EVAR and open repair show equivalent outcomes in younger patients - predicting long term outcomes

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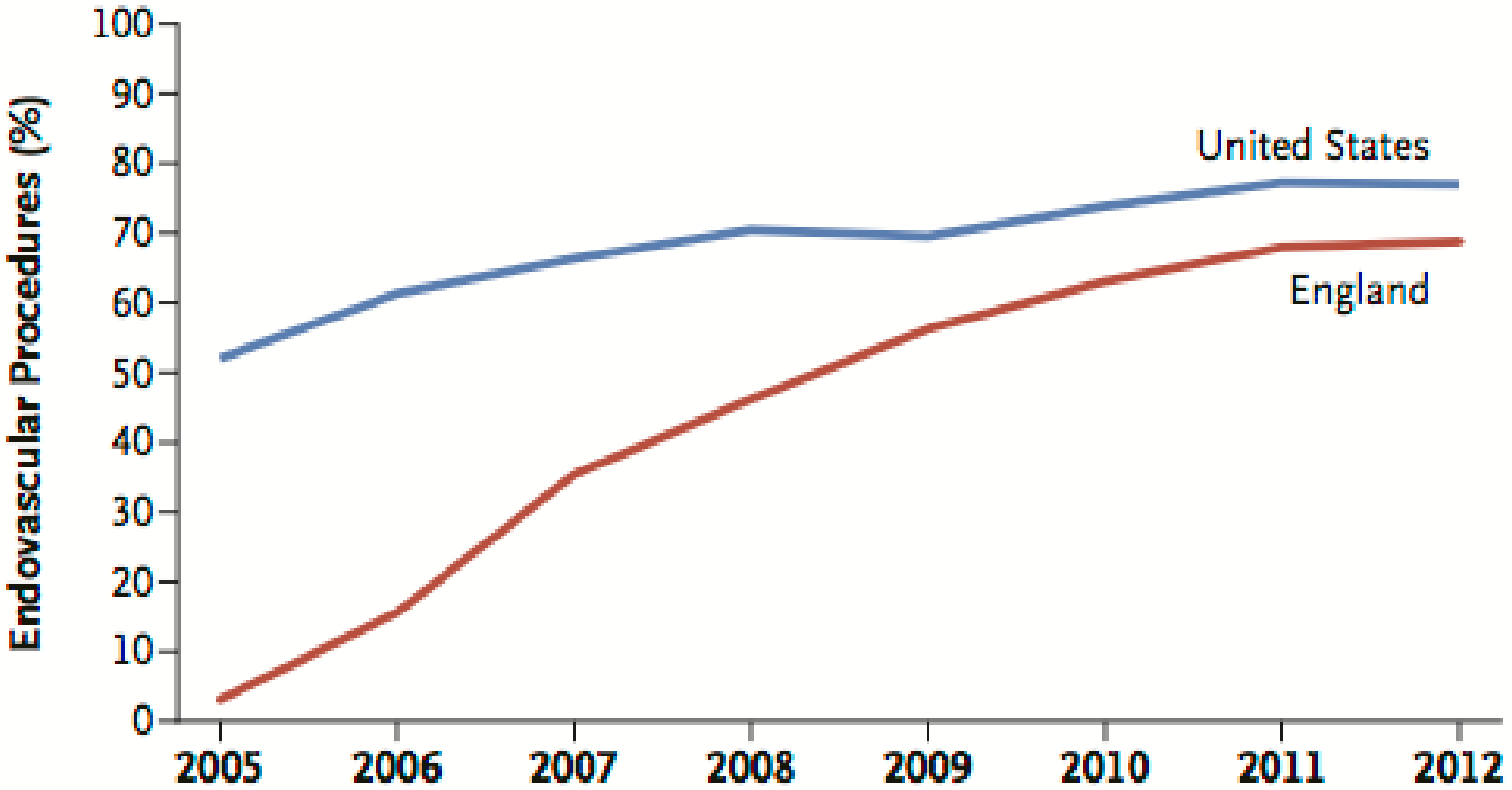
Disclosures

- Endologix: Consultancy, Proctor, Speaker
- Gore: Consultancy, Speaker
- Medtronic: Consultancy, Speaker, Research

Uptake of EVAR: US vs England



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ORIGINAL ARTICLE

Thresholds for Abdominal Aortic Aneurysm Repair in England and the United States

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ABSTRACT

BACKGROUND

Thresholds for repair of abdominal aortic aneurysms vary considerably among countries.

METHODS

We examined differences between England and the United States in the frequency of aneurysm repair, the mean aneurysm diameter at the time of the procedure, and rates of aneurysm rupture and aneurysm-related death. Data on the frequency of repair of intact (nonruptured) abdominal aortic aneurysms, in-hospital mortality among patients who had undergone aneurysm repair, and rates of aneurysm rupture during the period from 2005 through 2012 were extracted from the Hospital Episode Statistics database in England and the U.S. Nationwide Inpatient Sample. Data on the aneurysm diameter at the time of repair were extracted from the U.K. National Vascular Registry (2014 data) and from the U.S. National Surgical Quality Improvement Program (2013 data). Aneurysm-related mortality during the period from 2005 through 2012 was determined from data obtained from the Centers for Disease Control and Prevention and the U.K. Office of National Statistics. Data were adjusted with the use of direct standardization or conditional logistic regression for differences between England and the United States with respect to population age and sex.

RESULTS

During the period from 2005 through 2012, a total of 29,300 patients in England and 278,921 patients in the United States underwent repair of intact abdominal aortic aneurysms. Aneurysm repair was less common in England than in the United States (odds ratio, 0.49; 95% confidence interval [CI], 0.48 to 0.49; P<0.001), and aneurysm-related death was more common in England than in the United States (odds ratio, 3.60; 95% CI, 3.55 to 3.64; P<0.001). Hospitalization due to an aneurysm rupture occurred more frequently in England than in the United States (odds ratio, 2.23; 95% CI, 2.19 to 2.27; P<0.001), and the mean aneurysm diameter at the time of repair was larger in England (63.7 mm vs. 58.3 mm, P<0.001).

CONCLUSIONS

We found a lower rate of repair of abdominal aortic aneurysms and a larger mean aneurysm diameter at the time of repair in England than in the United States and lower rates of aneurysm rupture and aneurysm-related death in the United States than in England. (Funded by the Circulation Foundation and others.)

