

**Supplementary Table 1: Candidate covariate list for multivariate modeling.**

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**Demographics**

Age, years

Sex, male/female

**Vital signs**

Systolic blood pressure, mmHg

Diastolic blood pressure, mmHg

Heart rate, bpm

Lifestyle factors

Body mass index, kg/m<sup>2</sup>

Current smoking, yes/no

Current drinking, yes/no

**AF diagnosis**

AF type, first diagnosed/paroxysmal/persistent AF

**Medical history**

Hypertension, yes/no

Diabetes mellitus, yes/no

Heart failure, yes/no

NYHA classification, I/II/III/IV

Vascular disease, yes/no

Coronary heart disease, yes/no

Myocardial infarction, yes/no

Peripheral artery disease, yes/no

Prior ischemic stroke, yes/no

Prior systemic embolism, yes/no

Prior transient ischemic attack, yes/no

Hyperlipidemia, yes/no

Prior bleeding, yes/no

Intracranial hemorrhage, yes/no

Chronic kidney disease, yes/no

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Abnormal liver function, yes/no

Thyroid disease, yes/no

#### **Echocardiographic assessment**

LVEF, %

Anteroposterior left atrial diameter, mm

Left ventricular posterior wall, mm

#### **Laboratory data**

Hemoglobin, g/L

Creatinine, mmol/L

Fasting blood glucose, mmol/L

Total cholesterol, mmol/L

Total triglyceride, mmol/L

Low-density lipoprotein cholesterol, mmol/L

High-density lipoprotein cholesterol, mmol/L

#### **Combined variables**

Heart failure or LVEF <40%, yes/no

Heart failure or LVEF <45%, yes/no

Heart failure or LVEF <50%, yes/no

Heart failure or LVEF <55%, yes/no

Hypertension and diabetes mellitus, yes/no

Hypertension and vascular disease, yes/no

Diabetes mellitus and vascular disease, yes/no

Hypertension and diabetes mellitus and vascular disease, yes/no

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Vascular disease was defined as coronary heart disease or peripheral artery disease; chronic kidney disease was defined as eGFR <60 mL/min/1.73 m<sup>2</sup>; abnormal liver function was defined as ALT or AST >2 × ULN; and thyroid disease was defined as hyperthyroidism or hypothyroidism. AF: Atrial fibrillation; LVEF: Left ventricular ejection fraction.

**Supplementary Table 2: Proportion of patients who will experience TEs identified by CAS and CHA<sub>2</sub>DS<sub>2</sub>-VA stroke risk score by classifying a specific proportion of cases as high-risk patients.**

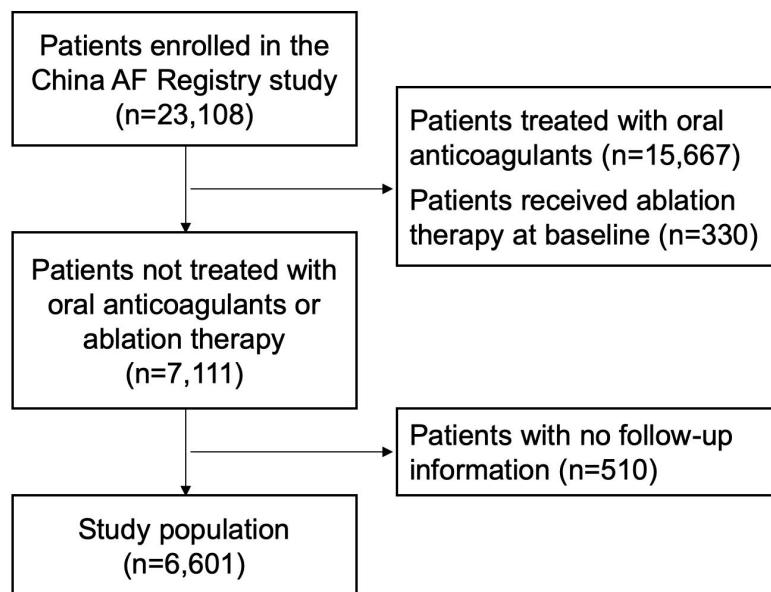
Specific proportion of cases to be classified as high-risk patients (%)	Proportion of patients who will experience TEs identified by CAS score (%)	Proportion of patients who will experience TEs identified by CHA <sub>2</sub> DS <sub>2</sub> -VA score (%)
20	42.6	37.0
40	66.3	62.9
60	83.1	81.4
80	94.0	92.4
65.7 (CHA <sub>2</sub> DS <sub>2</sub> -VA ≥2)	87.8	86.3
84.8 (CHA <sub>2</sub> DS <sub>2</sub> -VA ≥1)	95.4	94.4
69.2 (CAS ≥1)	90.7	87.8

CAS:Congestive heart failure or left ventricular dysfunction, Age, and prior Stroke; TEs: Thromboembolic events.

