Surgeon Experience Does Not Reduce Complications Associated With VEPTR Surgery In Early Onset Scoliosis

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Disclosures

- John T. Smith
  - Depuy Synthes Spine: Consultant, Royalties
  - Spineguard: Consultant
  - Ellipse Technologies: Consultant (wife)
  - Board member: Children's Spine Foundation
- Man Hung: nothing to disclose
- Heather Fillerup: nothing to disclose
- Jessica Morgan: nothing to disclose

Early Onset Scoliosis
Thoracic Insufficiency Syndrome

- Many etiologies
- Complex deformities
- Multiple co-morbidities
- May need repetitive surgeries
- VEPTR is one option
- Complications are common

Question

- Does surgeon experience over time reduce the number and severity of complications associated with VEPTR surgery?

Hypothesis

- Surgeon experience reduces the incidence of complications associated with the management of TIS with VEPTR

Study Design

- IRB Approved Retrospective Study of GSF Database
- Single surgeon (JTS)
- 10 year experience (2003-2012)
- Demographics and Diagnosis
- Complications documented and classified
- Statistical analysis to examine the association between the rate of complications and surgeon experience (Poisson generalized estimating equation regression model)

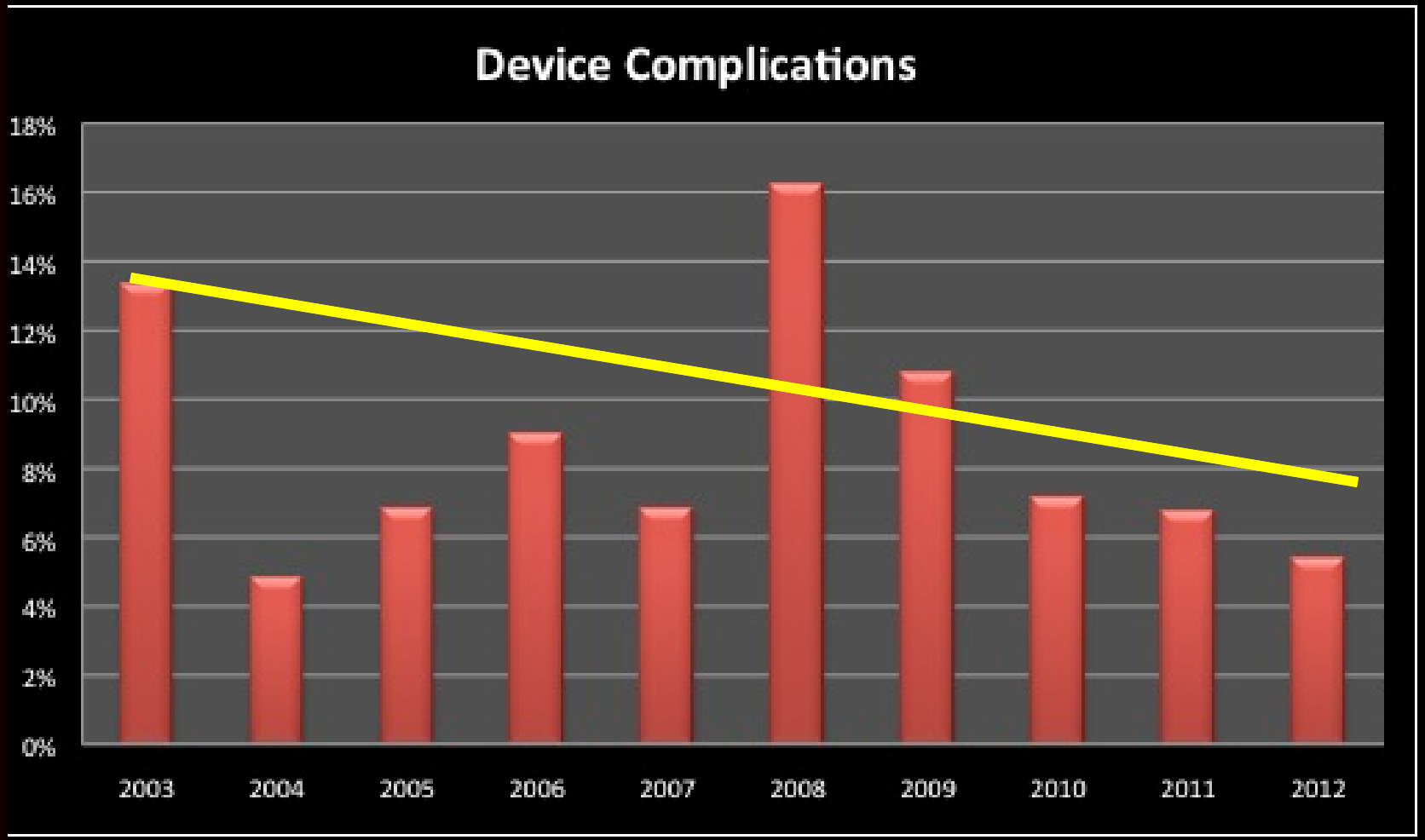
Results

- 95 patients had 916 surgeries
- Average 11.5 surgeries/patient (2-25)
- 173 complications (2.35/patient)
- 16 patients had none; one patient had 15.

