



Children's Hospital Colorado
Orthopedics Institute

**ORTHOPEDICS
INSTITUTE**

Wound Complications of VEPTR Incisions

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Disclosure

- B) Consulting - DePuy Synthes Spine – teaching at educational course for residents
- LaGreca – none
- Gao – none
- St. Hilaire – none
- Glotzbecker – A) Synthes, via CWSDRF
- Li – none
- Smith – A) CWSDRF B) Synthes F) Synthes
- Flynn – F) Biomet, Wolters Kluwer Health – Lippincott Williams & Wilkins
- Sawyer – F) Mosby, Wolters Kluwer Health – Lippincott Williams & Wilkins
- Vitale – A) Synthes B) Biomet, Stryker F) Biomet
- El-Hawary – A) DePuy, Medtronic B) DePuy, Halifax Biomedical Inc, Medtronic, Synthes
- Flynn – none

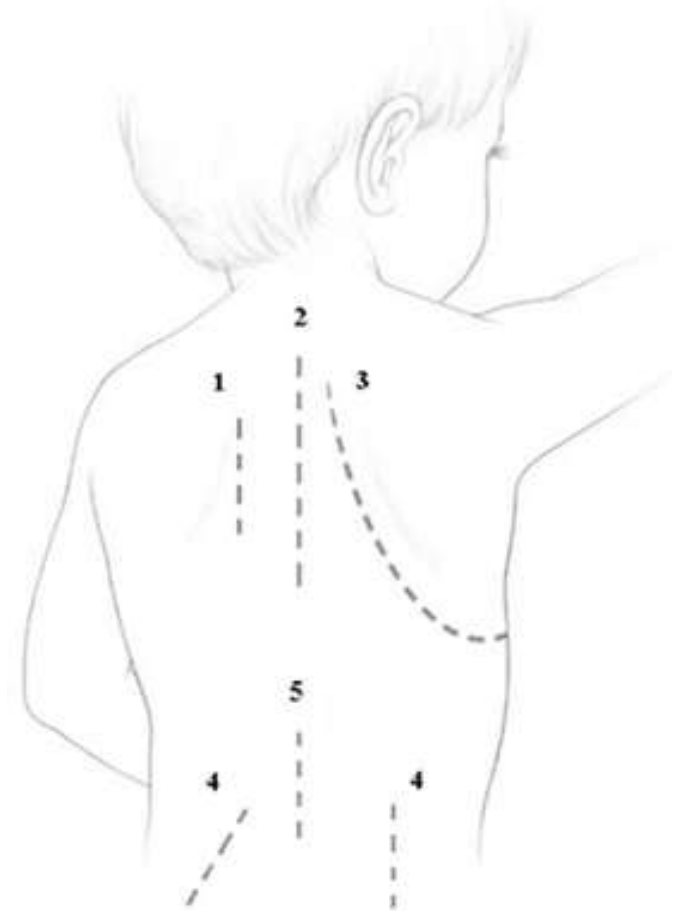
Introduction

- VEPTR requires repetitive surgery using multiple incisions
- VEPTR has high reported rates of wound complications



Study Questions

1. Do repetitive incisions increase the risk of wound infection?
2. Do incisions from previous surgeries increase the risk for wound infection after VEPTR implantation?
3. How do the rates of wound infection compare between different locations of VEPTR incisions?





Methods

- Multicenter retrospective review
 - 9 participating institutions
- Inclusion Criteria:
 - Minimum 4 expansion procedures
 - 20 most recent patients treated with VEPTR from each institution
 - Wound complication requiring return to the OR
- Outcome Variables
 - infecting procedure (implant vs. expansion vs. revision), time to infection, total incisions prior to infection, total incisions per incision type

