



**Chest Wall
& Spine Deformity** Study Group

2010 ANNUAL REPORT

Optimize the treatment of difficult spine problems in young children and improve the quality of life of patients and their families.

MISSION



MESSAGE FROM THE EXECUTIVE COMMITTEE

From publications and presentations, through groundbreaking research, to annual meetings and seminars; dedication to progress is evident in every part of our mission. The Chest Wall and Spine Deformity Study Group is committed to improving the quality of care and the outcome of treatment for patients and families dealing with chest wall and spine deformities through collaboration, research, and education.

As we look to the future, we are excited to build upon our knowledge and successes of the past. We plan to develop new educational opportunities for patients and families. We aim to strengthen our partnership with leaders in the field of pediatric orthopedics. We strive to produce quality research that enables clinicians and families to enjoy better outcomes. As Eleanor Roosevelt best said, "It is today we must create the world of our future."

**Randal R. Betz
Robert M. Campbell
John M. Flynn
John T. Smith
Michael G. Vitale**



EXECUTIVE COMMITTEE PROFILES



Randal R. Betz, MD is a founding member of the Chest Wall and Spine Deformity Study Group and a current member of the Board of Directors. His leadership and vision are instrumental to the success of the Group. He is currently Chief of Staff and Medical Director of Spinal Cord Injury Unit at Shriners' Hospitals for Children in Philadelphia while serving as Professor of Orthopedic Surgery at Temple University School of Medicine. He completed his orthopedic training at Temple University, Philadelphia, with fellowship training at Alfred I. duPont Institute in Delaware. He was the President of the Scoliosis Research Society in 2005.



Robert M. Campbell, MD is a founding member of the Chest Wall and Spine Deformity Study Group and a strategic advisor to the Board of Directors. Together with Melvin Smith, MD, he is the inventor of the VEPTR™ device and performed the majority of the initial surgeries. He is the Director of the Thoracic Insufficiency Center at The Children's Hospital of Philadelphia. He completed his orthopedic training at Fitzsimons Army Medical Center in Denver, Colorado, with fellowship training at Alfred I. duPont Institute in Delaware. He works closely with the FDA and was recently honored by the House of Representatives for providing children with lifesaving medical care.



John T. Smith, MD is a founding member of the Chest Wall and Spine Deformity Study Group and a member of the Board of Directors. He was integral in establishing the Chest Wall and Spine Deformity Research Foundation and is an active participant in both retrospective and prospective studies. He is currently the Director of the Pediatric Scoliosis Clinic and Chairman of the Division of Pediatric Orthopaedics at Primary Children's Medical Center in Salt Lake City, while serving as Professor of Orthopaedics and Pediatrics at the University of Utah. He completed his orthopedic training at the University of Utah and fellowship at the Scottish Rite Hospital in Atlanta. He has served as Chairman of several committees in POSNA and the SRS.

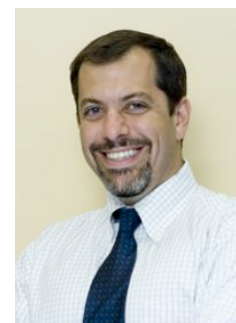


EXECUTIVE COMMITTEE PROFILES

John M. Flynn, MD is a strategic advisor to the Chest Wall and Spine Deformity Board of Directors. He currently leads the Group's major prospective study focused on early onset scoliosis. He is the Associate Chief of Orthopaedic Surgery at the Children's Hospital of Philadelphia and serves as Associate Professor of Orthopaedic Surgery at the University of Pennsylvania School of Medicine. He completed his orthopaedic training at Harvard University and the Children's Hospital of Boston, with fellowship training at Alfred I. duPont Institute in Delaware. He is the course director of the International Pediatric Orthopaedic Symposium and holds multiple leadership positions within the Scoliosis Research Society and the Pediatric Orthopaedic Society of North America.



