

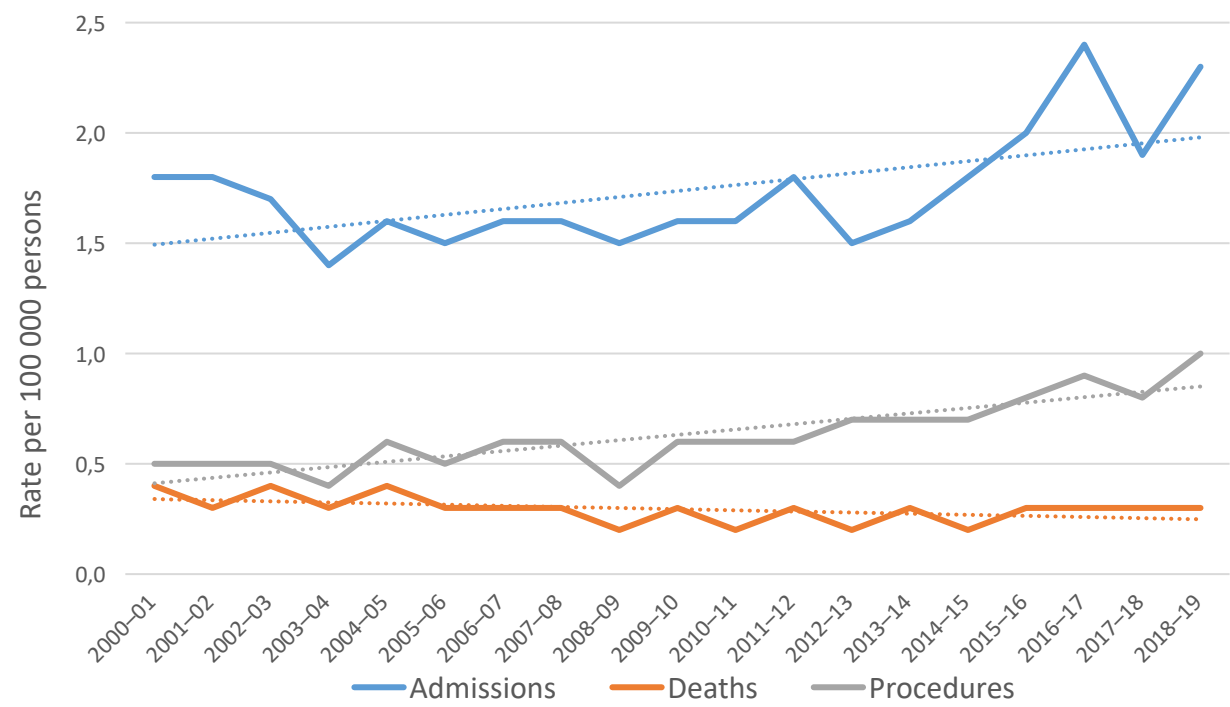
False lumen thrombosis and pressure predicts outcome in patients with acute type B aortic dissection

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Samantha Richards, Lachlan Kelsey, Natzi Sakalihasan,
Hans-Henning Eckstein, Paul Norman, Barry Doyle

No Disclosures



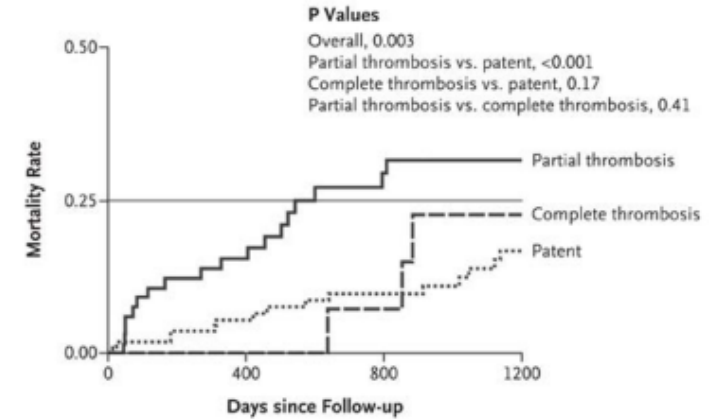
Type B Aortic Dissection is becoming more common