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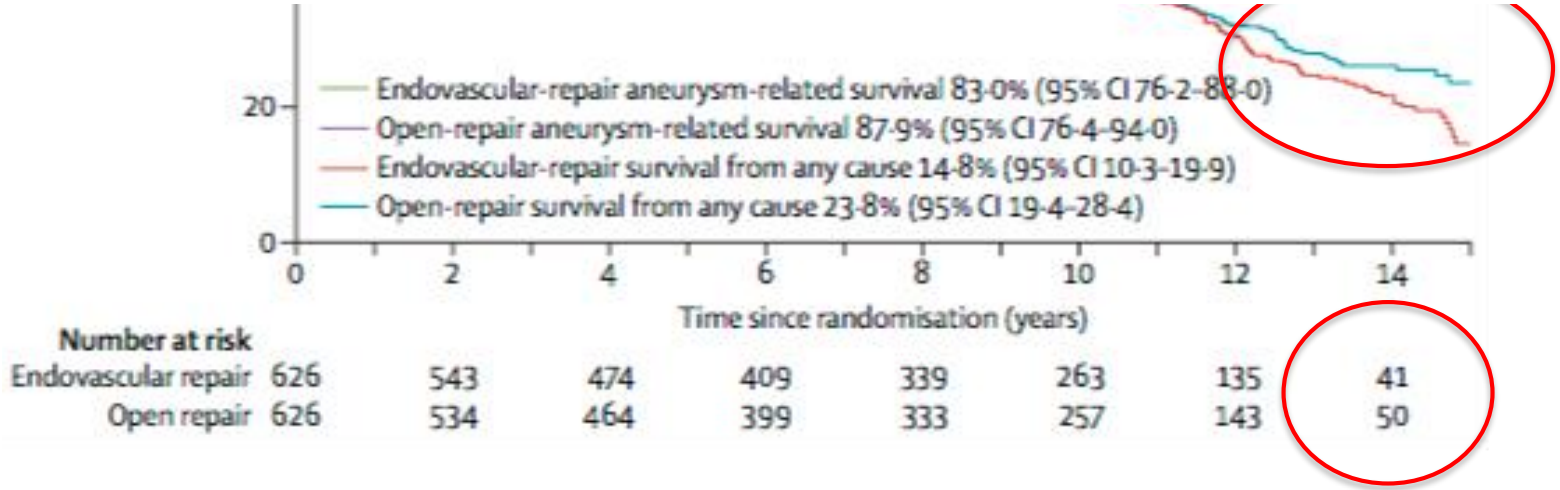
Elective AAA Repair in UK

Year	OR	EVAR	% EVAR
2011	1,609	2,850	63.9
2012	1,557	2,876	64.9
2013	1,387	2,738	66.4
2014	1,536	3,011	66.2
2015	1,353	3,005	69.0
2016	1,246	2,907	70.0

EVAR-I Trial: 15 Year Survival

EVAR has…an inferior late survival compared with open repair
Lifelong surveillance and re-intervention if necessary



EVAR-I Trial: Implications for Clinical Practice

- Shift towards OR for younger and fitter patients
- OR for screen detected patients
- Perhaps deny AAA repair to the less fit/elderly

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- Shift towards OR for younger and fitter patients
- OR for screen detected patients
- Perhaps deny AAA repair to the less fit/elderly
- BUT:
  - small numbers, unpowered
  - not contemporary practice
  - Unknown who gets most benefit from EVAR

Aims of Study

- Analyse long term (7 year) outcomes of OR/EVAR in large scale UK datasets, to assess who gains survival benefit
- Retrospective analysis of hospital episode statistics (HES) and mortality (ONS), 2006-13
- Stratified by age and comorbidity
- Restricted mean survival time