Michael G. Vitale, MD, MPH is a member of the Board of Directors for the Chest Wall and Spine Deformity Study Group. He guides the Group's research direction and is an active participant in both retrospective and prospective studies. He is currently the Chief of the Pediatric Spine Service at the Morgan Stanley Children's Hospital of New York, while serving as the Ana Lucia Associate Professor of Clinical Orthopaedic Surgery at Columbia University College of Physicians and Surgeons. He completed his orthopedic training at the Columbia University College of Physicians and Surgeons where he also earned a Masters in Public Health. He then completed his fellowship at the Children's Hospital Los Angeles. He holds leadership roles in the American Academy of Pediatrics, the Pediatric Orthopaedic Society of North America, and the Scoliosis Research Society, and leads advocacy efforts with those organizations working with the FDA to remove obstacles to innovation for kids who need specific medical devices not currently available.





CORE MEMBERS



Patrick J. Cahill, MD

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Shriner's Hospitals for Children Philadelphia



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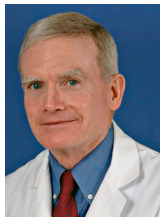
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LEADERSHIP

The CWSDSG is a cohesive group of investigators dedicated to leading the treatment of chest wall and spine deformity in young children through groundbreaking, top-level research and the education of clinicians, patients and their families. Since our inception, we have thrived on the collaboration of leaders in the field of pediatrics to fulfill our mission.



LEADERSHIP IN COLLABORATION

One of our major goals is to encourage and nurture an organized group of physicians that are focused on the study of spine and chest wall deformity and the growing spine.

This began in 1987, when Drs. Robert Campbell and Melvin Smith created a surgical implant to stabilize and enlarge the chest of a six-month old infant with missing ribs and severe scoliosis. The implant they designed connected vertically from rib to rib, expanded the chest and corrected the scoliosis. Following surgery, the child thrived; suggesting that enlarging the chest through a carefully placed implant could both improve scoliosis and allow a young child's lungs to grow.

The Chest Wall and Spine Deformity Study Group was formed in 2002 with the specific goal of providing a format to study complex spine and chest wall deformity in the growing child. The study group provides a unique means for leading clinicians to conduct multicenter, prospective and retrospective studies in an efficient manner. Participation in the study group is open to physicians and researchers interested in studying this unique population of children.

There are currently 18 core members: 15 pediatric orthopedic surgeons, 1 pediatric neurosurgeon, and 2 pulmonologists. In addition there are 7 associate members.





LEADERSHIP IN EDUCATION

The Study Group aims to educate surgeons, clinicians, and patients in the best treatment options for children with early onset scoliosis. At least two times each year, the Study Group hosts meetings open to interested investigators in conjunction with major society meetings such as the Scoliosis Research Society. These meetings provide a forum for discussion, collaboration, and education. In 2009, Study Group members Drs. Jack Flynn and Michael Vitale hosted a program on the challenges of treating early onset scoliosis at the International Congress of Early Onset Scoliosis.

Members of the Group also participate in educational courses focused on growing spine techniques, such as VEPTR. Many of the Group's members act as preceptors and mentors for those interested in learning new surgical techniques in early onset scoliosis.



In the future, the Study Group aims to create even better educational opportunities for patients and families.



LEADERSHIP IN RESEARCH

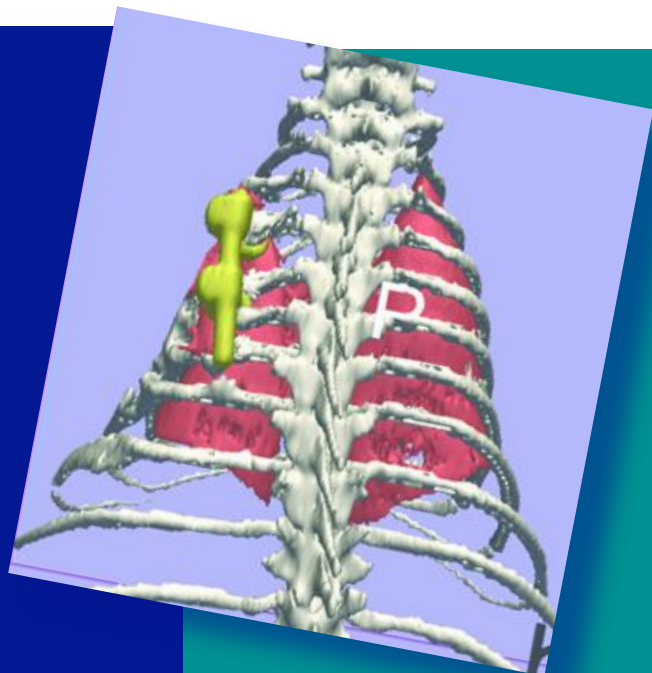
To date, our research has resulted in over 40 publications and 150 presentations throughout the world. Members of the Study Group have recently been honored to receive two awards. The first award for best paper was presented in to Dr. Campbell at the International Congress of Early Onset Scoliosis in November 2008 for his work on the characterization of the thoracic biomechanics of respiration in TIS by dynamic lung MRI. The second award for best basic science paper was presented to Dr. Snyder for his work on pulmonary hypoplasia in a rabbit model of Thoracic Insufficiency Syndrome at the International Meeting on Advanced Spine Techniques.

