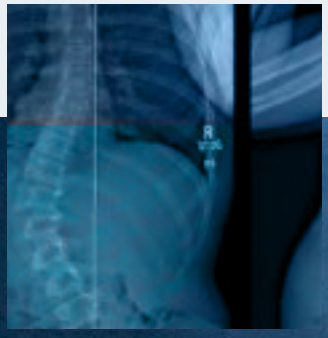
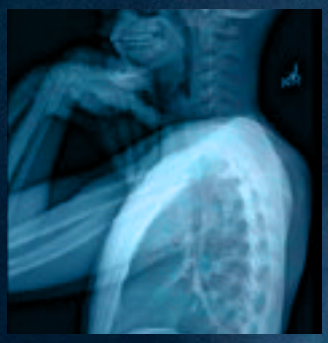
2025

PSF is a community dedicated to improving the quality of care and the outcome of treatment for patients and families dealing with chest wall and spine disorders.

Pediatric Spine Foundation





Right Mission.
Right Work.
Right Now.

ANNUAL REPORT

Right Mission. Right Work. **Right Now.**

OUR MISSION

TO HELP CHILDREN WITH SPINE PROBLEMS LIVE LONGER, BETTER LIVES

The Pediatric Spine Foundation is a community dedicated to improving the quality of care and the outcome of treatment for patients and families dealing with chest wall and spine disorders.

PSF

pediatricspinefoundation.org

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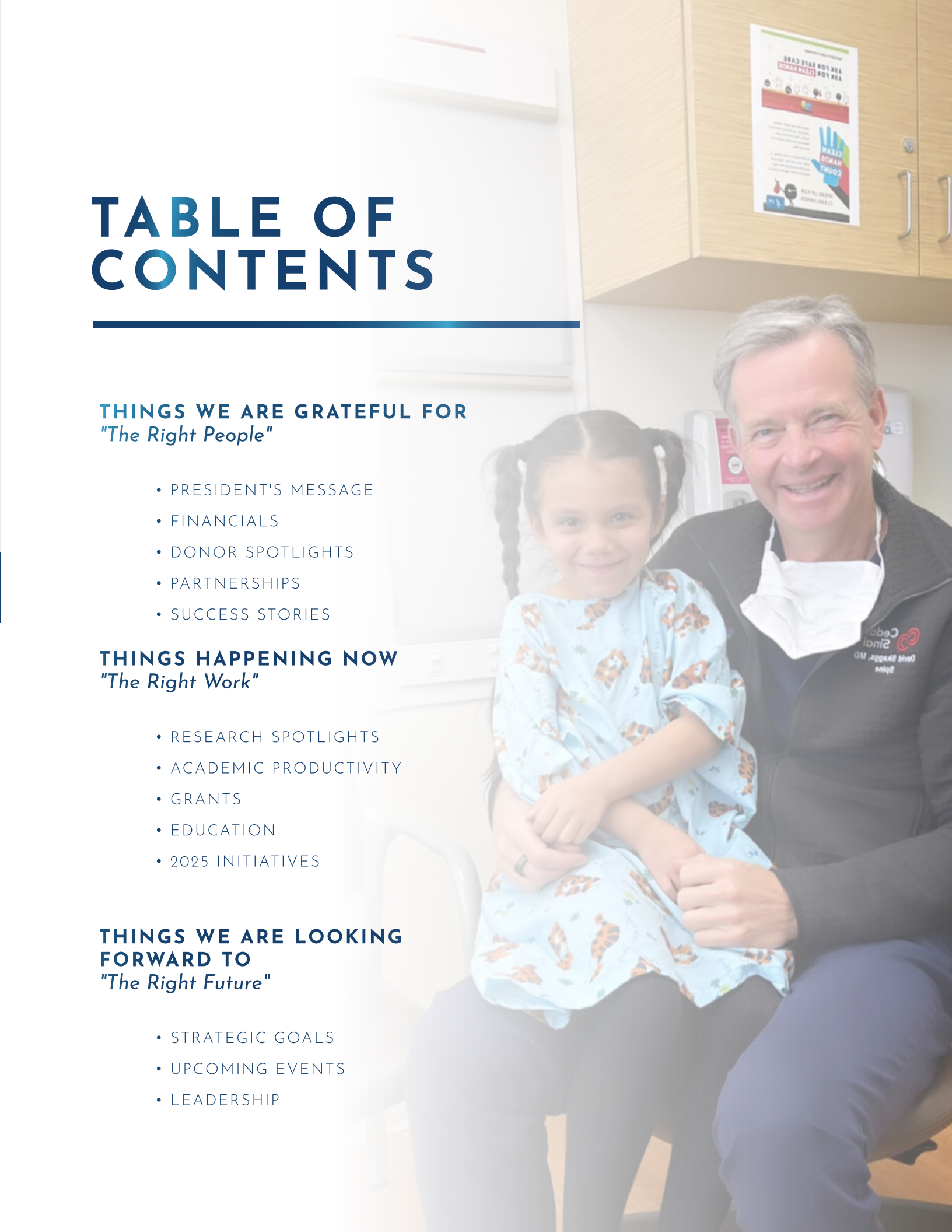


