Examination of Abdominal Exploration and Return to OR in Ruptured Abdominal Aortic Aneurysm Repair

SEVSG Meeting

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Emily Spangler

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Background

- EVAR for ruptured AAA has increased in adoption over the past 10 years
- On an institutional basis following creation of EVAR protocols for rupture
  - Similar rates of abdominal compartment syndrome
  - Decreased mortality

Background

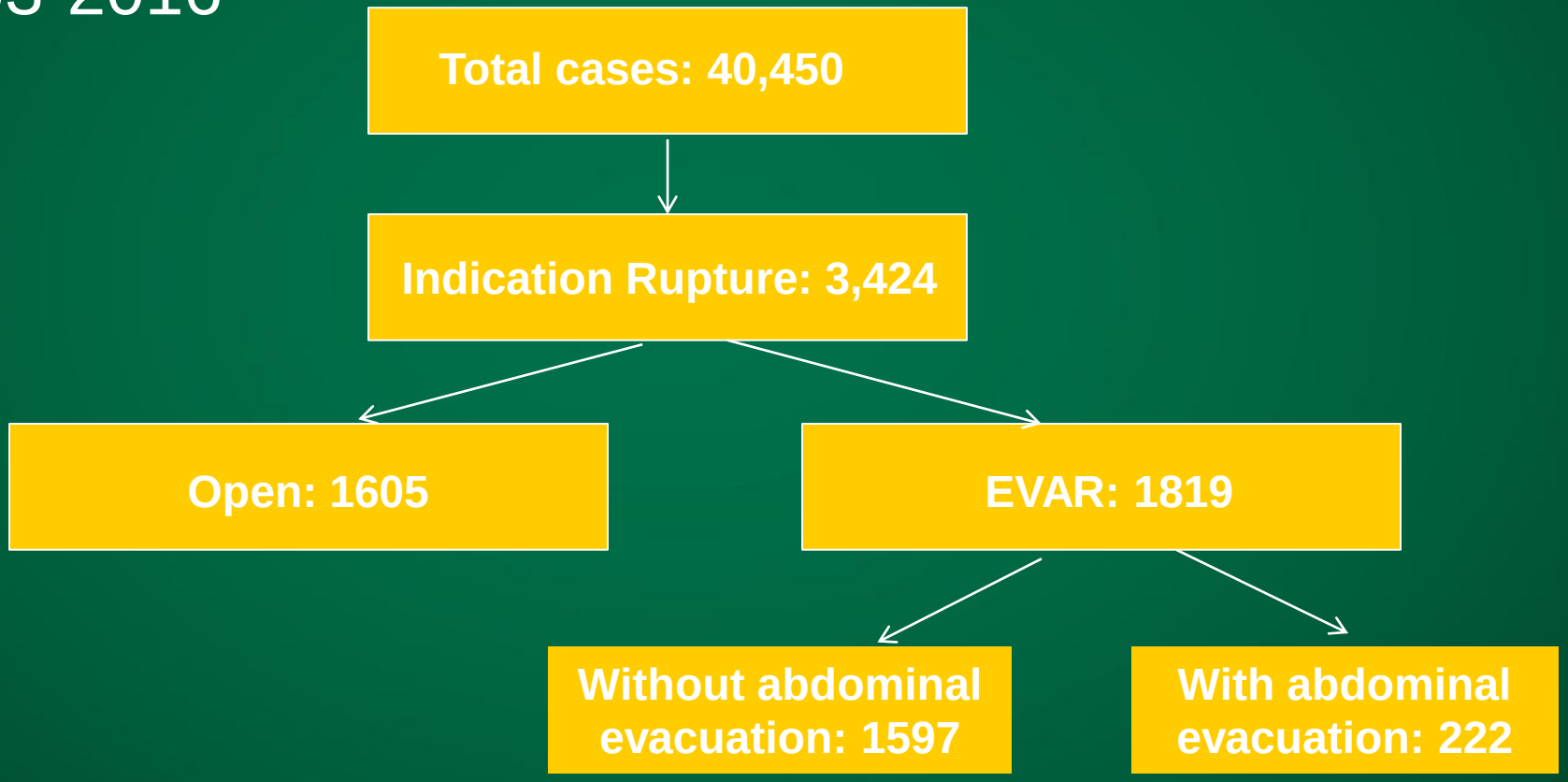
- No recent broad assessment of abdominal exploration in the repair of ruptured AAA has been made
  - VQI does not have a specific abdominal compartment syndrome variable
    - Examination of abdominal evacuation as a surrogate for ACS
    - Further examination of other returns to the OR

Hypothesis

- We suspected:
- Increased utilization of EVAR for ruptures over time
- Regional variation in use of EVAR for rupture
- Declining use of abdominal evacuation over time

