



VEPTR

Are we reducing respiratory assistance requirements at two years?

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Authors Disclosure

- **S. Nossov:** None.
- **R.M. Campbell:** None.
- **O.H. Mayer:** None.
- **J.T. Smith:** Biomet, Children's Spine Foundation, Globus Medical, Spineguard, Depuy, A Johnson & Johnson Company.
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- **C. Study Group:** Children's Spine Foundation, DePuy Synthes.





VEPTR for TIS and pulmonary status

- Goals of treatment: improve QOL by improve clinical pulmonary status and halt curve progression.
- Are we reducing respiratory assistance requirements for kids with EOS and TIS at two years after VEPTR treatment?

	Assisted Ventilation Rating (AVR)
0	No assistance, on room air
1	Supplemental oxygen required
2	Night-time only ventilator/cPAP support
3	Part-time ventilator/cPAP support
4	Full-time ventilator support



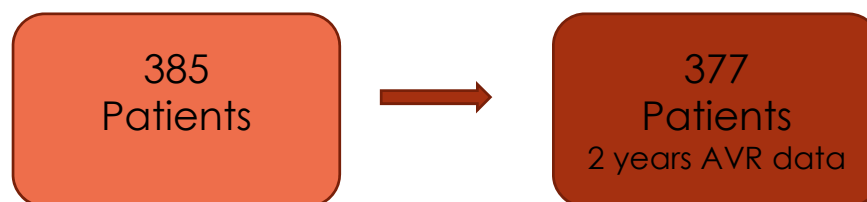


Multicenter Registry





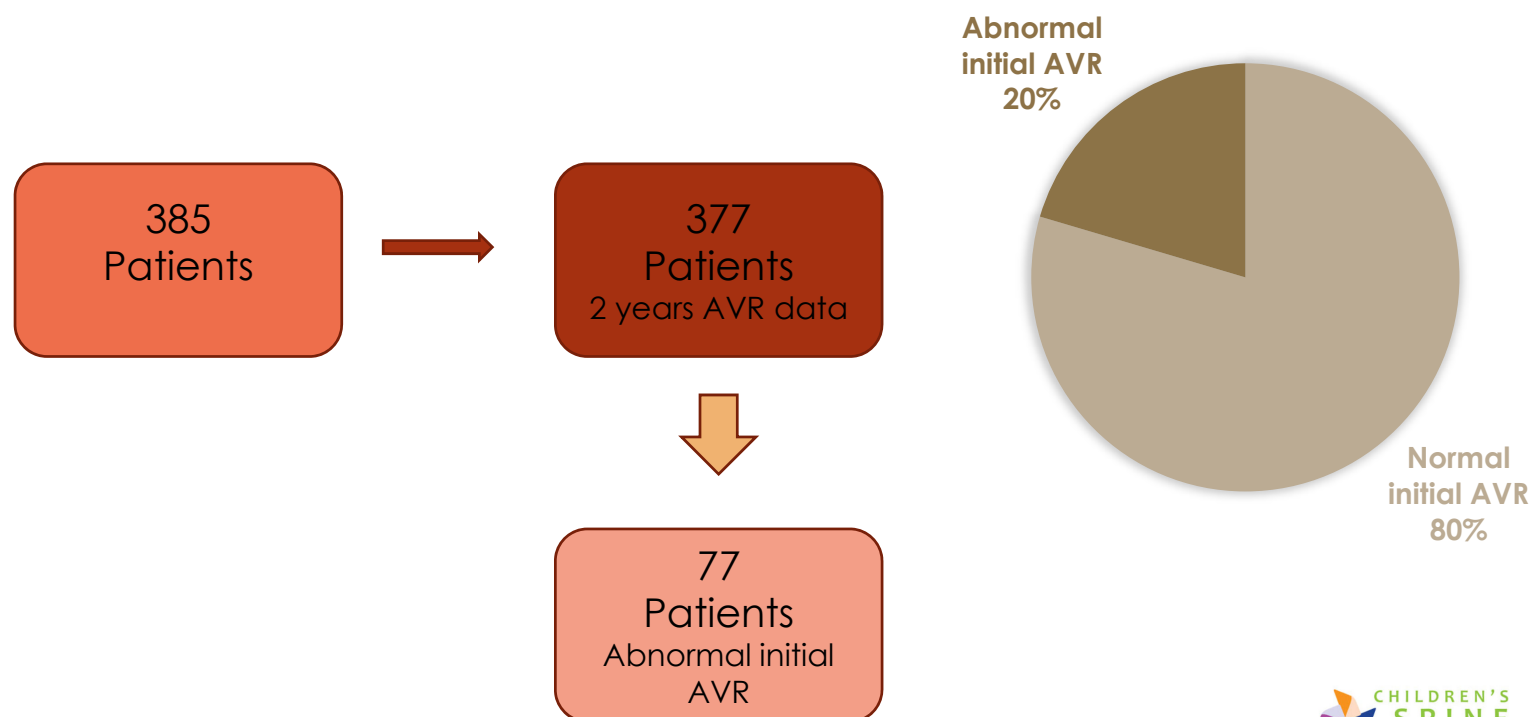
Database query



- Initial VEPTR at age under 10 years old for treatment of TIS
- 2 years of follow-up
- AVR data available



