

# The Northern Ireland Experience with Growth Rods: Improving significant scoliosis deformity

D Spence, D Fee, E Verzin, G McLorinan, A  
Hamilton, N Eames

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Belfast Health and  
Social Care Trust



# Background

- Northern Ireland
  - Regional spinal service in Belfast
  - Four spinal deformity/scoliosis surgeons
    - Mr Eames/Hamilton/McLorinan/Verzin
- Scoliosis surgery
  - Different operative techniques described
  - Since 2004 growth rods have been used

# Purpose of Study

- Questions to answer:
- (i) How much do growth rods improve scoliosis deformity?
- (ii) Does the improvement in Cobb angle continue with each lengthening?

# Materials and Methods

- Consecutive patients between June 2004 and October 2012
- Retrospective review of all notes and x-rays
- Cobb angles recorded

# Results

- 25 patients - 17 male, 8 female
- Diagnoses included infantile and juvenile idiopathic scoliosis, congenital, neuromuscular and other aetiologies
- Average age at surgery 6.6 years (range 2 – 12 yrs)

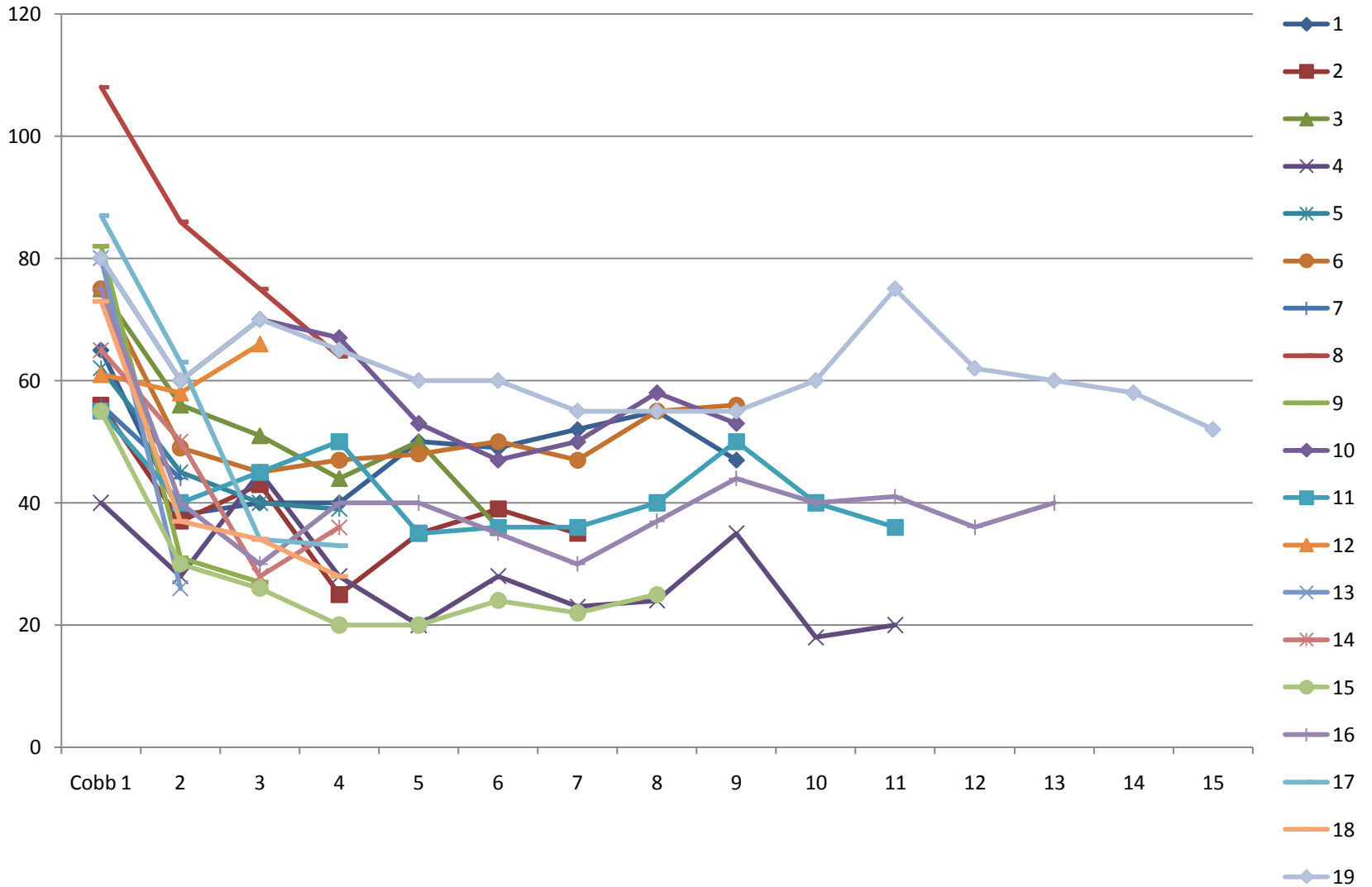
# Results

- Surgery
  - 9 pts had single growth rod (6 required conversion)
  - 15 pts had dual rods inserted primarily
  - 1 VEPTR
  - Levels ranged from T2 – L5 (hooks used superiorly in 12 cases)
  - Complications:
    - 2 broken rods and 1 rod cut out requiring revision