Methods

- EVAR and open AAA national VQI datasets from 2003-2016



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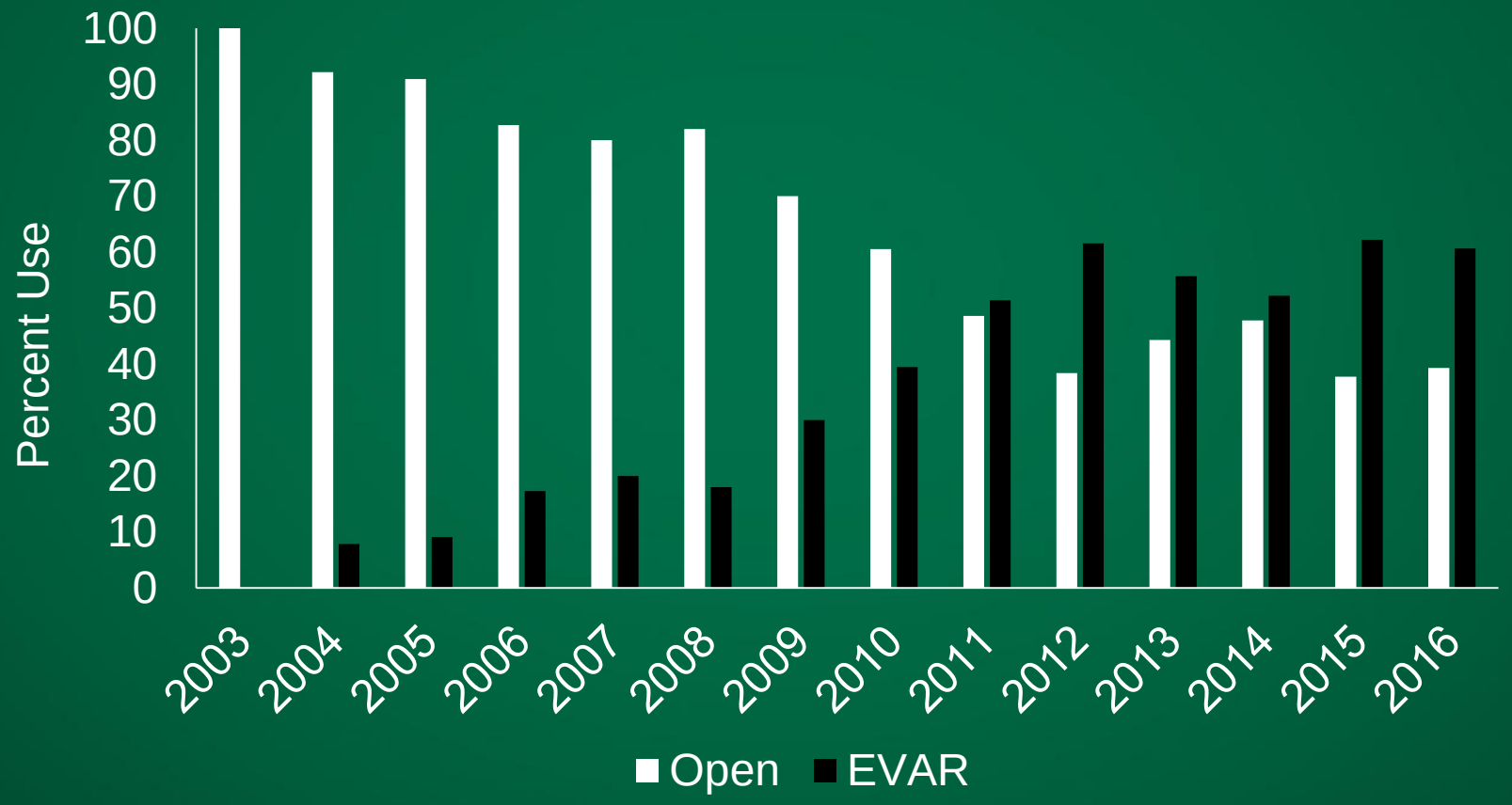
Ruptured Repair Modality Over Time

