

Treatment Outcomes in Early Onset Scoliosis: *Compared to What ?*

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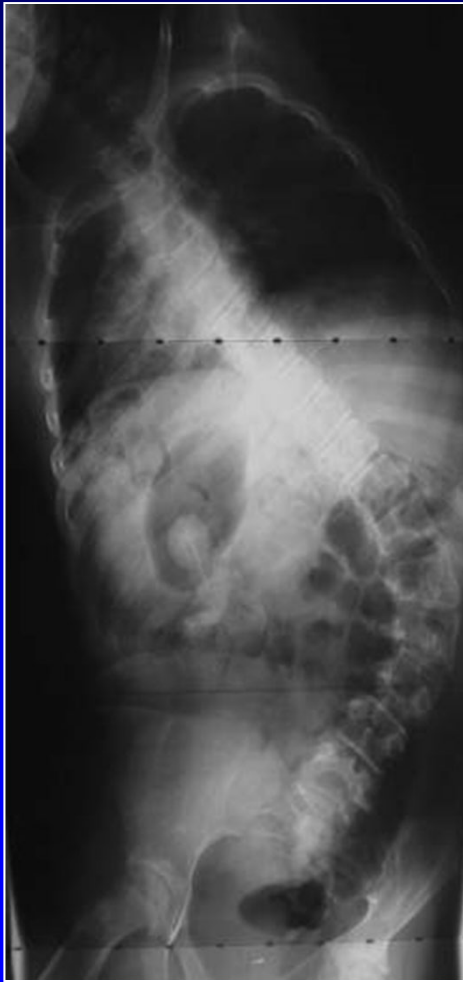
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Columbia Orthopaedics
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Successful *Ortho-paedic* “Outcome”