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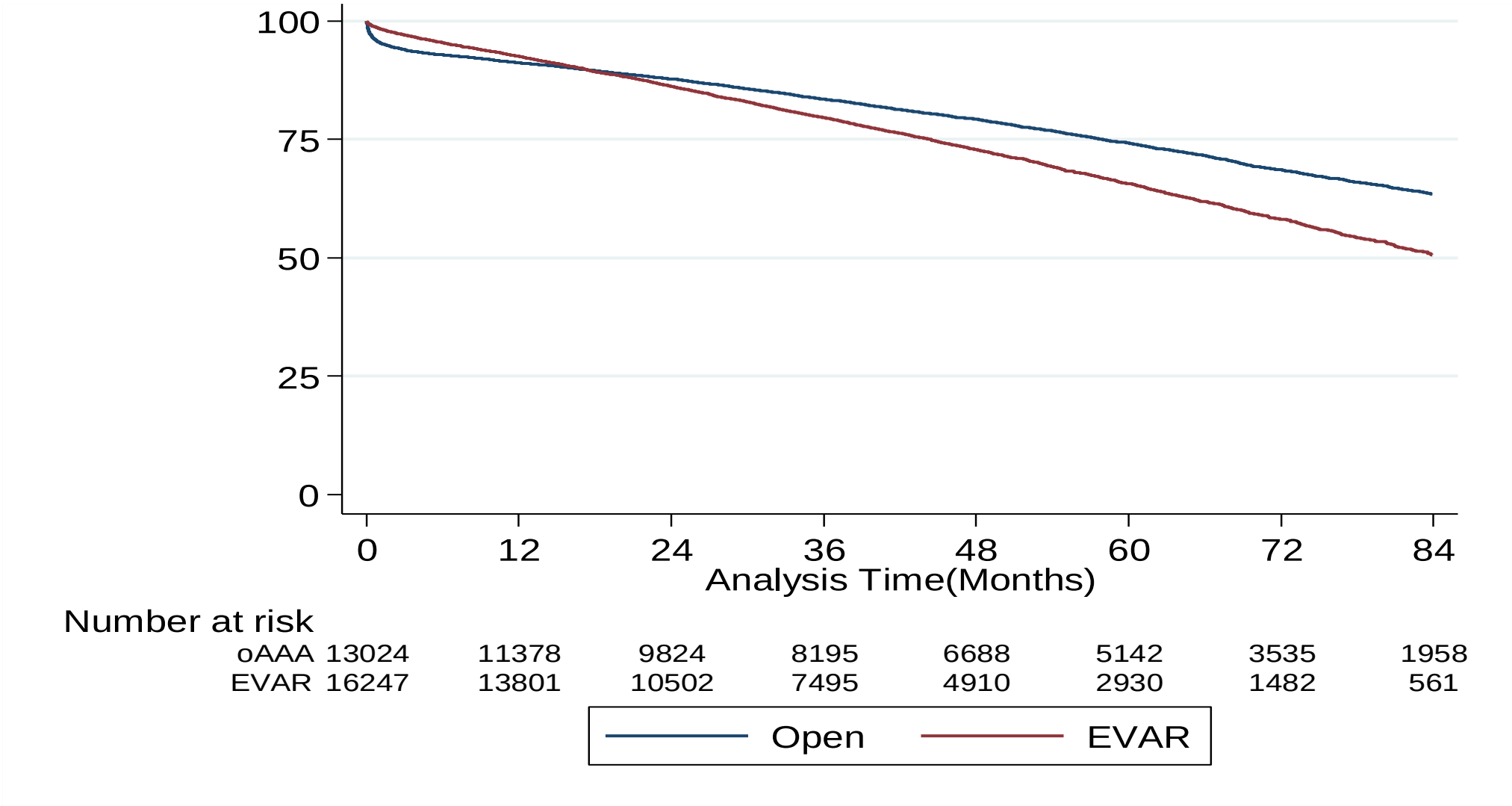
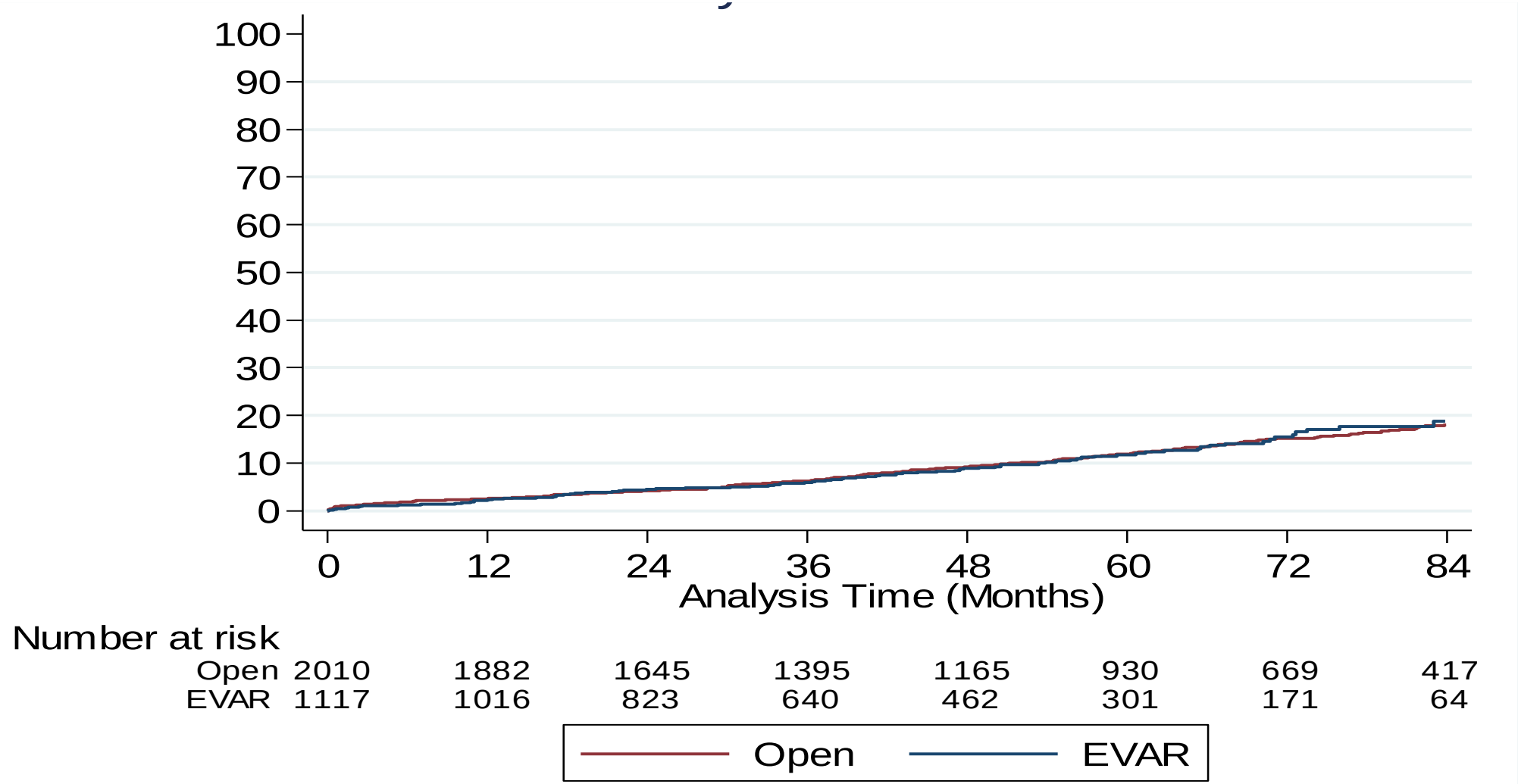
- 29,285 repairs (13,036 OR, 16,249 EVAR)