Rates of TBAD in Australia 2000-19

TBAD risk stratification remains a challenge

Partial thrombosis of false lumen appears to be associated with adverse outcomes



Tsai et al. NEJM 2007;357:349-59

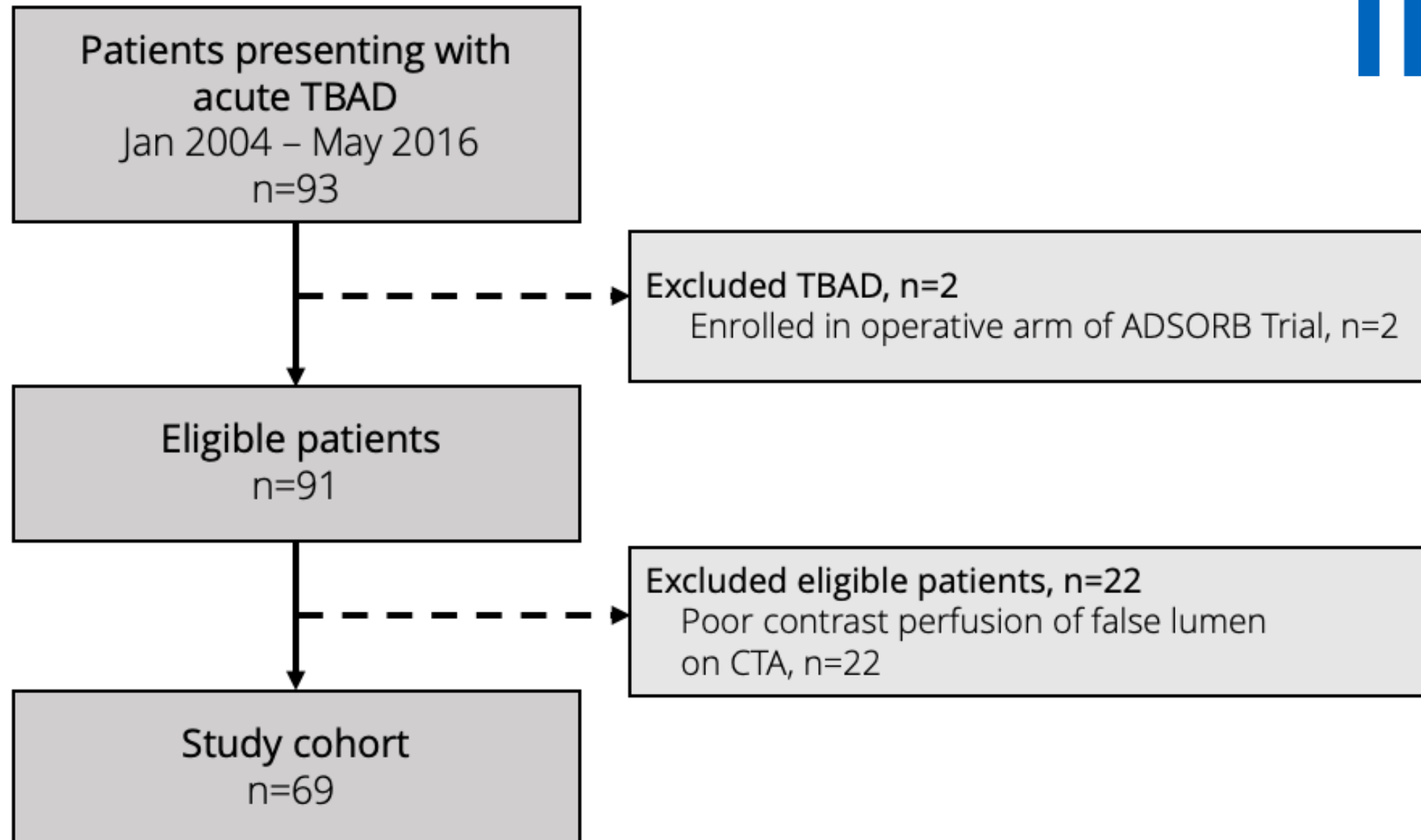
Hypothesis

False lumen thrombosis is a marker of false lumen pressure, and understanding this relationship may help predict outcome.

