Supplementary Materials

Table S1. Variable Definitions

Figure S1. Cohort Diagram

Table S2. NSAID and antiplatelet medications

Table S3. Predicted probability of anticoagulant initiation in patients with primary admission diagnosis of atrial fibrillation

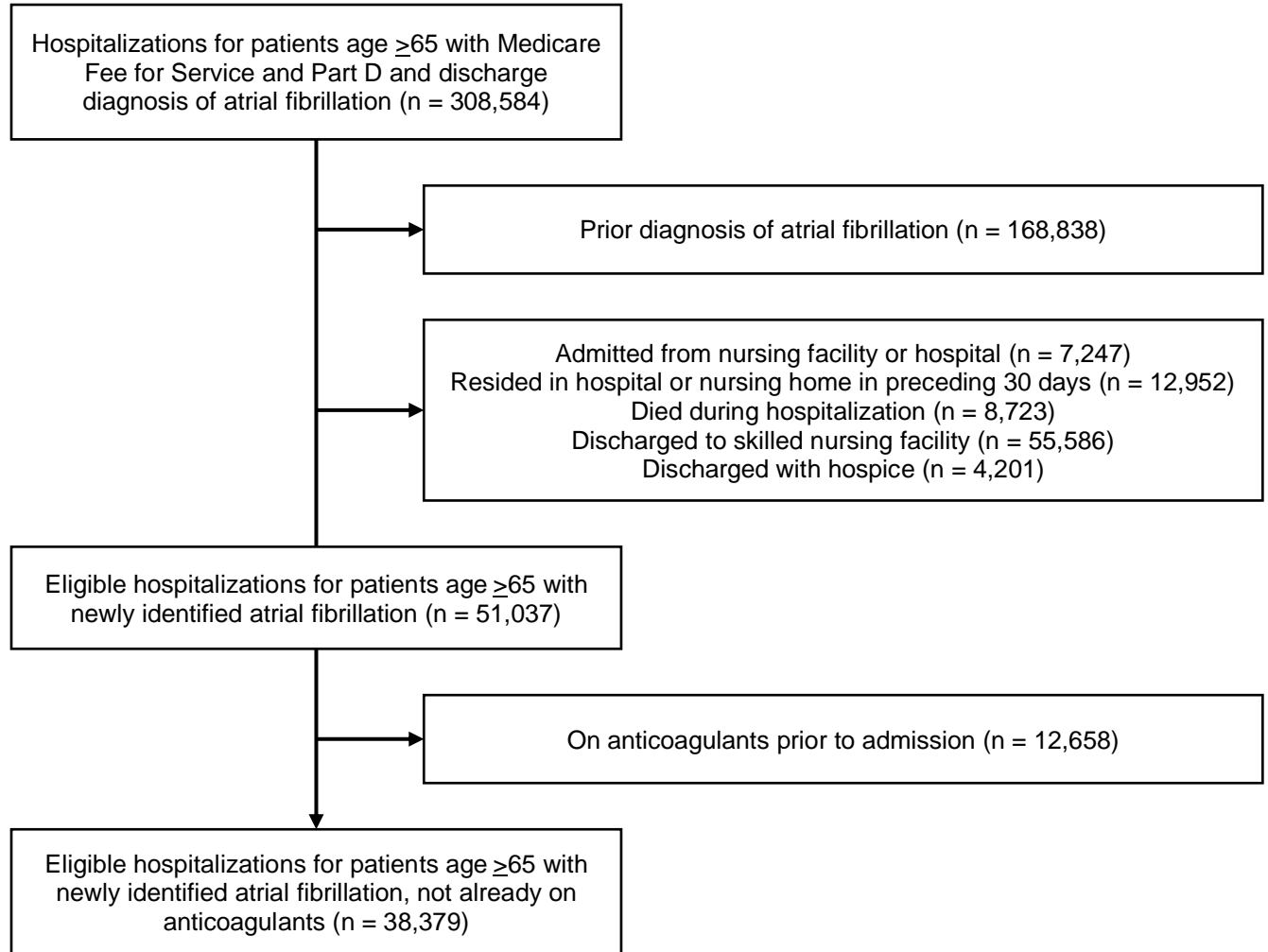**Table S4.** Adjusted odds of anticoagulant initiation among all patients by race and geriatric conditions

