Appendices

Supplemental Table 1. Codes for exclusion criteria

| **Diagnosis** | **ICD-9 Codes or HCPCS Codes** |
| --- | --- |
| Rheumatic mitral valvular heart disease, mitral valve stenosis | 394.0, 394.1, 394.2, 394.9, 396.0, 396.1, 396.8, 396.9, 424.0, 745.xx |
| Heart valve replacement or surgery | V422, V433, 35.05-35.09, 35.20-35.28, 35.97 |
| VTE | 451-453, 671.3, 671.4, 671.9, 415.1, 673.2, 673.8 |
| Transient AF (Heart valve replacement/transplant, pericarditis, thyrotoxicity) | Pericarditis: 006.8, 017.9, 036.41, 074.21, 093.81, 098.83, 115.93, 390, 391, 392.0, 393, 411.0, 420.90, 420.91, 420.99, 423.0, 423.1, 423.2, 423.8, 423.9Thyrotoxicity: 242.0, 242.1, 242.2, 242.3, 242.4, 242.8, 242.9 |
| Pregnancy | ICD-9-CM codes 630-679, V22, V23, V24, V27, V28, V61.6, V61.7, 792.3, 796.5, 72-75.99 HCPCS codes 59000-59350, 76801-76828, 83661-83664 |

Supplemental Table 2. ICD-9-CM codes for stroke/SE and major bleeding endpoints

| **Diagnosis** | **ICD-9 Diagnosis and Procedure Codes** |
| --- | --- |
| Hemorrhagic Stroke | ICD-9: 430.xx-432.xx Cases were excluded if traumatic brain injury (ICD-9: 800-804, 850-854) was present during hospitalization. |
| Ischemic Stroke | ICD-9: 433.x1, 434.x1, 436 |
| Systemic Embolism | ICD-9: 444.x, 445.x |
| Major Gastrointestinal bleeding event | ICD-9: 456.0, 456.20, 530.82, 531.0x, 531.2x, 531.4x, 531.6x, 532.0x, 532.2x, 532.4x, 532.6x, 533.0x, 533.2x, 533.4x, 533.6x, 534.0x, 534.2x, 534.4x, 534.6x, 535.01, 535.11, 535.21, 535.31, 535.41, 535.51, 535.61, 537.83, 562.02, 562.03, 562.12, 562.13, 568.81, 569.3, 569.85, 578.xProcedure Code: 44.43 |
| Major Intracranial Hemorrhage | ICD-9: 430, 431, 432.0, 432.1, 432.9, 852.0x, 852.2x, 852.4x, 853.0x,  |
| Major Other hemorrhage | ICD-9: 285.1, 360.43, 362.43, 362.81, 363.61, 363.62, 363.72, 364.41, 372.72, 374.81, 376.32, 377.42, 379.23, 423.0x, 596.7x, 599.7x, 602.1x, 620.1, 621.4, 626.2, 626.5, 626.7, 626.8, 626.9, 719.1x, 782.7, 784.7, 784.8, 786.3x, 958.2, 997.02, 998.11Procedure codes: 99.04 |

Supplemental Table 3. Subgroup analysis: risk of hospitalization due to major bleeding and stroke/SE among propensity score matched patients

|  |  |  |  |
| --- | --- | --- | --- |
|   | **Warfarin vs Apixaban** | **Dabigatran vs Apixaban** | **Rivaroxaban vs Apixaban** |
| **Insurance Type** |  |  |  |
| **Stroke/SE** |   | **P-value\*** |  | **P-value\*** |  | **P-value\*** |
| **Medicare** | 1.57 (1.18-2.09) | 0.934 | 1.13 (0.66-1.93) | 0.659 | 1.18 (0.86-1.61) | 0.865 |
| **Commercial** | 1.62 (0.85-3.06) | 1.47 (0.52-4.14) | 1.11 (0.57-2.14) |
| **Major Bleeding** |   | **P-value** |   | **P-value** |   | **P-value** |
| **Medicare** | 1.95 (1.57-2.43) | 0.595 | 1.47 (0.97-2.23) | 0.878 | 1.77 (1.40-2.22) | 0.603 |
| **Commercial** | 1.67 (0.98-2.85) | 1.57 (0.74-3.36) | 1.54 (0.97-2.45) |
| **Dosing Form** |  |  |  |
| **Stroke/SE** |  | **P-value\*** |  | **P-value\*** |  | **P-value\*** |
| **Standard Dose** | 1.75 (1.28-2.40) | 0.290 | 1.78 (1.01-3.14) | 0.018 | 1.30 (0.92-1.84) | 0.219 |
| **Low Dose** | 1.30 (0.83-2.04) | 0.43 (0.15-1.22) | 0.90 (0.56-1.45) |
| **Major Bleeding** |   | **P-value** |   | **P-value** |   | **P-value** |
| **Standard Dose** | 2.16 (1.71-2.72) | 0.081 | 1.48 (0.98-2.23) | 0.980 | 1.53 (1.20-1.96) | 0.230 |
| **Low Dose** | 1.43 (0.96-2.13) | 1.47 (0.68-3.16) | 2.03 (1.38-2.97) |

\*p-value is for interaction

Supplemental Table 4. Sensitivity analysis: risk of hospitalization due to major bleeding and stroke/SE among propensity score matched patients

|  |  |  |  |
| --- | --- | --- | --- |
|   | **Warfarin vs Apixaban** | **Dabigatran vs Apixaban** | **Rivaroxaban vs Apixaban** |
| **Intent-to-Treat** |
| **Stroke/SE** | 1.34 (1.11-1.62) | 1.11 (0.80-1.55) | 1.13 (0.93-1.39) |
| **Major Bleeding** | 1.55 (1.33-1.79) | 1.20 (0.93-1.54) | 1.39 (1.19-1.62) |
| **Censoring at 6 Months** |
| **Stroke/SE** | 1.44 (1.08-1.93) | 1.27 (0.73-2.19) | 1.08 (0.79-1.49) |
| **Major Bleeding** | 1.99 (1.58-2.50) | 1.33 (0.88-2.00) | 1.77 (1.40-2.23) |