Appendix 1 (as supplied by the authors): Supplemental material

Model structure details and outcomes description

Model structure

A discrete-time, health state transition (Markov) model employing two-dimensional Monte Carlo simulation (with outer and inner loop sampling [1]) was constructed in TreeAge Pro 2020 (TreeAge Software Inc., Williamstown, MA) to compare the different antithrombotic agents for older patients with non-valvular AF. On an outer, second-order loop, parameter-level uncertainty was examined by selecting key model inputs from distributions, representing the fact that estimates of parameter values derived from studies entail uncertainty. For each outer-loop parameter sample, a set of inner loop iterations were run, each representing a hypothetical patient, whose characteristics—age, sex, stroke risk (using CHADS score [2]), bleeding risk (using HAS-BLED score [3]), and falls risk—were sampled from patient-level distributions. Sampling individual patient characteristics allows for both a representation of individual variability and for the probabilities of transition among various health states to depend on a given patient's attributes. We ran each hypothetical patient through each of the anticoagulation strategies in turn.

The base case age, sex, and falls risk distributions were derived from a cohort of older adults at risk of falls (Supplementary Table ST1) [4]. The base case CHADS and HAS-BLED scores were derived from an AF trial population [5]. The discrete-time steps (cycles) were each 3 months long with a life-time time horizon (patients were followed until death or 100 years-of-age). Perspective of the analysis was from the public health care system third-party payer, the Ontario Ministry of Health and Long-Term Care. Discounting at 1.5% was applied to both cost and utilities based on the current Canadian Agency for Drugs and Technologies in Health (CADTH) guidelines [6]. Within-cycle correction was used to compensate for biases occurring with discrete-time rather than continuous-time health state transitions [7]. The results were reported in accordance with the CHEERS statement [8].

A sample structure of the decision tree is shown in Supplementary Figure SF1. Simulated patients started in the "alive" health state and transitioned to the others when events were encountered (Supplementary Figure SF2):

1. **Alive**: simulated patients in the "alive" health state can transition to "bedbound" state if they had a severe bleed or stroke, leading to severe disability with a modified Rankin score of 5 [9]. Patients could also die from one of the events in the model or from other reasons based on age-adjusted mortality rates.
2. **Bedbound**: patients in the "bedbound" state remained in this state until death, but they can still experience a stroke or bleed. To simplify the model, we assumed that those who were bedbound did not experience further falls. Bedbound patients can still take anticoagulant medication for atrial fibrillation because there is no evidence that anticoagulation loses benefit in these patients.
3. **Dead:** patients who died exited the simulation.

Stroke, bleed, and fall events were captured using tracking variables, which were used to calculate costs and utilities. For adults with a major bleed, antithrombotics were discontinued for 3 months in the simulation, which is a conservative duration allowing for minimal bleeding risk [10,11]. We chose the most effective (highest) doses of each medication for the stroke prevention analysis. Patients were assumed to be adherent to the study medication with no discontinuation,

but variation in adherence and effectiveness was accounted for in the model because the efficacy estimates were provided as ranges.

Outcomes

For each inner loop iteration (simulated individual), health gains were expressed as discounted life years (LY) and discounted, quality-adjusted LY (QALYs), the latter to account for both survival and quality of life, and costs were calculated as discounted, total lifetime costs. For both QALYs and costs, averages were computed across inner-loop iterations and, in turn, grand averages were calculated by averaging the inner loop averages across the outer loop iterations. Pairs of strategies were compared by calculating the incremental cost-effectiveness ratio (ICER) as the difference in the grand averages of costs divided by the difference in grand averages of QALYs. ICERs were calculated by ranking all the strategies by lowest to highest cost. A pair of strategies consisted of a given strategy and the strategy with the next lowest cost. If the option with the higher cost had a lower effectiveness, it was considered to be directly dominated. We also considered ordered triplets of strategies to determine extended dominance. If the effectiveness of the middle strategy of a triplet could be achieved less expensively by a combination of the two neighboring strategies, the middle strategy was considered to be dominated by extension. The willingness-to-pay (WTP) threshold for this analysis was set at an ICER below C$50,000/QALY based on commonly accepted threshold range in Canada [12,13]. Secondary outcomes included life expectancy, cumulative major stroke, cumulative major bleeding, cumulative bedbound, and duration of time off medication.

Model probabilities, cost and utilities

A targeted literature search (MEDLINE) was completed to obtain baseline probabilities and utilities for events related to stroke, bleeding and falls (Table ST1). The baseline mortality rate for each age was derived from Statistics Canada Ontario life tables [14]. Appropriate distributions were created for each variable for outer-loop sampling.