- Percent Utilization of open repair vs EVAR over 2003-2016



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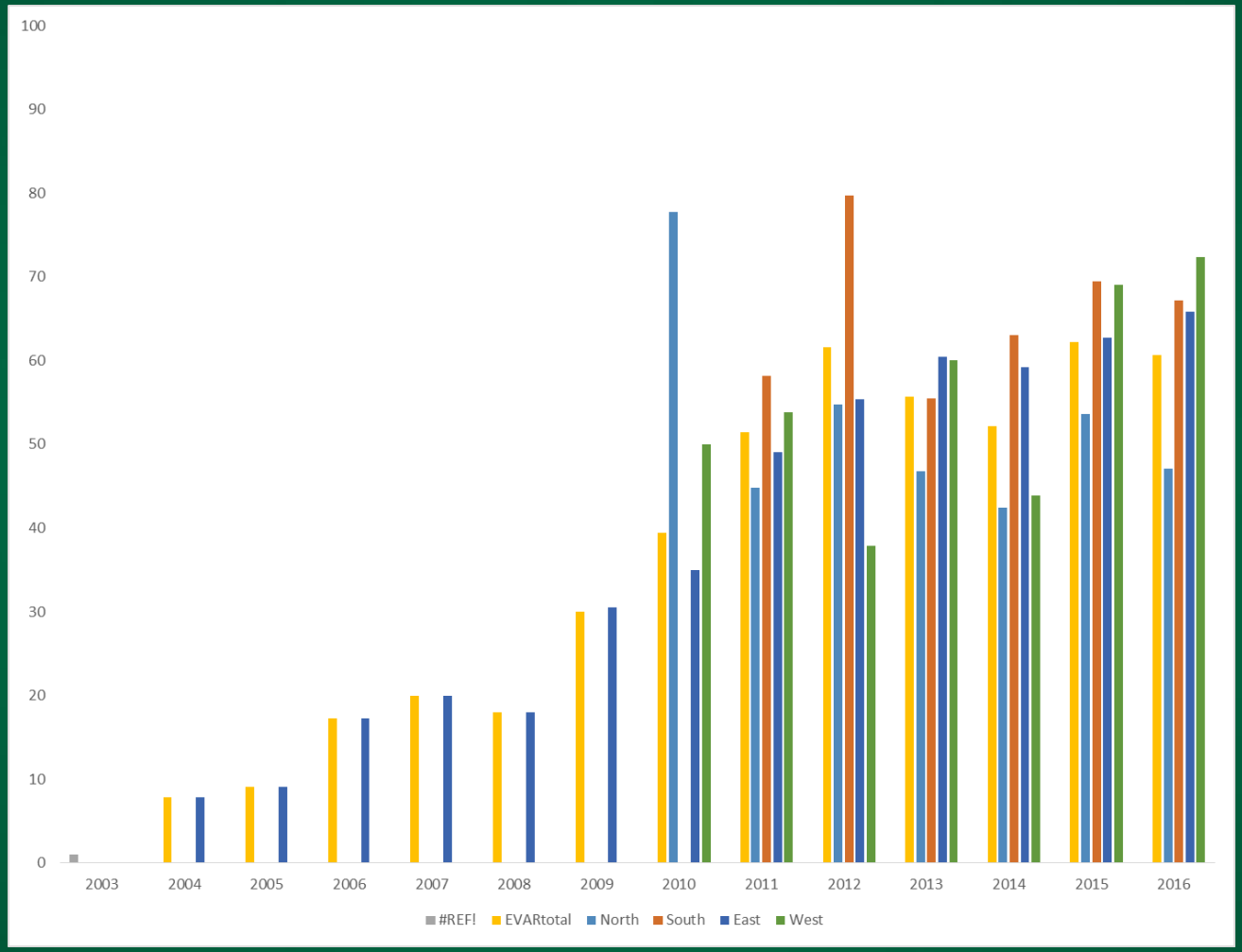
- We see increasing use of EVAR for ruptures over time