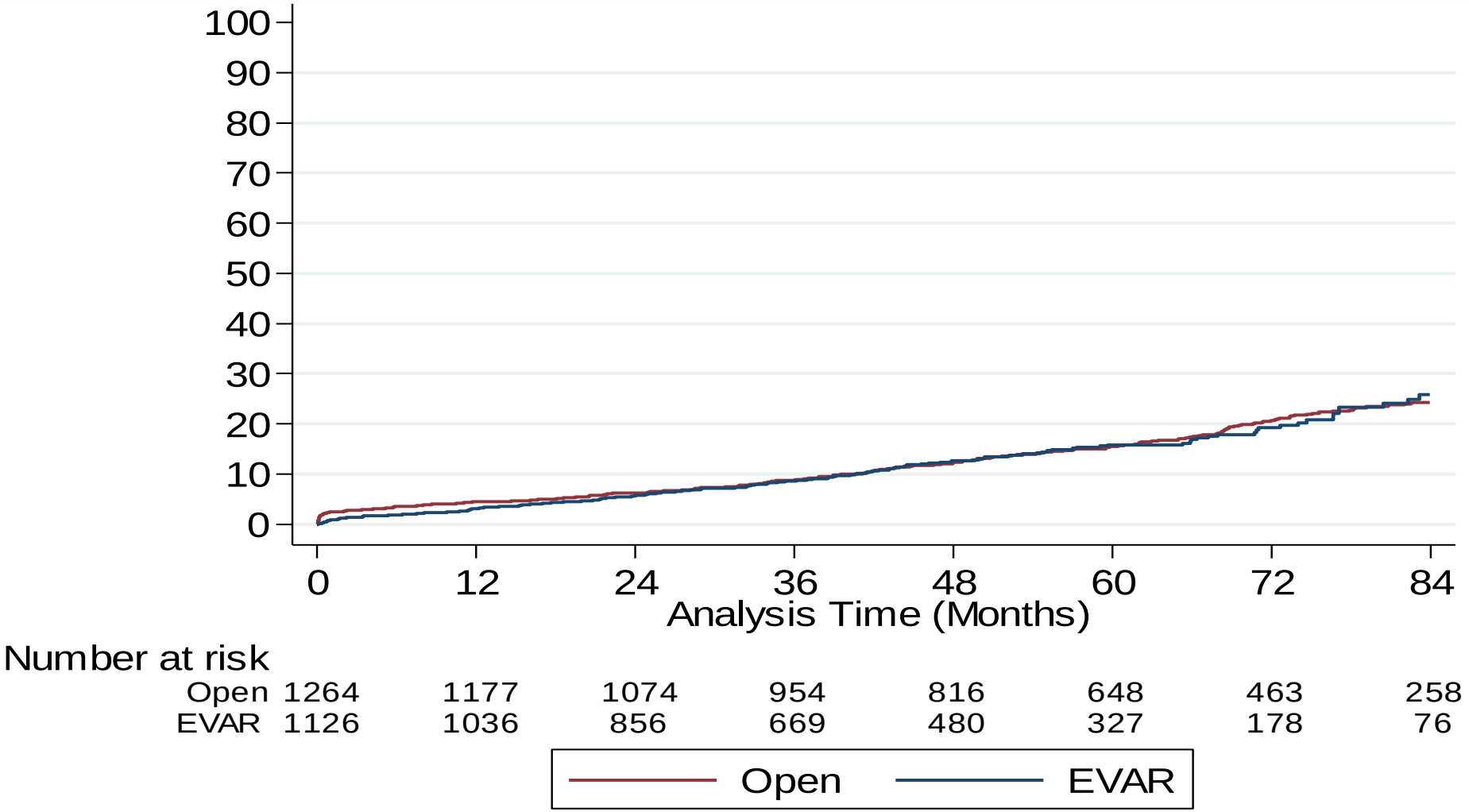
Overall Outcomes: Survival



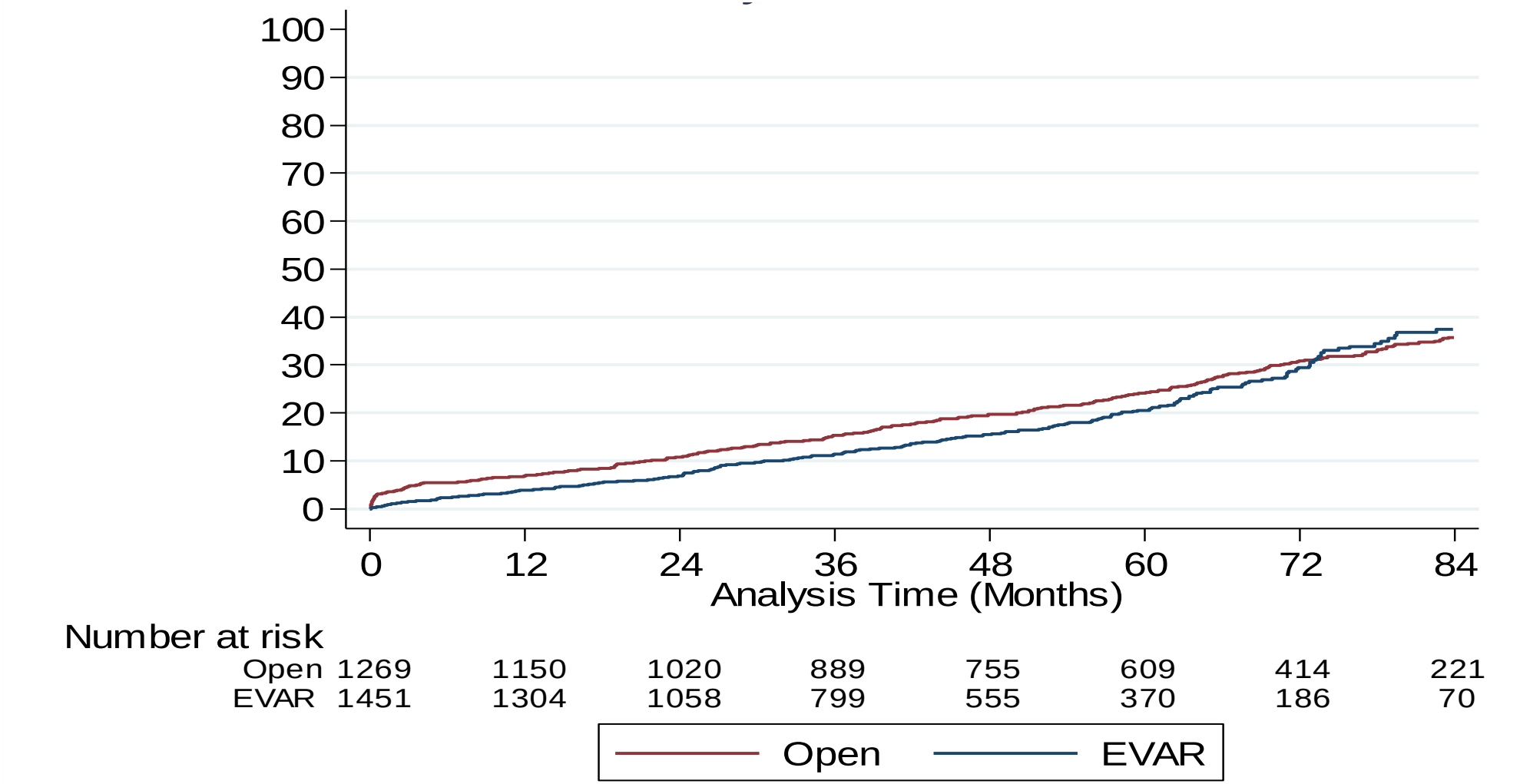
Mortality: <70 years, no comorbidities