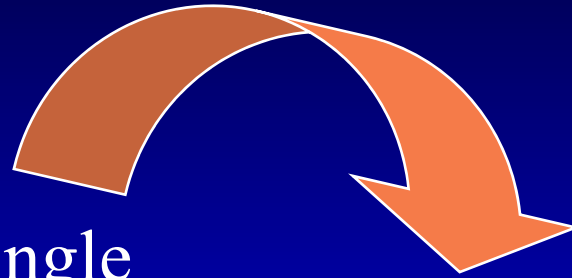
96 deg



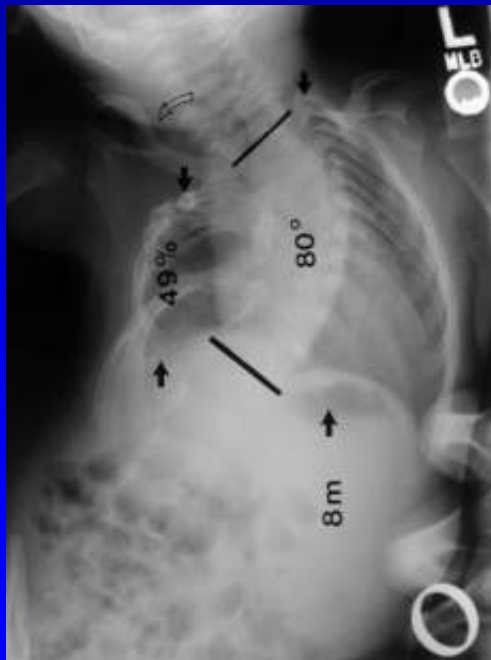
26 deg



Endpoints



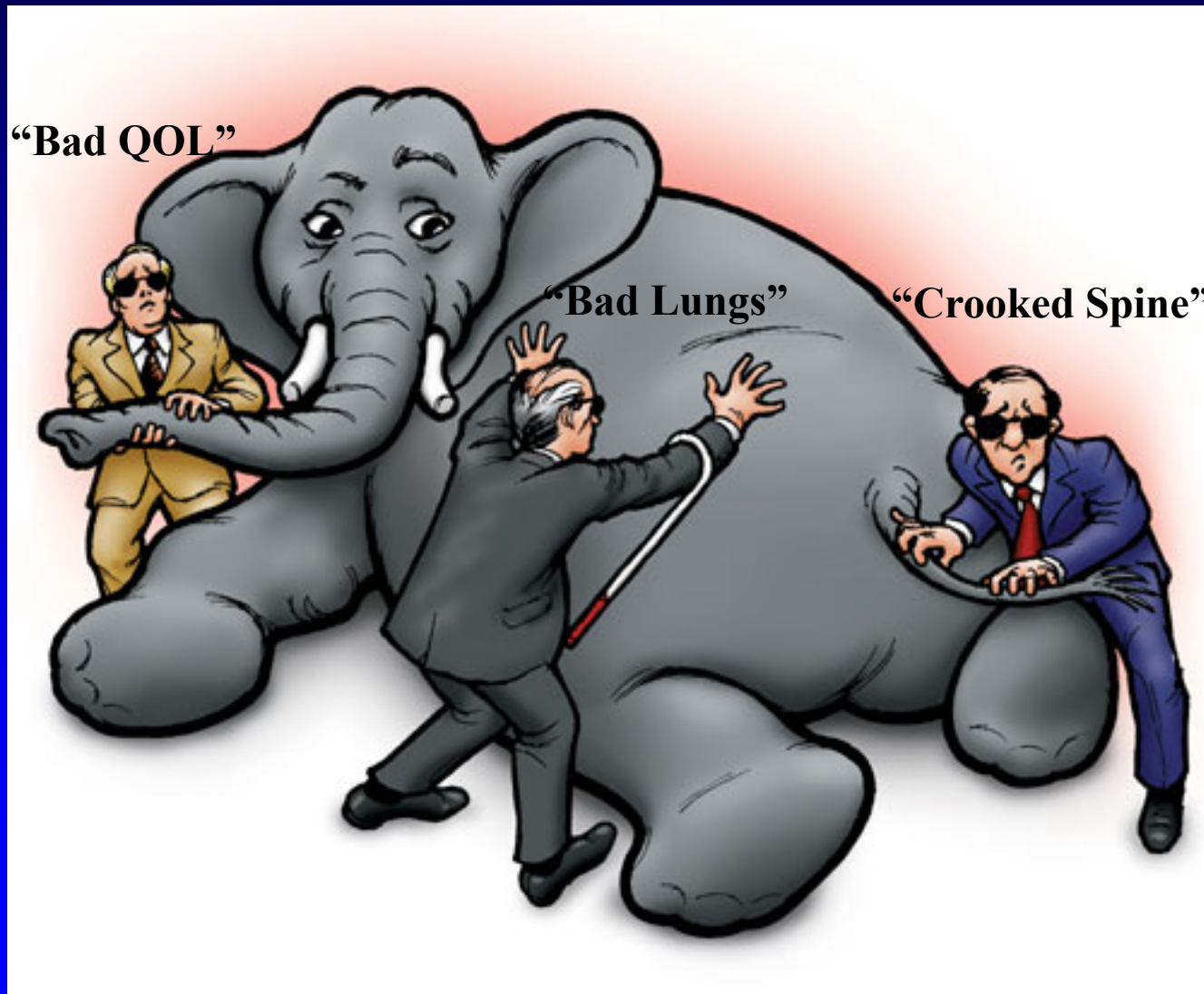
- Cobb Angle



- Pulmonary Function
- Quality of Life
- Life Expectancy



Don't be the Blind Man



Patient-Based Outcomes

- “ In the field of scoliosis, there is one rule: keep your eye upon the patient, and not upon the curve.”

- Cobb, 1948

- “Treat the patient, not the x-rays.”

- Blount, 1955



Outcomes: Compared to What ?

- Natural History
- Early Fusion
- Comparison of various techniques eg GR vs VEPTR

- How to measure ?
 - Life expectancy
 - Pulmonary Function
 - Quality of Life
 - Burden of Care
 - Psychosocial Effects of Repetitive Surgery

