Decision Model to Evaluate the Cost of Clinical Events Associated with Switching from Apixaban to Rivaroxaban Among Patients with Non-Valvular Atrial Fibrillation in Greece

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Introduction

- A recent observational study (1) among patients with non-valvular atrial fibrillation (NVAF) in the United States (US) demonstrated that patients who switched from apixaban to rivaroxaban experienced a higher risk of clinical events compared with patients who continued apixaban.
- Stroke/systemic embolism (SE) occurred in more patients who switched from apixaban to rivaroxaban (1.53 per 100 patient-years) compared with patients who continued on apixaban (0.75 per 100 patient-years) [hazard ratio (HR): 1.99, 95% CI: 1.38–2.88] (1).
- Major bleeding also occurred in more patients in the 'switcher' group (4.59 per 100 patient-years) compared with the 'continuer' group (2.44 per 100 patient-years) (HR:1.80, 95% CI: 1.46–2.23) (1).
- The study provided real-world evidence of clinical outcomes associated with treatment switching in patients with NVAF. However, there is limited evidence on the economic outcomes of switching from apixaban to rivaroxaban in Greece.

Objective

- The aim of present study was to assess the annual cost for the management of clinical events (stroke, SE and major bleeding) in patients with NVAF, who continued apixaban or switched from apixaban to rivaroxaban and vice versa, in Greece.

Methods

Decision Model Overview

- A decision analytic model with a one-year time horizon was developed to estimate the incidence and cost of clinical events from the public payer perspective in Greece for the following two scenarios.
  - Scenario 1: Adult patients with NVAF receiving apixaban to continue apixaban ('continuers') compared to patients with NVAF receiving apixaban who switched to rivaroxaban ('switchers').
  - Scenario 2: Adult patients with NVAF receiving rivaroxaban to continue rivaroxaban ('continuers') compared to patients with NVAF receiving rivaroxaban who switched to apixaban ('switchers').

Model inputs

- Number of patients with NVAF receiving rivaroxaban and apixaban in Greece were extracted by local databases, while the proportion of patients switching from apixaban to rivaroxaban and vice versa were extracted from a published study (2).
- Adult patients diagnosed with atrial fibrillation (AF) who were treated with apixaban or rivaroxaban in the US between January 2012 and June 2022 were selected for the analysis. US clinical parameters from Deitelzweig et al., study(1) are assumed to be applicable for Greece (Table 1).
  - The study-reported incidence rates of stroke/SE and major bleeding per 100 person-years among those who continued apixaban treatment and those who switched to rivaroxaban from apixaban and vice versa, were used to inform clinical event incidence for the comparing scenarios.
- Direct medical costs associated with annual clinical events management were obtained from published literature (3-4) to reflect 2024 cost levels (Table 1).

Table 1. Model Inputs

Clinical Event±	Incidence per 100-person year: Switching from Rivaroxaban to Apixaban	Incidence per 100-person year: Rivaroxaban continuers	Incidence per 100-person year: Switching from Apixaban to Rivaroxaban	Incidence per 100-person year: Apixaban continuers
Stroke/Systemic embolism				
Ischaemic stroke	0.47	0.52	1.05	0.53
Haemorrhagic stroke	0.14	0.23	0.4	0.19
Systemic embolism	0	0.02	0.08	0.03
Major bleeding				
Gastrointestinal bleeding	1.02	2.21	2.54	1.13
Intracranial hemorrhage bleeding	0.27	0.57	0.78	0.57
Other bleeding	0.82	1.31	1.39	0.87

Clinical event management cost		
Clinical Event	**Annual management event cost**	**Source**
Stroke/Systemic embolism		
Ischaemic stroke	7,534 €	Gourzoulidis G et al. 2020 (3)
Haemorrhagic stroke	7,534 €	
Systemic embolism	7,487 €	
Major bleeding		
Gastrointestinal bleeding	2,219 €	Gourzoulidis G et al. 2017 (4)
Intracranial hemorrhage bleeding	2,542 €	Gourzoulidis G et al. 2017 (4)
Other bleeding	541 €	Gourzoulidis G et al. 2020 (3)

Source:± Deitelzweig S, et al. J Clin Med. 2024;13(4)

Results

- The analysis indicated that patients who initiated and continued apixaban, compared to patients who switched from apixaban-to-rivaroxaban, could potentially prevent 166 clinical outcomes resulting in annual cost-savings of €556,692 for the public payer (Figure 1).
- Switching from rivaroxaban to apixaban could potentially lead to prevention of 146 clinical events compared to patients who continued the treatment with rivaroxaban, resulting in annual cost-savings of €331,708 for public payer (Figure 2).