The model utilized sampled patient characteristics and the validated CHADS2 [2] and the HAS-BLED [3] scoring tools to determine an individual's initial risks for stroke and bleeding while in the 'Alive' state. Patients were dichotomized into either high- or low-risk in both the CHADS2 and the HAS-BLED scores using ≥3 as cutoff for both scores. Four risk categories were created using the initial risk scores (main text Table 2), with proportions in each risk group determined from a published cohort [5]. In the 'Alive' state, patients could continue to cycle through with the possibility of dying, having a fall, or developing a stroke or a bleed. If they developed a stroke or bleed, it was stratified into a major or minor event. A major stroke or bleed was associated with a risk of permanent severe neurologic injury, defined by modified Rankin score of 5 [15,16]. Individuals with a Rankin score of 5 were transitioned to the bedbound health state, but they could experience further strokes and bleeds. Any stroke led to increased future stroke risk by increasing the CHAD2 category. Major bleeds also increased future bleeding risk (higher HAS-BLED score), but minor bleeds did not change the HAS-BLED status.

The probability of first and subsequent falls was based on the Tinetti falls cohort [4]. Each fall led to an increased risk of major bleeding, with a hazard ratio derived from an AF clinical trial that captured falls data [17]. The efficacy estimates (stroke, bleed, mortality odds ratios) for each medication are derived from a network meta-analysis (Table ST1) [18]. The odds of bleeding,

stroke and death of no treatment compared with warfarin was derived from a 1994 meta-analysis of the original warfarin trials for AF [19]. The no-treatment estimate was used during the period off medication after a major bleed.

Cost data was based on a previous decision analysis that utilized Canadian costs from 2013 [20]. We adjusted for inflation to 2018 values using the Bank of Canada Consumer Price Index [21]. Similarly, costs related to falls were obtained from a Canadian publication from 2009 and updated to 2018 values [22]. We also obtained costs of medications (main text Table 3) from the Ontario Drug Benefit Formulary (ODB) [23]. Indirect costs of warfarin therapy including blood monitoring and clinic visits were accounted for [24] with all costs being reported in Canadian dollars (C$). The cost of the bedbound health state was defined as requiring long-term care, and the amount paid by the Ministry of Health and Long-Term Care per month was used [25].

Utilities were derived from published estimates (Table S1). All individuals entering the cohort began with the utility of having AF [26]. The utility of stroke or bleed was factored into the existing utility when those events occurred. Minor stroke, minor bleed, or a fall was associated with a disutility for a defined period of time, but not permanently.

Supplemental Table S1: Full variable set including distributions and sampling iteration. Log normal distribution parameters were mean of logs and standard deviation of logs. IL = inner loop (first order), OL = outer loop (second order), μ = mean, σ = standard deviation, HR = hazard ratio, OR = odds ratio.

	Sampled iterations	Distribution parameters	Reference
Baseline characteristics			
Starting age	IL	Normal (μ=78.3, σ=5.1)	[4]
Sex female	IL	Uniform (<0.51)	[4]
Start CHADS/HAS-BLED profile	IL	Uniform (0–0.58, 0.58–0.77, 0.77–0.89, 0.89–1)	[5]
Probabilities			
First fall	IL	Beta (μ=0.32, σ=0.025)	[4]
Subsequent fall	IL	Beta (μ=0.58, σ=0.097)	[4]
HR of bleed after a fall	OL	LogNormal (μ=0.329, σ=0.122)	[17]
Any bleed – HAS-BLED low, annual	IL	Beta (μ=0.166, σ=0.055)	[3]
Any bleed – HAS-BLED high, annual	IL	Beta (μ=0.091, σ=0.030)	[3]
Major bleed given any anticoagulant bleed	OL	Beta (μ=0.31, σ=0.03)	[27]
Intracranial bleed given major bleed	OL	Beta (μ=0.21, σ=0.07)	[28]
Bedbound after intracranial bleed (modified Rankin scale ≥5)	IL	Beta (μ=0.176, σ=0.059)	[16]
Any stroke – CHADS low	IL	LogNormal (μ=–3.297, σ=0.325)	[29]
Any stroke – CHADS high	IL	LogNormal (μ=–2.489, σ=0.325)	[29]
Major stroke given a stroke	OL	Beta (μ=0.41, σ=0.11)	[30]
Bedbound after major stroke (modified Rankin scale ≥5)	IL	Beta (μ=0.176, σ=0.059)	[15]
OR death due to atrial fibrillation	OL	Lognormal (μ=0.470, σ=0.125)	[31]
HR death after major stroke	OL	Lognormal (μ=1.666, σ=0.246)	[32]
HR death after major bleed	OL	Lognormal (μ=1.209, σ=0.281)	[32]
HR death given bedbound	OL	Lognormal (μ=1.337, σ=0.125)	[33]
Costs (C$ 2018 values)			
Fall, single event	OL	Gamma (μ=7,286.01, σ=2,428.67)	[22]
Major bleed, initial event	OL	Gamma (μ=5,358.98, σ=1,786.33)	[20]
Major bleeding, monthly	OL	Gamma (μ=6,942.54, σ=2,314.18)	[20]
Minor bleed, single event	OL	Gamma (μ=84.38, σ=28.13)	[20]
Major stroke, initial event	OL	Gamma (μ=7,227.47, σ=2,409.16)	[20]
Major stroke monthly	OL	Gamma (μ=6,476.51, σ=2,158.84)	[20]
Minor stroke, single event	OL	Gamma (μ=3,613.74, σ=1,204.58)	[20]
Bedbound (assume long-term care)	OL	Gamma (μ=4,304.91, σ=1,434.97)	[25]
Utilities/disutilities			
Atrial fibrillation	IL	Beta (μ=0.95, σ=0.02)	[34]
Fall, per event*	IL	Beta (μ=–0.11, σ=0.04)	[35]
Major bleed, long term	IL	Beta (μ=0.31, σ=0.03)	[26]
Minor bleed, 1 month*	IL	Beta (μ=0.21, σ=0.07)	[26]
Major stroke, first year	IL	Beta (μ=0.176, σ=0.059)	[26]
Major stroke, long term	IL	LogNormal (μ=–3.297, σ=0.325)	[26]
Minor stroke, first year*	IL	LogNormal (μ=–2.489, σ=0.325)	[26]
Bedbound (Rankin ≥5)	IL	Beta (μ=0.41, σ=0.11)	[34]
*Disutilities			
Drug efficacy and safety			
ASA, OR any bleed	OL	LogNormal (μ=–0.528, σ=0.137)	[18]
ASA, OR any stroke	OL	LogNormal (μ=0.631, σ=0.149)	[18]
ASA, OR death	OL	LogNormal (μ=0.039, σ=0.105)	[18]