Table S1. Variable Definitions

Variable	Definition/Codes
Atrial fibrillation	Atrial fibrillation Chronic Conditions Warehouse Algorithm (CCW).[16] ICD-10: I48.0, I48.1, I48.11, I48.19, I48.2, I48.20, I48.21, I48.91 (only first or second diagnosis on the claim) ICD-9: 427.31 (only first or second diagnosis on the claim)
Frailty	Claims-Based Frailty Index[25]
CHA$_2$DS$_2$-VASc	Heart Failure (CCW)- 1 point Hypertension (CCW) - 1 point Age 65-74- 1 point Age 75+- 2 points Diabetes (CCW)- 1 point Stroke / transient ischemic attack (CCW)- 2 points Ischemic heart disease or peripheral vascular disease (CCW)- 1 point Female sex- 1 point
HAS-BLED	Hypertension (CCW)- 1 point Chronic kidney disease (CCW)- 1 point Liver Disease, Cirrhosis and Other Liver Conditions (CCW) - 1 point Stroke / transient ischemic attack (CCW) - 1 point Clinically significant bleeding (History of a hospitalization with a primary diagnosis among the ICD-9 or ICD-10 codes listed below under "Bleeding" within 1 year prior to index hospitalization)[21,22]- 1 point Age > 65- 1 point Filled script for NSAID or anti-platelet drug in **Table S2** within 1 year- 1 point Alcohol use disorders (CCW) - 1 point
Primary admission category	Circulatory Other non-cardiac (Hematologic, Mental Health, Nervous System, Circulatory, Respiratory, Digestive, Genitourinary, Skin, Musculoskeletal, Congenital, Injury/Poisoning, Signs/Symptoms, Residual)
Post-cardiac surgery	Claim for primary admission included: Centers for Disease Control and Prevention National Healthcare Safety Network Code for Cardiac Surgery (CARD) OR Clinical Classifications Software Refined category for Coronary Artery Bypass Graft and Heart Transplant
Hospitalization for bleeding	Admission for which the primary diagnosis was any of the diagnosis codes listed below under "Bleeding"[21,22]
Dementia	Alzheimer's Disease and Related Disorders or Senile Dementia CCW[27] ICD-10: F01.50, F01.51, F02.80, F02.81, F03.90, F03.91, F04, F05, F06.1, F06.8, G13.8, G30.0, G30.1, G30.8, G30.9, G31.01, G31.09, G31.1, G31.2, G94, R41.81, R54 (any diagnosis on the claim) ICD-9: 331.0, 331.11, 331.19, 331.2, 331.7, 290.0, 290.10, 290.11, 290.12, 290.13, 290.20, 290.21, 290.3, 290.40, 290.41, 290.42, 290.43, 294.0, 294.10, 294.11, 294.20, 294.21, 294.8, 797 (any diagnosis on the claim)
Falls	1 year prior to index date (date of admission) among inpatient, skilled nursing facility, home health agency, HOP, or carrier claims ICD-10: W00-W19 ICD-9: E880, E881, E882, E883, E884, E885, E886, E888
Delirium	Any ICD-9 or 10 code for delirium billed during index hospitalization[28] ICD-10: A812, E512, F05, F10121, F10221, F10231, F10921, F11121, F11221, F11921, F12121, F12221, F12921, F13121, F13221, F13231, F13921, F13931, F14121, F14221, F14921, F15121, F15221, F15921, F16121, F16221, F16921,