Results

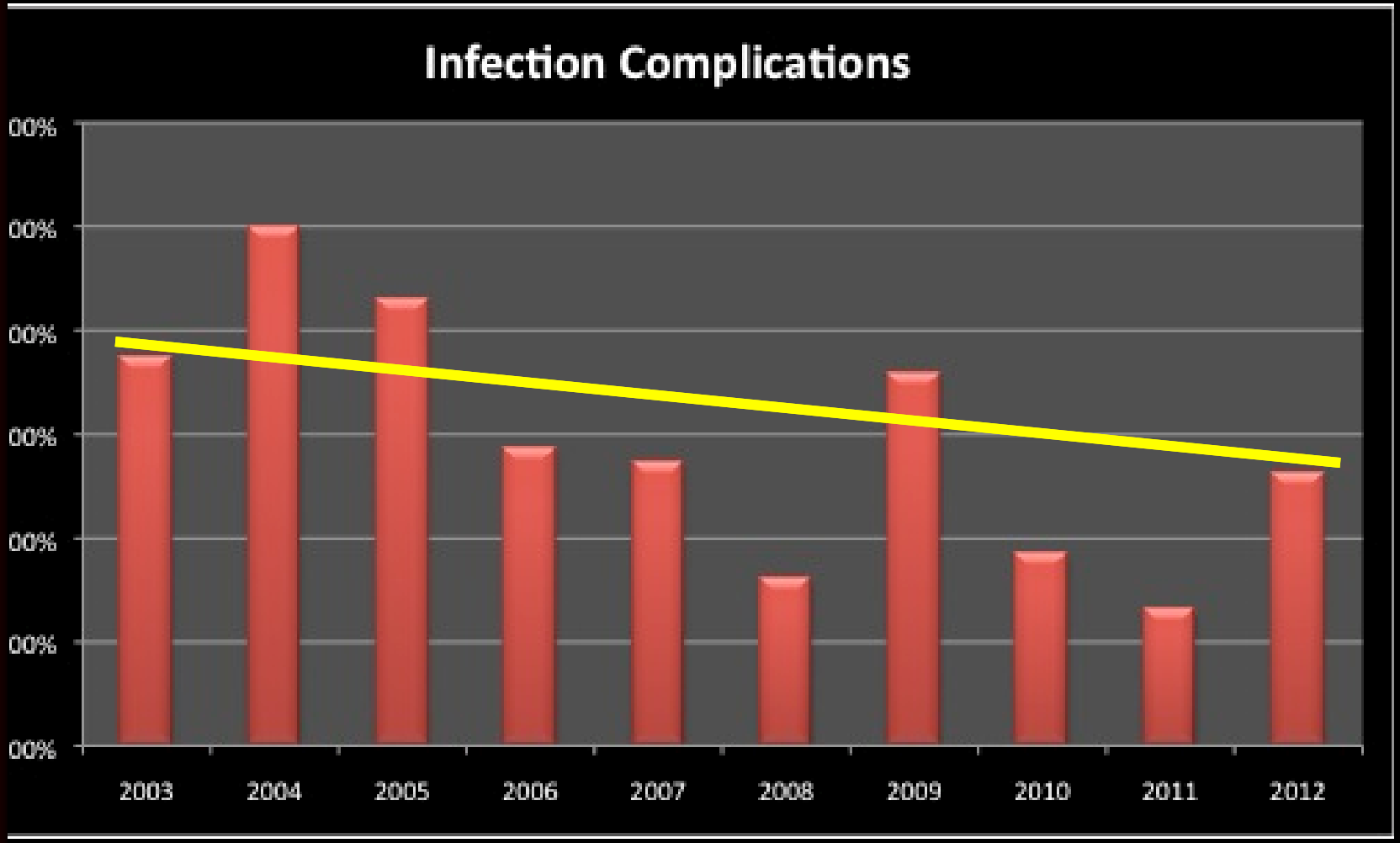
- Classification:
  - *Device* related: 77
  - *Disease* related: 96
- Device related complications remained steady at 8.6%/year
- The rate of complications did not decrease with increasing number of surgeries: (r=0.028; p=.831)