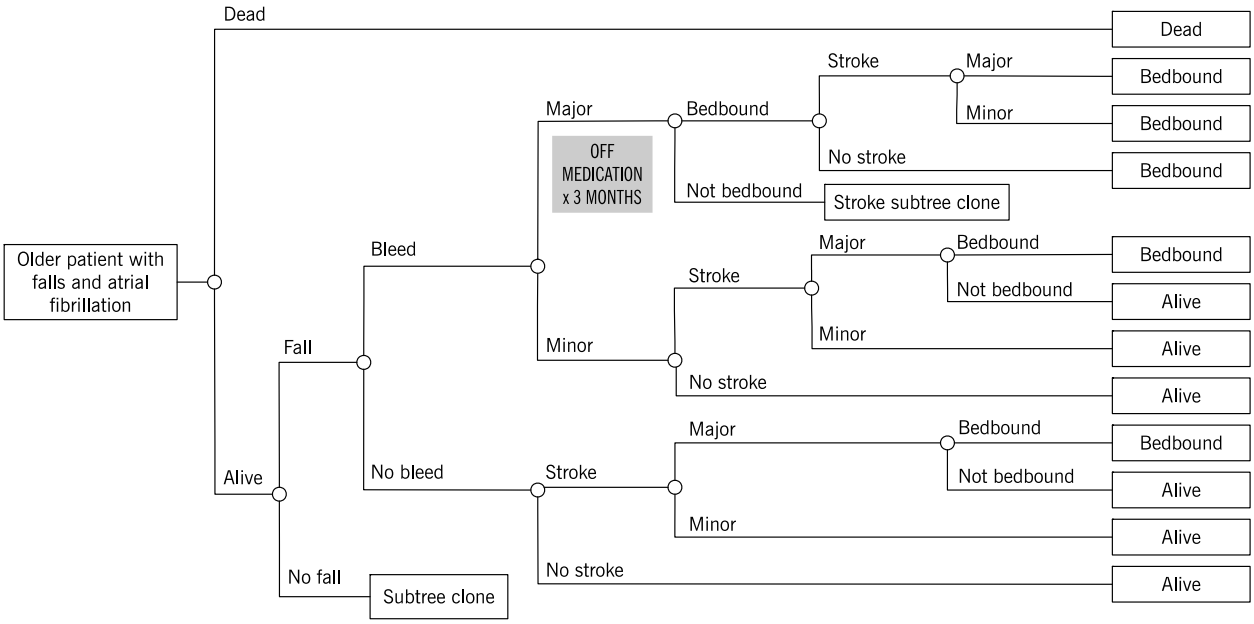
Apixaban, OR any bleed	OL	LogNormal (μ=-0.400, σ=0.057)	[18]
Apixaban, OR any stroke	OL	LogNormal (μ=-0.236, σ=0.090)	[18]
Apixaban, OR death	OL	LogNormal (μ=-0.128, σ=0.055)	[18]
Dabigatran 150mg, OR any bleed	OL	LogNormal (μ=0.445, σ=0.623)	[18]
Dabigatran 150mg, OR any stroke	OL	LogNormal (μ=-0.431, σ=0.113)	[18]
Dabigatran 150mg, OR death	OL	LogNormal (μ=-0.128, σ=0.069)	[18]
Dabigatran 110mg, OR any bleed	OL	LogNormal (μ=0.055, σ=0.076)	[18]
Dabigatran 110mg, OR any stroke	OL	LogNormal (μ=-0.105, σ=0.101)	[18]
Dabigatran 110mg, OR death	OL	LogNormal (μ=-0.094, σ=0.067)	[18]
Edoxaban 60mg, OR any bleed	OL	LogNormal (μ=-0.174, σ=0.040)	[18]
Edoxaban 60mg, OR any stroke	OL	LogNormal (μ=-0.151, σ=0.079)	[18]
Edoxaban 60mg, OR death	OL	LogNormal (μ=-0.151, σ=0.053)	[18]
Edoxaban 30mg, OR any bleed	OL	LogNormal (μ=-0.528, σ=0.043)	[18]
Edoxaban 30mg, OR any stroke	OL	LogNormal (μ=0.122, σ=0.079)	[18]
Edoxaban 30mg, OR death	OL	LogNormal (μ=-0.151, σ=0.053)	[18]
Rivaroxaban, OR any bleed	OL	LogNormal (μ=0.030, σ=0.040)	[18]
Rivaroxaban, OR any stroke	OL	LogNormal (μ=-0.128, σ=0.084)	[18]
Rivaroxaban, OR death	OL	LogNormal (μ=-0.186, σ=0.095)	[18]
Off medication, OR any bleed	OL	LogNormal (μ=-0.262, σ=0.325)	[19]
Off medication, OR any stroke	OL	LogNormal (μ=0.386, σ=0.117)	[19]
Off medication, OR death	OL	LogNormal (μ=1.109, σ=0.443)	[19]