% rEVAR Utilization Over Time by Region



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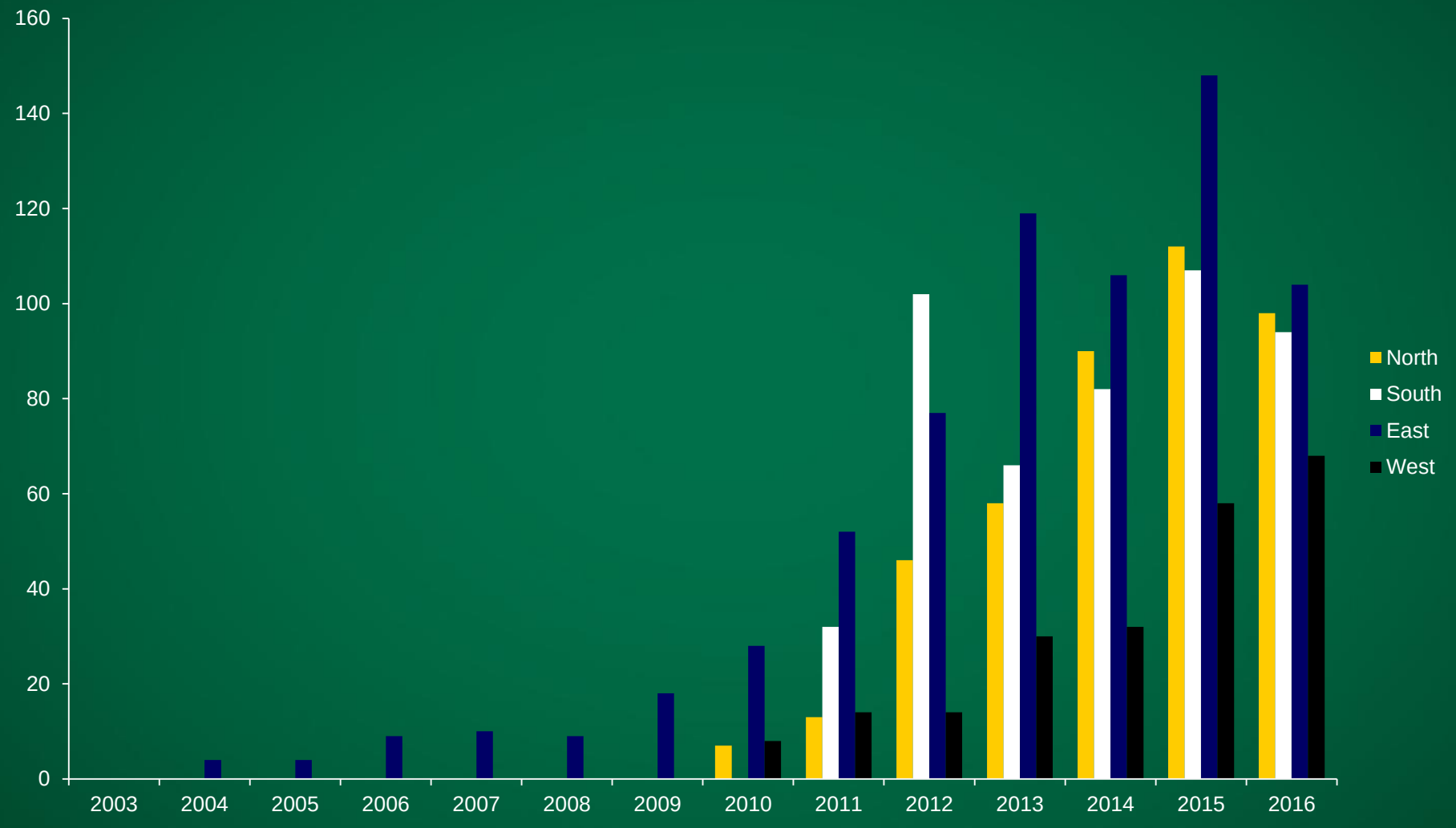
rEVAR Case Volume Over Time by Region



