

# **Supplemental Material**

## **Data S1.**

### **Supplemental Methods**

#### **Definition of Covariates**

To calculate the CHA<sub>2</sub>DS<sub>2</sub>-VASc score, female sex, age between 65 and 74, congestive heart failure, hypertension history, vascular disease history and diabetes mellitus are assigned one point, and age of 75 or older and a history of previous stroke, transient ischemic attack or thromboembolism are assigned two points.<sup>1</sup> Congestive heart failure, hypertension, diabetes, and a history of stroke or transient ischemic attack were defined using the CMS Chronic Condition Warehouse definitions.<sup>2</sup> Vascular disease was defined using the CMS Chronic Condition Warehouse definition of acute myocardial infarction, and the diagnosis codes listed in Table S1 for peripheral vascular disease.

In calculating the HAS-BLED score, age of 65 or greater, labile INR, renal disease, liver disease, use of antiplatelet agents or of nonsteroidal anti-inflammatory drugs (NSAIDs), and a history of hypertension, of stroke, of major bleeding and of alcohol or drug use disorder are all assigned one point. Because claims data does not contain information on INR, the HAS-BLED score was calculated as the sum of all previous factors except labile INR.<sup>3</sup> Renal disease, hypertension, and a history of stroke were defined using the CMS Chronic Condition Warehouse definitions.<sup>2</sup> Liver disease and alcohol or drug use disorder were defined using the diagnosis codes listed in Table S1.

A history of recent bleeding was defined as having a claim with ICD-9 or ICD-10 codes for bleeding events in the year before index date (list of codes for bleeding events in Table S1).<sup>4-10</sup>

Recent antiplatelet use was defined as filling a prescription for aspirin, clopidogrel, prasugrel, dipyridamol, ticlopidine or ticagrelor in the six months before index date.<sup>4-10</sup>

Recent NSAID use was defined as filling a prescription for diclofenac, ibuprofen, naproxen, ketoprofen, fenoprofen, flurbiprofen, piroxicam, meloxicam, mefenamic acid or indomethacin in the six months before index date.<sup>4-10</sup>

**Table S1. Diagnosis Codes Used in the Definition of Covariates.**

Covariate	ICD-9 Codes	ICD-10 Codes
Valvular Disease	394.0, V43.3	I05.0, Z95.2
Peripheral Vascular Disease	440.0x, 440.2x, 440.9x, 441.3x, 441.4x, 441.5x, 441.9x, 443.9x, 444.22, 444.81, 447.1x, 443.81, 250.70, 433.10, 433.11, 433.30	I70.0, I70.2, I70.9, I71.3, I71.4, I71.8, I71.9, I73.9, I74.3, I74.5, I77.1, I79.8, E11.51, I65.2, I63.03, I63.13, I63.23, I65.8
Liver Disease	571.xx	K70, K71, K72, K73, K74, K75, K76
Alcohol or Drug Use Disorder	303.xx, 304.xx, 305.xx	F10, F11, F12, F13, F14, F15, F16, F17, F18, F19
Bleeding events		
Intracranial Bleeding	430, 431, 432	I60, I61, I62
Hemoperitoneum	568.81	K66.1
Hematuria	599.7	R31
Gastrointestinal Hemorrhage	530.7, 531.0, 531.2, 531.4, 531.6, 532.0, 532.2, 532.4, 532.6, 533.0, 533.2, 533.4, 533.6, 534.0, 534.2, 534.4, 534.6, 569.3, 535.01, 535.11, 535.21, 535.31, 535.41, 535.51, 535.61, 535.71, 537.83, 537.84, 562.02, 562.03, 562.12, 562.13, 569.85, 578	K22.6, K25.0, K25.2, K25.4, K25.6, K26.0, K26.2, K26.4, K26.6, K27.0, K27.2, K27.4, K27.6, K28.0, K28.2, K28.4, K28.6, K62.5, K29.01, K29.21, K29.31, K29.41, K29.51, K29.61, K29.71, K29.81, K29.91, K31.811, K31.82, K57.01, K57.11, K57.13, K57.21, K57.31, K57.33, K57.41, K57.51, K57.53, K57.81, K57.91, K57.93, K55.21, K92.0, K92.1, K92.2
Epistaxis	784.7	R04.0
Hemoptysis	786.3	R04.2
Vaginal Hemorrhage	626.2	N92.0
Hemarthrosis	719.1	M25.0, M12.2
Conjunctival Hemorrhage	372.72	H11.33
Not Otherwise Specified Hemorrhage	459	R58

ICD-9=International Classification of Diseases, Ninth Revision Codes; ICD-10=International Classification of Diseases, Tenth Revision Codes.

**Table S2. Comparison of Selected Baseline Characteristics between the Study Participants and Beneficiaries Excluded from the Study Because of Death within 12 months of Atrial Fibrillation Diagnosis.**

Variable-n(%)	Included in the Sample (n=24,898)	Excluded Due to Death (n=9,116)	P-value
Age			<0.001
<65	2821 (8.1)	629 (6.9)	
65-74	13817 (39.6)	1978 (21.7)	
>=75	18260 (52.3)	6509 (71.4)	
Female sex	19376 (55.5)	5494 (60.3)	<0.001
Race			<0.001
White	30460 (87.3)	7730 (84.8)	
Black	2472 (7.1)	919 (10.1)	
Hispanic	523 (1.5)	152 (1.7)	
Other	1443 (4.1)	315 (3.5)	
Eligibility for Medicaid	8634 (24.7)	3523 (38.6)	<0.001
CHA2DS2-VASc score			<0.001
0-2	5608 (16.1)	457 (5.0)	
3-4	12999 (37.2)	2316 (25.4)	
≥5	16291 (46.7)	6343 (69.6)	
HAS-BLED score			<0.001
0-1	3675 (10.5)	349 (3.8)	
2-3	22248 (63.8)	4691 (51.5)	
≥4	8975 (25.7)	4076 (44.7)	
Stroke or TIA	7131 (20.4)	2719 (29.8)	<0.001

TIA= Transient Ischemic Attack.

The table compares selected baseline characteristics between patients included in the study and those that were excluded because they died within 12 months of atrial fibrillation diagnosis. Excluded patients were generally older and more likely to have CHA2DS2-VASc $\geq$ 5. Consequently, our sample is over representative of healthier and younger patients.

**Table S3. Group-based Trajectory Model Diagnostics.**

	Average Posterior Probability	Odds of Correct Classification	Estimated Probability of Group Membership	Proportion Classified in Group
Group 1	0.9953	634	0.4368	0.4376
Group 2	0.9495	56	0.0763	0.0756
Group 3	0.9706	99	0.0869	0.0863
Group 4	0.9888	265	0.4000	0.4005

## Supplemental References:

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