Supplemental Materials

Junxing Lv et al. Development and validation of dynamic models to predict post-discharge mortality risk in patients with acute myocardial infarction: results from China Acute Myocardial Infarction registry.

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II. Supplemental Figures.

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Supplemental Figure 12. Variable selection by LASSO method for 30-day prognostic model in imputation dataset 5. (A) The plot showing partial likelihood deviance values versus log(λ). Tuning parameter λ selection used 10-fold cross-validation. The vertical lines were drawn at optimal values by the minimum criteria and the 1 SE of minimum criteria. The lambda with 1 SE of minimum deviance was used for variable selection. (B) The coefficient profile plot. The plot was produced against the log(λ) sequence. LASSO, least absolute shrinkage and selection operator; SE, standard error.

Supplemental Figure 13. Relative importance of selected predictors for 30-day mortality. Relative importance of variables selected by LASSO method was ranked according to the proportion of explainable log-likelihood ratio χ^2 statistics. LASSO, least absolute shrinkage and selection operator; Mi, myocardial ischemia; MI, myocardial infarction; PCI, percutaneous coronary intervention; LVEF, left ventricular ejection fraction; HF, heart failure.

Supplemental Figure 14. Variable selection by LASSO method for 2-year prognostic model in imputation dataset 1. (A) The plot showing partial likelihood deviance values versus log(λ). Tuning parameter λ selection used 10-fold cross-validation. The vertical lines were drawn at values by the minimum criteria and the 1 SE of minimum criteria. The lambda with 1 SE of minimum deviance was used for variable selection. (B) The coefficient profile plot. The plot was produced against the log(λ) sequence. LASSO, least absolute shrinkage and selection operator; SE, standard error.

Supplemental Figure 15. Variable selection by LASSO method for 2-year prognostic model in imputation dataset 2. (A) The plot showing partial likelihood deviance values versus log(λ). Tuning parameter λ selection used 10-fold cross-validation. The vertical lines were drawn at values by the minimum criteria and the 1 SE of minimum criteria. The lambda with 1 SE of minimum deviance was used for variable selection. (B) The coefficient profile plot. The plot was produced against the log(λ) sequence. LASSO, least absolute shrinkage and selection operator; SE, standard error.

Supplemental Figure 16. Variable selection by LASSO method for 2-year prognostic model in imputation dataset 3. (A) The plot showing partial likelihood deviance values versus log(λ). Tuning parameter λ selection used 10-fold cross-validation. The vertical lines were drawn at optimal values by the minimum criteria and the 1 SE of minimum criteria. The lambda with 1 SE of minimum deviance was used for variable selection. (B) The coefficient profile plot. The plot was produced against the log(λ) sequence. LASSO, least absolute shrinkage and selection operator; SE, standard error.

Supplemental Figure 17. Variable selection by LASSO method for 2-year prognostic model in imputation dataset 4. (A) The plot showing partial likelihood deviance values versus log(λ). Tuning parameter λ selection used 10-fold cross-validation. The vertical lines were drawn at optimal values by the minimum criteria and the 1 SE of minimum criteria. The lambda with 1 SE of minimum deviance was used for variable selection. (B) The coefficient profile plot. The plot was produced against the log(λ) sequence. LASSO, least absolute shrinkage and selection operator; SE, standard error.

Supplemental Figure 18. Variable selection by LASSO method for 2-year prognostic model in imputation dataset 5. (A) The plot showing partial likelihood deviance values versus log(λ). Tuning parameter λ selection used 10-fold cross-validation. The vertical lines were drawn at optimal values by the minimum criteria and the 1 SE of minimum criteria. The lambda with 1 SE of minimum deviance was used for variable selection. (B) The coefficient profile plot. The plot was produced against the log(λ) sequence. LASSO, least absolute shrinkage and selection operator; SE, standard error.

Supplemental Figure 19. Relative importance of selected predictors for 2-year mortality. Relative importance of variables selected by LASSO method was ranked according to the proportion of explainable log-likelihood ratio χ^2 statistics. LASSO, least absolute shrinkage and selection operator; HF, heart failure; AMI, acute myocardial infarction; LVEF, left ventricular ejection fraction; PCI, percutaneous coronary intervention.

Supplemental Figure 20. Comparisons of clinical utility between models with or without adverse events and medications. The red and green lines represent the assumption that all or none patients at high risk with different thresholds. The lines in the upper right represent the risk prediction models. (A) Comparison of clinical utility between 30-day model with or without adverse events and medications. (B) Comparison of clinical utility between 2-year model with or without adverse events and medications.

Supplemental Figure 21. Comparisons of clinical utility between models with or without hospital level. The red and green lines represent the assumption that all or none patients at high risk with different thresholds. The lines in the upper right represent the risk prediction models. (A) Comparison of clinical utility between 30-day model with or without hospital

level. (B) Comparison of clinical utility between 2-year model with or without hospital level.

Supplemental Figure 22. Comparisons of clinical utility between models and GRACE 1.0 score. The red and green lines represent the assumption that all or none patients at high risk with different thresholds. The lines in the upper right represent the risk prediction models. (A) Comparison of clinical utility between 30-day model and GRACE 1.0 score. (B) Comparison of clinical utility between 2-year model and GRACE 1.0 score. GRACE, Global Registry of Acute Coronary Events.