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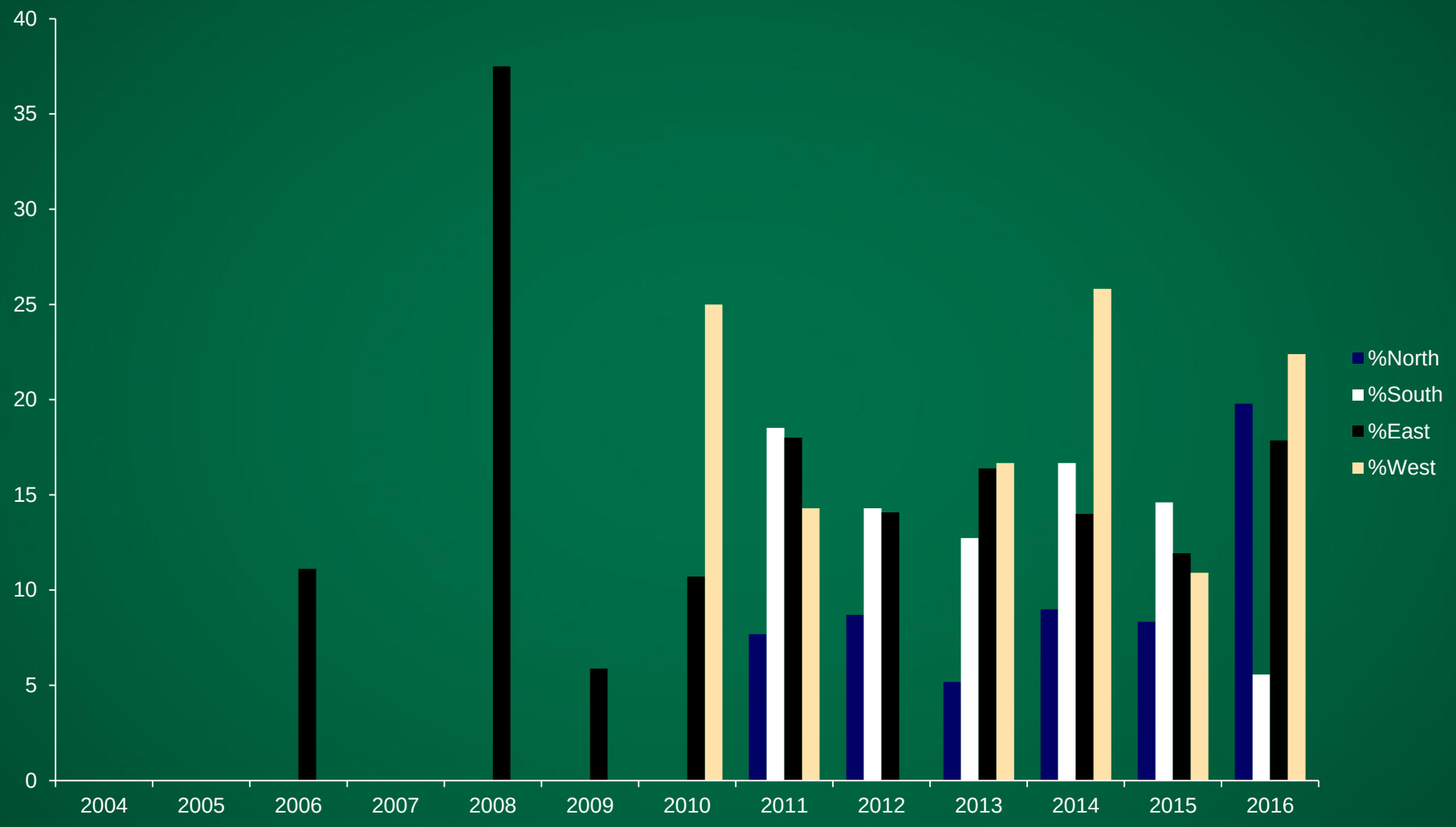
- No significant trends in regional utilization of EVAR for rupture over time.
  - Time of rise of absolute case numbers largely correspond to volume of VQI centers by region