Aim

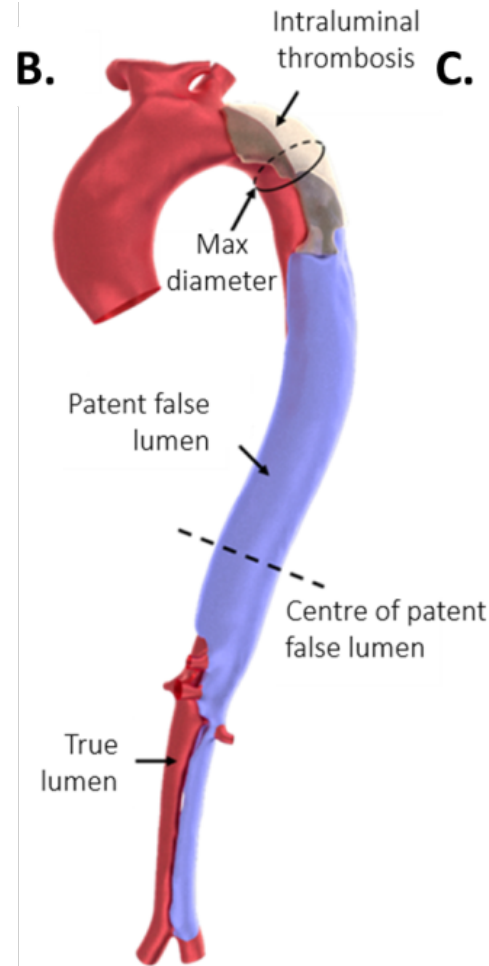
To assess the relationship between FL pressure, thrombosis morphology and outcomes in a cohort of patients with TBAD using Computational Fluid Dynamic modelling.