Model validation results

Using the prespecified variables, the model was shown to be externally valid. The cumulative number of falls in the model was 4.17 (95% confidence interval, CI 3.41–4.94) compared with 3.59 in a United States population-based cohort [36] and 6.57 in a Finnish geriatric community-dwelling cohort [37]. The cumulative number of falls was determined by multiplying the annual falls rate by the average life years from the model. The cumulative stroke risk in the model with ASA is 0.27 (0.13–0.40). The Framingham cohort estimates the cumulative stroke risk from age 75 to be 0.104 [38]. Adjusting for the presence of AF (relative risk, RR 3.3 from the Framingham cohort [39]) and the risk reduction with ASA (RR 0.64 [19]), the cumulative stroke risk is 0.22, which is similar to the model estimate. No calibration was required.

Appendix to Wong EKC, Belza C, Naimark DMJ, et al. Cost-effectiveness of antithrombotic agents for atrial fibrillation in older adults at risk for falls: a mathematical modelling study. *CMAJ Open* 2020. DOI:10.9778/cmajo.20200107.

Supplemental Figure S1: Model structure.



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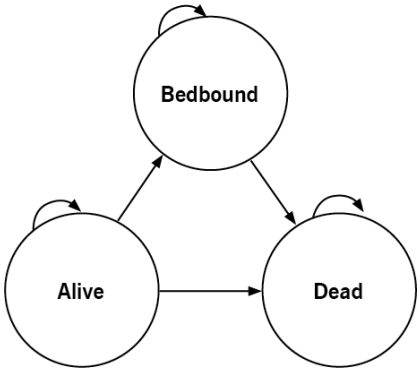
Supplemental Figure S2: Health states and possible transitions.