What We Know

- EOS can be a bad disease
 - PFT
 - QOL
 - Life Expectancy

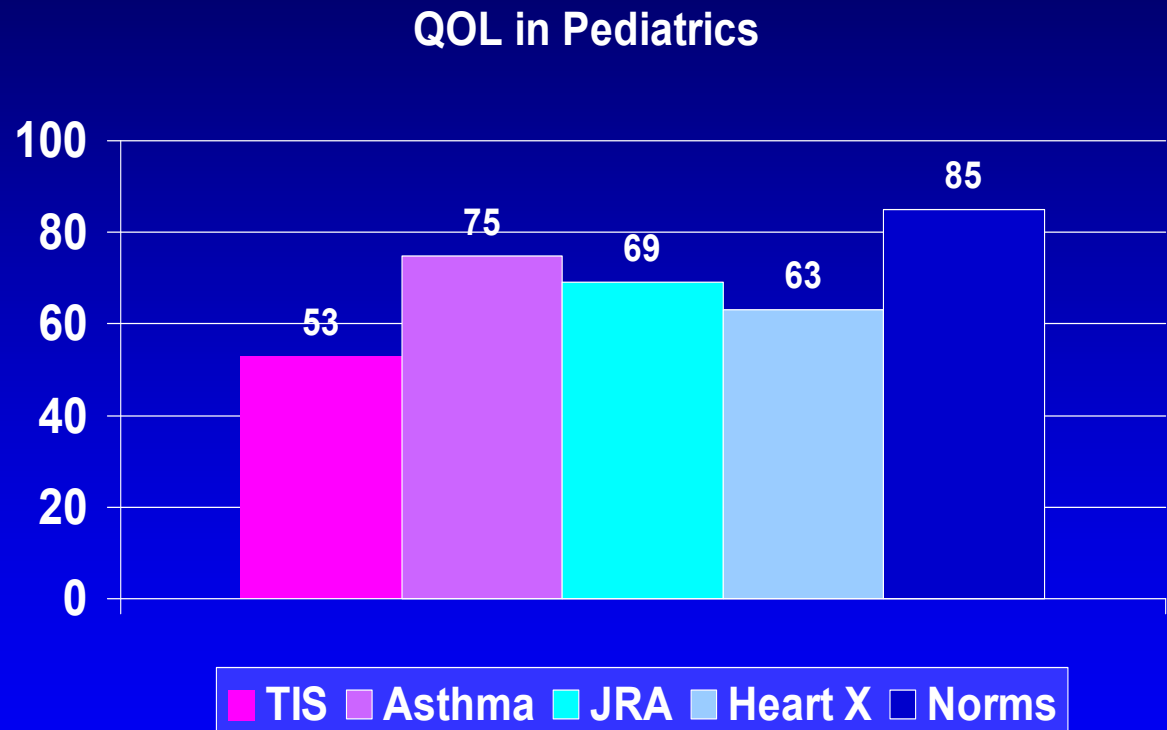
Early Spine Fusion is Associated with Adverse Pulmonary Outcome

- **Goldberg CJ, et al.** Respiratory function and cosmesis at maturity in infantile-onset scoliosis.
- **Emans JB, et al.** Earlier and More Extensive Thoracic Fusion is Associated with Diminished Pulmonary Function: Outcomes after Spinal Fusion of 4 or more Thoracic Spinal Segments Before Age 5.
- **Karol, L. et al.** The effect of early thoracic fusion on pulmonary function in non-neuromuscular scoliosis.
- **Vitale et al;** Retrospective Cohort Study of Pulmonary Function, Radiographic Measures and Quality of Life in Children with Congenital Scoliosis: An Evaluation of Patient Outcomes after Early Spinal Fusion