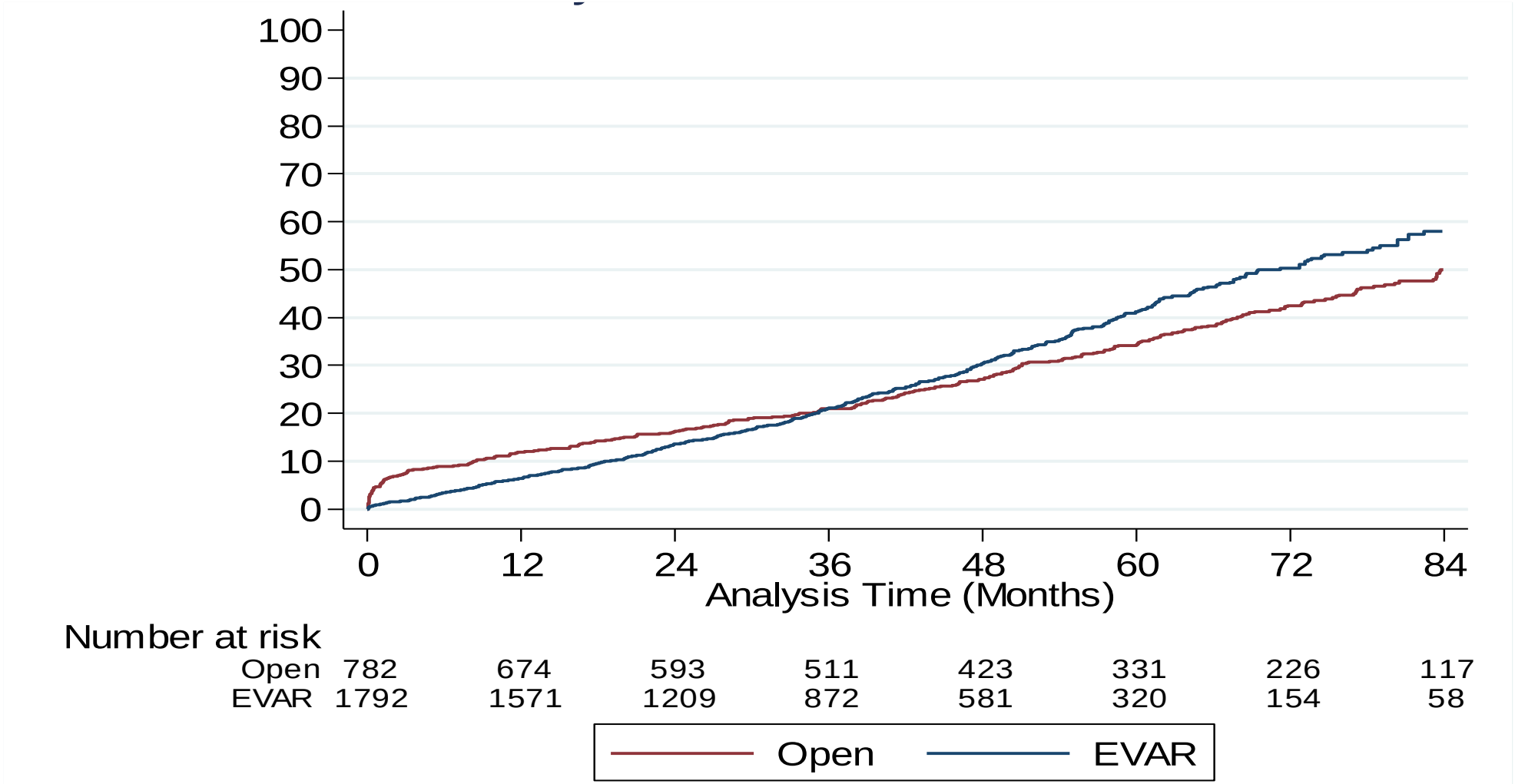
Mortality: 70-74 years, no comorbidities



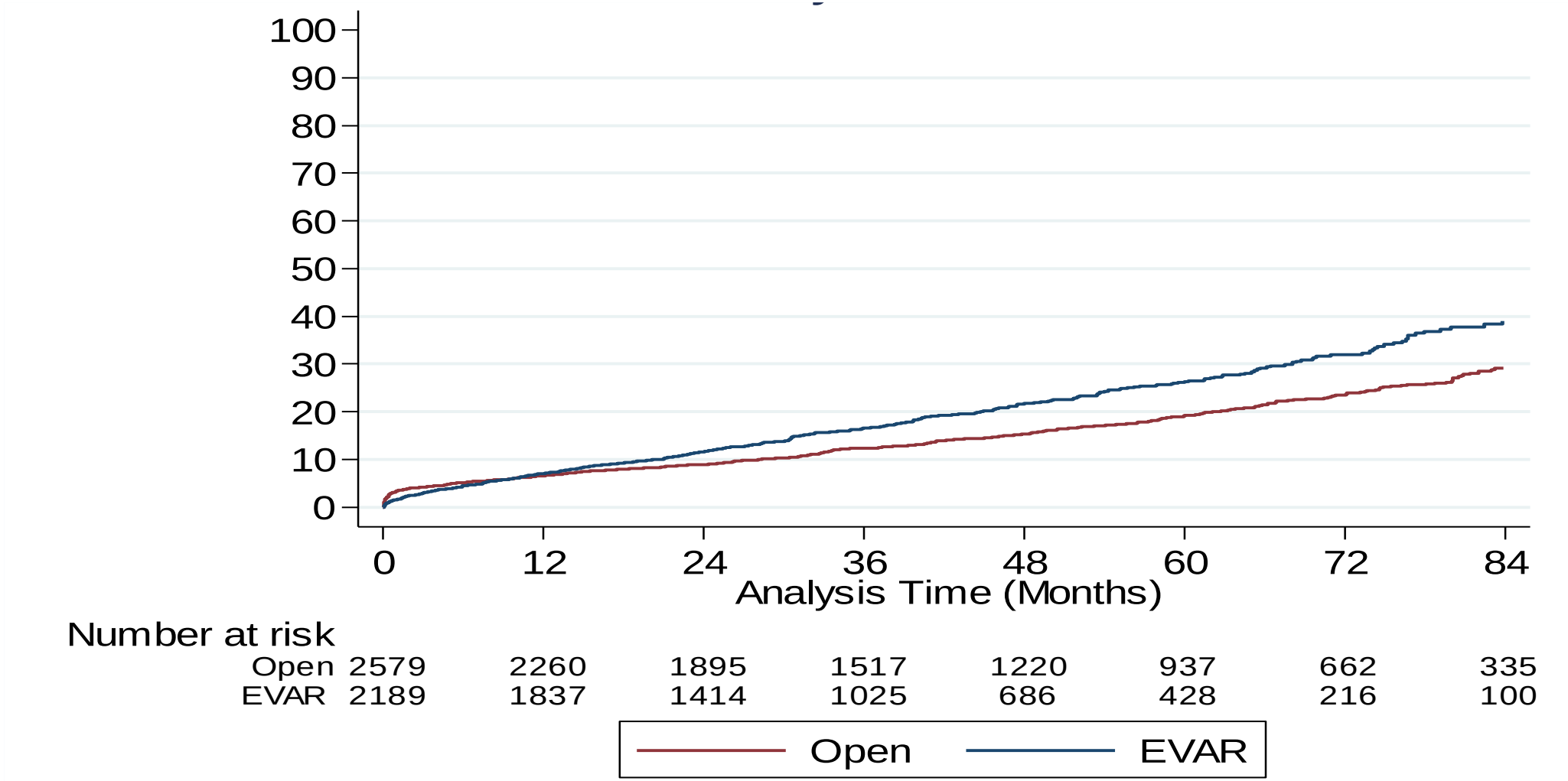
Mortality: 75-79 years, no comorbidities