Final Study Cohort: 103 subjects



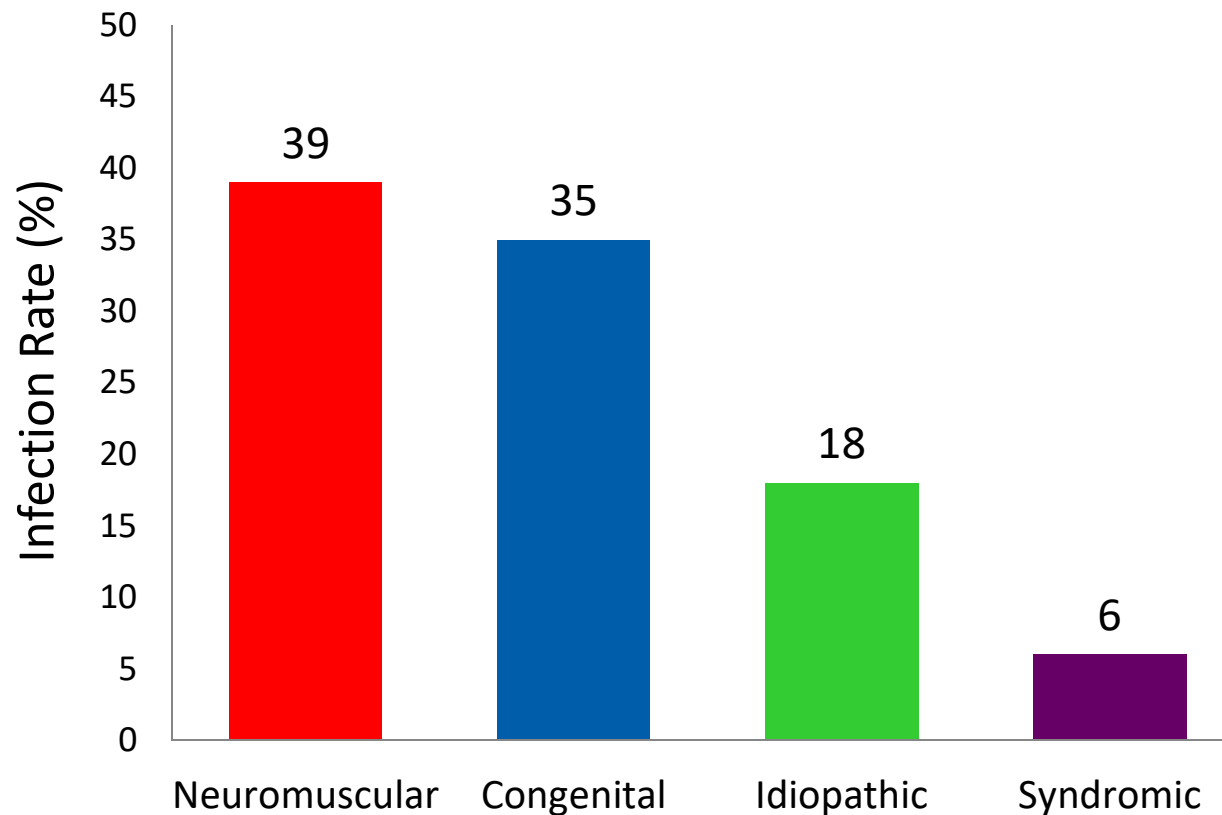
Infection Rate

- **Infection Rate: 24%**
 - 25/103 patients developed infection during VEPTR treatment
 - 6 with multiple infection events



Patient Diagnosis

- There was a **significant** difference in rate of infection among diagnoses ($p=0.048$)





Deformity Magnitude

- There was **no significant** difference in average preoperative Cobb angle between infected (68°) and non-infected patients (62°) ($p=0.17$)