PSF

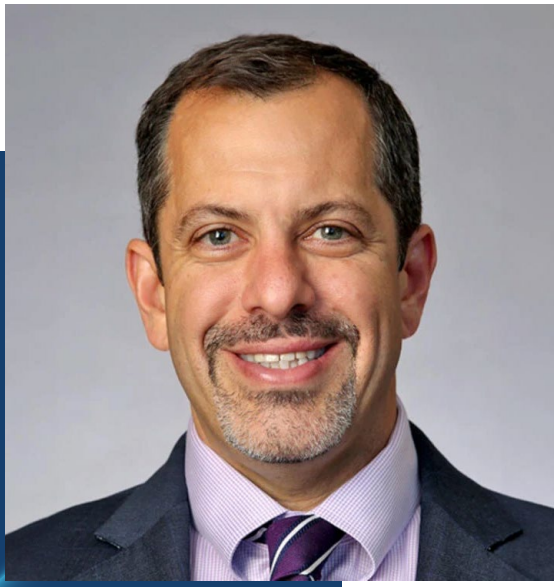
pediatricspinefoundation.org

THINGS WE ARE GRATEFUL FOR

"The Right People"

PSF

President's Message



Dear Friends, Colleagues, and Supporters,
Each year, I am humbled by the extraordinary people who make the Pediatric Spine Foundation what it is. This year's theme—"Doing All the Right Things"—is more than a message. It reflects the spirit of our community and the collective actions that move our mission forward every day.

We move mountains not by chance, but by the steady, intentional choices made by hundreds of clinicians, researchers, families, and philanthropic partners who believe that children with spine conditions deserve nothing less than our very best. Every dataset contributed, every study advanced, every patient supported, and every gift offered represents someone choosing to do the right thing for the right reason.

I am profoundly grateful for the generosity that flows into this work—your time, your expertise, your resources, and your belief in a better future for children. These are the things that make our progress possible. This year, we expanded collaborations, accelerated research, strengthened our registry, and supported families in new and meaningful ways. None of it happened alone. Every accomplishment in these pages is a shared achievement.

As we look toward the year ahead—including the celebration of our 20th anniversary—I am inspired by the momentum we've built together. Our path forward is clear because our values are clear. We will continue to lead with integrity, curiosity, compassion, and a relentless commitment to improving the lives of children worldwide.

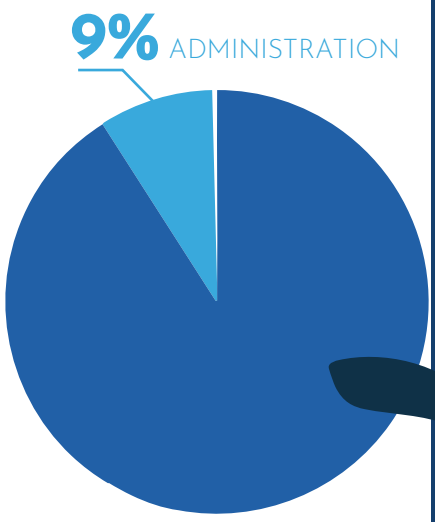
Thank you for standing with us, for believing in this mission, and for continuing to do all the right things—together.