Mortality: >80 years, no comorbidities



Mortality: <70 years, with comorbidities



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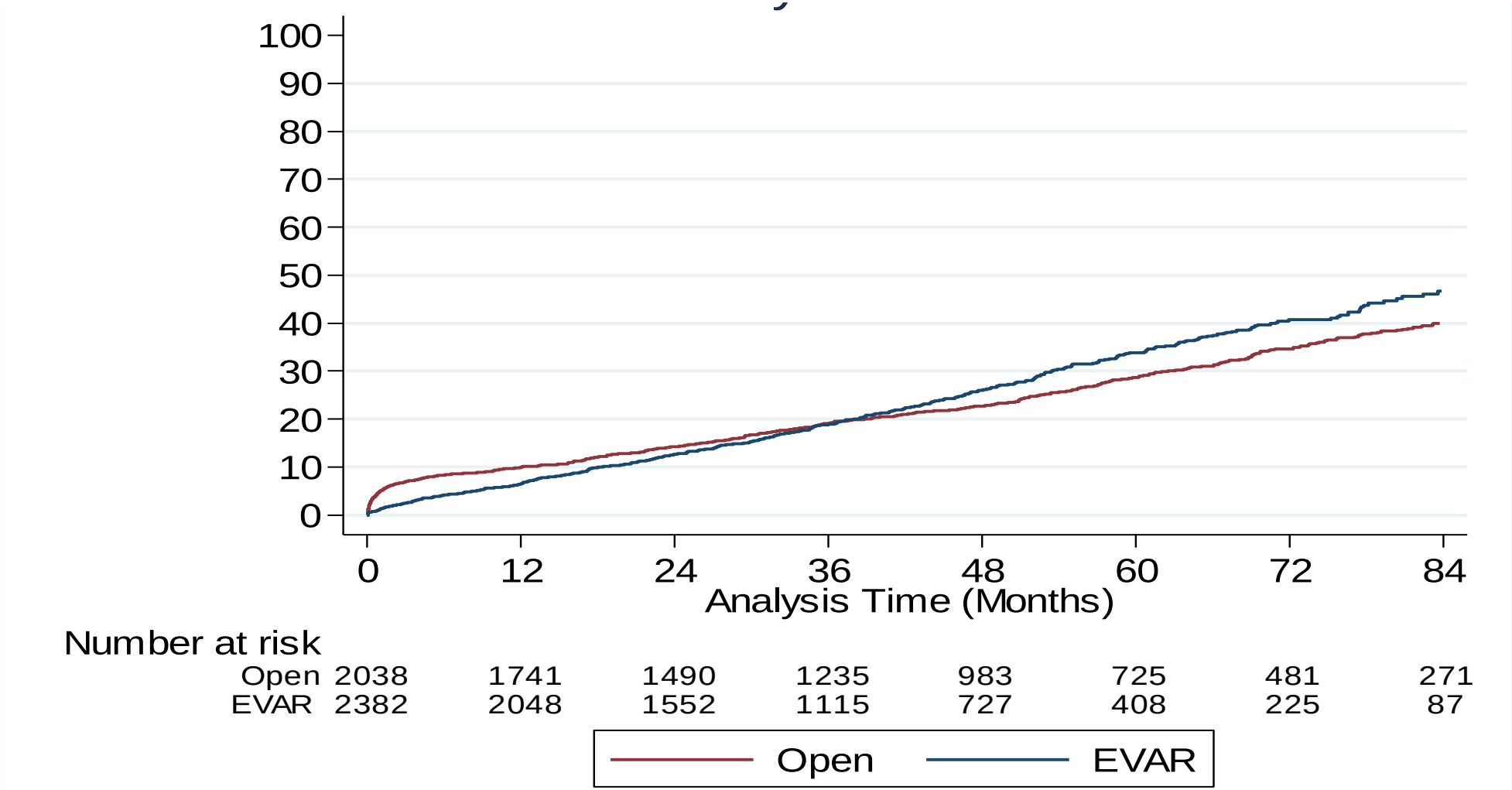

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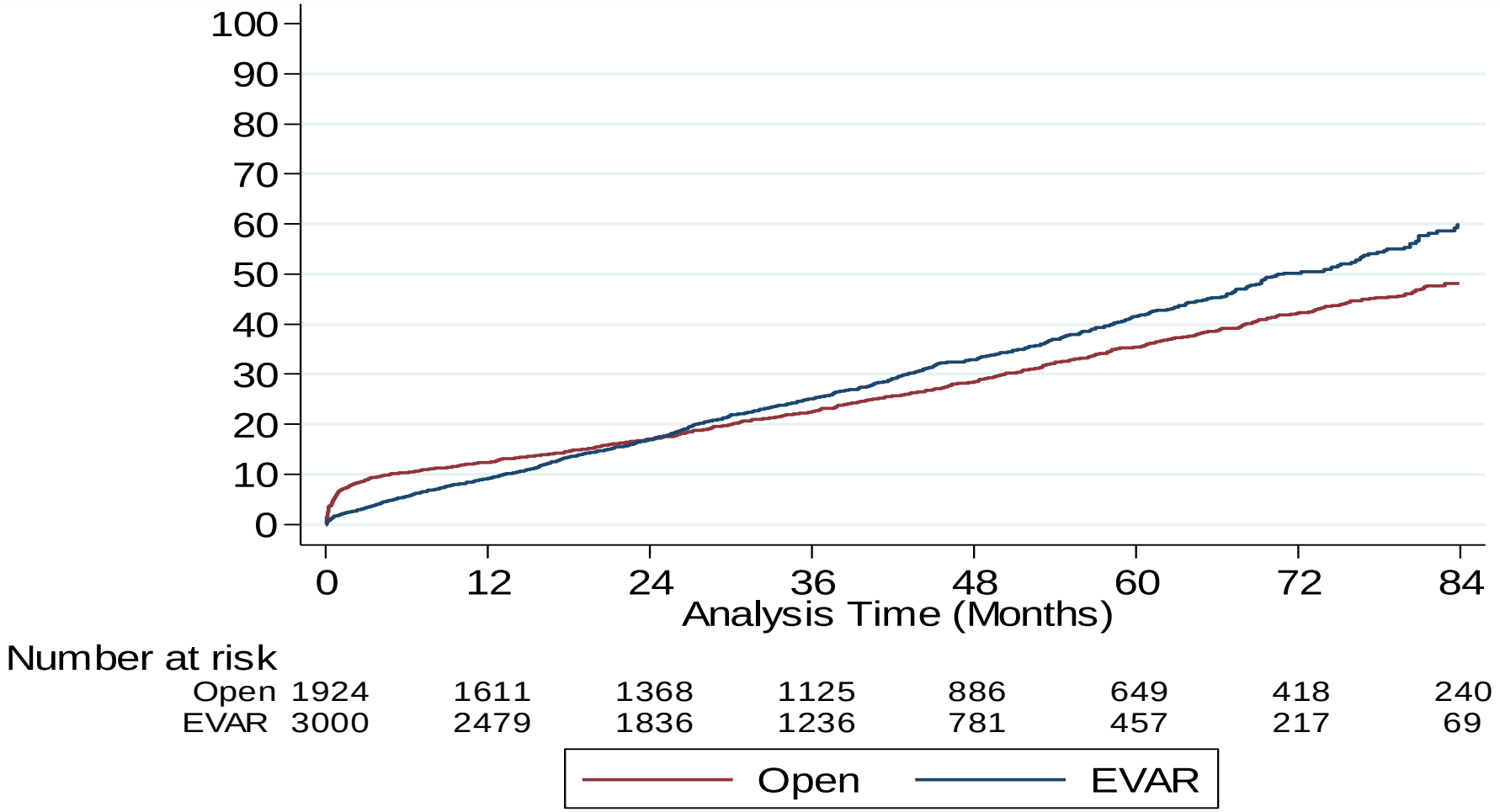