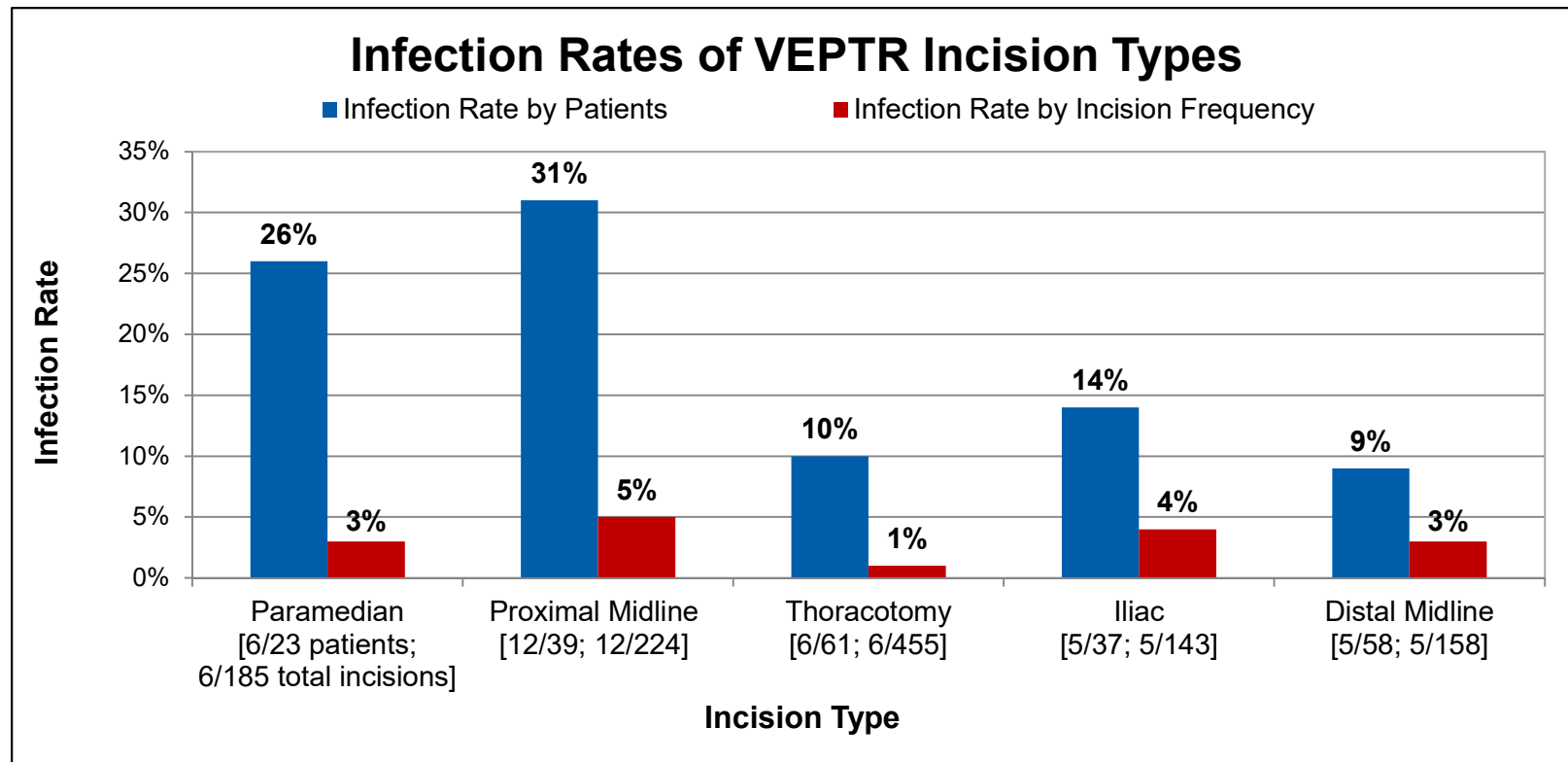
Infection by Procedure

- Rate of infection per procedure was **significantly** lower for expansion procedures when compared to implantation (rate ratio 4.3, $p=0.001$) and revision procedures (rate ratio 2.7, $p=0.029$)

Per Procedure Infection Rates		
Procedure	Rate	95% CI
Implant	9.7%	4.9 - 17.3
Revision	6.0%	2.9 - 11.0
Expansion	2.3%	1.3 - 3.6

Infected Incision Types

- There was ***no significant difference*** in the rate of infection between the incision types ($p=0.0695$)





Infections and Number of Incisions

- On average patients with infection had **significantly** more incisions at the paramedian and proximal midline incision sites (p=0.048; p=0.05)

Average Number of Incisions per Incision Type and the Presence of Infection				
Incision Type	Infection	N Observations	Mean Number of Incisions	p-value
Paramedian	No	21	6.5	0.048
	Yes	5	11	
Proximal Midline	No	36	4.9	0.05
	Yes	7	8.8	



Prior Incisions

- There was **no significant** increased rate of infection in patients *with* surgical incisions prior to VEPTR treatment

Prior Incisions and Infection			
	Prior Incision(s)		
Infection Status	Yes	No	Total
Infected	6	19	25
Not Infected	17	61	78
Total	23	80	103
Percent Infection	26%	24%	



Conclusions

- Infection rates for patients with VEPTR surgery may be influenced by the **number** of times incisions are opened, rather than **where** they are made
- Incidence of infection was **not significantly different** across the various incision locations
- There was **no significant** increased rate of infection in patients *with* surgical incisions prior to VEPTR treatment, compared to patients *without* surgical incisions prior to VEPTR.



Recommendation

Surgeons should utilize the most appropriate incision in relation to their patient's pathology when using VEPTR



Thank You