Analysis of retrospective cohort : Klinikum Rechts der Isar, Munich



Aortic imaging, 3D modelling and false lumen morphology

A. Baseline CTA



3D reconstructions
<5% difference in repeatability

Classification of thrombosis

Extensive thrombosis
n=5



Proximal thrombosis
n=22



Distal thrombosis
n=15

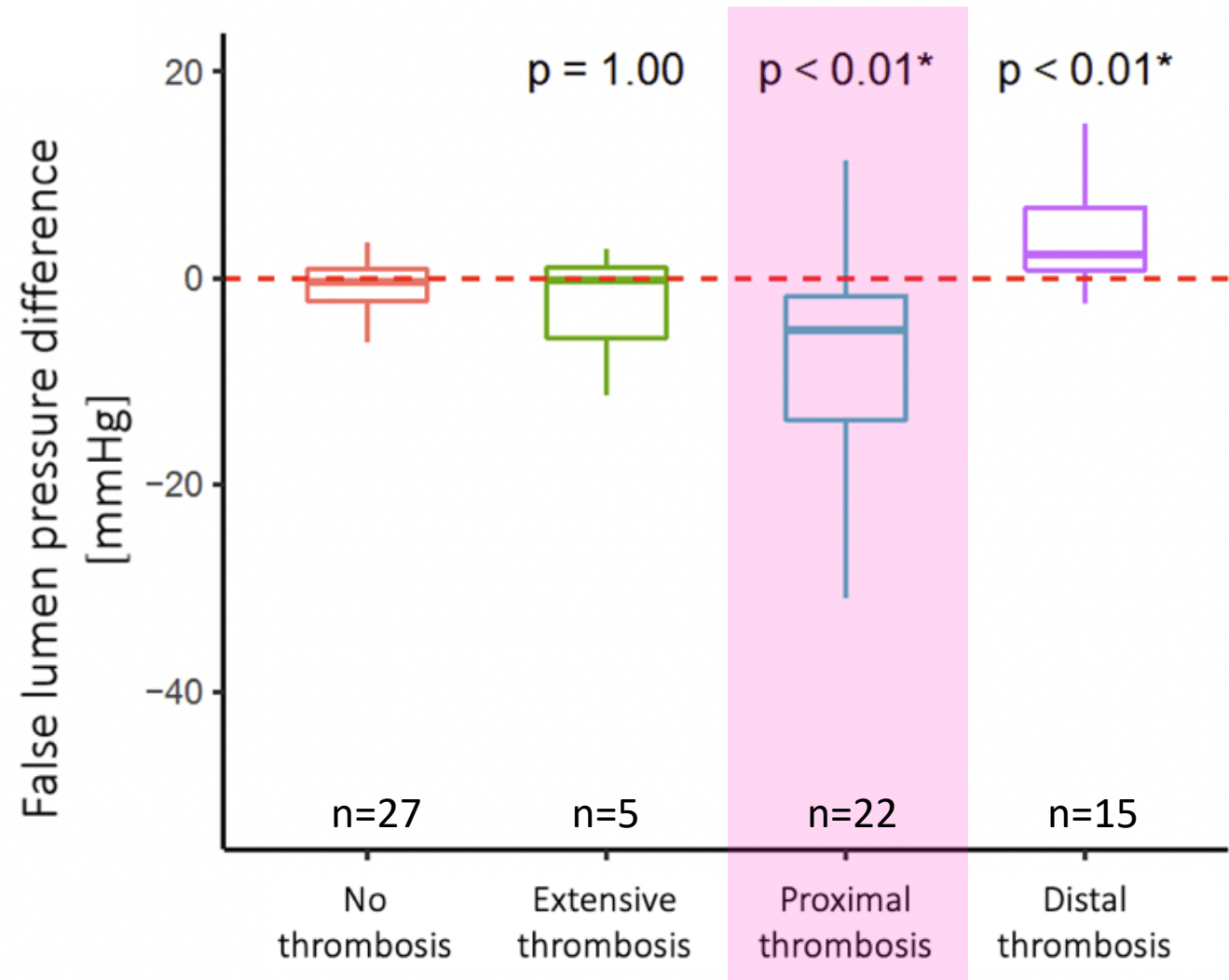
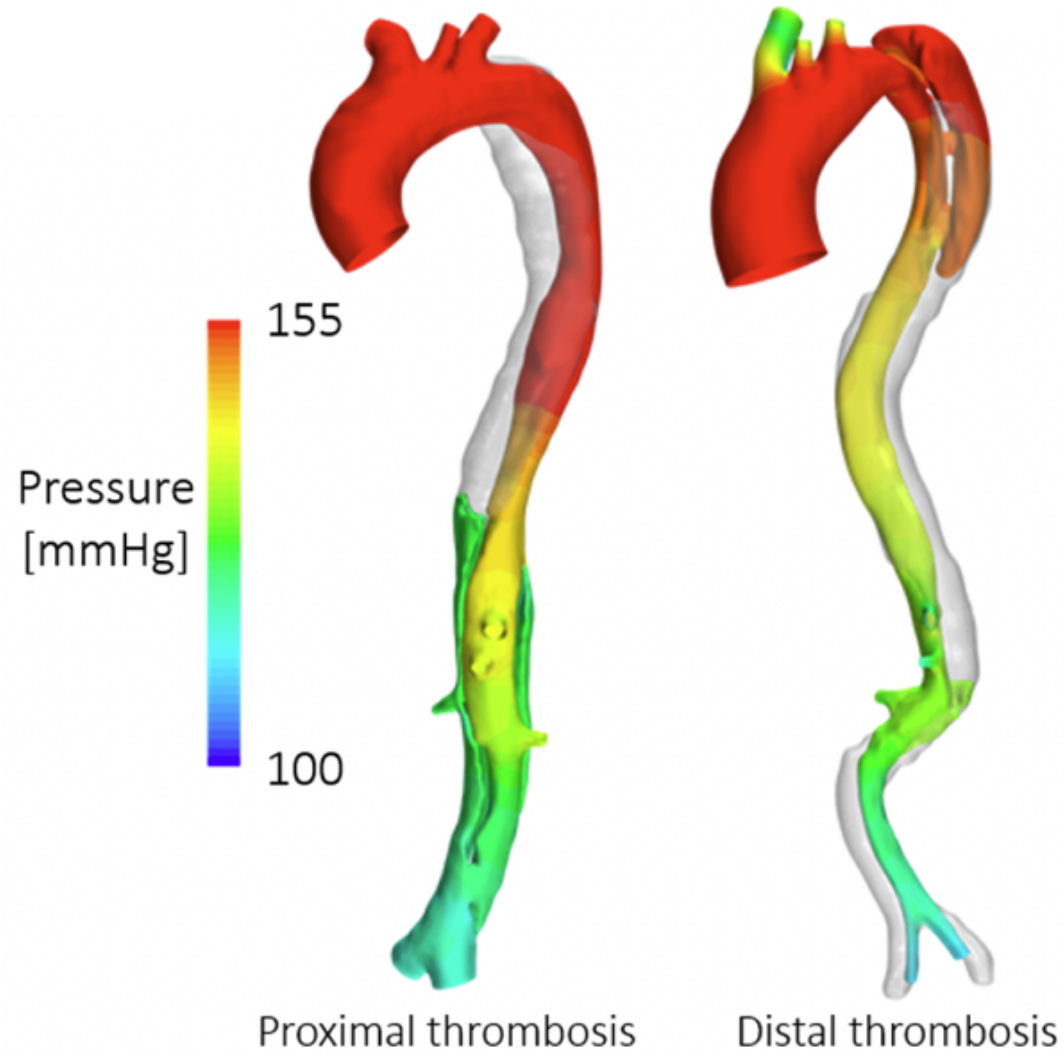