With gratitude and pride,

Michael Vitale, MD MPH
PRESIDENT,
PEDIATRIC SPINE FOUNDATION

FINANCIALS

Nonprofit expenses are split into three distinct categories: programs, administrative, and fundraising. The commonly accepted rule for nonprofits is that the combination of administrative and fundraising expenses remain at 25% or less. As a Foundation, we work hard to minimize administrative and fundraising costs so that we may direct as much funding as possible toward our mission. As a result, 90%+ of our funding can be directed to program expenses: research and publications, education, database infrastructure, research grants and family support. We are grateful to our donors and members whose consistent support allows us to maintain a minimal bottom line in terms of administration and fundraising.



RESEARCH SUPPORT

59%

DATABASE INFRASTRUCTURE

6%

RESEARCH GRANTS

14%

21%

EDUCATION

Donor Spotlights

A SPECIAL THANKS
to our PSSG membership, and our industry sponsors.

HIGHRIDGE

OrthoPediatrics

atec™

Medtronic

Johnson & Johnson MEDTECH

GLOBUS MEDICAL | NuVasive

VB Spine

MRIGuidance

nView Medical

X-med

PARTNERSHIPS

THE RIGHT PEOPLE

PSSG Research Interest Groups (RIGs) are small teams of study group members/investigators with similar interests which aim to be collaborative, innovative, and inclusive.

RIGs meet regularly to discuss, prioritize, and develop research questions. In the past year, PSSG RIGs produced over **50 abstracts** and **published 35 peer-reviewed articles**. At the past SRS meeting, our abstract acceptance rate for podiums was 24% compared to **8% meeting-wide**, and our overall **acceptance rate was 42%** compared to **20% meeting-wide.**

As the largest pediatric spine research organization in the world, it is our goal to form long-standing partnerships that benefit our patients through better education, stronger research, and improved technology. In the past year, we are proud to collaborate with three industry partners:

Medtronic

Alphatec

Highridge Medical

This partnership demonstrates a commitment to improving care for our patients.

COMMUNITY
THE RIGHT PEOPLE

We are deeply grateful to Jack and Mary Flynn for their generous support of the Pediatric Spine Foundation. Their gift helps preserve the mission and community culture that define PSF—a collaborative, patient-centered organization committed to advancing care for children with spinal conditions. Through their generosity, Jack and Mary are investing not only in scientific progress, but also in the relationships, integrity, and shared purpose that make PSF a unique and enduring force in pediatric spine care.

Thank You

COMMUNITY

The Right People

From the very beginning of the Pediatric Spine Foundation, Mr. Hansjörg Wyss has been a steadfast supporter and trusted partner of our mission.

His extraordinary generosity and long-standing commitment to the Foundation has helped support our activities and initiatives that provide care for children with the most complex and serious spinal deformities.

The impact of his support has resulted in meaningful achievements in research, collaboration, and access to specialized treatment—directly improving outcomes for patients and families facing the most challenging journeys. We are deeply grateful for Mr. Wyss's vision, loyalty, and belief in the power of community to change lives.

THE RIGHT PEOPLE

Standing With Families Through Every Step

Emma and Chloe are 14-year-old twins who have already shown remarkable strength. Diagnosed with scoliosis at age 12, both girls require specialized bracing to support their growing spines—care that is only available out of state. As a result, their family must travel frequently for appointments and brace adjustments.