We have also experienced great success with pilot grants. Over the past four years the Study Group has supported the basic science research of Brian Snyder, MD, PhD. In 2009, Dr. Snyder was presented with an NIH grant to study how expansion thoracoplasty affects thoracic volume, aerated lung volume, and alveolar cell growth.

The Study Group has also supported the efforts of Dr. Jack Flynn in his multicenter prospective study of Early Onset Scoliosis. This is a collaborative effort to study a small yet complex patient population.

Using a rabbit model, Dr. Brian Snyder hypothesizes that improved survival and respiratory function in patients treated with expansion thoracoplasty may be a result of improved alveolar gas exchange due to the stimulation of the capillary network.

Dr. Snyder was recently awarded an NIH grant for \$275K to continue study in this important area.



2010 HIGHLIGHTS

Each year there are many children born with spine and chest wall problems that produce severe, disabling deformities. While the cause of these problems remains unknown, recent advances in research and treatment have improved the care of these children, making their future brighter than it has been in the past. However, there remain many unanswered questions.

COLLABORATION

In 2010, a major focus of the Study Group was to improve the ability for collaboration through the internet. To do this, resources were dedicated to improve the registry infrastructure and its usability. The registry, which can be accessed at www.chestandspine.org, offers the benefit to combine data from multiple institutions to increase the power of each research project. Contributors to the registry have the ability to lead and participate in active studies. Each investigator maintains access and ownership of his/her own data and is able to pursue retrospective or prospective research independent of the Study Group.



2010 HIGHLIGHTS

EDUCATION

In everything we do, the education of both clinicians and families is at the forefront. In October of 2010, Dr. John Smith hosted a course for both novice and experienced surgeons on the challenges and advanced surgical techniques associated with rib distraction. 15 surgeons were in attendance.

In addition to surgeon education, the Study Group focused on the needs of patient and family education. Parents were surveyed for ideas of how education can be improved for their families and for others going through the experience. Through this discussion, many opportunities were highlighted. Ideas included a directory of helpful groups, people, and resources available to families, a children's book, and a quarterly pamphlet highlighting new research and patient experiences.