# Results – Cobb angles

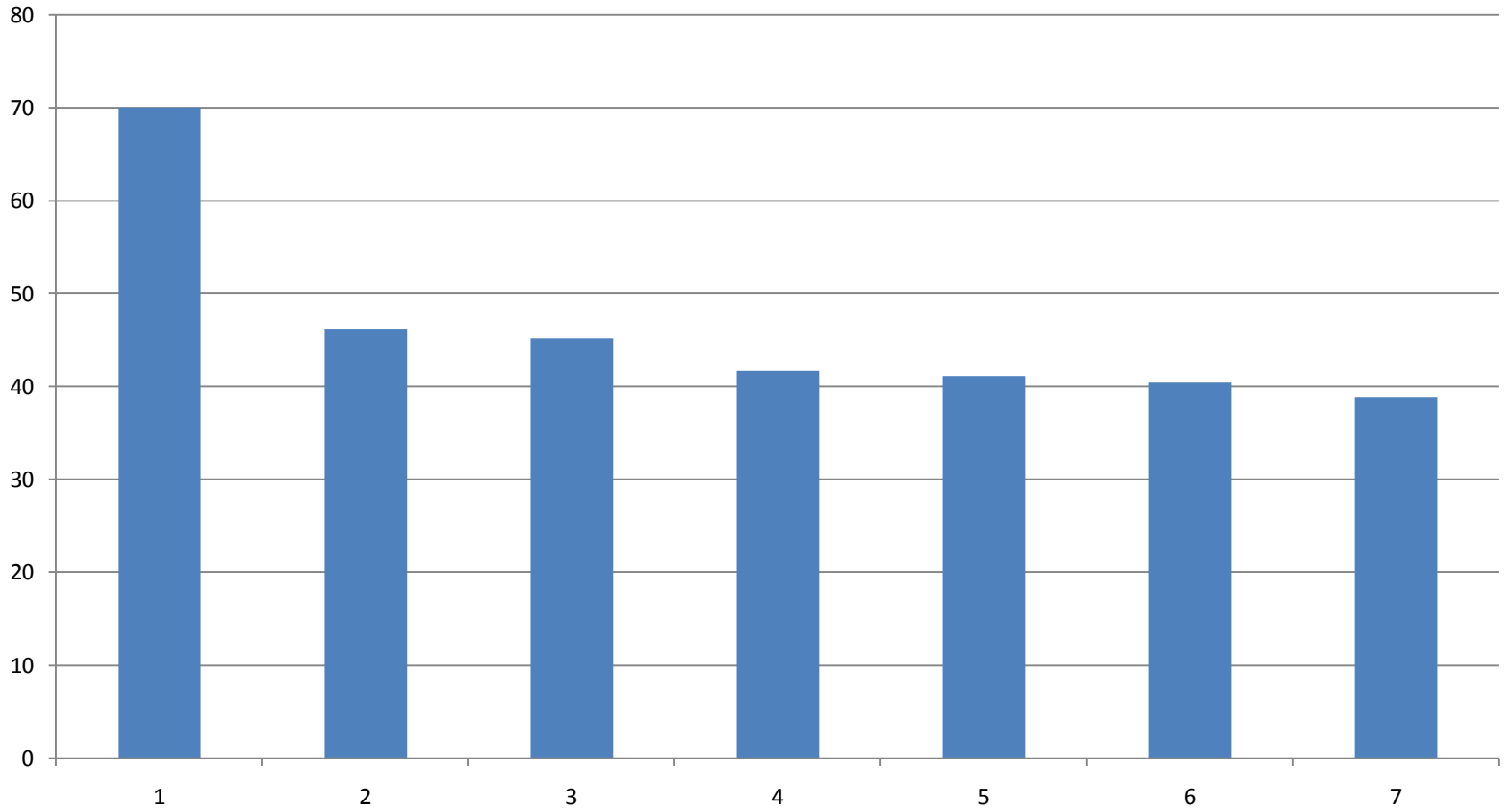
	Average Cobb angle	Cobb angle Range
Pre - op	70 <sup>0</sup>	40 <sup>0</sup> - 108 <sup>0</sup>
Post op	44 <sup>0</sup>	26 <sup>0</sup> - 74 <sup>0</sup>
Last review	40 <sup>0</sup>	19 <sup>0</sup> – 66 <sup>0</sup>

# Cobb angle vs Time





# Average Cobb angle vs Review



# Conclusions

- Questions to answer:
- (i) How much do growth rods improve scoliosis deformity?
- Answer: From  $70^{\circ}$  to  $40^{\circ}$  on average  
Therefore by 43% on average

# Conclusions

- Questions to answer:
- (ii) Does the improvement in Cobb angle continue with each lengthening?
- Answer: Yes, but the majority occurs at the initial lengthening procedure

# Key messages

- Growth rods can dramatically improve significant scoliosis deformity, with dual rods our preferred technique
- The use of growing rods in the immature spine is a safe and effective method for improving and maintaining the corrected Cobb angle, in the Northern Ireland population

None of the authors has any potential conflict of interest

*Thank you*