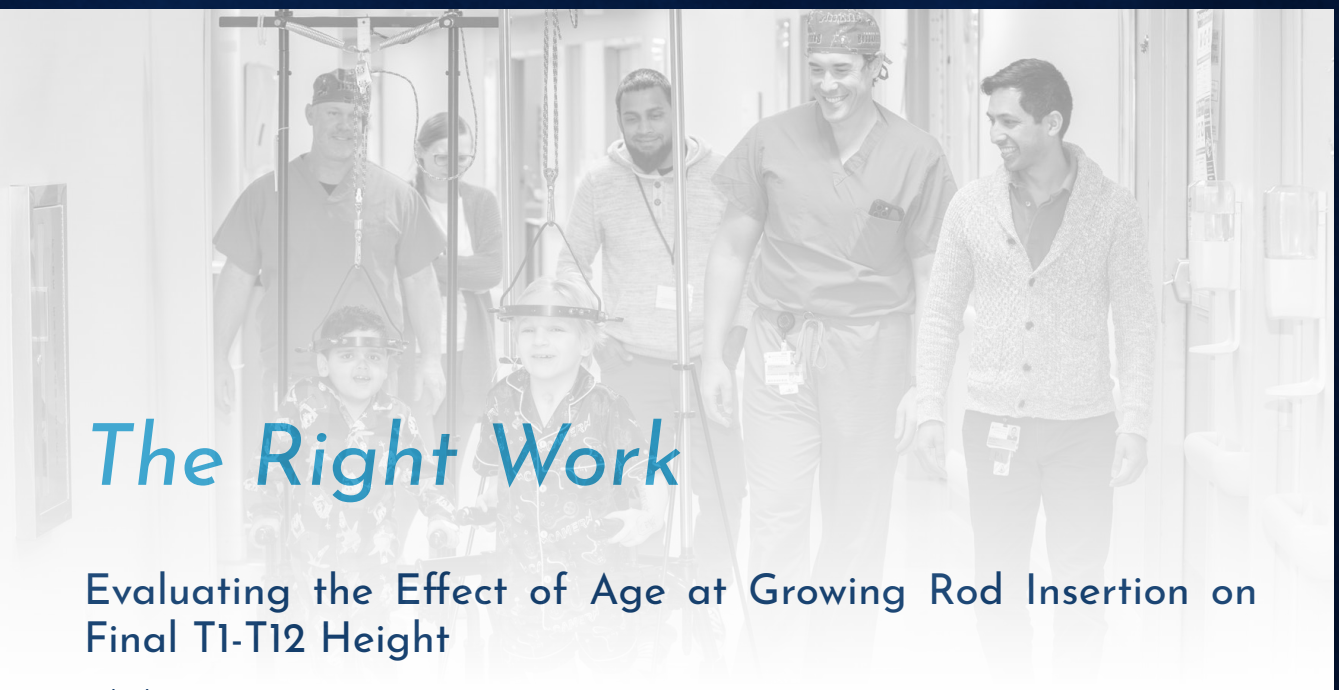
Learning they would need to wear their braces for up to 22 hours a day was frightening at first. Like many children facing scoliosis treatment, Emma and Chloe worried about feeling different and uncomfortable. Yet through it all, they have met each challenge with resilience, determination, and optimism.

For their parents, the emotional toll was compounded by the financial strain of ongoing travel. Balancing medical needs with everyday life quickly became overwhelming.

Through its family support program, the Pediatric Spine Foundation helped ease that burden by covering travel expenses, allowing the family to focus fully on what mattered most—their daughters' health and well-being.

Because of the Pediatric Spine Foundation, Emma and Chloe can continue receiving the specialized care they need without their family having to choose between treatment and financial stability. Their story reflects PSF's commitment not only to advancing pediatric spine care, but to standing beside families with empathy, dignity, and support when it matters most.