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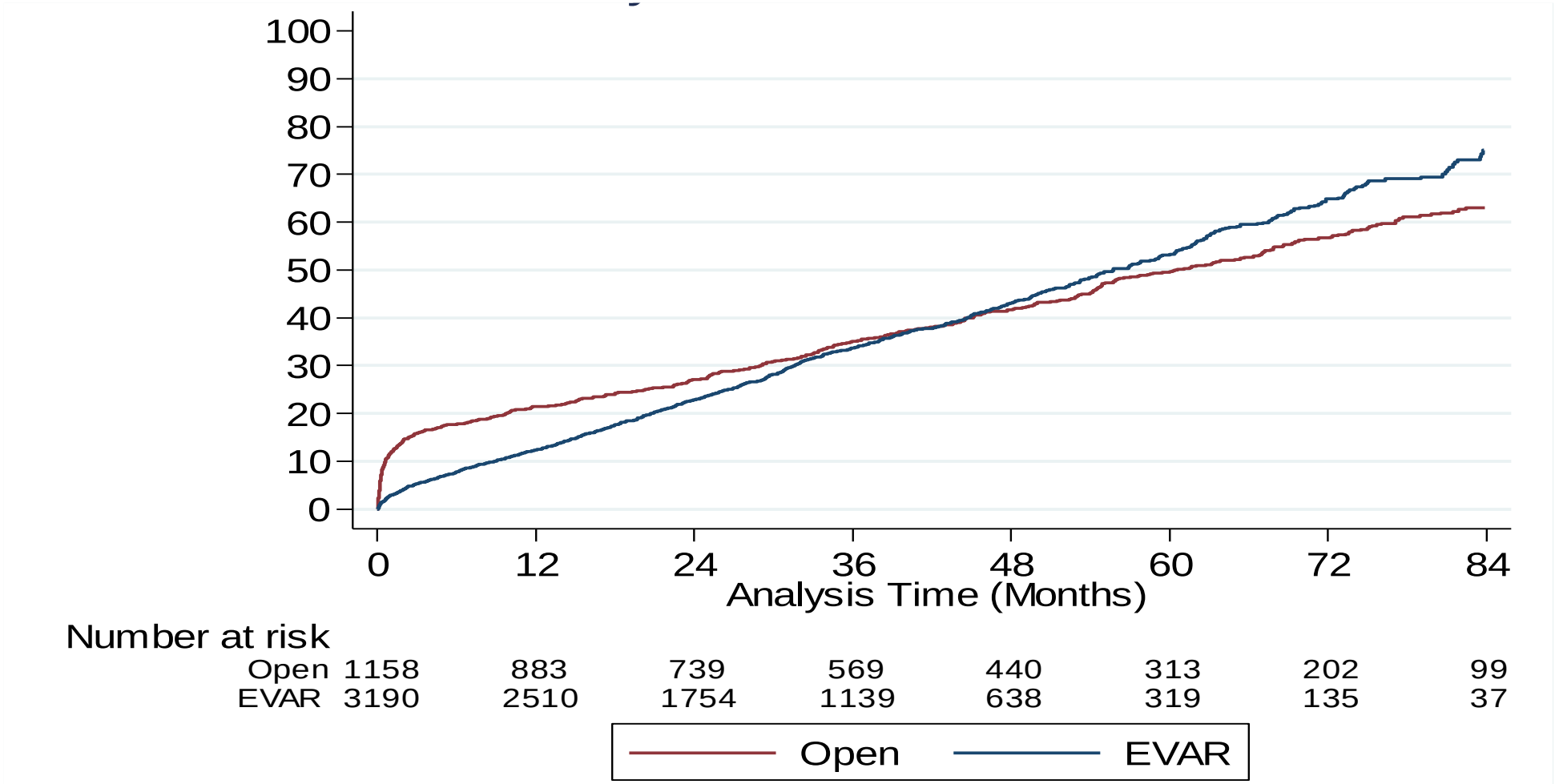
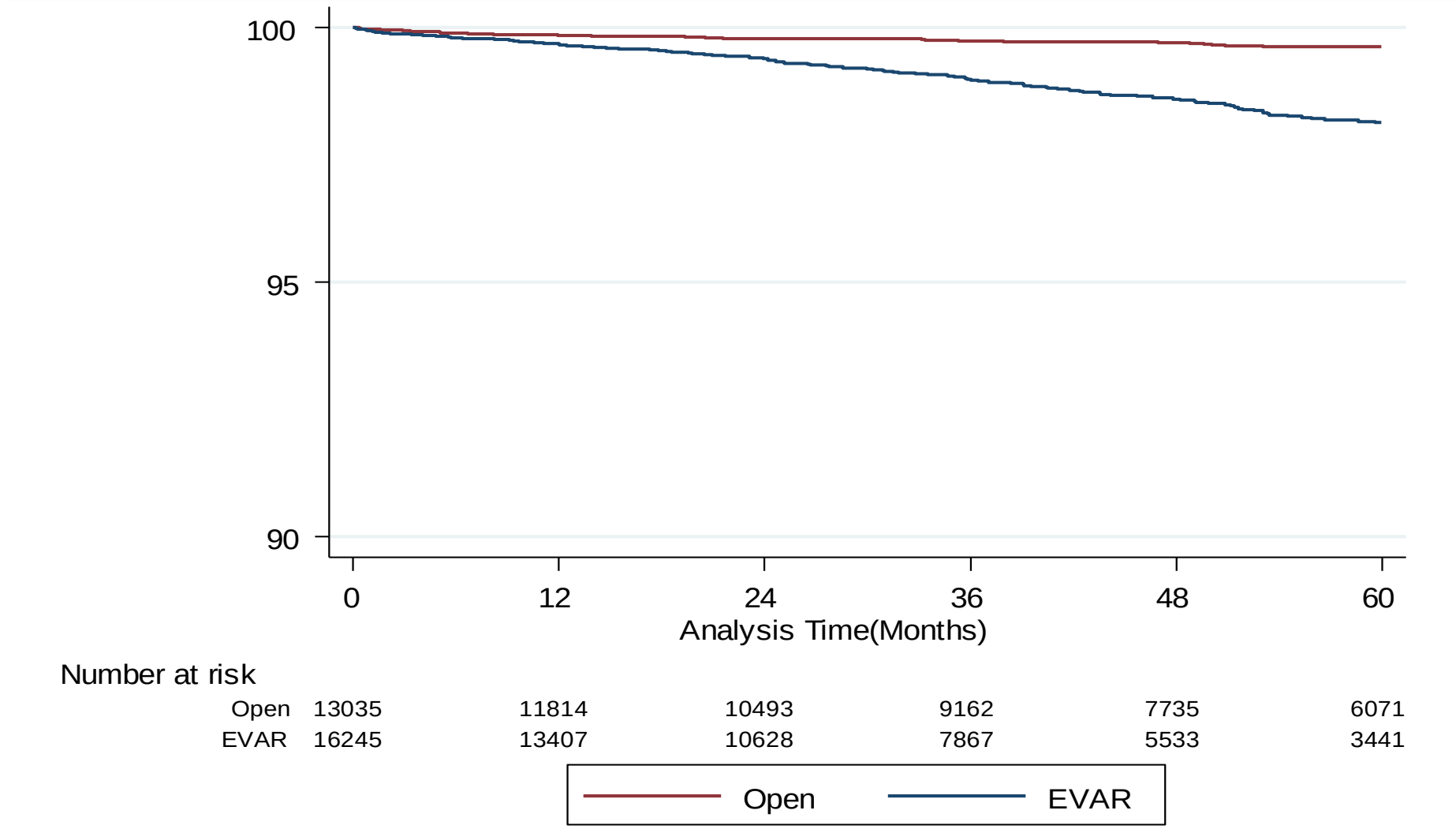