  - Time of earliest adoption (possible biggest learning curve) only captured in Eastern Region

% Abdominal Evacuation Over Time by Region



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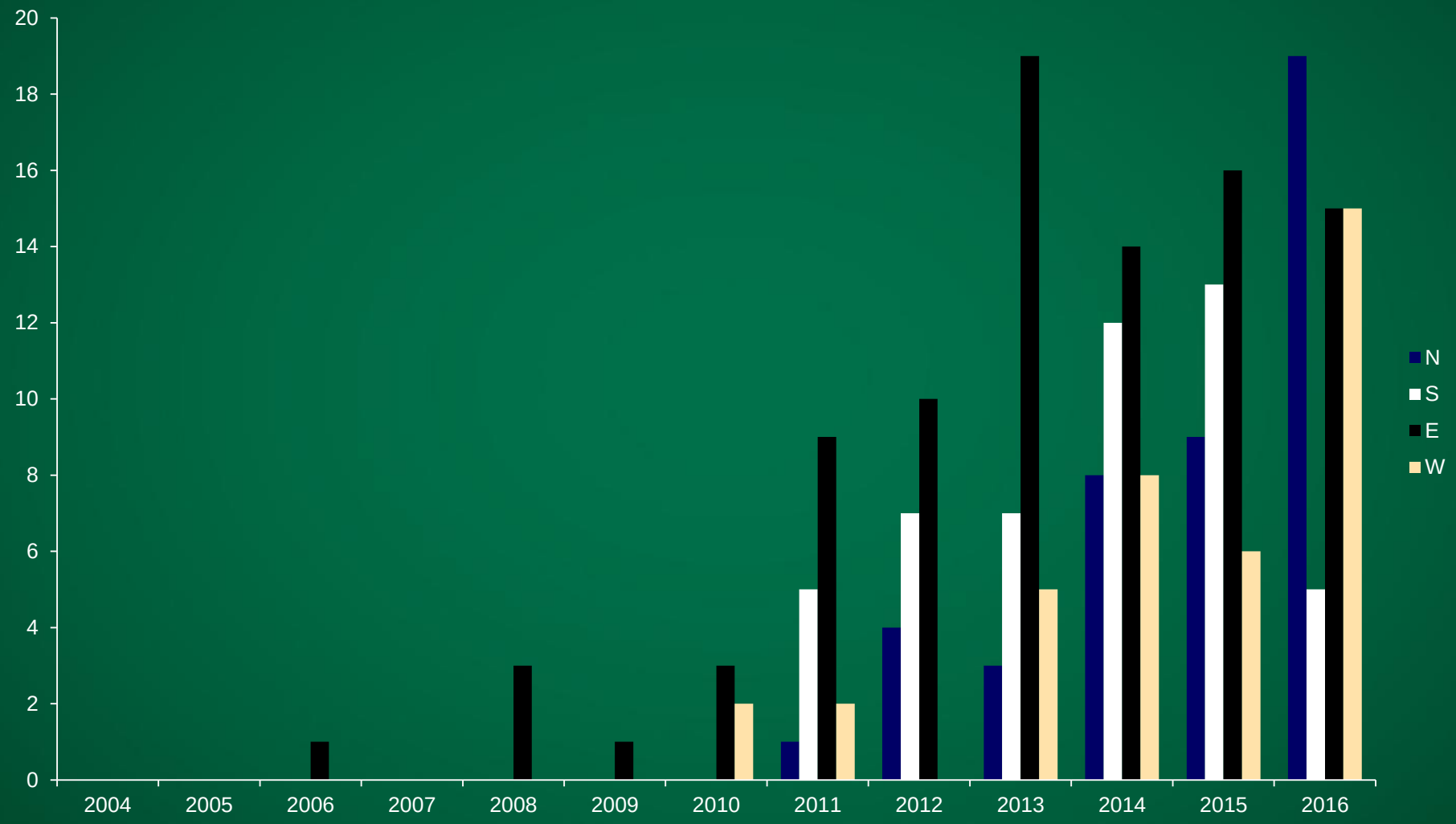
Abdominal Evacuation Cases Over Time by Region