Quality of Life in Thoracic Insufficiency Syndrome

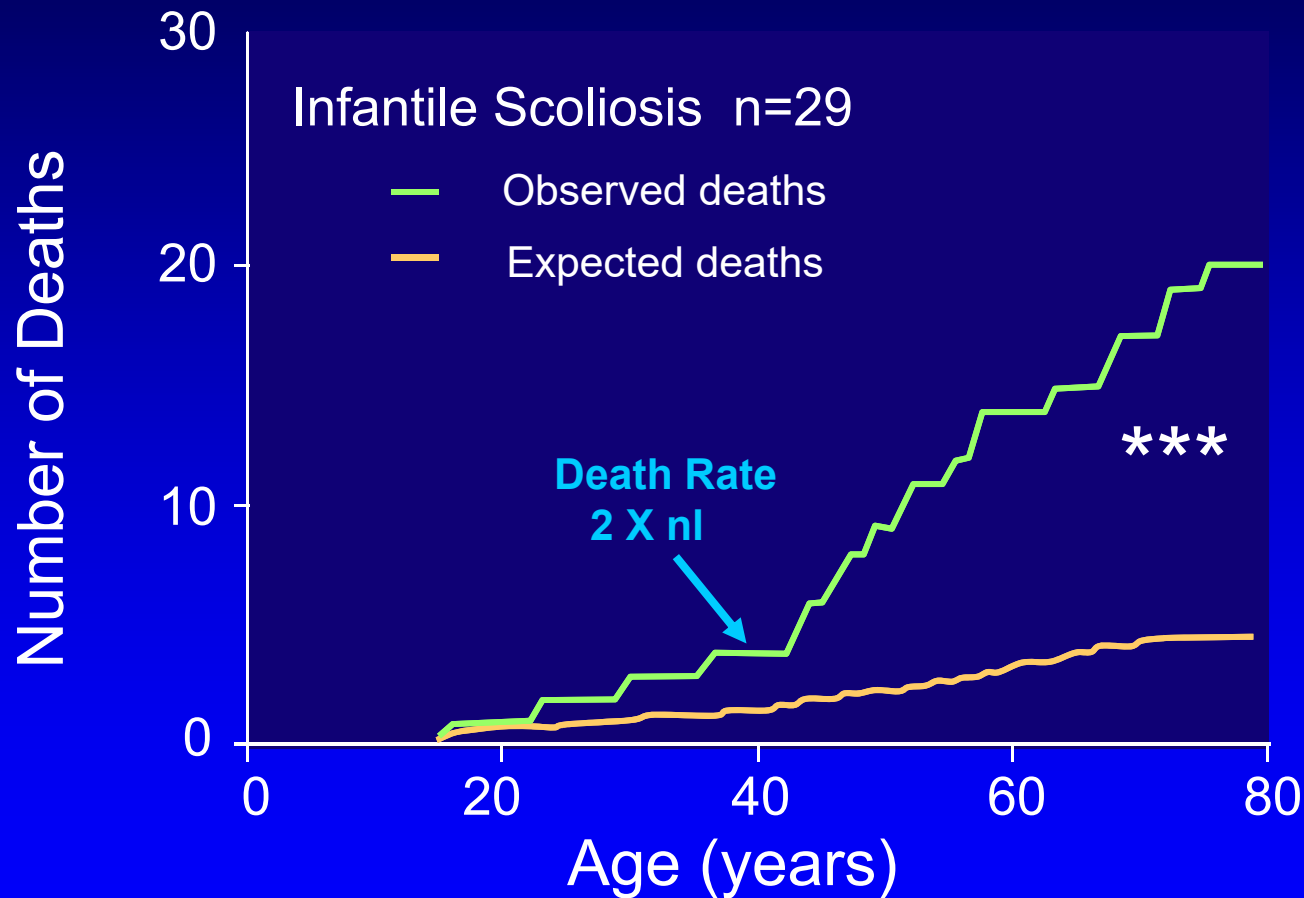
- These scores are among the **lowest observed in pediatrics**

