Cost-Effectiveness of Screening for NVAF utilising the UNAFIED-7 Algorithm Versus Usual Care in individuals aged 65 from a US Payer Perspective

Poster EE454

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Introduction

- There is limited evidence on the clinical and cost benefits of screening for non-valvular atrial fibrillation (NVAF)
- Predictive algorithms that identify individuals at high risk of NVAF may lead to earlier diagnosis and treatment in eligible patients
- A recently published predictive algorithm, UNAFIED-7, was effective in identifying incident atrial fibrillation (AF) using Optum's electronic healthcare record data[1]

Objective

- To assess the cost-effectiveness of one-time screening for NVAF utilising the UNAFIED-7 algorithm versus usual care (no screening with background detection only) in individuals aged 65 from a US payer perspective

Methods

- A previously published Excel-based Markov model (3-month cycle length)[2] was adapted to assess the cost-effectiveness of NVAF screening utilising UNAFIED-7 versus usual care over a lifetime horizon
- Upon detection, individuals were required to undergo a confirmatory nurse-led 12-lead ECG screening and interpretation via a cardiologist
- Diagnosed patients were treated with apixaban based on published evidence of cost-effectiveness versus other oral anticoagulants[3,4]
  - DOAC eligibility was determined to be 98.4%[5]
- Screening effectiveness data for the UNAFIED-7 algorithm were sourced from a retrospective algorithm validation study[1]
- Epidemiology inputs were based on published literature, databases and datasets
- Cost inputs were sourced from published sources and reported in 2021 US dollars
- Costs and quality-adjusted life years (QALYs) were discounted by 3% annually
- Age and sex distributions were based on US census data[6] and clinical risk profiles were based on the ARISTOLE trial[7]
- Background detection rates were assumed to be 5% based on the STROKESTOP study [8]
- One-way and probabilistic (using Monte Carlo simulation with 1000 runs) sensitivity analyses (PSA) were performed to evaluate parameter uncertainty

Methods (continued)

- Structural uncertainty was evaluated by conducting various scenario analyses including treatment with an alternative oral anticoagulant (warfarin, dabigatran, rivaroxaban and edoxaban), assuming different CPT codes for routine care (99215), increasing routine care frequency to four times a year, varying prevalence of NVAF by +/-10%, and varying background NVAF detection by 3% and 5%

Results

Base case

- The incremental cost-effectiveness ratio (ICER) of screening based on UNAFIED-7 was $54,723/QALY (**Table 1**)
- Based on a hypothetical cohort of 10,000 individuals, UNAFIED-7 detected 208 more patients with NVAF compared to usual care resulting in a reduction of ischemic stroke (IS), systemic embolism (SE) and myocardial infarction (MI) by 31, 3 and 5 events, respectively (**Table 2**)
- The reduction of clinical events (IS, SE and MI) and mortality associated with UNAFIED-7 resulted in a QALY and life-year gain of 97 and 113, respectively (**Table 1**)
- However, increased detection and anticoagulant use resulted in 6 and 76 additional haemorrhagic strokes and bleed-related events (major bleed [MB] and clinically relevant non-major bleed [CRNMB]), respectively (**Table 2**)
- There was an incremental cost related to screening and anticoagulant use of $6,234,593 however 23% of these costs ($1,449,986) were offset by reduced event-related medical costs (**Table 2**)

Sensitivity analyses

- The model was most sensitive to the stroke hazard ratio, stroke rate and MI hazard ratio (**Figure 1**)
- The cost-effectiveness acceptability curve suggests that the UNAFIED-7 algorithm had a 97% probability of being cost-effective at a willingness-to-pay (WTP) threshold of $100,000 per QALY (**Figure 2**)
- The PSA ICER ($52,961/QALY) was consistent with the base-case ICER
- ICERs from all scenario analyses conducted were below the $100,000/QALY WTP threshold

Table 1. Incremental results versus usual care (per 10,000 individuals over lifetime)

	UNAFIED-7
Incremental life-years	113
Incremental quality-adjusted life years	97
Incremental costs	$5,294,372
Incremental cost-effectiveness ratio	$54,723

Results (continued)

Figure 1. One-way sensitivity analysis results for UNAFIED 7 versus usual care.

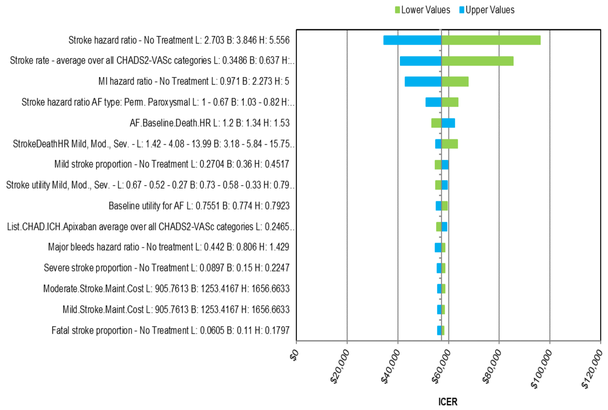
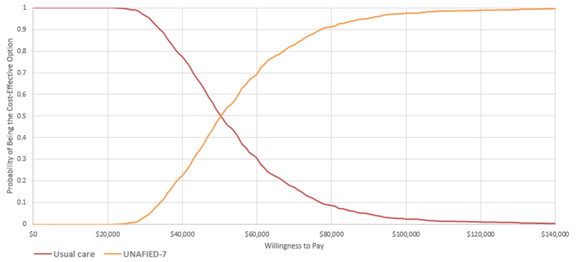


Table 2. Results for screening, clinical, survival and cost outcomes (per 10,000 individuals over lifetime)

	No screening*	UNAFIED-7
Screening related outcomes		
NVAF patients detected	741	949
Time to first stroke ischemic stroke (years)	12.93	12.96
Number of clinical events		
Ischemic stroke	1,129	1,098
Hemorrhagic stroke	52	58
Myocardial infarction	323	318
Systemic embolism	64	61
Bleeding (MB and CRNMB)	1,608	1,684
Death	10,000	10,000
Survival outcomes		
Life years	102,023	102,136
Quality-adjusted life years	78,792	78,889
Cost outcomes		
Screening	$0	$183,108
Anticoagulant	$51,601,113	$58,162,363
Medical event	$74,877,534	$73,427,548

Results (continued)

Figure 2. Cost-effectiveness acceptability curve.



Limitations

- Comparison of screening methods was not possible as there are no published comparative studies or NMAs
- Comparisons of different screening methods can be explored in future research

Conclusions

- Results suggests that screening for NVAF utilising the UNAFIED-7 algorithm in individuals aged 65 years for NVAF is a cost-effective strategy from a US payer perspective at a willingness-to-pay threshold of $100,000/QALY

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Disclosures

This was a BMS/Pfizer sponsored study. RS and RM are employees of Pfizer. TK and RJ are employees of Evidera, who were paid consultants to BMS and Pfizer in connection with the conduct of this study. RM is a shareholder of Pfizer.