	F18121, F18221, F18921, F19121, F19221, F19231, F19921, F19931, G0430, G0431, G0432, G0439, G92, G9340, G9341, G9349, I673, I674, I6783, J1081, J1181, P9160, P9161, P9162, P9163 ICD-9: 290.11, 290.12, 290.13, 290.2, 290.3, 290.41, 290.43, 290.9, 291, 292, 292.11, 292.12, 292.2, 292.81, 292.82, 293, 293.1, 293.81, 293.82, 293.83, 293.84, 293.89, 293.9, 348.3, 348.31, 348.39, 349.82, 780.02, 780.09, 780.97
Comorbidity	Elixhauser Comorbidity Index[29]
Cardiac monitoring[17]	Any claim for one of the following Current Procedural Terminology codes: 93224, 93225, 93226, 93227, 93228, 93229, 93241, 93242, 93243, 93244, 93245, 93246, 93247, 93248, 93268, 93270, 93271, 93272
Bleeding[21,22]	ICD-10: Gastrointestinal: K55.2x, K31.811, K57.01, K57.11, K57.13, K57.21, K57.31, K57.33, K57.41, K57.51, K57.53, K57.81, K57.91, K57.93, K26.2, K26.4, K26.6, I85.x, K25.0, K25.2, K25.4, K25.6, K29.01, K29.21, K29.31, K29.41, K29.51, K29.61, K29.81, K29.91, K92.2, K28.0, K28.2, K28.4, K28.6, K92.0, R04.xx, K62.5, K64.x, K92.1, K27.0, K27.2, K27.4, K27.6, K22.6 Intracranial: I61.x, I60.xx, I62.xx, S06.6, S06.5 Gynecologic: N93.9, N92.0, N92.1, N92.4, N93.8, N95.0 Other: D62, S06.4, M25.0xx, R31.xx, I31.2, K66.1, R04.xx, R58.0, J94.2, J94.2, H92.2, N02, H35.6, R23.3, H43.1, H45.0, R04.x ICD-9: Gastrointestinal: 569.85, 537.83, 562.02, 562.03, 562.12, 562.13, 532, 532.2x, 532.4x, 532.6x, 456.2x, 456, 531.xx, 535.01, 535.11, 535.31, 535.41, 535.51, 535.61, 578.x, 534.4x, 578.0, 786.3x, 569.3, 455.x, 578.1, 533.2x, 533.4x, 530.7 Intracranial: 431, 430, 432.x, 852 Gynecologic: 626.9, 626.2, 626.6, 627, 626.8, 627.1 Other: 285.1, 719.1x, 599.7x, 423, 423, 786.3x, 860.2, 860.3, 362.81, 782.7, 379.23, 784.7, 784.8

Abbreviations: NSAID = non-steroidal anti-inflammatory drug

Figure S1. Cohort Diagram

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┌─────────────────────────────────────────┐
│ Hospitalizations for patients age ≥65    │
│ with Medicare Fee for Service and Part D │
│ and discharge diagnosis of atrial        │
│ fibrillation (n = 308,584)               │
└─────────────────────────────────────────┘
              │
              │──────────►┌──────────────────────────────────────────────┐
              │           │ Prior diagnosis of atrial fibrillation         │
              │           │ (n = 168,838)                                  │
              │           └──────────────────────────────────────────────┘
              │
              │──────────►┌──────────────────────────────────────────────────────────────┐
              │           │ Admitted from nursing facility or hospital (n = 7,247)          │
              │           │ Resided in hospital or nursing home in preceding 30 days        │
              │           │ (n = 12,952)                                                    │
              │           │ Died during hospitalization (n = 8,723)                         │
              │           │ Discharged to skilled nursing facility (n = 55,586)             │
              │           │ Discharged with hospice (n = 4,201)                             │
              │           └──────────────────────────────────────────────────────────────┘
              │
┌─────────────────────────────────────────┐
│ Eligible hospitalizations for patients    │
│ age ≥65 with newly identified atrial      │
│ fibrillation (n = 51,037)                 │
└─────────────────────────────────────────┘
              │
              │──────────►┌──────────────────────────────────────────────┐
              │           │ On anticoagulants prior to admission           │
              │           │ (n = 12,658)                                   │
              │           └──────────────────────────────────────────────┘
              │
┌─────────────────────────────────────────┐
│ Eligible hospitalizations for patients    │
│ age ≥65 with newly identified atrial      │
│ fibrillation, not already on              │
│ anticoagulants (n = 38,379)              │
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Table S2. NSAID and antiplatelet medications[21]