- Asthma
- JRA
- Heart transplant



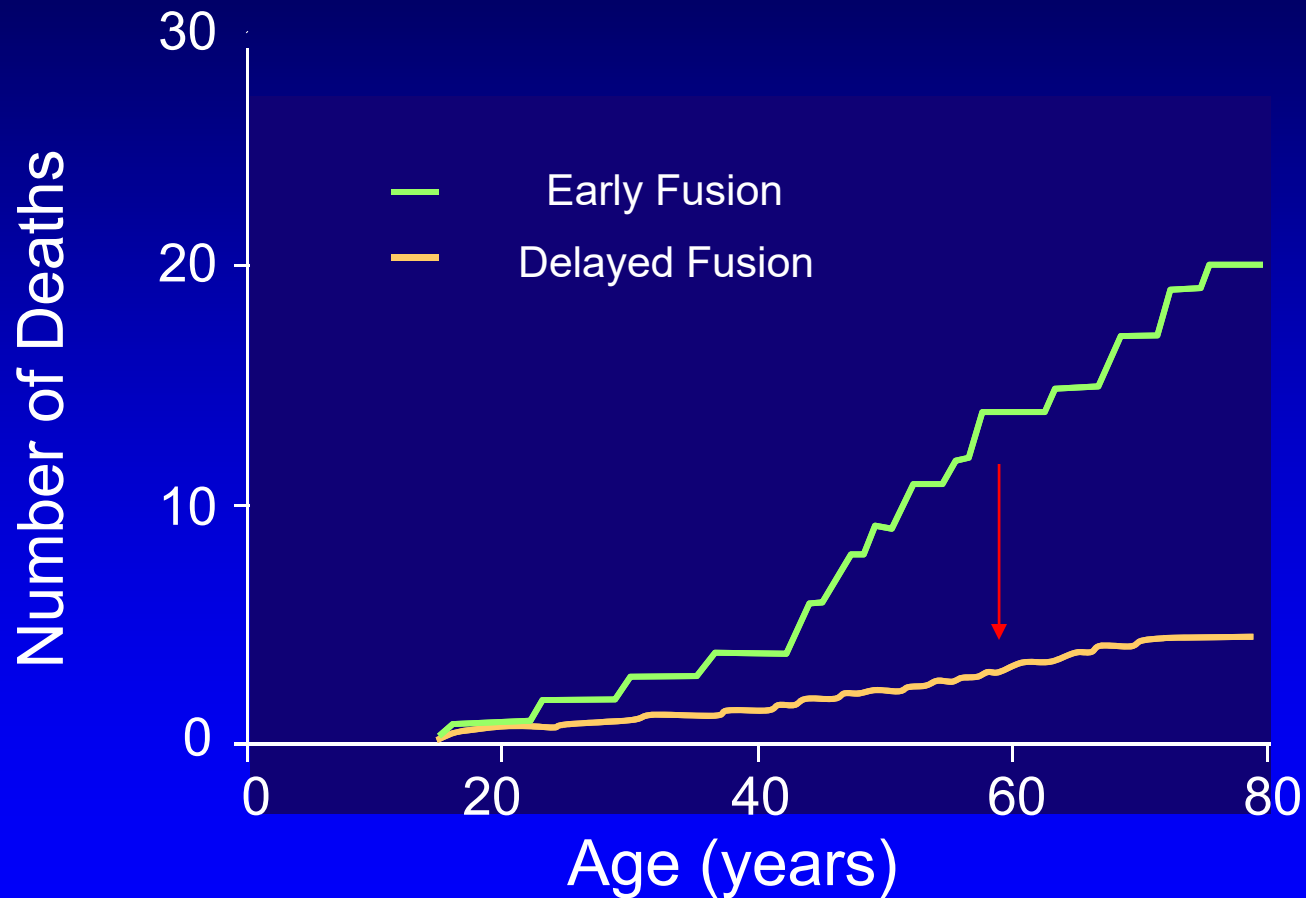
Natural History

Infantile Idiopathic Scoliosis



RCT: Natural History of EOS VS NonFusion

Natural Hx n=416
Growth Strategies/ Delayed Fusion N = 405



Vita ~~et al, NEJ~~, 2008

What We Don't Know

How to Behave in the Absence of Evidence

- **Eminence based medicine**
 - “I have always”
 - “you must”
- “you don’t need a RCT to prove that jumping out of an airplane without a parachute is a bad idea”