RESEARCH

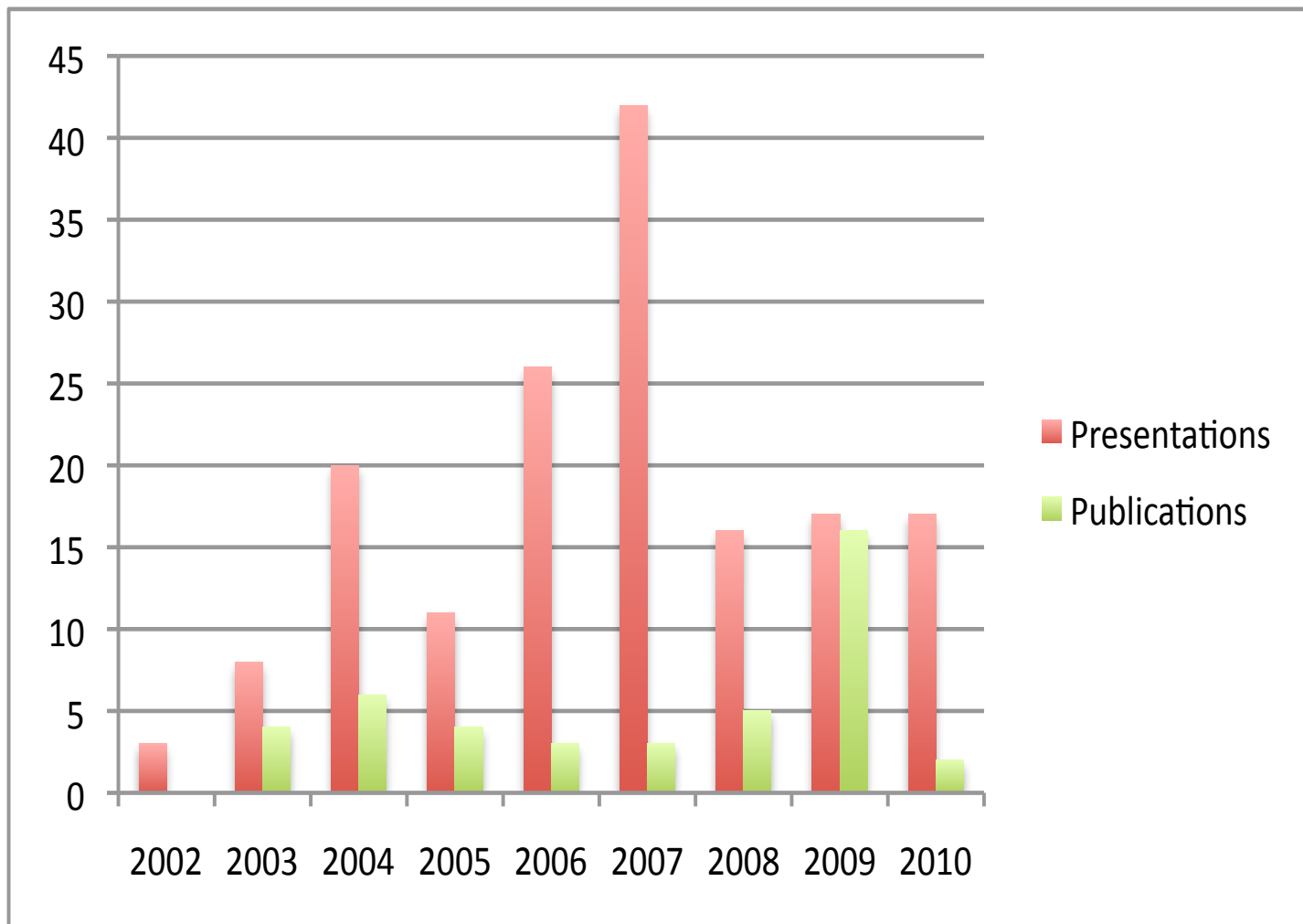
Research in the area of chest wall and spine deformity in young children is a challenge. To further the study of spine and chest wall deformities in the growing child thereby improving the care of the patient, the Chest Wall and Spine Deformity Study Group offered a request for research proposals. Multiple applications were received and reviewed by a committee. Four selected projects will be funded over the next two years.

- Stereophotometric assessment of chest and abdominal wall motion for children with Thoracic Insufficiency Syndrome (Greg Redding, MD, Seattle Children's Hospital)
- Feasibility of a 3D Classification Including the Chest Wall in Early Onset Scoliosis (James Sanders, MD, University of Rochester)
- Anterior Neurocentral Synchondrosis Screws to Create Experimental Deformity (Daniel Sucato, MD, Texas Scottish Rite Hospital)
- Evaluating the Extent of Equipose among Treatment Options for Patients with EOS (Michael Vitale, MD, MPH, Morgan Stanley/Children's Hospital of NY)



ACADEMIC PRODUCTIVITY

Study Group productivity includes both clinical and basic research. Clinical research articles describe the latest evidence on the treatment, diagnosis, and/or prognosis of musculoskeletal disorders. They may also include reports on complications and outcomes. Basic Research studies explore the mechanisms of musculoskeletal disorders and/or their treatment. They may also include the use of new technology for analysis of etiology.





2010 Publications

Expansion thoracoplasty improves respiratory function in a rabbit model of postnatal pulmonary hypoplasia: a pilot study.