Limitations

- The model results should be interpreted in the context of the analysis limitations as the clinical event history of patients was not tracked over the model's time horizon and the mortality was not modeled.
- Data that provided clinical inputs in the model were collected in the US, highlighting a potential limitation in generalizability when used to inform analysis in Greece.

Figure 1: Annual incremental clinical event outcomes for the compared scenarios.

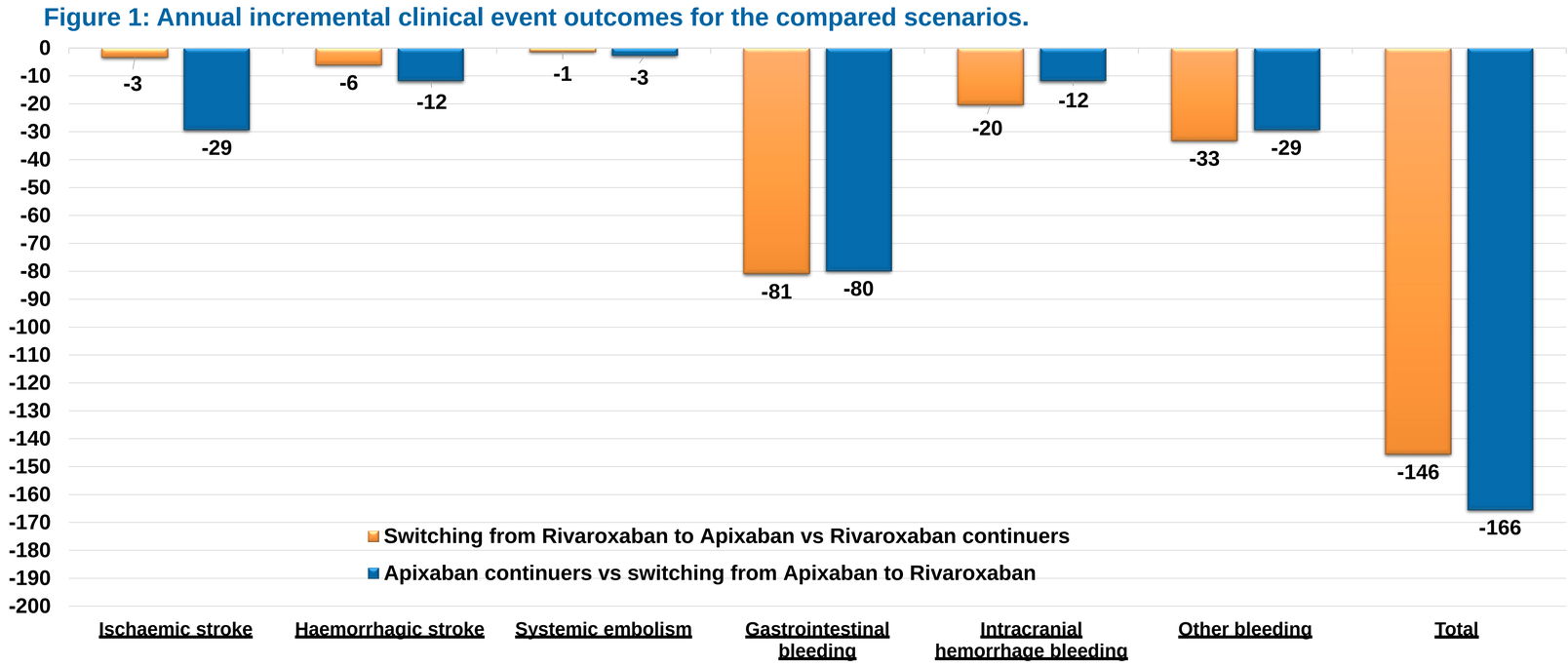
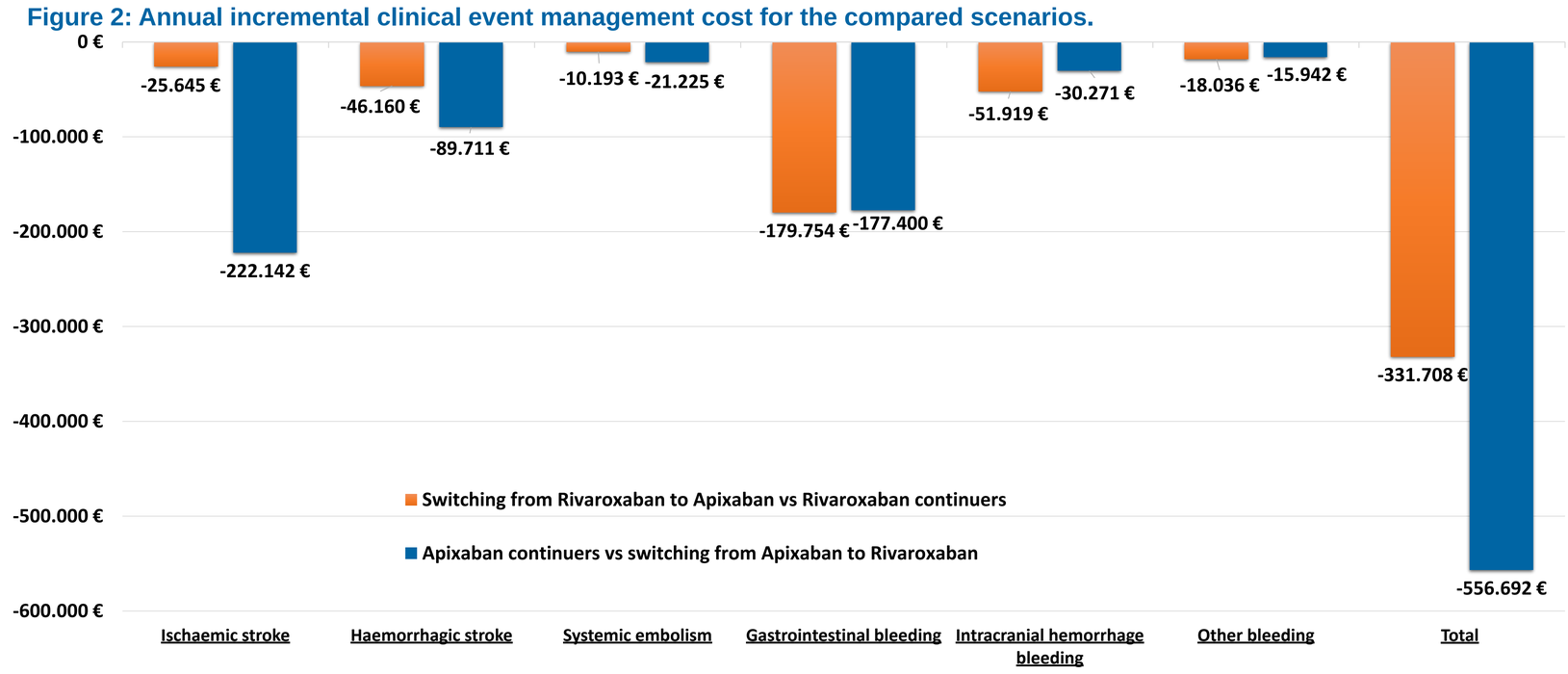


Figure 2: Annual incremental clinical event management cost for the compared scenarios.



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Conclusions

- **The present study shows patients who continued treatment with apixaban had reduced clinical events than those who switched to rivaroxaban and significant event-related-cost savings were estimated for the public payer, since switching from apixaban to rivaroxaban among patients with NVAF was associated with substantial increase in event-related costs.**
- **However, future studies with an extended time horizon are crucial in capturing the long-term outcomes and sustained benefits of interventions.**

References

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Disclosures

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