THINGS HAPPENING NOW



The Right Work

Evaluating the Effect of Age at Growing Rod Insertion on Final T1-T12 Height

Blake Montgomery, MD

SUMMARY: Growth-friendly surgery for early-onset scoliosis often results in a shorter final T1–T12 height, possibly due to autofusion. This study examined whether insertion age affects final spinal height. Using a multicenter database, 149 idiopathic EOS patients aged 2–9 who underwent growing rod treatment and had complete radiographs were analyzed. T1–T12 height was recorded before insertion, after insertion, before fusion, and after fusion. Final T1–T12 height increased consistently with older insertion age—from 18.6 cm at age 3 to 23.7 cm at age 9—and was most strongly predicted by pre-insertion height. Growth during insertion, lengthening, and graduation varied by age but was modest overall, with <3 cm average gain during the lengthening phase. Younger patients did not experience greater growth during treatment. In summary, older age at rod insertion leads to taller final T1–T12 height, and growth after insertion appears limited. These findings should inform decisions about the timing of growth-friendly surgery.

No time lost, safety gained: Impact of enabling technology on early-onset scoliosis surgery

Brett Lullo, MD

SUMMARY: Enabling technologies (ET) are increasingly used in EOS surgery, but some surgeons worry they increase operative time or risk. In a review of 182 EOS procedures, 71% used at least one ET. Patient and procedure characteristics were similar between ET and non-ET cases. Surgical time did not differ (269 vs. 302 minutes), nor did anesthesia time, fluoroscopy time, blood loss, or transfusion rates. Navigation was associated with fewer MEP changes, while axial imaging alone showed more neuromonitoring changes. Overall, ET use did not prolong surgery and may enhance safety, supporting its broader adoption in EOS care.

ACADEMIC
PRODUCTIVITY

75 ACTIVE PROJECTS

34 PUBLICATIONS

57 PRESENTATIONS

LAUNCHED

CERVICAL RANGE OF MOTION ASSESSMENT VIA PHONE-BASED APP

RESEARCH GRANTS

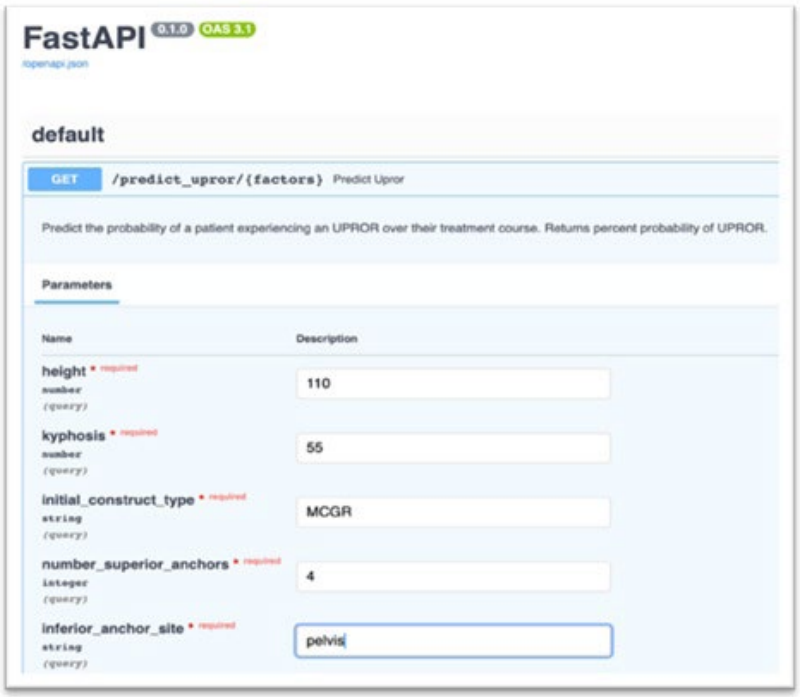
The Right Work

Young Investigator Grant

Developing a Web API to Improve Access to Machine Learning Models Created Using the PSSG Database

SUMMARY: This project will create a single web-based API to host all PSSG predictive models, making them easy for surgeons to use directly or through their medical record systems. After building the platform, the team will test its usability and impact on decision-making across multiple centers. The goal is to improve access to evidence-based tools and enhance care for children with EOS.

Brett Lullo, MD



Example of the FastAPI documentation for ML model to predict probability of UPROR.