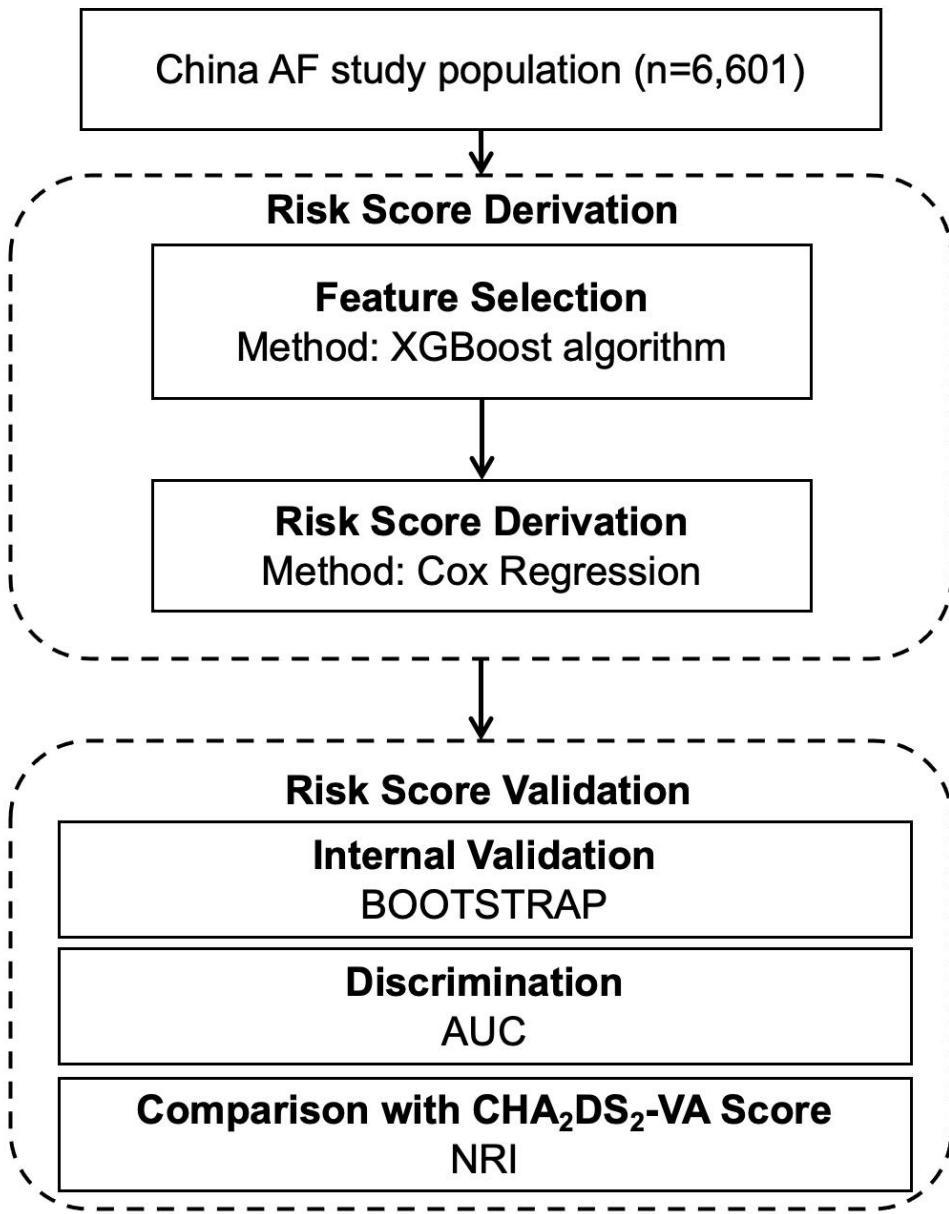
**Supplementary Table 3: To identify a specific proportion of patients who will experience TEs, the proportion of patients who need OAC therapy according to CAS and CHA<sub>2</sub>DS<sub>2</sub>-VA stroke risk score.**