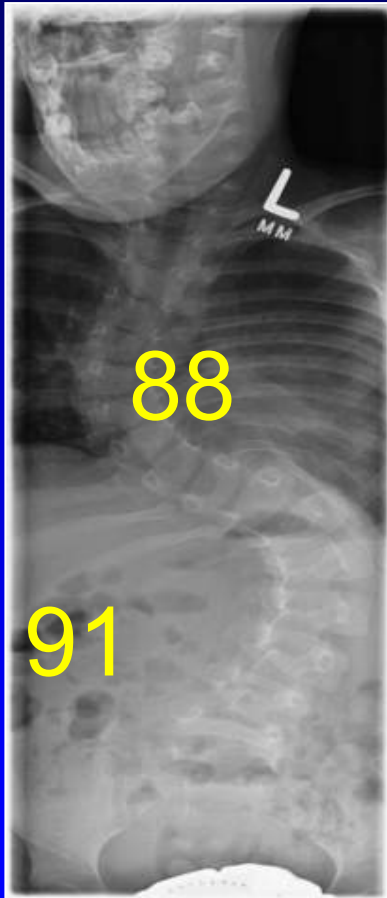
Skaggs 2007



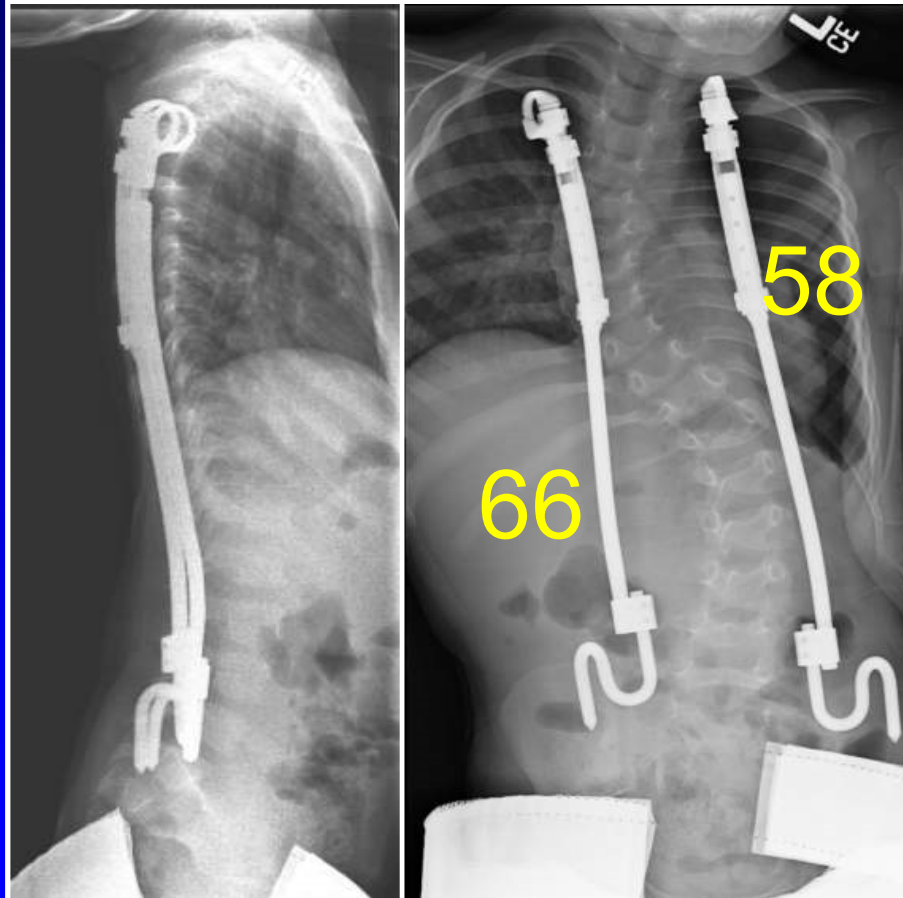
CDH- 6 months after Bilateral VEPTR

“Better lung function, fewer respiratory illnesses”