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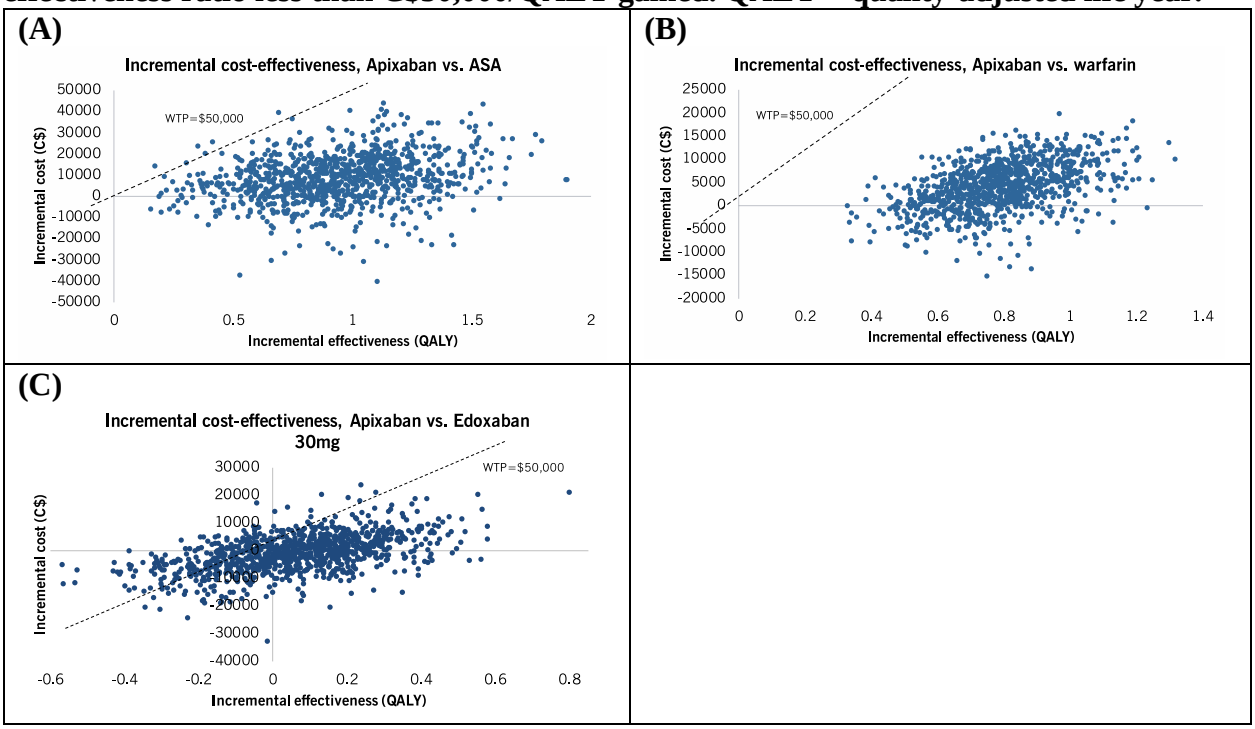
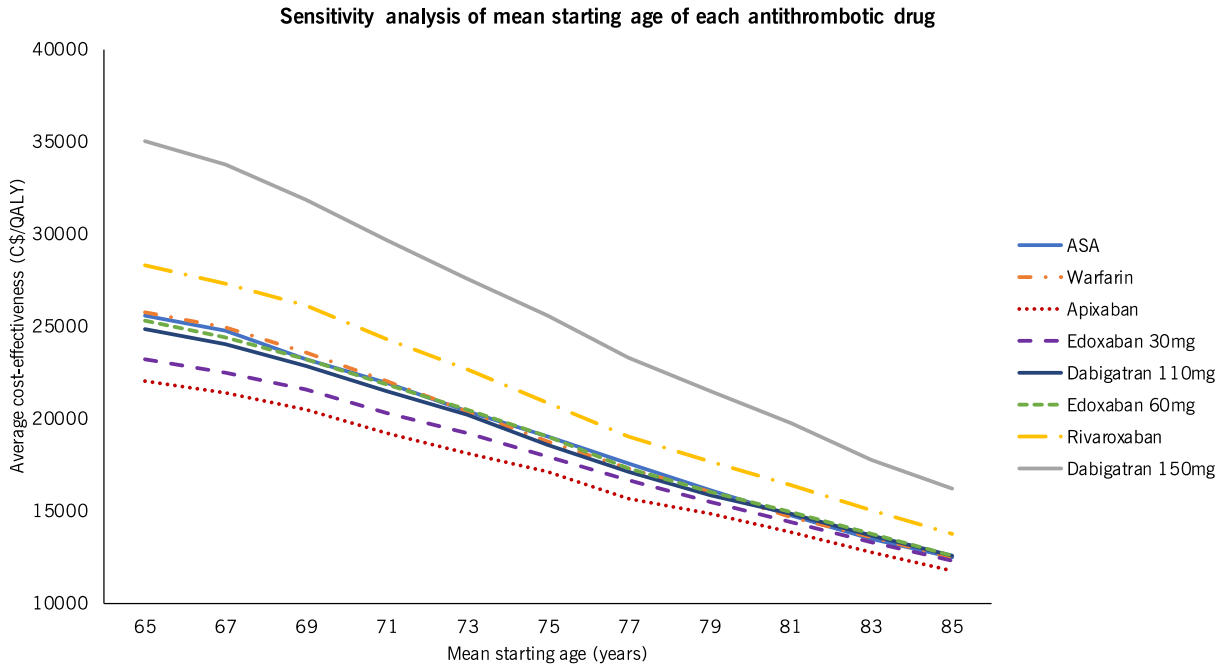
Supplemental Figure S3: Incremental cost-effectiveness plots for (A) apixaban vs. ASA, (B) apixaban vs. warfarin, and (C) apixaban vs. edoxaban 30mg. Points to the left (below) the willingness-to-pay (WTP) threshold indicate model iterations with incremental cost-effectiveness ratio less than C$50,000/QALY gained. QALY = quality-adjusted life year.

