

# The Titanium Rib Project

What Dr. Melvin Smith and colleague Robert Campbell set out to do in the late 1980s was create an artificial chest wall for a 6-month-old child born with a debilitating deformity, severe scoliosis and seven missing ribs — a child who otherwise faced almost certain death by suffocation. In saving the young boy's life, they went on to pioneer the first new growth-sparing treatment for spinal deformities to be approved in four decades. They also characterized a previously unrecognized condition and developed six new surgical procedures, which they have trained orthopaedic surgeons around the world to perform.

Today, through the efforts of Dr. Smith and Dr. Campbell, the condition has a name, Thoracic Insufficiency Syndrome, and the breakthrough medical device developed in San Antonio, the Vertical Expandable Prosthetic Titanium Rib, has now been introduced in more than 30 countries and is considered the gold standard for treating the most fragile of pediatric patients.



Model of the Titanium Rib.

Along the way, the San Antonio physicians exposed a conspicuous gap in the nation's pediatric device development system that resulted in recent federal legislation that will revolutionize the way the Food and Drug Administration goes about approving pediatric medical devices.



Dr. Melvin Smith's widow, Marylyn Smith, accepted the Palmaz Award on his behalf. She is shown with Dr. Robert Campbell, who along with Dr. Smith developed the Titanium Rib.

According to Dr. Campbell, the approval of new medical devices developed specifically for children's smaller and growing bodies can take five to 10 years longer than those for adults, leaving doctors no choice in the meantime but to use equipment which is not designed or sized for children.

Sen. Chris Dodd (D-CT), who spearheaded new legislation to ensure that the safety of children is not compromised by medical devices developed with adult patients in mind, credited Dr. Campbell's and Dr. Smith's work on the Titanium Rib Project as the genesis for this important legislation.

Dodd said, Dr. Campbell's "compelling testimony before the U.S. Senate Committee on Health, Education, Labor and Pensions in March 2007 illustrated for members of Congress and the public the need for legislation that would improve the quality and increase the number of medical devices suitable for children. I am proud to say that the legislation, the Pediatric Medical Device Safety and Improvement Act, is now law."

Renée R. Jenkins, M.D., president of the American Academy of Pediatrics, said, "Dr. Campbell's leadership in pediatric orthopaedics is known the world over. In spite of his demanding patient and travel schedule, he made time to advocate for child health in Washington, D.C., where his efforts were instrumental in passing the Pediatric Medical Device Safety and Improvement Act of 2007. Bob's work on this law will benefit children far beyond his practice."

Dr. Campbell also cited the significant contributions of the late Dr. Smith, whose persistence in seeking a solution for the 6-month-old boy's chest wall defect led to the Titanium Rib Project. Dr. Smith died earlier this year after a valiant battle with cancer.