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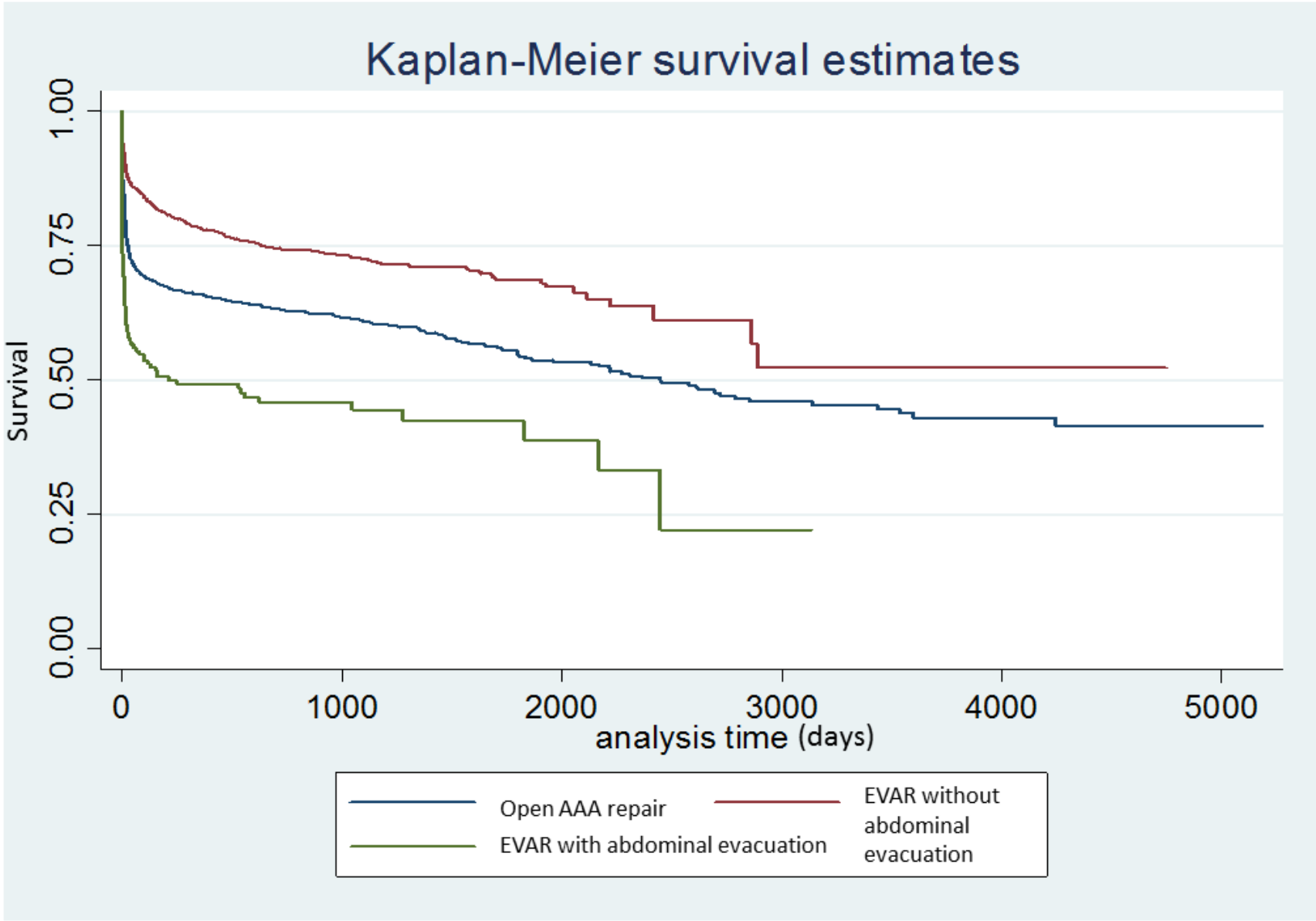
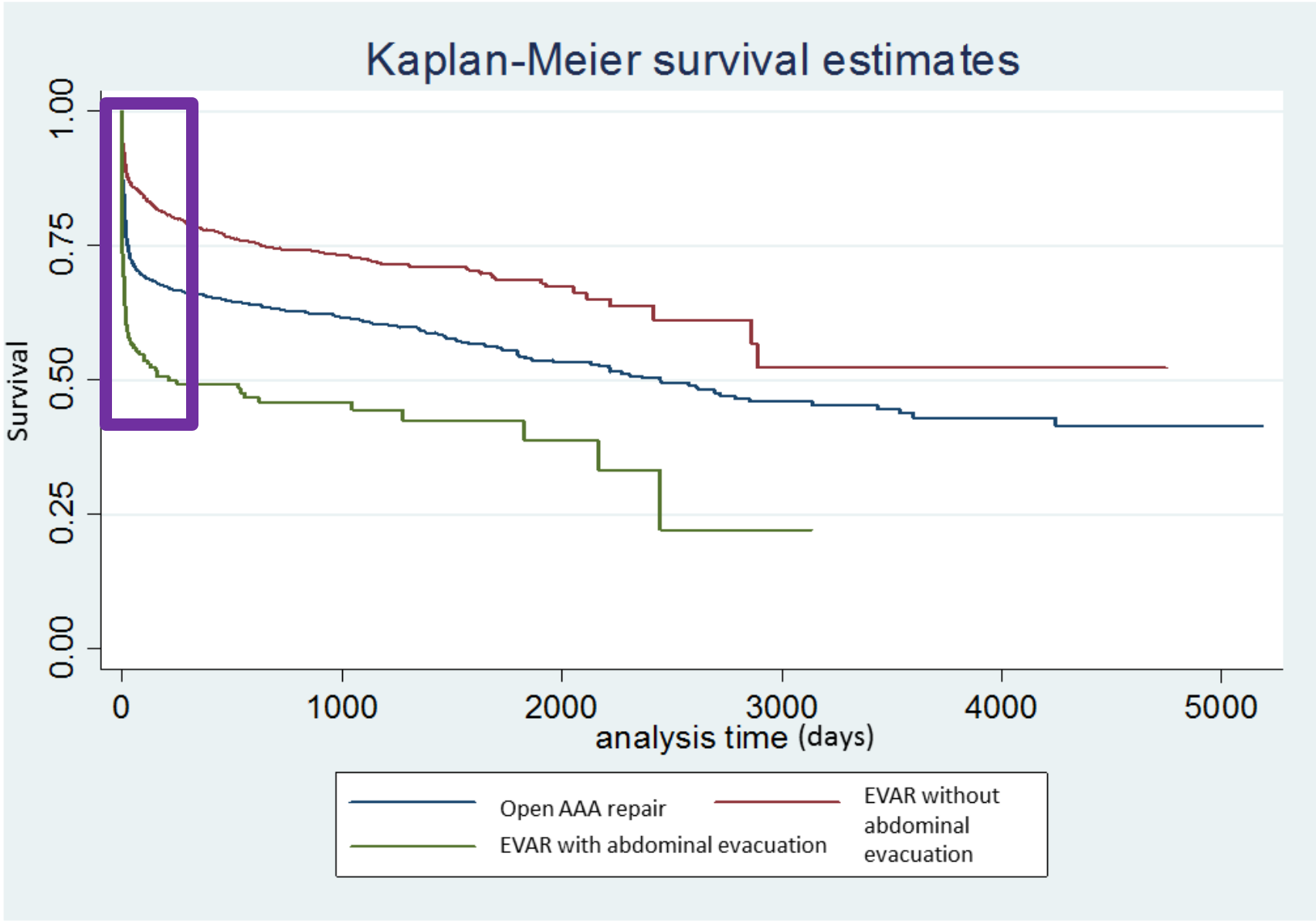
- Abdominal evacuation rates are low overall
- Did not appear to have a distinct time or regional trend to use of abdominal evacuation