No thrombosis
n=27



■ Intraluminal thrombosis

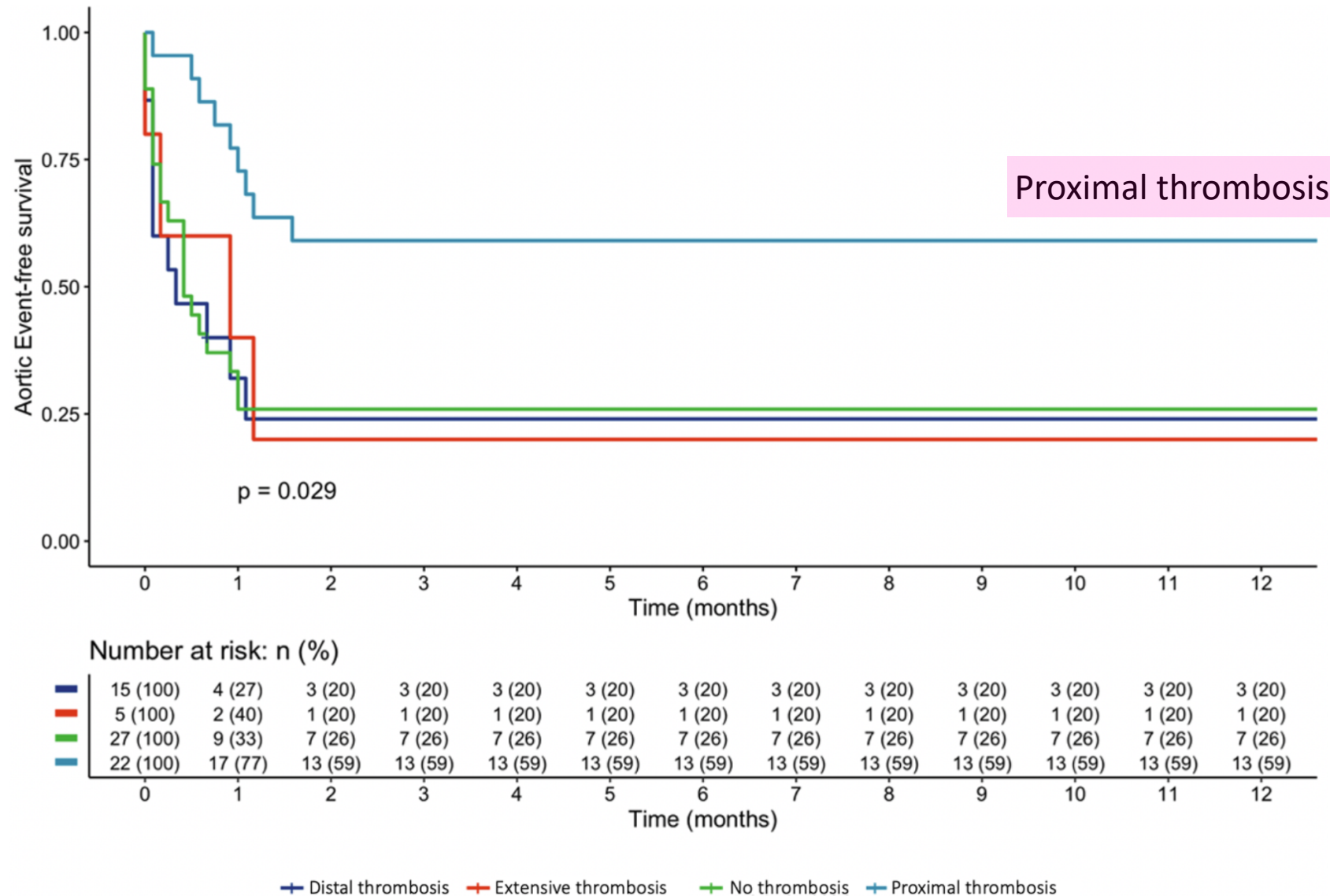
Computational Fluid Dynamic analysis used to simulate blood flow and estimate luminal pressure differences