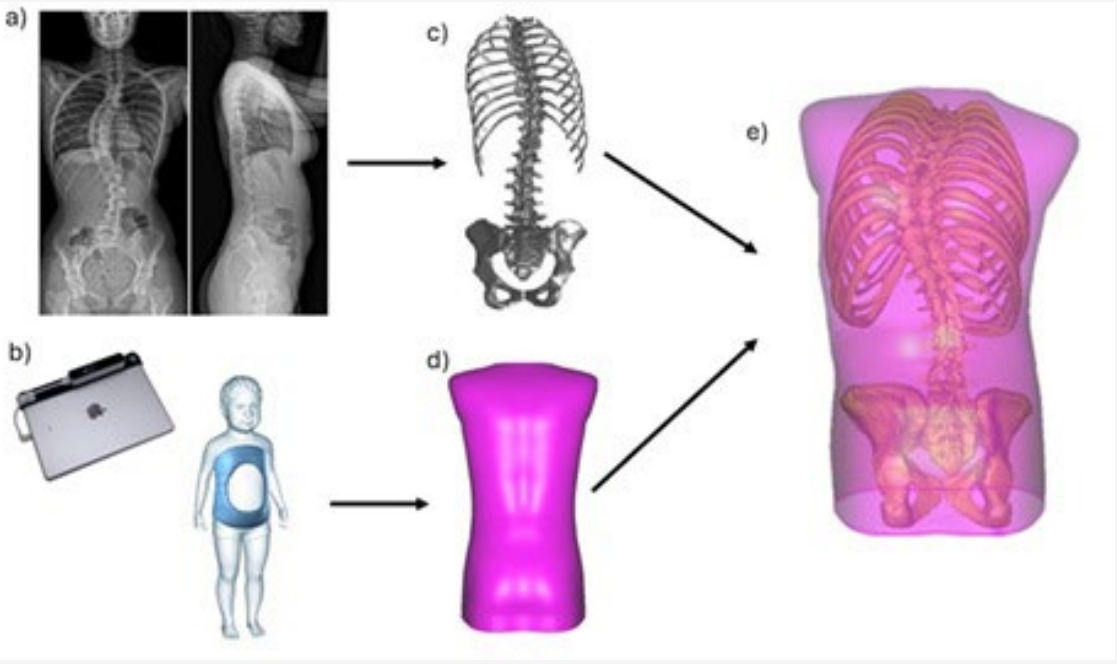
THE RIGHT WORK

RESEARCH GRANTS

A novel finite element modeling study focused on improving Mehta casting strategies for children with EOS.

LORENA FLOCCARI, MD

SUMMARY: This study will use finite element modeling to recreate a child's spine, rib cage, and pelvis and virtually test casting techniques. The study compares traditional rotational casting with a translational method and analyzes factors such as pad placement, abdominal openings, and strap design to evaluate correction, comfort, and thoracic volume. By applying advanced biomechanical analysis, the project aims to establish evidence-based guidelines to standardize casting and improve outcomes for children with EOS.



The FE model reconstructs each patient's 3D ribs, spine, and pelvis from preoperative x-rays. Torso shape is captured from pre- and post-casting surface scans. MATLAB algorithms then combine the torso surface and internal anatomy into a single finite element model for simulation. Figure saved in graphics folder.

BoneMRI Based Navigation for Pediatric Open Deformity Surgery

DAVID SKAGGS, MD

SUMMARY: The goal of this project is to study sCT-guided pedicle screw placement in AIS surgery. It will assess whether sCTs provide safe, accurate guidance, reduce radiation exposure, and influence complication rates or postoperative outcomes compared with traditional CT-guided surgery.

THE IMPACT OF EDUCATION

19th Annual International Congress of Early Onset Scoliosis and Growing Spine (ICEOS)

This year's meeting brought together **251 attendees** from **36 countries**, with 45% joining from outside the United States, and featured a record level of neurosurgeon involvement. The theme was inspired by Simon Sinek's Start With Why. The opening session on Wednesday, November 5th, began with Dr. Behrooz Akbarnia's talk on "The Birth of the EOS Movement," followed by an international panel of renowned orthopaedic and neurosurgeons who shared lessons learned from difficult cases in "Vin and Vignettes." The Smith Family Lectureship was delivered by Sébastien Aubert, co-founder and CEO of Adastra Films, who offered a grounded insider's view of the French film industry in his talk "Behind the Scenes of Film Production: The Untold Story of a Producer's Journey."