Finding abnormal AVR

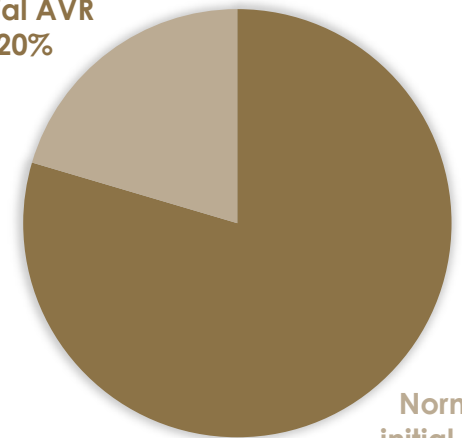




Sidebar: Normal AVR

- < 10 at initial VEPTR & AVR = 0 (on room air)
- 300 patients
 - 98 congenital with fused ribs
 - 54 Idiopathic juvenile/infantile
 - 31 congenital without fused ribs
 - 20 myelomeningocele
- 281 remained stable at room air (all but one idiopathic)
- 19 worsened (6.3%)
 - CP (4), SMA (3), Congenital with fused ribs (3)

Abnormal
initial AVR
20%



Normal
initial AVR
80%

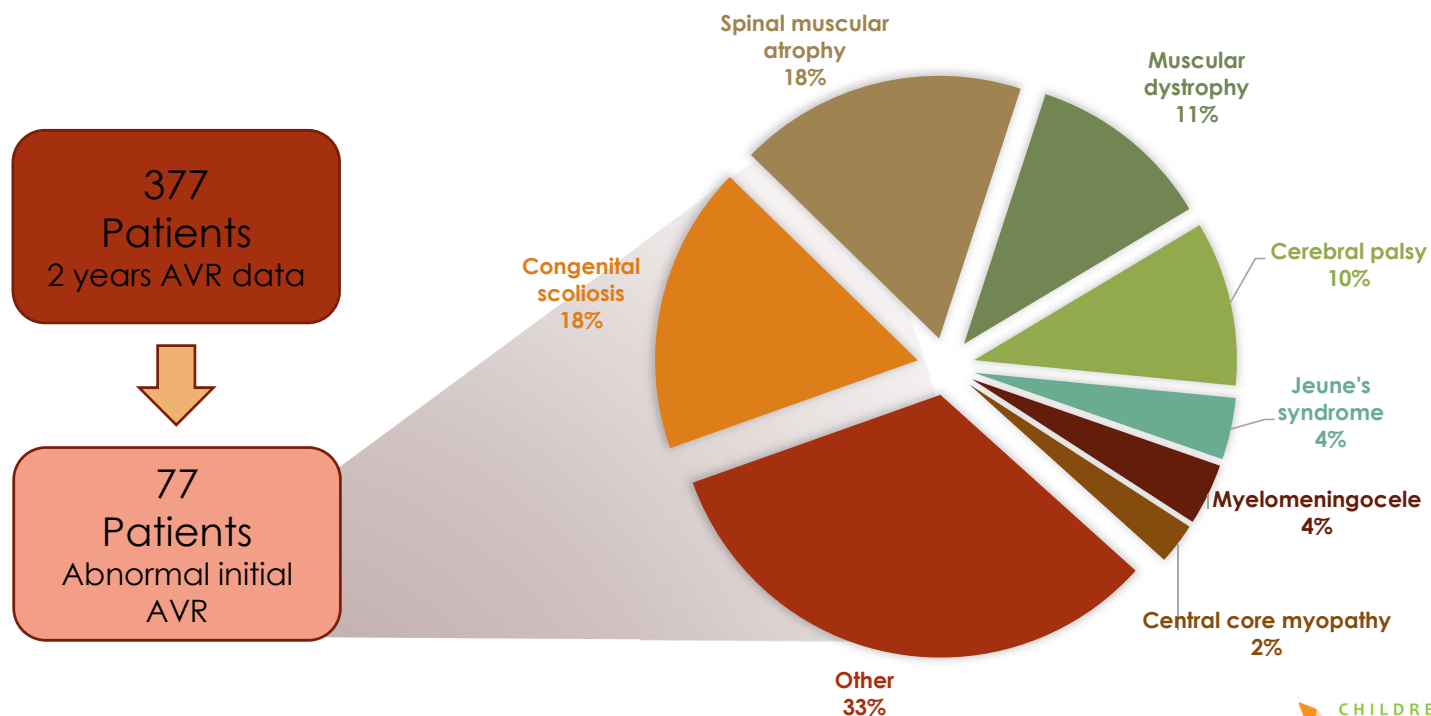
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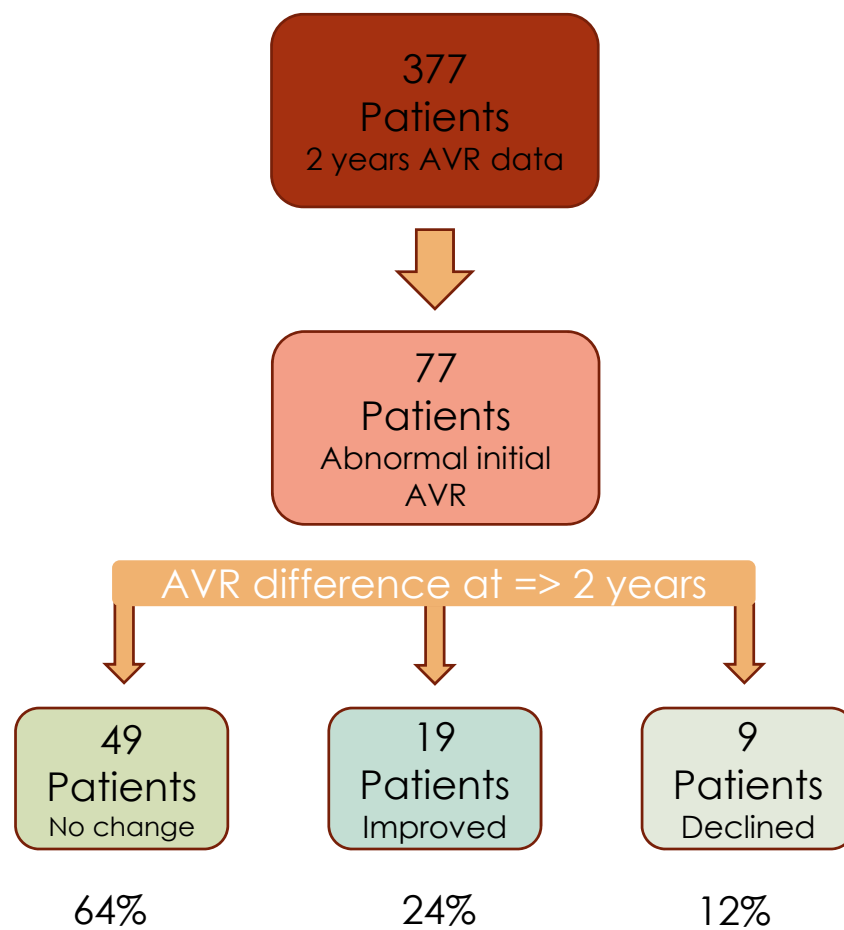
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of Philadelphia

