techniques in Pediatric Deformity  Supported by Medtronic L. Andras, MD; M. Erickson, MD	<b>Jenkins/King Charles</b>
12:50	Walking Break	

**Concurrent Breakout Sessions**

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<b>Breakout One</b>	<b>Non-Fusion Scoliosis</b>	<b>Cypress</b>
	<i>Moderators: Ron El-Hawary &amp; Daniel Hoernschemeyer</i>	
1:05 pm	Posterior Dynamic Deformity Device – Early Results on Motion, Growth, and Clinical Studies	R. Fitzgerald, MD
1:12	VBT Preserves Motion	K. Smit, MD
1:26	The Limits of VBT	S. Parent, MD PhD
1:33	My Personal VBT Journey	A. Samdani, MD
1:40	Discussion	
2:10	Case Presentation and Debate	D. Hoernschemeyer, MD
2:15	I Would Brace	G. Hogue, MD
2:22	I Would VBT	R. Murphy, MD
2:29	Discussion	
2:40	Breakout One Adjourns	

<b>Breakout Two</b>	<b>Multidisciplinary Management of the Child with EOS</b>	<b>Dogwood</b>
	<i>Moderators: Richard Anderson, Ying Li</i>	
1:05 pm	When to Get an MRI, What to Look for on MRI	D. Bauer, MD
1:12	How to Assess the Respiratory System	G. Redding, MD
1:19	When to Get Dynamic MRI, How to Use the Data	P. Cahill, MD
1:26	Bracing, Casting, and Nonoperative Approaches and the Impact on Chest Wall Health	J. Sanders, MD
1:33	Discussion	
1:46	When to Get PROMs, How They Change Point of Care, Psych Impact	H. Matsumoto, PhD
1:53	When to Treat Syrxn/Chiari/Tethered Cord and Impact on Outcomes	C. Bonfield, MD
2:00	Functional Assessment of EOS - 6 Minute Walk, Motion Analysis Lab	A. McIntosh, MD
2:07	Preop Evaluation and Education for the Complex Patient	Mr. D. Marks
2:14	Discussion	
<b>2:40 pm</b>	<b>Refreshment Break and Exhibit Viewing</b>	<b>Live Oak Ballroom</b>
<b>Session 4</b>	<b>EOS is a Team Sport</b>	<b>Magnolia/Willow Ballroom</b>
	<i>Moderators: A. Noelle Larson, Paul Sponseller</i>	
	<b>Part 1: Leading the Charge</b>	
3:10	How Do You Engage Your Clinical Team/OR Team	L. Andras, MD
3:17	How Do You Propel Your Research Team - Center #1	M. Oetgen, MD
3:24	How Do You Propel Your Research Team - Center #2	Y. Li, MD
3:31	Discussion	
	<b>Scientific Papers</b>	
3:37	Paper #22   Screening MRI in Congenital EOS; Is It Safe to Delay Advanced Imaging to Decrease Early Anesthesia?	Jaimie Gomez, MD
3:42	Paper #23   Etiology Remains King: Health-Related Quality of Life Outcome at 5 Years Following Growth Friendly Instrumentation for EOS	Kenneth Shaw
3:47	Paper #24   Smaller Curves Improve with Part-Time Bracing in Juvenile Idiopathic Scoliosis	Benjamin Roye
3:52	Paper #25   A Comparative Study of Protocols for Spinal Casting in Severe Early Onset Scoliosis: A 4-year Progression-free Survival Analysis	Jennifer A. Dermott
3:57	Paper #26   The Time and Travel Burden to Families of Children with Early Onset Scoliosis	Ryan McFadden
4:02	Discussion	
	<b>Part 2: Houston, We Have a Problem: Surviving the Bad Event</b>	
	<b>Small Group Discussion Format</b>	
4:08	Code/Loss of Airway/Fire/Evacuation	Ying Li, MD
4:16	Neuromonitoring Alert	M. Vitale, MD
4:24	Dural Tear	R. Iyer, MD

4:32	Loss of Proximal Fixation	M. Erickson, MD
4:40	Infection	M. Glotzbecker, MD
4:48	Interpersonal Conflict	J. Sanders, MD
4:56	Chest Tube Problem	R. El-Hawary, MD
5:04	Discussion	
5:10 pm	Adjourn	