Device complications over time



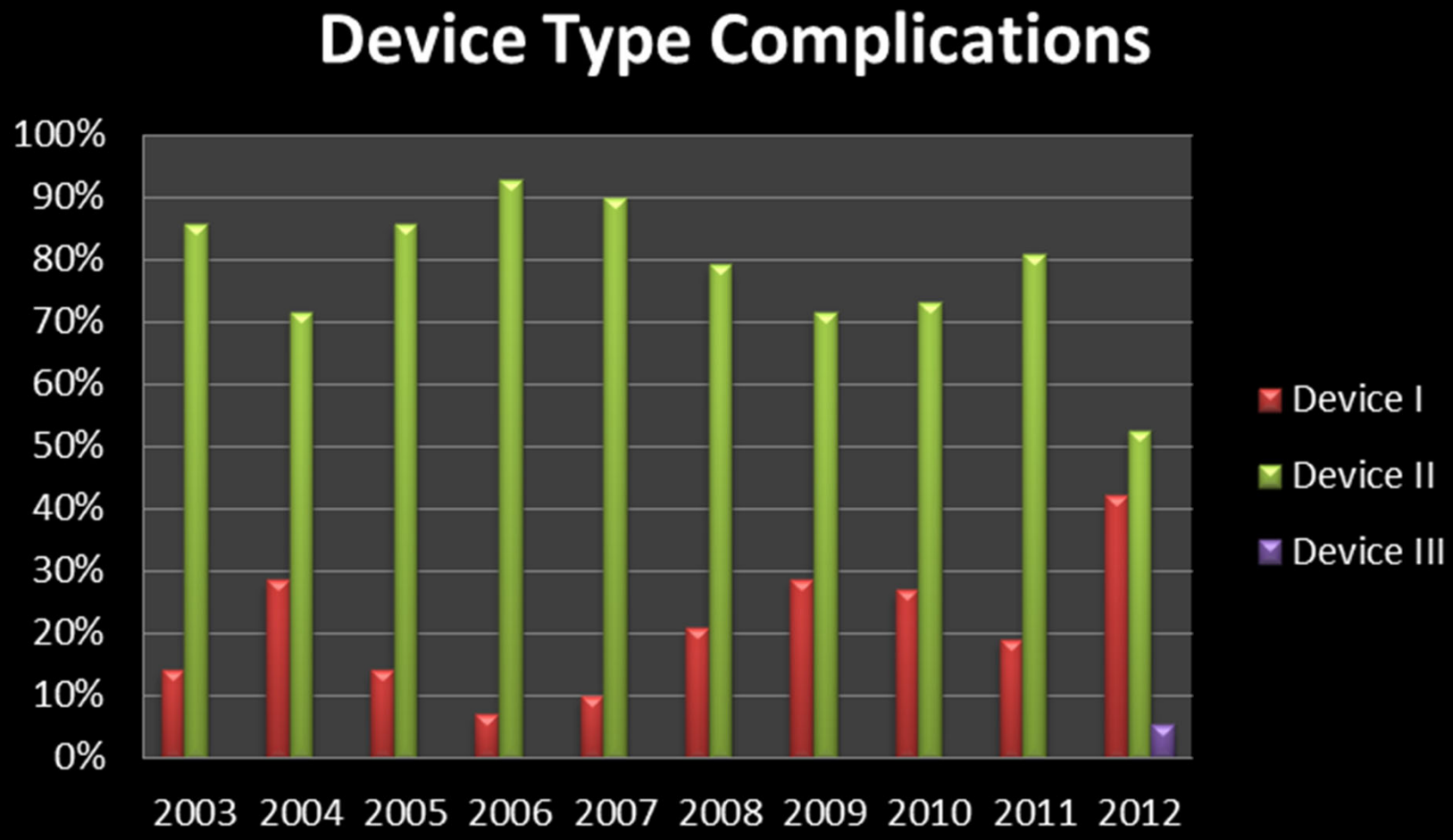
Trend did not reach statistical significance: p=0.071

Infection over time



Trend not statistically significant

Complications by grade



Assumption: Surgeon experience reduces complications in repetitive surgery

- Reduced operative time
- Improved skill
- Smaller incisions
- Better construct choices
- Improved management of co-morbidities
- There is little data to support these assumptions….

Patients with TIS that require VEPTR surgery

- Diverse, complex population
- Significant burden of disease
- Many co-morbidities
  - Poor bone quality
  - Poor nutrition
  - Frequent hospitalizations
  - Many, many others

Disease Severity

- Contributes to the risk of both disease and device related complications over time
- Repetitive surgery does not reduce this risk
- Management of the disease and surgeon experience does not seem to reduce the incidence of complications

Conclusions

- Complications related to treatment of TIS with VEPTR are common
- Surgeon experience over a 10 year period resulted in a 2-3% per year reduction in the incidence of complications over time.
- Inherent disease factors ***may*** be more important than the skill of the surgeon in the occurrence of complications

…and I thought I was really good at this….

Thank you!