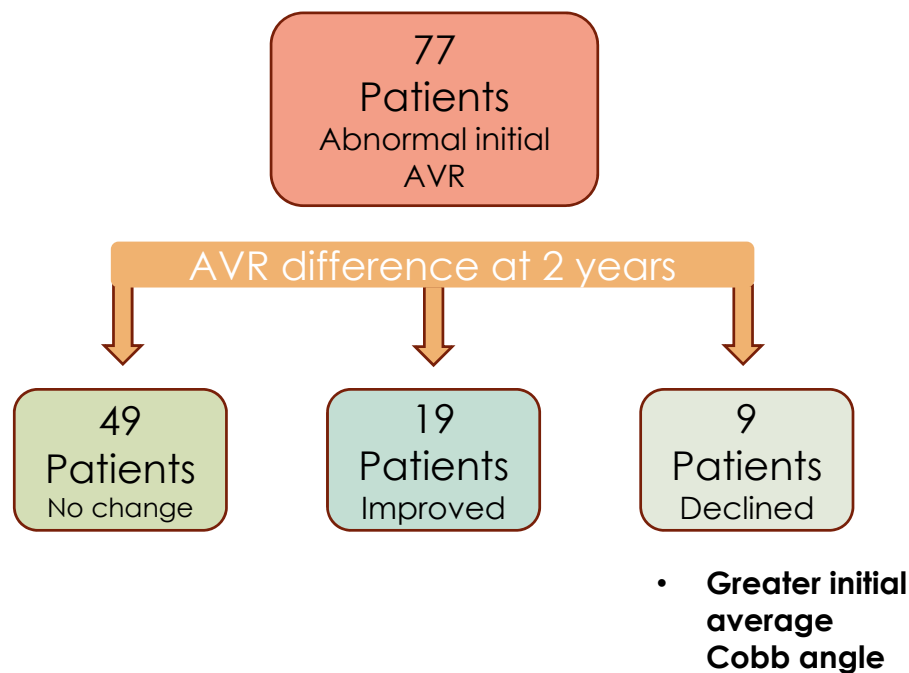


Finding abnormal AVR

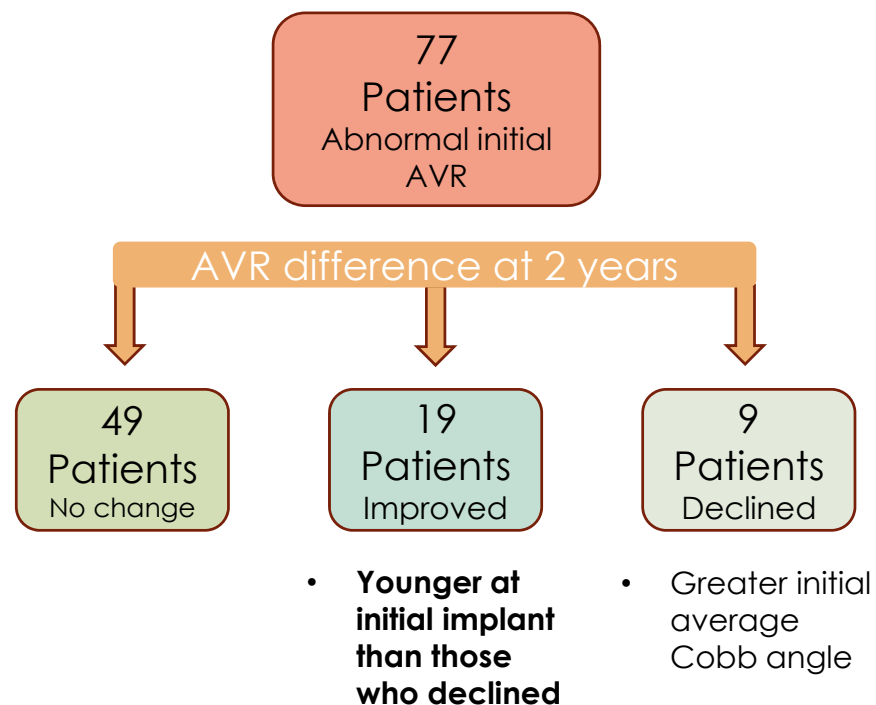


Improvement defined as a decrease in AVR of one level.
Note that an AVR of 0 (room air) does not exclude TIS.