Friday, November 10

<b>7:00 am</b>	<b>Registration</b>	Grand Hall Foyer
	<b>Continental Breakfast and Exhibit Viewing</b>	<b>Live Oak Ballroom</b>

**Session 5**      **Master Techniques – How I Do It from A to Z**      **Magnolia/Willow Ballroom**

*Moderators: Josh Pahys, MD & Colin Nnadi, MD*

*Not CME-accredited*

7:25 am	Welcome	N. Larson, MD
7:30	Spring Distraction System	R. Castelein, MD
7:37	Growing Rods in a Marfan Patient	P. Sponseller, MD
7:44	Growing Rods in a SMA Nonambulatory Patient	J. Anari, MD
7:51	Patient-Specific Drill Guides	S. Garg, MD
7:58	Discussion	
8:07	Waterproof Mehta Casting and Available Casting Tables	L. Flocarri, MD
8:14	Halo Gravity Traction from A-Z	R. Fitzgerald, MD
8:21	Anterior Thoracoscopic Release	B. Yaszay, MD
8:28	Discussion	
8:35	Bringing New Surgeries to Your Practice/Hospital/Country	P. Grabala, MD
8:42	Revision PJK into the C-spine	D. Sucato, MD
8:49	Spinal Column Shortening for Recurrent Tethered Spinal Cord	M. Groves, MD
8:56	Temporary Internal Distraction Rods for Severe Scoliosis	L. Andras, MD
9:03	Discussion	

9:14      Non-CME Tech Update #3: Update on the DePuy Synthes ALTALYNE™ Ultra Alignment System: A Novel Material in Pediatric Complex Spine | Supported by DePuy Synthes      Chris Burke

<b>9:20 am</b>	<b>Refreshment Break and Exhibit Viewing</b>	<b>Live Oak Ballroom</b>
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**Session 6**      **Scientific Papers, Best Paper Award, PSF Presidential Address, Keynote Address**

*Moderators: Behrooz Akbarnia, Amy McIntosh*

**Magnolia/Willow Ballroom**

9:50 am	Paper #27   The Rise and Stumble of Magnetically Controlled Growing Rods: How Have Indications Changed over Time?	Kate Sborov
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9:55	Paper #28   The Application of Apical Control Techniques in Traditional Dual Growing Rods in the Treatment of Early-onset Scoliosis: A Comparative Study with a Minimum 3-year Follow-up	Shengru Wang
10:00	Paper #29   Risk Factors Associated with Magnetically Controlled Growth Rod (MCGR) Complications: A Single Center Experience	Lucas Hauth
10:05	Paper #30   Failure to Replace Removed Growth Friendly Implants Results in Deteriorating Radiographic and HRQoL Outcomes	Benjamin Roye
10:10	Discussion	
10:16	Paper #31   Predictors of Best Candidates for Shilla Growth Guidance Early Onset Scoliosis	William Gabriel ElNemer
10:21	Paper #32   Serum Titanium Levels Remain Elevated but Urine Titanium Is Undetectable in Children with Early Onset Scoliosis Undergoing Growth-Friendly Surgical Treatment: A Prospective Study	Ying Li
10:26	Paper #33   Core Planar Cell Polarity Genes VANGL1 and VANGL2 in Predisposition to Congenital Scoliosis	Nan Wu
10:31	Paper #34   Limited Fusion for Congenital Scoliosis: Is It Truly One and Done?	Michael Heffernan
10:36	Discussion	
10:41	Paper #35   The Long-Term Impact of Short Segment Fusion in Congenital Scoliosis	Craig Louer
10:46	Paper #36   Ten-year Trends in Surgical Management of 1207 Congenital Scoliosis and Appropriately Surgical Strategies for CS Worthy of Promotion	
10:51	Paper #37   Comparison of Perioperative Complication Rates in Congenital Scoliosis Patients with Tethered Cord	Andrea Munoz
10:56	Paper #38   Long-term Results from in Situ Fusion for Congenital Early Onset Scoliosis	Jim Kennedy
11:01	Discussion	
11:07	<b>Paper #39   Surgical Treatment of Neuromuscular Early Onset Scoliosis with a Bilateral Posterior One-Way Rod Compared to the Spring Distraction System: A Randomized Controlled Trial (BiPOWR)</b>	<b>Rene Castelein</b>
11:12	Discussion and Award Presentation	
11:15	<b>Campbell Award Announcement</b>	<b>Noelle Larson, MD</b>
11:18	<b>Campbell Award Acceptance</b>	<b>Paul Sponseller, MD</b>
11:25	<b>PSF Presidential Address</b>	<b>John Flynn, MD</b>
11:36	<b>ICEOS 2024</b>	<b>Ron El-Hawary, MD</b>
11:40	<b>Keynote Introduction</b>	<b>Noelle Larson, MD</b>
11:43	<b>Keynote: How to Avoid Revision of Pediatric Spine Deformity Surgery as an older Teen or Young Adult</b>	<b>Lawrence G. Lenke, MD</b>
12:08 pm	Q&A and Discussion	
12:16 pm	<b>Pick Up Lunch Outside the Exhibit Hall, Move to Workshop Space</b>	<b>Grand Hall</b>