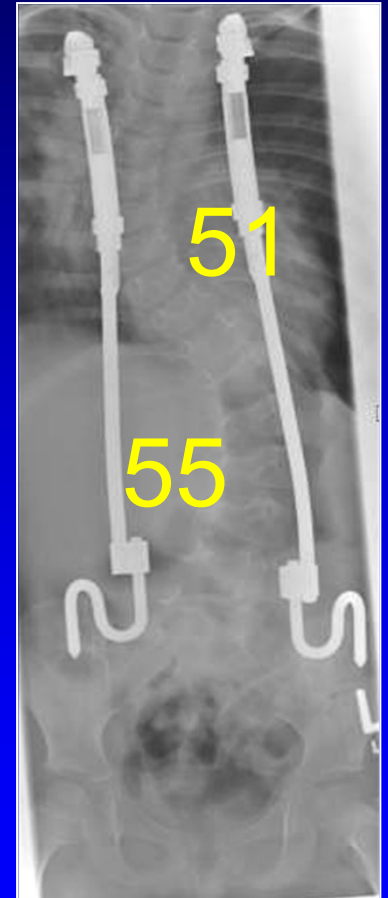
5/07



7/07



11/07

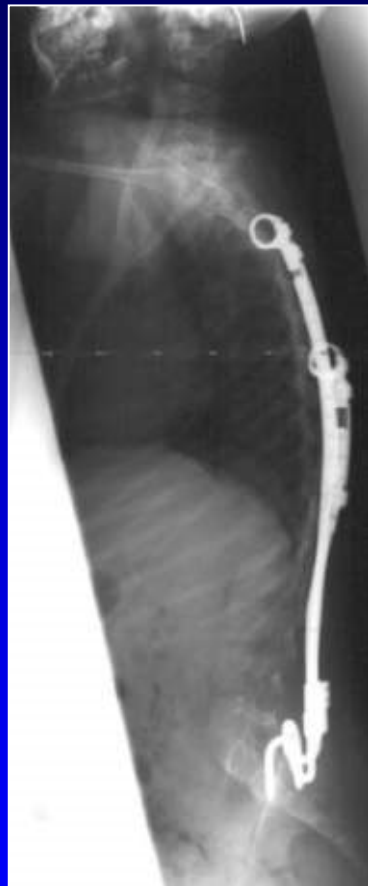


T1-S1: 216 mm

256 mm

266 mm

VEPTR in SMA Syndrome 7 yo male twins with SMA II



Both with Multiple Problems

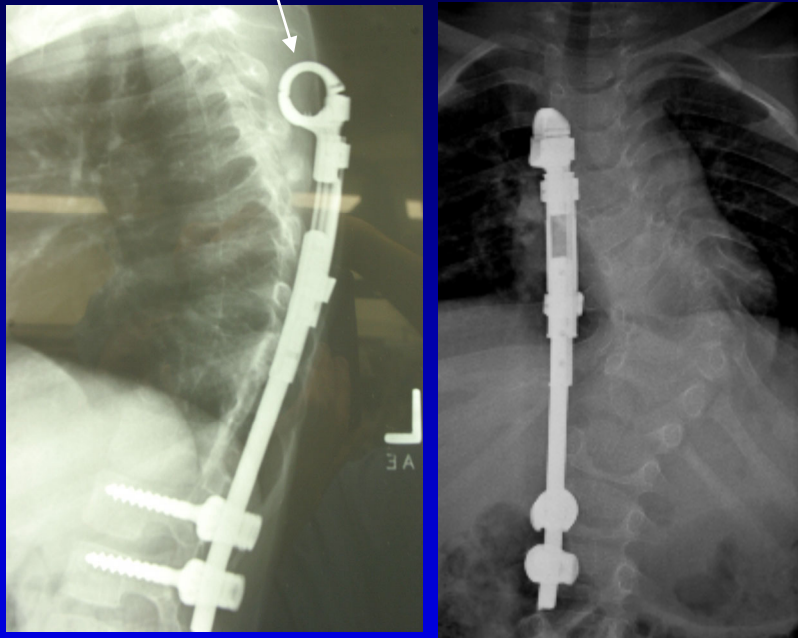


Status post
revision to
lumbar screws

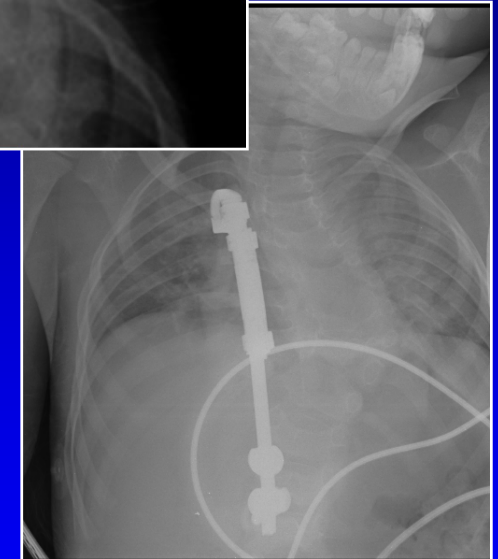
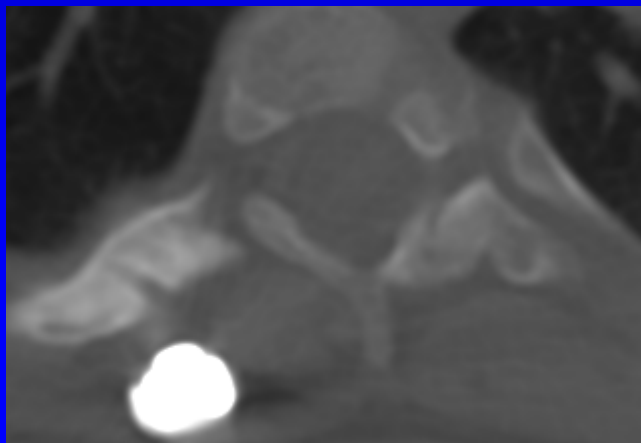
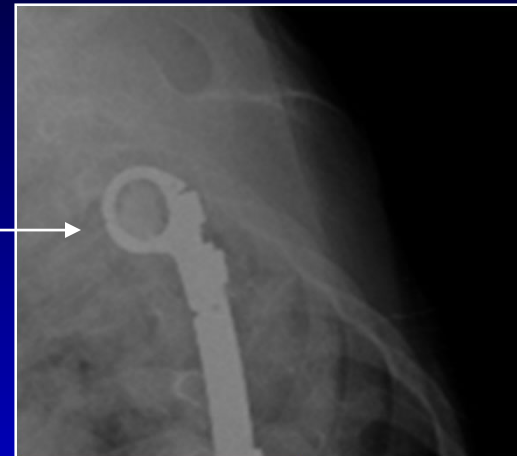
2.5 months later

“Complications” or “anticipated obstacle” ?