NSAIDs	Antiplatelet medications
aspirin	abciximab
ibuprofen	aspirin
ketoprofen	clopidogrel
naproxen	prasugrel
ketorolac	ticagrelor
indomethacin	ticlopidine
sulindac	cangrelor
ketorolac	cilostazole
piroxicam	dipyridamole
nabumetone	eptifibatide
etodolac	tirofiban
meloxicam	
diclofenac	
celecoxib	
rofecoxib	
valdecoxib	

Abbreviations: NSAID = non-steroidal anti-inflammatory drug

Table S3. Predicted probability of anticoagulant initiation in patients with primary admission diagnosis of atrial fibrillation

	Predicted probability of anticoagulant initiation (95% CI)
Thromboembolic Risk [a]	
Low	39.9% (36.8% to 42.9%)
Moderate	45.1% (43.1% to 47.0%)
High	46.7% (45.5% to 47.9%)
Bleeding Risk [b]	
Low	47.5% (45.7% to 49.2%)
Moderate	47.9% (46.5% to 49.2%)
High	44.1% (42.8% to 45.5%)
Frailty Category	
Not frail	46.8% (44.4% to 49.2%)
Prefrail	48.6% (47.4% to 49.8%)
Mildly frail	44.0% (42.4% to 45.7%)
Moderately-severely frail	36.2% (33.5% to 39.0%)

[a] For thromboembolic risk, CHA_2DS_2-VASc score <2 was considered low, 2-3 moderate, and ≥4 high. CHA2DS2-VASc score includes congestive heart failure, hypertension, age, diabetes, stroke, vascular disease, and sex.

[b] For bleeding risk, HAS-BLED score <2 was considered low, 2 moderate and ≥3 high. HAS-BLED score includes hypertension, abnormal renal or liver function, stroke, bleeding, labile international normalized ratio, elderly (age ≥65 years), and drugs or alcohol.

Table S4. Adjusted odds of anticoagulant initiation among all patients by race and geriatric conditions

	Initiated anticoagulation within 7 days		Initiated anticoagulation within 30 days	
	N (%[a])	Odds ratio (95% CI)	N (%[a])	Odds ratio (95% CI)
Race/ethnicity				
White	8,004/31,955 (25.0%)	Reference	10,176/31,955 (31.8%)	Reference
Asian/Pacific Islander	178/809 (22.0%)	1.04 (0.87,1.25)	211/809 (26.1%)	0.94 (0.80,1.12)
Black	608/2,974 (20.4%)	0.94 (0.85,1.04)	741/2,974 (24.9%)	0.88 (0.80,0.96)
Hispanic	453/2011 (22.5%)	1.00 (0.90,1.13)	537/2011 (26.7%)	0.91 (0.81,1.01)
Other	169/630 (26.8%)	1.14 (0.95,1.38)	210/630 (33.3%)	1.12 (0.93,1.34)
Geriatric conditions				
Dementia	845/5,779 (14.6%)	0.66 (0.61,0.72)	1,039/5,779 (18.0%)	0.61 (0.57,0.66)
Falls	131/772 (17.0%)	0.84 (0.69,1.02)	160/772 (20.7%)	0.78 (0.65,0.95)
Delirium	297/2,002 (14.8%)	0.95 (0.83,1.09)	365/2002 (18.2%)	0.94 (0.83,1.06)

[a.] Percent of all study subjects.