**Lunch with Non-CME Workshops**

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12:25 pm	Workshop #4   Motion Preservation Options in the EOS and AIS Patient Population – Advancements in Guided Growth and Posterior Distraction   Supported by Orthopediatrics S. Luhmann, MD; T. Oswald, MD	<b>Cypress</b>
12:25 pm	Workshop #5   Skeletal Immaturity & VBT: How Utilization of a Sanders Score Can Better Predict Growth Modulation   Supported by ZimVie M. Boeyer, PhD; D. Hoernschemeyer, MD; F. Miyanji, MD; A. Samdani, MD	<b>Dogwood</b>
12:25 pm	Workshop #6: Reflecting on REFLECT™: Exploring a Non-Fusion Technique for the Growing Spine   Supported by Globus Medical J. Olaverri, MD	<b>Jenkins/King Charles</b>
1:15	Walking Break	

**Concurrent Breakout Sessions**

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<b>Breakout Three</b>	<b>C-Spine Cases</b> <i>Moderator: Burt Yaszay; Panel: Jonathan Martin, Andrew Jea, Josh Pahys</i>	<b>Cypress</b>
1:20 pm	Case Discussions	
<b>Breakout Four</b>	<b>Myelo Scoliosis, Kyphus, Problems with the Insensate Child</b> <i>Moderator: Josh Murphy; Panel: Scott Luhmann, John Smith, Jean Ouellet</i>	<b>Dogwood</b>
1:20 pm	Case Discussions	
<b>Breakout Five</b>	<b>Congenital Scoliosis</b> <i>Moderator: Bob Cho; Panel: Sumeet Garg, Terry Zhang, Matt Oetgen, Amy McIntosh</i>	<b>Jenkins/King Charles</b>
1:20 pm	Case Discussions	
2:05 pm	Walking Break	

**Session 7** **Debates** **Magnolia/Willow Ballroom**

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	<i>Moderators: Michael Glotzbecker, Amy McIntosh</i>	
	<b>Crankshafting</b>	
2:10 pm	With High-density Pedicle Screws, Crankshafting No Longer Exists	L. Blakemore, MD
2:17	Crankshafting is Still a Problem	K. White, MD
2:24	Debate Rebuttals/Final Comments	
	<b>Rib-Based Instrumentation</b>	
2:28	Rib-Based Instrumentation is Bad for Lungs	C. Johnston, MD
2:35	Rib-Based Instrumentation is Great and Doesn't Hurt Pulmonary Function	D. Skaggs, MD
2:42	Debate Rebuttals/Final Comments	
	<b>When to Get an MRI</b>	
2:46	MRI on Diagnosis	B. Snyder, MD
2:53	Wait until Symptomatic/Avoid the Anesthesia	B. Ramo, MD
3:00	Debate Rebuttals/Final Comments	

**Treating Tweeners**

3:04	Tweener - Brace and then Fuse	Mr. D. Marks
3:11	Tweener - MCGR	M. Glotzbecker, MD
3:18	Tweener – VBT	F. Miyanji, MD, FRCSC
3:25	Debate Rebuttals/Final Comments	
3:29	Closing Remarks	N. Larson, MD
<b>3:30</b>	<b>17<sup>th</sup> Annual ICEOS Adjourns</b>	