To identify a specific proportion of patients who will experience TEs (%)	Proportion of patients who need to be treated with OAC according to CAS score (%)	Proportion of patients who need to be treated with OAC according to CHA <sub>2</sub> DS <sub>2</sub> -VA score (%)
50	24.5	28.2
60	32.4	37.5
70	44.4	47.1
80	56.4	58.6
90	68.5	74.5
95	83.6	86.5

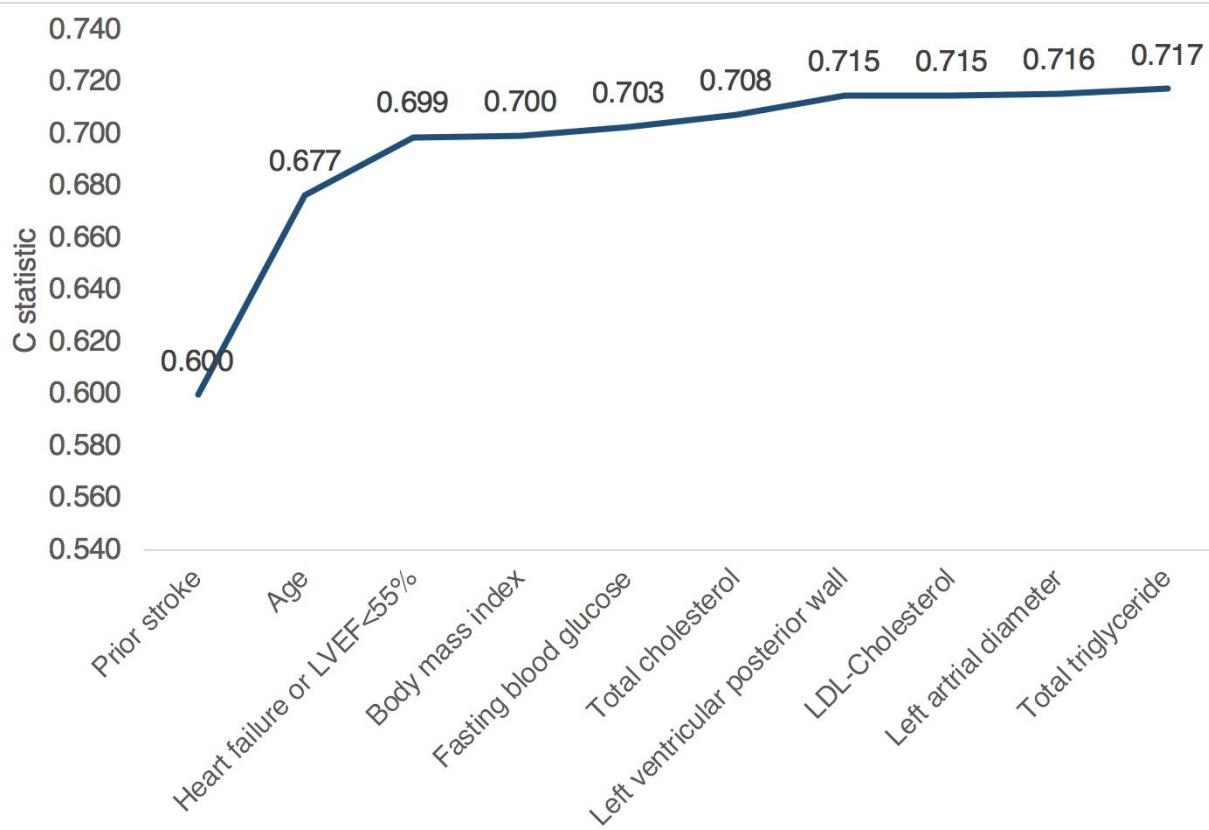
CAS:Congestive heart failure or left ventricular dysfunction, Age, and prior Stroke; OAC: Oral anticoagulants; TEs: Thromboembolic events.



**Supplementary Figure 1: Patient selection flowchart.**



Supplementary Figure 2: Illustration of methodology.



**Supplementary Figure 3: Prediction ability with increasing variables included.** LVEF: Left ventricular ejection fraction; LDL: Low density lipoprotein.