Mehta HP, Snyder BD, Baldassarri SR, Hayward MJ, Giuffrida MJ, Entezari V, Jackson AC.
Spine (Phila Pa 1976). 2010 Jan 15;35(2):153-61.

Summary: By constricting the hemithorax in a growing rabbit to create postnatal pulmonary hypoplasia, we quantified how expansion thoracoplasty affects lung volume, respiratory function, alveolar morphology, and spine growth. Expansion thoracoplasty reduces scoliosis and increases the volume of the constricted hemithorax, but the relative increase in the ipsilateral lung volume is small since compensatory hypertrophy of the contralateral lung also occurred. Expansion thoracoplasty may improve respiratory function by increasing alveolar capillaries and preventing emphysematous changes.

The usefulness of VEPTR in the older child with complex spine and chest deformity.

Samdani AF, St Hilaire T, Emans JB, Smith JT, Song K, Campbell RJ Jr, Betz RR
Clin Orthop Relat Res. 2010 Mar;468(3):700-4. Epub 2009 May 20.

Summary: The vertical expandable prosthetic titanium rib (VEPTR) was originally designed to treat chest and spine deformities in young children. However, older children with complex spinal deformities may also benefit from placement of a VEPTR when vertebral column resections are deemed too risky neurologically. For a select group of patients 10 years of age or older, the VEPTR offers a reasonable alternative to potentially risky vertebral column resections for correcting deformities in selected patients.

The role of the vertical expandable titanium rib in the treatment of infantile idiopathic scoliosis: early results from a single institution.

Schulz JF, Smith J, Cahill PJ, Fine A, Samdani AF.
J Pediatr Orthop. 2010 Oct-Nov;30(7):659-63.

Summary: Few studies exist on the management of progressive curves in the setting of infantile idiopathic scoliosis. We have performed a retrospective review of our experience treating those patients unresponsive to conservative management with the vertical expandable prosthetic titanium rib. Our results suggest that the vertical expandable prosthetic titanium rib device is a safe and effective treatment option for large-magnitude curves in this unique patient population.

Vertical expandable prosthetic titanium rib as treatment of thoracic insufficiency syndrome in spondylocostal dysplasia.

Ramirez N, Flynn JM, Emans JB, Betz R, Smith JT, Price N, St Hilaire T, Joshi AP, Campbell RM.
J Pediatr Orthop. 2010 Sep;30(6):521-6.

Summary: Spondylocostal dysplasia (SCD) constitutes a heterogeneous patient group with multiple vertebral formations and segmentation defects of the entire spine, with asymmetric rib malformations. Respiratory failure has been reported in spondylocostal dysplasia secondary to thoracic insufficiency syndrome. VEPTR implantation in SCD allows continued thoracic spine growth while controlling progressive spine deformity. The improved AVR ratings after surgery suggest a beneficial effect on the natural history of TIS in this population.



2010 Publications

Structure-Respiration Function Relationships Before and After Surgical Treatment of Early-onset Scoliosis.

Redding GJ, Mayer OH.

Clin Orthop Relat Res. 2010 Oct 27. [Epub ahead of print]

Summary: Spine and chest wall deformities in children with early onset scoliosis (EOS) frequently impair respiratory function and postnatal growth of the lung. While a relationship between deformity and such impairment has been reported in children with adolescent idiopathic scoliosis it is not well understood in children with early-onset scoliosis (EOS). The data extend the age range of children with EOS whose Cobb angles correlate poorly with FVC preoperatively. The data are also consistent with reports that reduced Cobb angles after VEPTR insertion do not correlate with postoperative changes in respiratory function.

Sleep-disordered breathing in children with thoracic insufficiency syndrome.

Striegl A, Chen ML, Kifle Y, Song K, Redding G

Pediatr Pulmonol. 2010 May;45(5):469-74.

Summary: Many children with TIS are too young to perform standard pulmonary function tests, yet need functional assessments of their restrictive thoracic disease. We report on the sleep architecture and frequency of sleep-related breathing abnormalities in 11 children with TIS who underwent overnight polysomnography from retrospective chart review. Sleep disordered breathing with hypoxemia appears to be a common but under recognized problem among children with TIS. Polysomnogram may have a role as a non-invasive screening tool used in conjunction with other functional respiratory assessments in children with TIS, and warrants further study in a prospective manner.