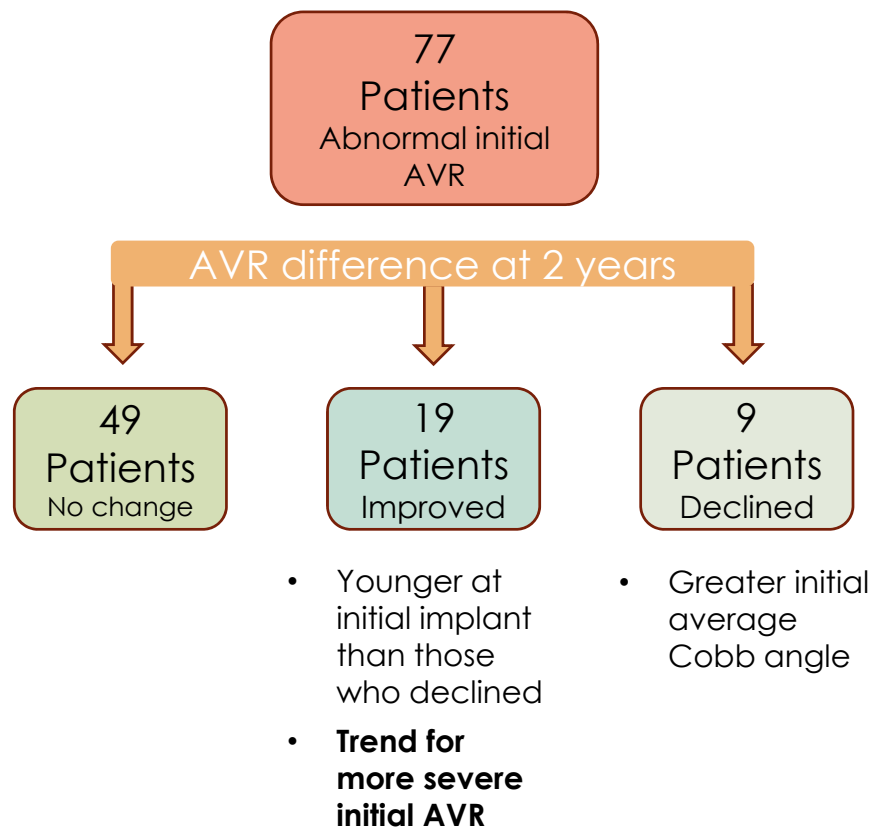




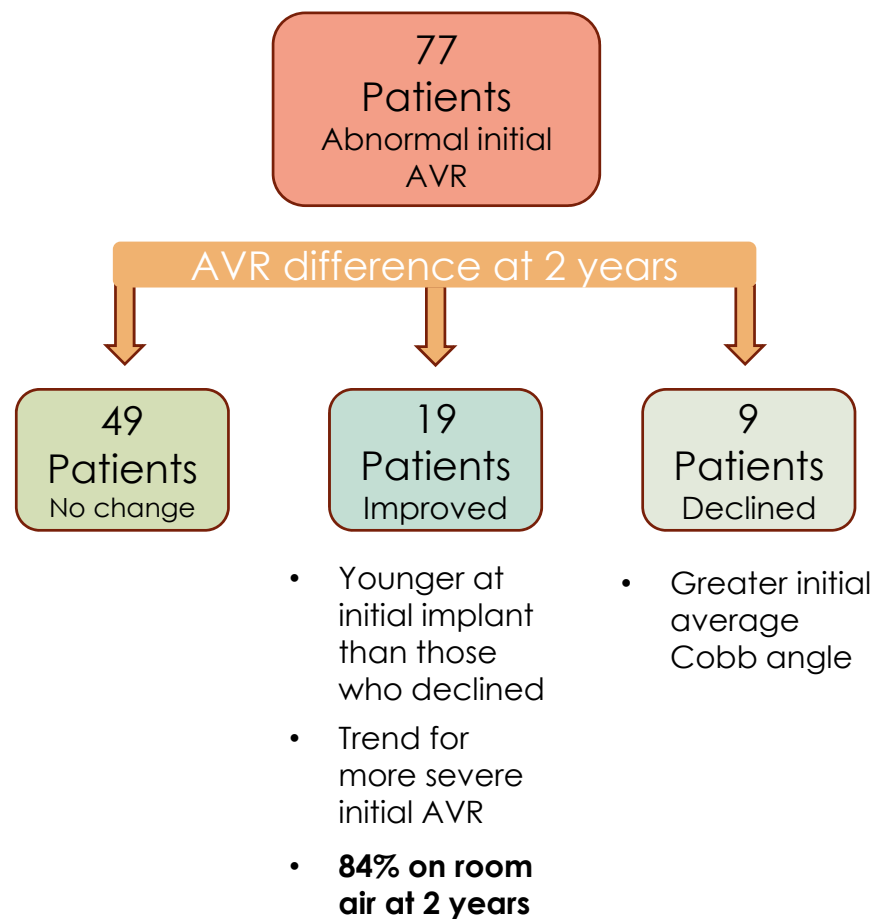
Initial average Cobb angle in those with improvement (58.4°) and those with no change (63.5°) was less than in those with deterioration (85.5°) ($p=0.014$).



The average age in years at implant of those with improvement (3.3 years) was less than those with negative (6.1 years) [$p < 0.01$] and no change (4.8 years).



The positive change group had 25% of the most severe initial AVR score (4 – full time ventilation) compared to negative change group (0%) and no change group (20.4%).



16 of the positive changes (84.2%) then resulted in a normal AVR at last follow-up and 3 on part time ventilation support.



VEPTR for TIS and pulmonary status

- Are we reducing respiratory assistance requirements for kids with EOS and TIS at two years after VEPTR treatment?

YES

At two years post-op, patients with EOS & TIS with initial VEPTR before age 10:

- 88% had stable or improved AVR
- 24% or roughly 1:4 had improved AVR
- The majority of those who improved (83%) demonstrate a resolution of pulmonary support.





Thank you

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