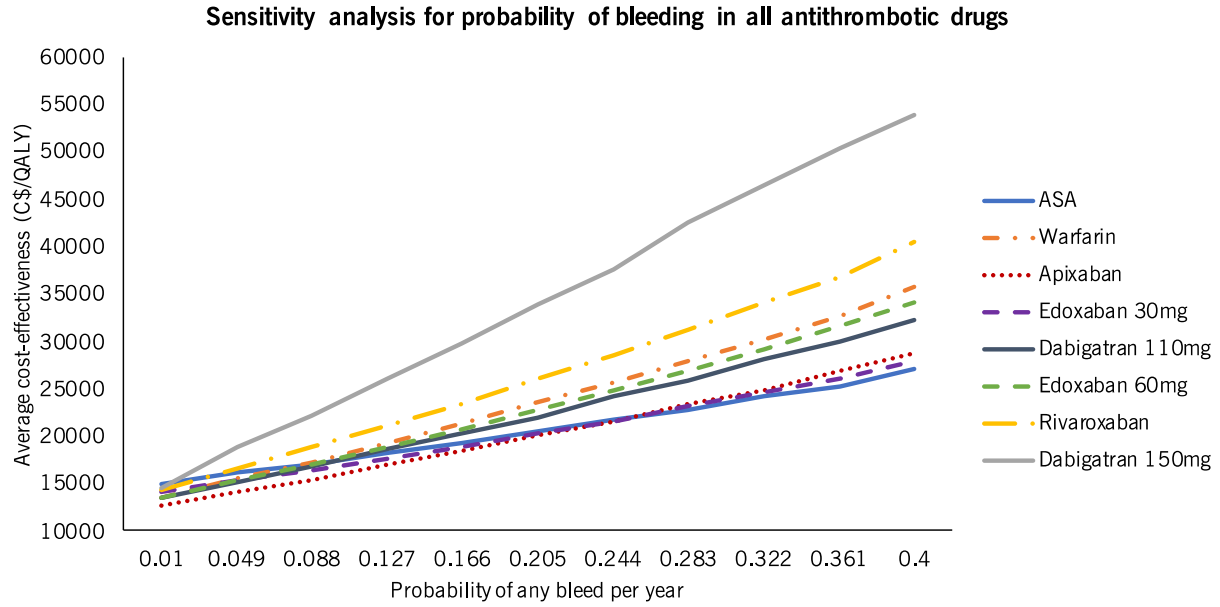


Supplemental Figure S4: Sensitivity analyses on average cost-effectiveness (C$/QALY) for (A) mean age at start, (B) probability of first fall, and (C) baseline probability of any bleed. Lower average cost-effectiveness is better. Overall, apixaban is most cost-effective across these ranges, with ASA being preferred in those with very high risk of bleed. QALY = quality-adjusted life year.

(A)



(B)



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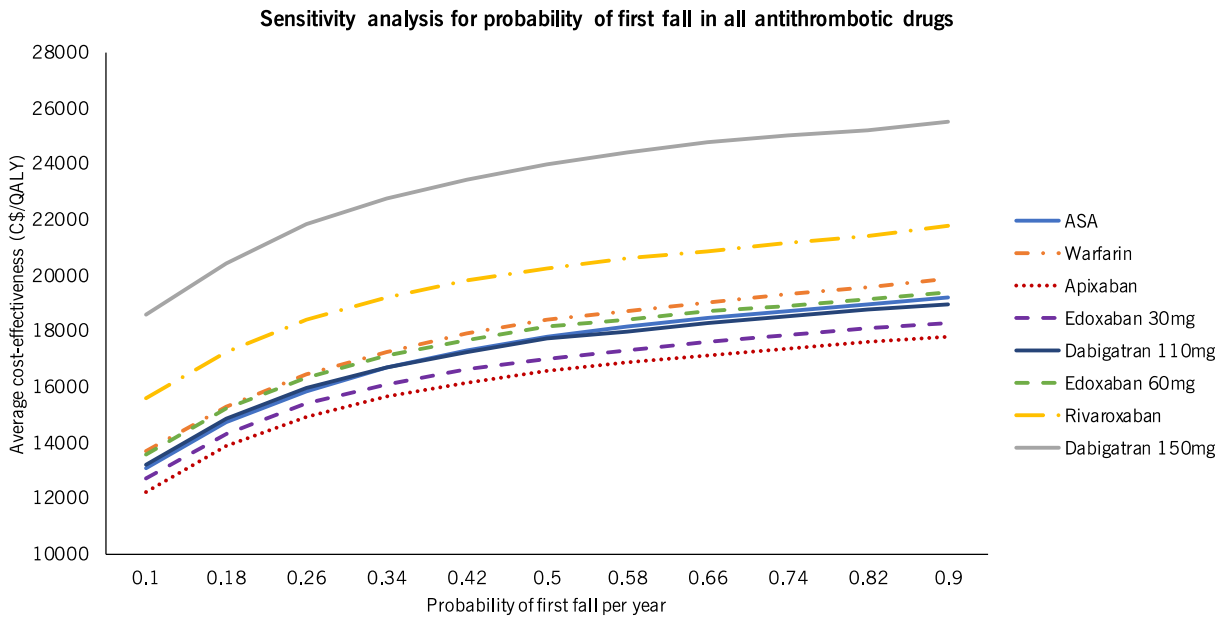
(C)



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References

[1] O'Hagan A, Stevenson M, Madan J. Monte Carlo probabilistic sensitivity analysis for patient level simulation models: efficient estimation of mean and variance using ANOVA. Health Econ 2007;16:1009–23. doi:10.1002/hec.1199.

[2] Gage BF, Waterman AD, Shannon W, Boechler M, Rich MW, Radford MJ. Validation of clinical classification schemes for predicting stroke: Results from the National Registry of Atrial Fibrillation. J Am Med Assoc 2001;285:2864–70. doi:10.1001/jama.285.22.2864.