Feasibility and accuracy of pedicle screws in children younger than eight years of age.

Ranade A, Samdani AF, Williams R, Barne K, McGirt MJ, Ramos G, Betz RR.

Spine (Phila Pa 1976). 2009 Dec 15;34(26):2907-11.

Summary: Computed tomography (CT) scanning is commonly used for assessing the breach associated with pedicle screw placement. The accuracy of pedicle screw placement as evaluated by CT has been described for adults and older children. No study has been published describing pedicle screw breach rate as evaluated by CT scanning in children younger than 8 years of age. The results suggest that pedicle screws can be safely and accurately placed in young children.



2010 Publications

Is the Vertebral Expandable Prosthetic Titanium Rib a Surgical Alternative in Patients with Spina Bifida?

Flynn JM, Ramirez N, Emans JB, Smith JT, Mulcahey MJ, Betz RR

Clin Orthop Relat Res. 2010 Oct 13. [Epub ahead of print]

Summary: Nonambulatory children with myelodysplasia are most likely to develop spinal deformity. As the deformity progresses, the overall health of the patient deteriorates. One alternative that potentially minimizes these problems is the vertebral expandable prosthetic titanium rib (VEPTR).

Our observations suggest VEPTR is a reasonable treatment option for spinal deformity in the immature, nonambulatory myelodysplasia population correcting the spinal deformity, allowing spinal growth, and maintaining adequate respiratory function.

Treatment of Gibbus deformity associated with myelomeningocele in the young child with use of the vertical expandable prosthetic titanium rib (VEPTR): a case report.

Smith JT, Novais E.

J Bone Joint Surg Am. 2010 Sep 15;92(12):2211-5.

Summary: Numerous studies have documented the incidence of kyphosis related to myelomeningocele. Kyphosis treatment presents one of the greatest challenges in managing patients with myelomeningocele. This report demonstrates the relative feasibility of VEPTR treatment for the management of severe gibbus deformity in myelomeningocele. Our patient exhibited excellent correction of the kyphotic deformity, experienced adequate recovery time, and had minimal complications.

Variability of Expert Opinion in Treatment of Early-onset Scoliosis.

Vitale MG, Gomez JA, Matsumoto H, Roye DP Jr; members of Chest Wall and Spine Deformity Study Group.

Clin Orthop Relat Res. 2010 Sep 8. [Epub ahead of print]

Summary: In contrast with treatment recommendations for adolescent idiopathic scoliosis, there are no clear algorithms for treating patients with early-onset scoliosis. There has been rapid expansion of treatment options for children with early-onset scoliosis, including casting, growth rods, the vertical expandable prosthetic titanium rib, and anterior vertebral stapling. Given the range of treatment options, we assessed variability in decision making regarding treatment of patients with early-onset scoliosis.

Although most surgeons agreed about the indication for surgery, we found wide variability in choice of construct type, number of constructs, and level of instrumentation.



2010 Presentations

Pediatric Orthopedic Society of North America

Effect of Expansion Thoracoplasty on Pulmonary Microstructure Olson, John C; Kurek, Kyle C; Mehta, Hemal P; Warman, Matthew L; Snyder, Brian D

Regional Lung Volumes Predict Regional Ventilation and Perfusion Before But Not After Spine Surgery for Early Onset Scoliosis (EOS) Redding, Greg; Swanson, Jonathan; Song, Kit; Vic, Ghioni; Tang, Dennis; Bompadre, Viviana

The Effect of Rib Based Spinal Instrumentation in the Treatment of Thoracic Insufficiency Syndrome on Sagittal Plane Alignment Sturm, Peter F; Hassani, Sahar; Zaharski, Kristin; Riordan, Mary

Growing Rods as a Salvage Procedure After Convex Staple Epiphyseodesis to Control Curve Progression in Young Patients Purnendu, Gupta; Sturm, Peter F; Hassani, Sahar; Hammerberg, Kim

Scoliosis Research Society

Sagittal Spinopelvic Parameters of Children with Early Onset Scoliosis El-Hawary, Ron; Sturm, Peter F.; Cahill, Patrick J.; Samdani, Amer F.; Vitale, Michael G.; Gabos, Peter; Bodin, Nathan; d'Amato, Charles

Bilateral 'Percutaneous' Rib to Pelvis VEPTR Technique for the Management of Early Onset Scoliosis. An Alternative to 'Growing Rods'? Smith, John T.