Thursday's program featured sessions on innovation, genetics, artificial intelligence, and embracing new techniques as an experienced surgeon, while Friday included debates, master techniques, and a potpourri session highlighting perspectives from a spine surgeon caring for adult EOS graduates and insights on surgical coaching.

The rooms remained full until the very end of the meeting. In keeping with the Pediatric Spine Foundation's mission to help children with spine conditions live longer, better lives—and reflecting the foundation's strong international impact—the keynote address was delivered by Dr. James M. Johnston, Jr., a pediatric neurosurgeon and co-founder of Intersurgeon, a platform that fosters global collaboration in surgery, education, training, and resource sharing.

Ying Li, MD

The Behrooz Akbarnia Best Paper Award was presented to Hiroko Matsumoto, PhD, for her work "Does Early Administration of Disease Modifying Therapy Prevent EOS in Young Children with Spinal Muscular Atrophy?" and Best e-Poster was awarded to Megan Johnson for "Is There a Role for Bracing/Casting in the Treatment of Early Onset Congenital Scoliosis?"

2025 INITIATIVES

INNOVATION SNAPSHOTS

Standardize automatic radiographic measurements across platforms.

1

Streamline long-term patient-reported outcome collection.

2

Integrate between imaging tools, planning software, and clinical databases.

3

Transition from 2D to 3D imaging.

4

2025 INITIATIVES

Neurogenic

The Pediatric Spine Foundation also launched the Neurogenic Research Interest Group (Neurogenic RIG) to address the unique challenges faced by children with spine problems related to neurological conditions. This highly specialized group aims to improve the understanding of how traumatic, oncologic, and congenital malformations of the spinal cord affect the growing spine. Further goals include exploring the diverse pathways that lead to neurogenic scoliosis, refine multidisciplinary care models, and develop tailored outcome measures that reflect the lived experiences of these patients and families.

Spondy

The Pediatric Spine Foundation recently established the Spondylolisthesis and Spondylolysis Research Interest Group (Spondy RIG) to advance understanding and treatment of these common yet complex spinal conditions in children and adolescents. The group brings together leading clinicians and researchers to improve diagnostic pathways, refine surgical and non-surgical management, and develop meaningful, family-centered outcome measures. Spondy enrollment is currently 302 patients enrolled from 28 centers. Additionally, our Prospective bracing vs. observation study in the Spondy section of our system has 42 patients enrolled.

Fusion

The Fusion Research Interest Group (Fusion RIG) is rapidly emerging as one of the Pediatric Spine Foundation's most active and impactful collaborative efforts. After being formalized in early 2025, the group finalized its case report forms and launched prospective enrollment on July 1st—already capturing data from more than 100 patients across diagnoses, with several abstracts submitted to major international meetings. Building on a long history of fusion research within the PSSG, the Fusion RIG aims to bring structure, standardization, and scientific rigor to a field with substantial but previously uncoordinated enrollment across 67 participating sites.

Current projects examine sagittal balance over time, axial plane correction, rod material effects, frailty risk, and outcomes in "tweener" patients who undergo fusion before skeletal maturity. Larger comparative work, such as the comparison of fusion versus tethering and self-ratcheting devices, reflects the group's commitment to answering the big questions that matter to families and surgeons alike.