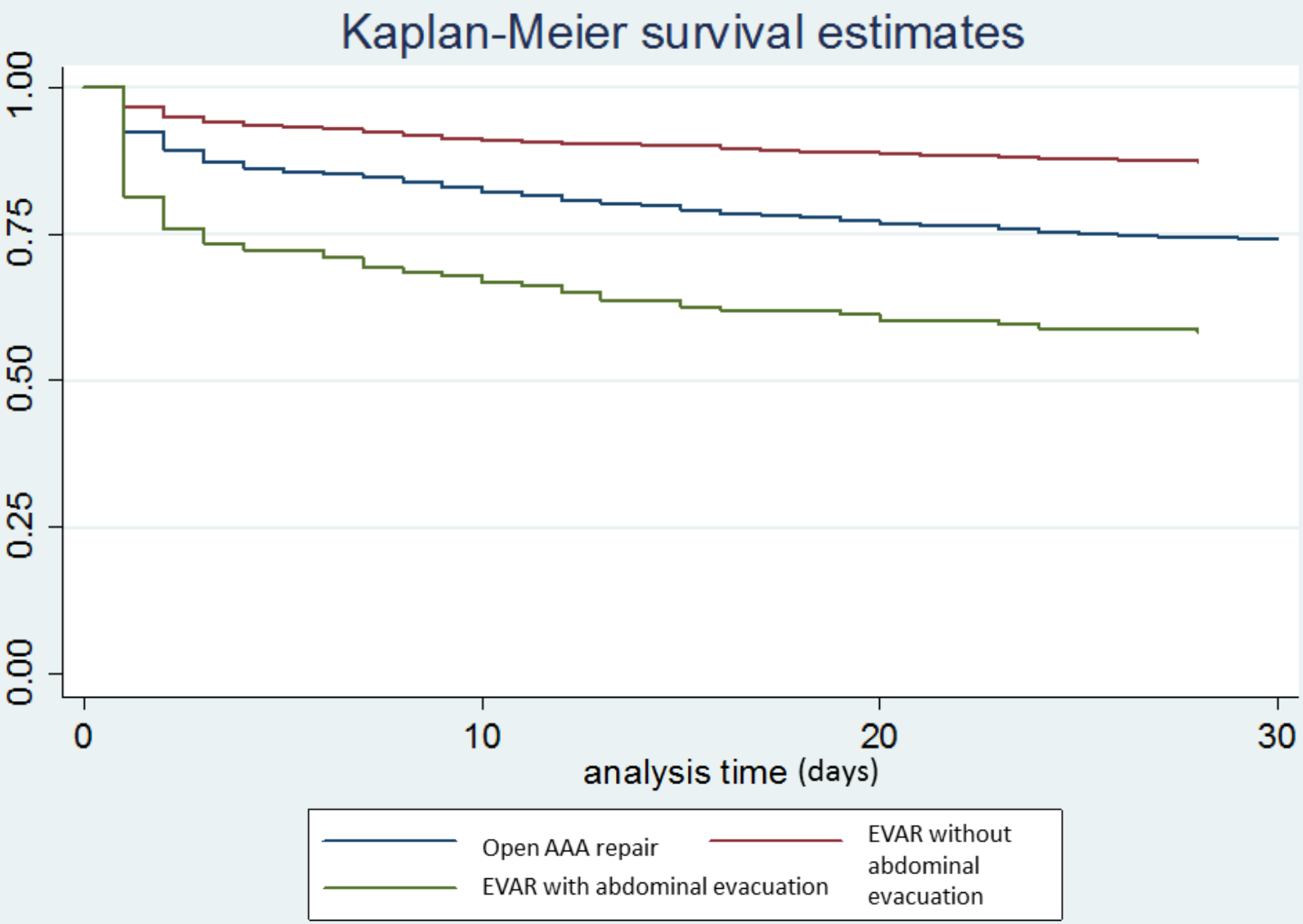
Survival by Mode of Repair



Survival by Mode of Repair



30-day Survival by Mode of Repair



- Survival worse among rEVARs with abdominal evacuation compared to both rEVAR without abdominal evacuation and open ruptured AAA repair
  - Likely a proxy for abdominal compartment syndrome

Conclusions

- EVAR use has increase in treatment of rupture over time
- Proportion undergoing abdominal evacuation has remained relatively stable
- No significant regional variation noted, however analysis limited by small number of cases
- Patients requiring abdominal evacuation after EVAR fared worse than those undergoing EVAR without abdominal exploration or open AAA repair, likely as a surrogate for abdominal compartment syndrome