Ruptured Aneurysm Mortality



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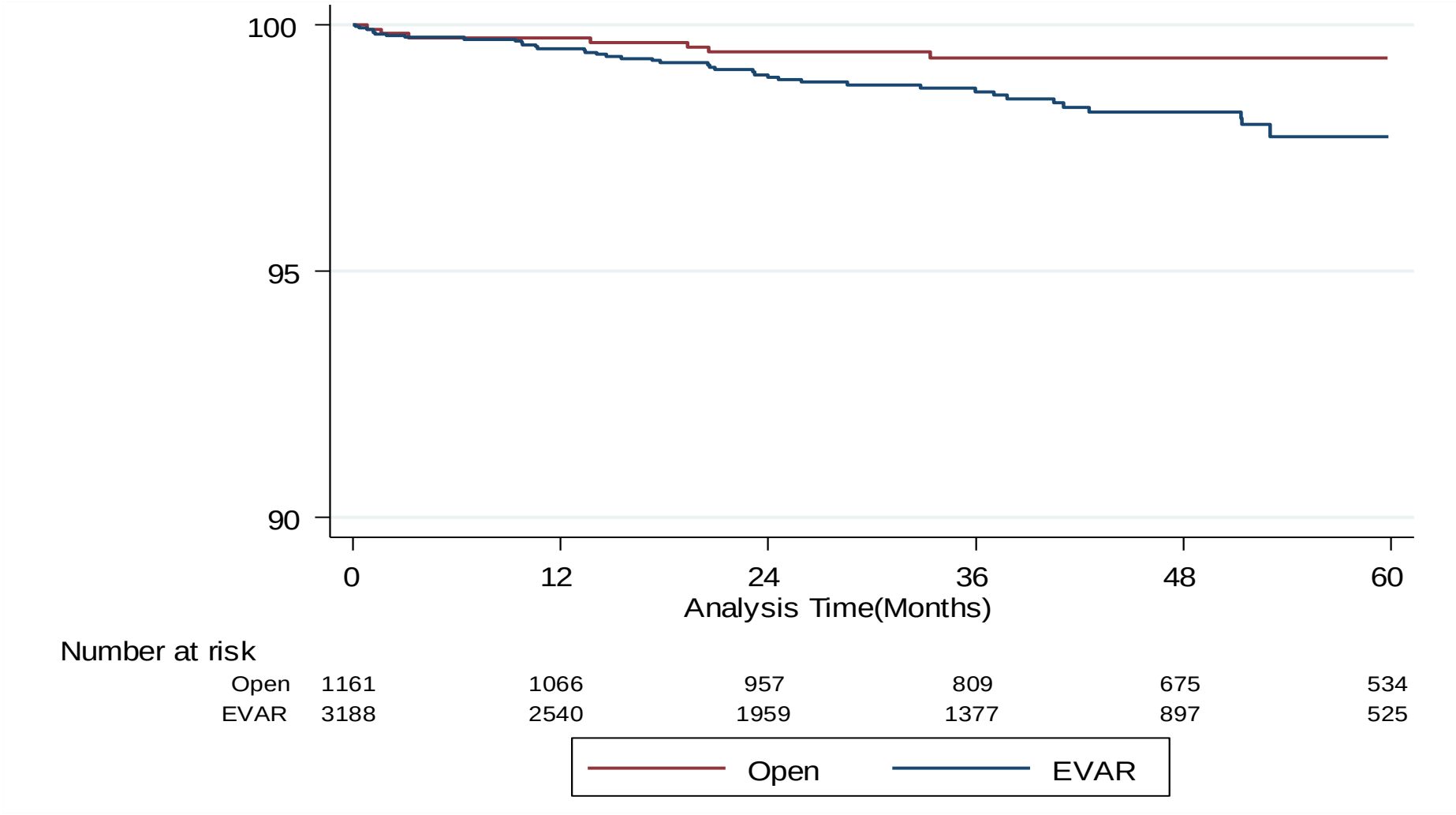

Conclusions

- Equivalent long term outcomes for EVAR and OR to 7 years, if ‘fit’
- The early benefit of EVAR is larger in old/unfit
- In the unfit, the early EVAR benefit is lost <3 years
- Death from rAAA remains a rare event following EVAR
- Multiple limiting factors: warrants further investigation in international registries/datasets
- Young fit patients should not be denied EVAR

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ADVANCING SURGICAL CARE

VSQIP VASCULAR SERVICES QUALITY IMPROVEMENT PROGRAMME