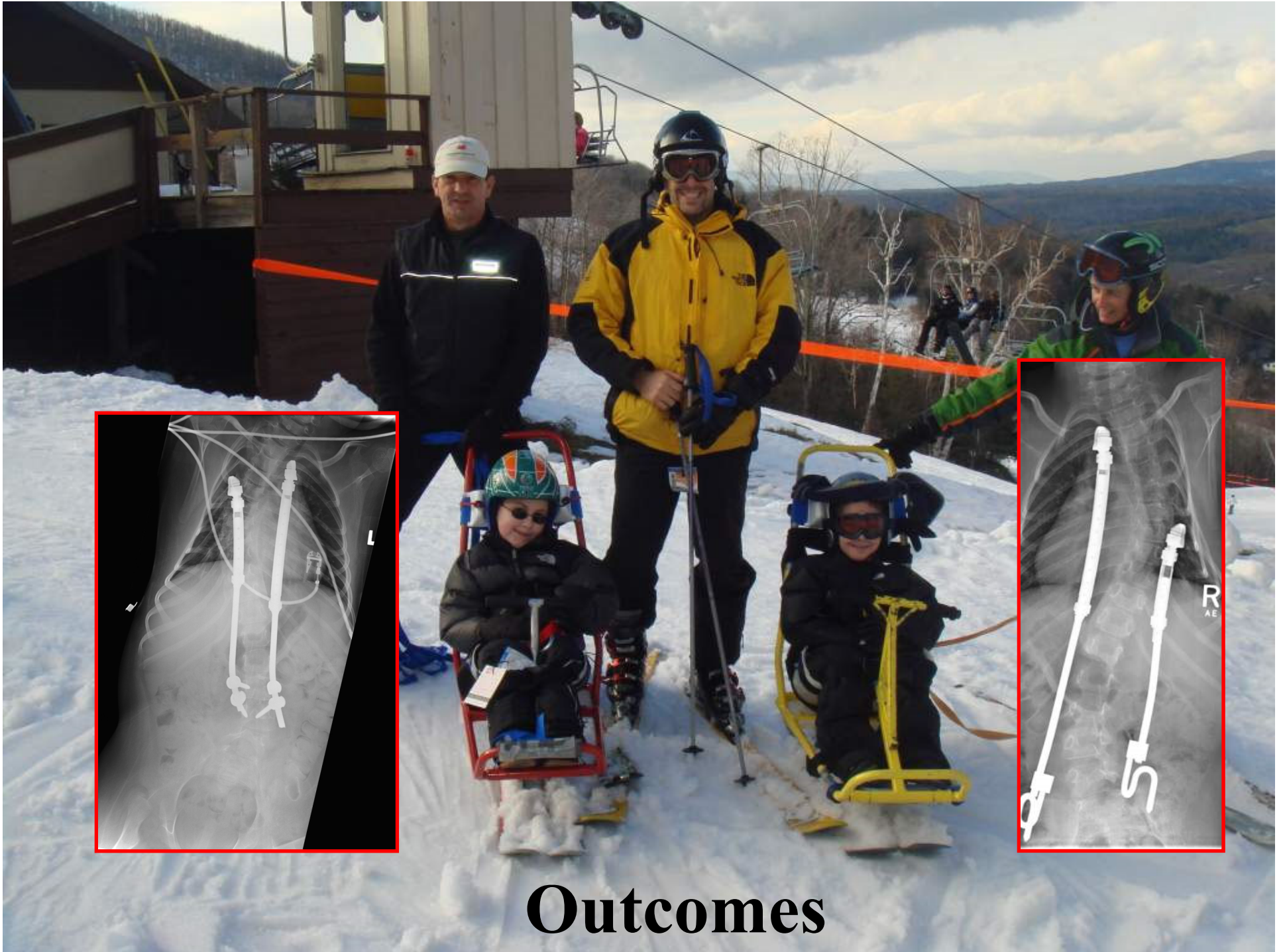
Empty
hole



filled



Joshua
3/26/08



Outcomes

What We Know

- **EOS can be a bad disease**
- **Outcomes in EOS are hard to measure**
- **Evidence is difficult to accumulate**
- **“Expert consensus plays an important role, especially in absence of rigorous evidence”**

Closing Thoughts

- “investigate...and suspend judgment... because we do not have the final truth.”

Pyrrho (4th-3rd c. B.C.) and the Skeptikoi

- “primum non nocere” vs Do Something (new)

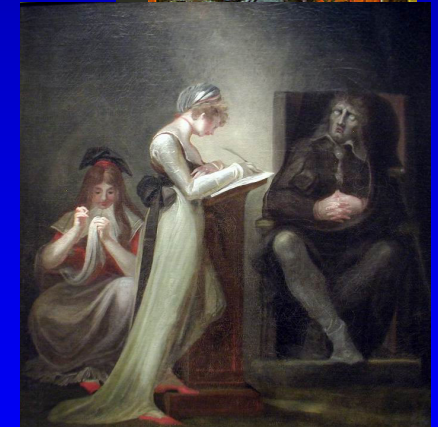
Hippocrates

- “...they also serve who stand and wait.”

John Milton – *On My Blindness*

- “absence of proof is not proof of absence”

W Cowper 1875



Thank You



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