15,400 PATIENTS ENROLLED

96 CENTERS PARTICIPATING

146 CERVICAL SPINE ENROLLMENT

DATA POINTS USED

8,200 PATIENTS
USED IN STUDIES

The Right Future

As I step into the role of President for PSF, I am energized by the opportunity before us. Doing all the right things in 2026 and beyond means choosing progress over complacency, collaboration over isolation, and action over intention. It means embracing emerging technologies that will sharpen our insights, improve diagnostics, and elevate the standard of care for every child we serve. It means expanding our reach—ensuring more patients have access to high-quality information, support, and pathways to care, while strengthening our global network of colleagues so that knowledge flows freely across borders. None of this is possible without continued support from our partners and community. Your investment in this mission fuels the research, tools, and connections that allow us to move the field forward. Together, we will chart a path defined by integrity, curiosity, and shared purpose—advancing the science, technology, and collaborative spirit that will shape the next generation of pediatric spine care.

Amer Samdani, MD

*"What doing the right things will mean in **2026** and beyond."*

LOOKING FORWARD

LOOKING FORWARD

"The Right Future"

LONG-TERM STRATEGIC GOALS:

1. Expand Registry Data

- Projects focused on SMA and JIS
- Automated measurements
- Collection of advanced imaging
- Long-term patient quality of life follow up

2. Strengthen International Collaboration

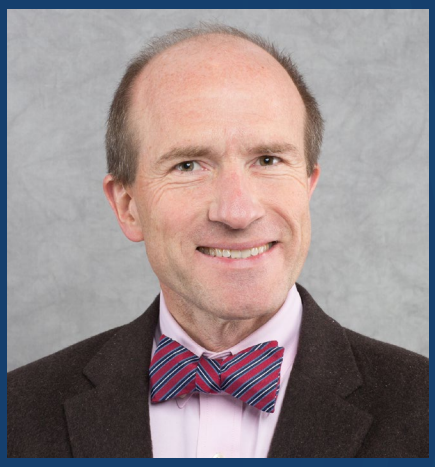
- 26 new members, 8 of which are outside of the US
- Expand access

3. Enhance Patient/Family Resources

- Creation of Family Advisory Board

TRAVEL GRANT RECIPIENT:

Arizt De León Robles from
HOSPITAL DEL NIÑO
DR. JOSÉ RENÁN ESQUIVEL,
Panama City, Panama



Family Advisory Board: Doing All the Right Things

—With Families, For Families

This year, we launched the Pediatric Spine Foundation's first Family Advisory Board (FAB) to ensure that our work is guided by the lived experiences of the families we serve. By offering insights into communication, research priorities, advocacy, and family support needs, FAB members help us make decisions that are both evidence-informed and deeply human. Their partnership reflects our belief that doing all the right things begins with listening, collaboration, and respect for the family voice.

We are grateful for their commitment and for the compassion and perspective they bring to shaping the future of pediatric spine care.

Paul Sponseller, MD

Upcoming **EVENTS**

Save the Date

20th Anniversary Gala

November 13, 2026 | San Diego, CA

Right Now. Right Mission. Right Work.

Dedicated to improving the quality of care and the outcome of treatment for patients and families dealing with chest wall and spine disorders.

LEADERSHIP

Chairman	Steve Schwartz
Past President	Jack Flynn, MD
Past President	Paul Sponseller, MD
President	Michael Vitale, MD MPH
President Elect	Amer Samdani, MD
Vice President	Laurel Blakemore, MD
Secretary	Burt Yaszay, MD
Treasurer	Michael Glotzbecker, MD
Member At Large	Behrooz Akbarnia, MD
Member At Large	Pat Cahill, MD
Member At Large	Ron El-Hawary, MD
Member At Large	Matt Oetgen, MD
Member At Large	David Skaggs, MD
Member At Large	John Smith, MD
Member At Large	Tricia St. Hilaire, MPH
PSSG Chair	Matt Oetgen, MD
Research Council	Robert Murphy, MD
Grant Chair	Klane White, MD
ICEOS Chair	Ying Li, MD
Development Co-Chair	Scott Luhmann, MD
Development Co-Chair	Ron El-Hawary, MD
Membership Chair	Chris Hardesty, MD
Outreach Chair	Jaime Gomez, MD
Historian Chair	John Smith, MD
Technology Chair	Noelle Larson, MD

Pediatric Spine Foundation

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