Effects on Lung Growth and Function of Serial VEPTR Expansion Thoracoplasty in Children with TIS: A Longitudinal Study Motoyama, Etsuro; Deeney, Vincent; Yang, Charles; Tuason, Dominick; Moreland, Morey; Londino, Joanne; Mutich, Rebecca

The Patient with Myelomeningocele: Is Untethering Necessary Prior to Deformity Correction? Samdani, Amer F.; Sagoo, Sukhdeep S.; Shah, Shailja C.; Cahill, Patrick J.; Clements, David H.; Betz, Randal R.



2010 Presentations

International Meeting of Advanced Spinal Techniques

Bilateral 'Percutaneous' Rib to Pelvis VEPTR Technique for the Management of Early Onset Scoliosis. An Alternative to 'Growing Rods'? Smith, John T

Atypical Applications of Rib and Spine Based Constructs for the Management of Thoracic Insufficiency Syndrome (TIS) Waldhausen, John; Redding, Greg; Song, Kit M

Meta-Analysis of Chiari I Malformations and Scoliosis Outcomes after Surgical Decompression Hwang, Steven; Gaughan, John; Betz, Randal R; Cahill, Patrick J

Analysis of Scoliosis in Patients with Jeune Syndrome Undergoing Treatment with Expandable Prosthetic Rib Simmons, James W; Campbell, Robert M; Joshi, Ajeya P; Patil, Vishwas; Hand, Thomas L; Reinker, Kent

Analysis of Cervical Spine Stenosis in Jeune Syndrome Patients Simmons, James W; Campbell, Robert M; Joshi, Ajeya P; Patil, Vishwas; Hand, Thomas L; Reinker, Kent

Management of Thoracic Insufficiency Syndrome (TIS) in Patients with Jeune Syndrome Using Expandable Prosthetic Titanium Rib Campbell, Robert M; Joshi, Ajeya P; Simmons, James W; Patil, Vishwas; Reinker, Kent; Koeck, Will; Athreya, Hari; Schmitz, James

Anxiety and Psychosocial Disability in Patients Undergoing Repetitive Surgery for Early Onset Scoliosis: We Should Be Worried! Vitale, Michael G; Miller, Daniel J; Ramirez, Norman F; Torres, Frances C; Matsumoto, Hiroko; Mulcahey, Mary Jane; Flynn, John M

VEPTR for the Treatment of Infantile Idiopathic Scoliosis Samdani, Amer; Schultz, Jacob; Cahill, Patrick J; Betz, Randal R

Variability in the Measurement of Sagittal Spinopelvic Parameters in Children with Early Onset Scoliosis El-Hawary, Ron; Howard, Jason J; Cowan, Krystyna; Sturm, Peter F; d'Amato, Charles

Sagittal Spinopelvic Parameters of Children with Early Onset Scoliosis El-Hawary, Ron; Sturm, Peter F; Cahill, Patrick J; Samdani, Amer F; Vitale, Michael G; Gabos, Peter; Bodin, Nathan; d'Amato, Charles



2010 Presentations

International Congress of Early Onset Scoliosis

To Operate or Not to Operate? Determining the Optimal Timing of Surgical Intervention for Patients with Early Onset Neuromuscular Scoliosis Miller, Daniel; Corona, Jacqueline; Downs, Jennefer; Akbarnia, Behrooz; Blakemore, Laurel; Betz, Randal R; Campbell, Robert; Johnston, Charles; McCarthy, Richard; Roye, David; Skaggs, David; Smith, John; Snyder, Brian; Sponseller, Paul; Sturm, Peter; Thompson, George; Yazici, Murharrem; Vitale, Michael; Flynn, John