[3] Apostolakis S, Lane DA, Guo Y, Buller H, Lip GYH. Performance of the HEMORR 2 HAGES, ATRIA, and HAS-BLED bleeding risk-prediction scores in patients with atrial fibrillation undergoing anticoagulation: The AMADEUS (Evaluating the use of SR34006 compared to warfarin or acenocoumarol in patients with atrial fibrillation) study. J Am Coll Cardiol 2012;60:861–7. doi:10.1016/j.jacc.2012.06.019.

[4] Tinetti ME, Speechley M, Ginter SF. Risk Factors for Falls among Elderly Persons Living in the Community. N Engl J Med 1988;319:1701–7. doi:10.1056/NEJM198812293192604.

[5] Lopes RD, Al-Khatib SM, Wallentin L, Yang H, Ansell J, Bahit MC, et al. Efficacy and safety of apixaban compared with warfarin according to patient risk of stroke and of bleeding in atrial fibrillation: A secondary analysis of a randomised controlled trial. Lancet 2012;380:1749–58. doi:10.1016/S0140-6736(12)60986-6.

[6] CADTH. Guidelines for the Economic Evaluation of Health Technologies: Canada, 4th edition. Ottawa, Canada: 2017.

[7] Elbasha EH, Chhatwal J. Myths and Misconceptions of Within-Cycle Correction: A Guide for Modelers and Decision Makers. Pharmacoeconomics 2016;34:13–22. doi:10.1007/s40273-015-0337-0.

[8] Husereau D, Drummond M, Petrou S, Carswell C, Moher D, Greenberg D, et al. Consolidated Health Economic Evaluation Reporting Standards (CHEERS) statement. BMJ 2013;346. doi:10.1136/bmj.f1049.

[9] Van Swieten JC, Koudstaal PJ, Visser MC, Schouten H, Van Gijn J. Interobserver agreement for the assessment of handicap in stroke patients. Stroke 1988;19:604–7. doi:10.1161/01.STR.19.5.604.

[10] Colantino A, Jaffer AK, Brotman DJ. Resuming anticoagulation after hemorrhage: A practical approach. Cleve Clin J Med 2015;82:245–56. doi:10.3949/ccjm.82a.14047.

[11] Majeed A, Kim YK, Roberts RS, Holmström M, Schulman S. Optimal timing of resumption of warfarin after intracranial hemorrhage. Stroke 2010;41:2860–6. doi:10.1161/STROKEAHA.110.593087.

[12] Pandey H, Paulden M, McCabe C. Theoretical models of the cost-effectiveness threshold, value assessment, and health care system sustainability. Edmonton, Alberta.: 2018. doi:978-1-926929-89-7.

[13] Laupacis A, Feeny D, Detsky AS, Tugwell PX. How attractive does a new technology have to be to warrant adoption and utilization? Tentative guidelines for using clinical and economic evaluations. CMAJ 1992;146:473–81.

[14] StatCan. Life Tables, Canada, Provinces and Territories, 1980/1982 to 2014/2016. Ottawa, Canada: 2018.

[15] Olavarría V V., Brunser A, Cabral N, Martins S, Muñoz-Venturelli P, Cavada G, et al. The distribution of the modified Rankin scale scores change according to eligibility criteria in acute ischemic stroke trials: A consideration for sample size calculations when