Acute (< 14 days) complications

- Acute complications in 64% (44/69):
 - Refractory hypertension n=6
 - Aortic rupture n=5
 - Malperfusion n=21
 - Refractory pain n=10
 - TEVAR n=34
- **Lower** in those with proximal FL thrombosis (36%)
- Independent of age, aortic diameter and BP
OR 0.17 (95% CI 0.04-0.6)

Proximal FL thrombosis associated with fewer adverse aortic events



45 Aortic events:
Aortic rupture n=5
Aortic death n=5
TEVAR n=44

Association independent of
age, aortic diameter and BP
HR 0.36 (95% CI 0.15-0.8)

Summary

- Acute TABD with false lumen thrombosis in the proximal region have:
 - lower estimated false lumen pressures
 - fewer early complications
 - fewer later adverse events
- Location of partial false lumen thrombosis may be important

Thanks to all the co-authors



Louis Parker
Bijit Munshi
Samantha Richards
Lachlan Kelsey
Paul Norman
Barry Doyle



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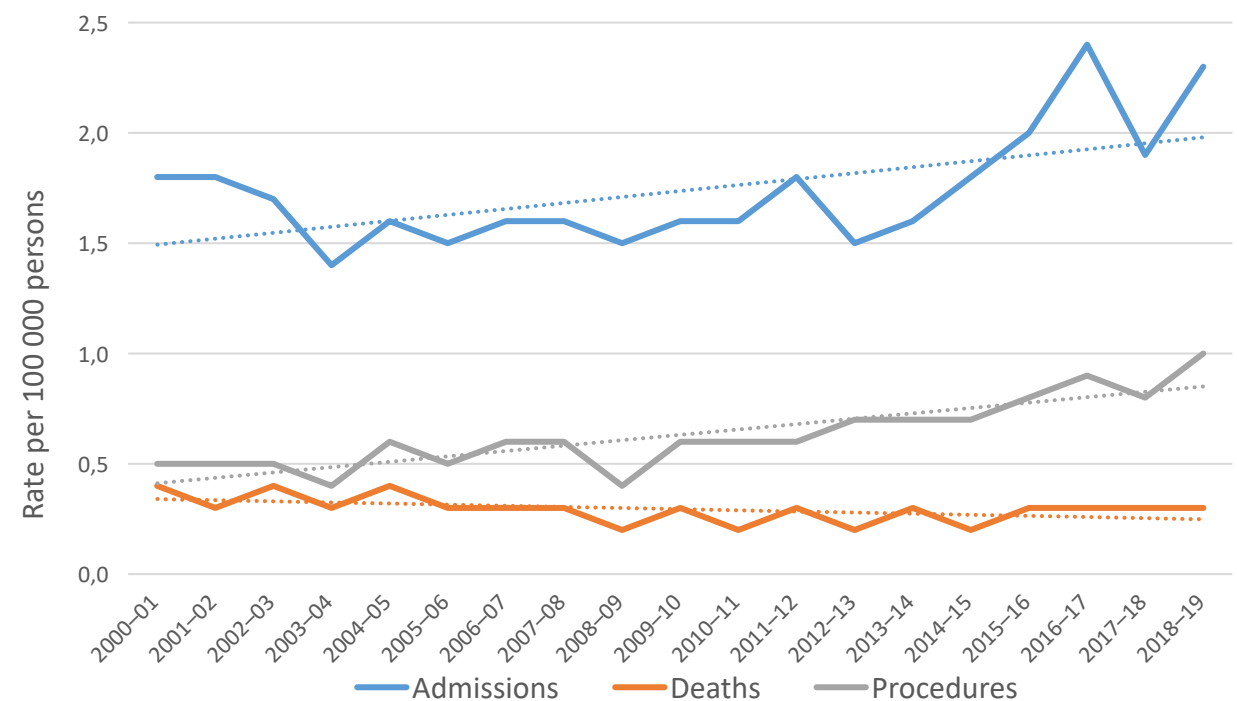
Natzi
Sakalihasan



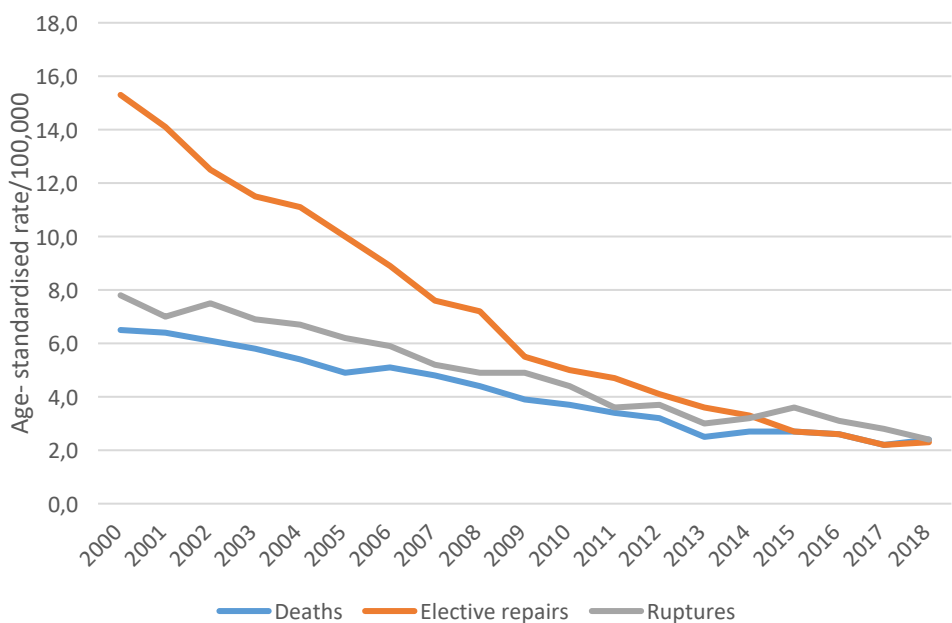
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Type B Aortic Dissection is becoming more common



Rates of TBAD in Australia 2000-19



Rates of AAA in Australia