Does Rib-Based Distraction Control Curve Progression and Prevent Parasol Deformity of the Chest in Scoliosis Associated with Congenital Myopathy Smith, John; Wade, Jennie; d'Amato, Charles; Campbell, Robert; Vitale, Michael

Can Infection Associated with Rib Based Distraction be Managed without Implant Removal? A Multicenter Study Smith, John; Emans, John; Samdani, Amer; Betz, Randal; Wade, Jennie

Use of the Shook as Pelvic Foundation as Part of Rib Based Distraction Construct Ramirez, Norman; Flynn, John; Smith, John; Vitale, Michael; d'Amato, Charles; El-Hawary, Ron

Introduction of VEPTR Surgery into Japan: A Report on the First 33 Patients Kawakami, Noriaki; Tsuji, Taichi; Saito, Toshiki; Ohara, Tetsuya; Nohara, Ayato; Miyasaka, Kazuyoshi; Sato, Michiyoshi; Ito, Kenyu

Non-invasive Positive Pressure Ventilation (NPPV) for sleep-related breathing difficulties in children with EOS Redding, Greg; Makris, Christopher; Song, Kit

Sagittal Spinopelvic Parameters of Children with Early Onset Scoliosis El-Hawary, Ron; Sturm, Peter F; Cahill, Patrick J; Samdani, Amer F; Vitale, Michael G; Gabos, Peter; Bodin, Nathan; d'Amato, Charles

Treatment Of Kyphoscoliosis And Thoracic Insufficiency Syndrome (TIS) Associated With Myelodysplasia Using VEPTR in an Eiffel Tower Construct Joshi, Ajeya; Campbell, Robert; Patil, Vishwas ; Simmons, James W; Cordell, Davin; Koeck, William

FUNDRAISING

The CWSDSG is supported by private and corporate donation. This funding enables us to continue supporting retrospective and prospective research, allows greater access for clinician participation, and fosters partnerships among academic institutions, medical centers, and corporations to improve research opportunities.

Initiatives Requiring Additional Funding

- o To determine the best treatment for infantile scoliosis, a prospective study is underway to compare casting to bracing. Additional funding is critical to increase the number of patients enrolled therefore achieving meaningful results in a reduced timeframe.
- o To improve the education and treatment of early onset scoliosis in challenged areas of the world, funding is required to fund international member participation in the Study Group.
- o To advance care and discover better treatment options, the Study Group sponsors a Request for Proposal in Pediatric Spine. In 2010, we funded 4 of 8 proposals. Additional funding would allow new ideas and treatments to be explored.
- o To support ongoing studies, a radiographic registry is key to the infrastructure of the Study Group. Data input to the registry is labor intensive and a rate-limiting step. Additional funding would improve the efficiency and functionality of this infrastructure.

What will your donation do?

A \$50 donation will support the entry of one patient into the Chest Wall and Spine Deformity Registry. This patient will be followed over time to determine how his/her condition is affected by treatment, growth, and time.

A \$1000 donation will support the travel for one international clinician to attend a Chest Wall and Spine Deformity Study Group meeting. Here he/she will share and learn from other members' experiences and take this knowledge back to improve the treatment of complex conditions in various parts of the world.

A \$10,000 donation will fund a pilot research study. It will enable an investigator to produce initial findings which will be the foundation for larger grants and bigger discoveries.

To make a donation, please visit our website: www.chestandspine.org
or if you would rather send your donation by mail, please address it to:
CWSDRF
P.O. Box 1072
Layton, UT 84041



MEMBERSHIP

Due to the rarity and complexity of this patient population, it is difficult for any one institution to study in this area independently. The study group provides a unique means to conduct multicenter, prospective and retrospective studies in an efficient manner. Participation in the study group is open to physicians and researchers interested in studying this unique population of children.

Participation benefits include:

- Registry access to collect and query your own data
- Access to funding for individual or collaborative research
- Opportunity to participate in multicenter studies and query a multicenter database
- Ability to lead prospective or retrospective studies focused on a complex patient population
- Online capability to share X-Rays and clinical information for peer review and discussion
- Invitation to meetings to discuss study ideas, outcomes, and case presentations
- Assistance available to support research, presentations, statistics, and logistics

Contact:
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