using ordinal regression analysis. Contemp Clin Trials Commun 2017;5:133–6. doi:10.1016/j.conctc.2017.01.008.
[16] Asuzu D, Nystrom K, Amin H, Schindler J, Wira C, Greer D, et al. Modest association between the discharge modified rankin scale score and symptomatic intracerebral hemorrhage after intravenous thrombolysis. J Stroke Cerebrovasc Dis 2015;24:548–53. doi:10.1016/j.jstrokecerebrovasdis.2014.09.034.
[17] Rao MP, Vinereanu D, Wojdyla DM, Alexander JH, Atar D, Hylek EM, et al. Clinical Outcomes and History of Fall in Patients with Atrial Fibrillation Treated with Oral Anticoagulation: Insights From the ARISTOTLE Trial. Am J Med 2018;131:269-275.e2. doi:10.1016/j.amjmed.2017.10.036.
[18] López-López JA, Sterne JAC, Thom HHZ, Higgins JPT, Hingorani AD, Okoli GN, et al. Oral anticoagulants for prevention of stroke in atrial fibrillation: Systematic review, network meta-Analysis, and cost effectiveness analysis. BMJ 2017;359. doi:10.1136/bmj.j5058.
[19] Atrial Fibrillation Investigators. Risk Factors for Stroke and Efficacy of Antithrombotic Therapy in Atrial Fibrillation: Analysis of Pooled Data From Five Randomized Controlled Trials. Arch Intern Med 1994;154:1449–57. doi:10.1001/archinte.1994.00420130036007.
[20] Singh SM, Micieli A, Wijeysundera HC. Economic evaluation of percutaneous left atrial appendage occlusion, dabigatran, and warfarin for stroke prevention in patients with nonvalvular atrial fibrillation. Circulation 2013;127:2414–23. doi:10.1161/CIRCULATIONAHA.112.000920.
[21] Bank of Canada. Inflation Calculator n.d. https://www.bankofcanada.ca/rates/related/inflation-calculator/ (accessed January 9, 2020).
[22] SMARTRISK. The Economic Burden of Injury in Canada. Toronto, Canada: 2009.
[23] Ontario Drug Benefits Program. Ontario Drug Benefit Formulary/Comparative Drug Index 2019. https://www.formulary.health.gov.on.ca/formulary/ (accessed January 9, 2020).
[24] Schulman S, Anderson DR, Bungard TJ, Jaeger T, Kahn SR, Wells P, et al. Direct and indirect costs of management of long-term warfarin therapy in Canada. J Thromb Haemost 2010;8:2192–200. doi:10.1111/j.1538-7836.2010.03989.x.
[25] Ontario Long Term Care Association. About long-term care in Ontario: Facts and figures 2019. https://www.oltca.com/oltca/OLTCA/Public/LongTermCare/FactsFigures.aspx (accessed January 9, 2020).
[26] Tengs TO, Wallace A. One thousand health-related quality-of-life estimates. Med Care 2000;38:583–637. doi:10.1097/00005650-200006000-00004.
[27] Bahit MC, Lopes RD, Wojdyla DM, Held C, Hanna M, Vinereanu D, et al. Non-major bleeding with apixaban versus warfarin in patients with atrial fibrillation. Heart 2017;103:623–8. doi:10.1136/heartjnl-2016-309901.
[28] Granger CB, Alexander JH, McMurray JJV, Lopes RD, Hylek EM, Hanna M, et al. Apixaban versus warfarin in patients with atrial fibrillation. N Engl J Med 2011;365:981–92. doi:10.1056/NEJMoa1107039.
[29] Van Staa TP, Setakis E, Di Tanna GL, Lane DA, Lip GYH. A comparison of risk stratification schemes for stroke in 79 884 atrial fibrillation patients in general practice. J Thromb Haemost 2011;9:39–48. doi:10.1111/j.1538-7836.2010.04085.x.
[30] Acciarresi M, Paciaroni M, Agnelli G, Falocci N, Caso V, Becattini C, et al. Prestroke

CHA2DS2-VASc Score and Severity of Acute Stroke in Patients with Atrial Fibrillation: Findings from RAF Study. J Stroke Cerebrovasc Dis 2017;26:1363–8. doi:10.1016/j.jstrokecerebrovasdis.2017.02.011.
[31] Benjamin EJ, Wolf PA, D'Agostino RB, Silbershatz H, Kannel WB, Levy D. Impact of atrial fibrillation on the risk of death: The Framingham Heart Study. Circulation 1998;98:946–52. doi:10.1161/01.CIR.98.10.946.
[32] De Caterina R, Connolly SJ, Pogue J, Chrolavicius S, Budaj A, Morais J, et al. Mortality predictors and effects of antithrombotic therapies in atrial fibrillation: Insights from ACTIVE-W. Eur Heart J 2010;31:2133–40. doi:10.1093/eurheartj/ehq250.
[33] Eriksson M, Norrving B, Terént A, Stegmayr B. Functional outcome 3 months after stroke predicts long-term survival. Cerebrovasc Dis 2008;25:423–9. doi:10.1159/000121343.
[34] Ali M, MacIsaac R, Quinn TJ, Bath PM, Veenstra DL, Xu Y, et al. Dependency and health utilities in stroke: Data to inform cost-effectiveness analyses. Eur Stroke J 2017;2:70–6. doi:10.1177/2396987316683780.
[35] Polinder S, Boyé NDA, Mattace-Raso FUS, Van der Velde N, Hartholt KA, De Vries OJ, et al. Cost-utility of medication withdrawal in older fallers: results from the improving medication prescribing to reduce risk of FALLs (IMPROveFALL) trial. BMC Geriatr 2016;16:1–10. doi:10.1186/s12877-016-0354-7.
[36] Verma SK, Willetts JL, Corns HL, Marucci-Wellman HR, Lombardi DA, Courtney TK. Falls and fall-related injuries among community-dwelling adults in the United States. PLoS One 2016;11. doi:10.1371/journal.pone.0150939.
[37] Iinattiniemi S, Jokelainen J, Luukinen H. Falls risk among a very old home-dwelling population. Scand J Prim Health Care 2009;27:25–30. doi:10.1080/02813430802588683.
[38] Seshadri S, Beiser A, Kelly-Hayes M, Kase CS, Au R, Kannel WB, et al. The lifetime risk of stroke: estimates from the Framingham Study. Stroke 2006;37:345–50. doi:10.1161/01.STR.0000199613.38911.b2.
[39] Wolf PA, Abbott RD, Kannel WB. Atrial fibrillation as an independent risk factor for stroke: The framingham study. Stroke 1991;22:983–8. doi:10.1161/01.STR.22.8.983.