Supplemental Figure 23. Comparisons of clinical utility between models and GRACE 2.0 score. The red and green lines represent the assumption that all or none patients at high risk with different thresholds. The lines in the upper right represent the risk prediction models. (A) Comparison of clinical utility between 30-day model and GRACE 2.0 score. (B) Comparison of clinical utility between 2-year model and GRACE 2.0 score. GRACE, Global Registry of Acute Coronary Events.

Supplemental Figure 24. Calibration curves of 30-day prognostic nomogram. Calibration curves present the relationship between observed and predicted survival probabilities by 30-day prognostic nomogram in both derivation and validation cohorts. (A) Calibration curve of 30-day prognostic nomogram in derivation cohort. (B) Calibration curve of 30-day prognostic nomogram in validation cohort.

Supplemental Figure 25. Calibration curves of 2-year prognostic nomogram. Calibration curves present the relationship between observed and predicted survival probabilities by 2-year prognostic nomogram in both derivation and validation cohorts. (A) Calibration curve of 2-year prognostic nomogram in derivation cohort. (B) Calibration curve of 2-year prognostic nomogram in validation cohort.

I. Supplemental Tables.

Supplemental Table 1. Number of missing values for selected predictors in derivation and validation cohorts

	Number of missing values (%)
Derivation cohort	
30-day prognostic model	
Age	336 (2.1)
Prior stroke	820 (5.1)
Heart rate	391 (2.5)
Killip class	395 (2.5)
LVEF	3370 (21.2)
In-hospital PCI	435 (2.7)
In-hospital recurrent myocardial ischemia	518 (3.3)
In-hospital recurrent myocardial infarction	518 (3.3)
In-hospital heart failure	502 (3.2)
Antiplatelet therapy at discharge	849 (5.3)
Statins at discharge	849 (5.3)
2-year prognostic model	
Age	242 (2.0)
Prior renal dysfunction	510 (4.2)
History of heart failure	490 (4.0)
AMI classification	0 (0.0)
Heart rate	107 (0.9)
Killip class	114 (0.9)
Hemoglobin	327 (2.7)
LVEF	2307 (19.0)
In-hospital PCI	130 (1.1)
In-hospital heart failure	155 (1.3)
Heart failure worsening within 30 days	8 (0.1)
Antiplatelet therapy within 30 days	0 (0.0)
β blockers within 30 days	0 (0.0)
Statins within 30 days	0 (0.0)

Validation cohort	
30-day prognostic model	
Age	144 (1.8)
Prior stroke	404 (5.1)
Heart rate	197 (2.5)
Killip class	176 (2.2)
LVEF	1678 (21.1)
In-hospital PCI	216 (2.7)
In-hospital recurrent myocardial ischemia	267 (3.4)
In-hospital recurrent myocardial infarction	261 (3.3)
In-hospital heart failure	254 (3.2)
Antiplatelet therapy at discharge	416 (5.2)
Statins at discharge	416 (5.2)
2-year prognostic model	
Age	106 (1.7)
Prior renal dysfunction	260 (4.3)
History of heart failure	254 (4.2)
AMI classification	0 (0.0)
Heart rate	75 (1.2)
Killip class	54 (0.9)
Hemoglobin	135 (2.2)
LVEF	1161 (19.1)
In-hospital PCI	60 (1.0)
In-hospital heart failure	83 (1.4)
Heart failure worsening within 30 days	9 (0.1)
Antiplatelet therapy within 30 days	0 (0.0)
β blockers within 30 days	0 (0.0)
Statins within 30 days	0 (0.0)

LVEF, left ventricular ejection fraction; PCI, percutaneous coronary intervention; AMI, acute myocardial infarction.

Supplemental Table 2. Baseline characteristics, medications, and outcomes of cohorts for developing and validating 30-day prognostic model

Variables	Derivation cohort (n=15925)	Validation cohort (n=7962)
Demographics		
Age, yrs	62.27±12.36	62.54±12.29
Female	3878 (24.4)	1940 (24.4)
BMI, kg/m^2	24.13±3.05	24.08±3.04
Medical history		
Diabetes	2943 (19.6)	1505 (20.0)
Hypertension	7873 (51.2)	3897 (50.8)
Hyperlipidemia	1154 (8.5)	569 (8.3)
Current smoker	7083 (45.7)	3483 (44.8)
Prior angina pectoris	4044 (27.8)	1994 (27.4)
Prior myocardial infarction	1083 (7.4)	553 (7.5)
Prior heart failure	329 (2.2)	169 (2.3)
Prior stroke	1330 (8.8)	711 (9.4)
Prior peripheral artery disease	96 (0.6)	46 (0.6)
Prior PCI	753 (5.0)	381 (5.1)
Prior CABG	56 (0.4)	36 (0.5)
Prior renal dysfunction	197 (1.3)	94 (1.3)
COPD	279 (1.9)	142 (1.9)
Presenting characteristics		
Symptom onset to admission time		
0-6h	7398 (47.0)	3625 (46.0)
>6h	8330 (53.0)	4247 (54.0)
Heart rate, beats/min	77±18	78±18
Systolic blood pressure	129.48±25.01	129.94±25.26
Killip class		
I	11836 (76.2)	5903 (75.8)
II-IV	3694 (23.8)	1883 (24.2)
Cardiac arrest at admission	128 (0.8)	77 (1.0)

AMI classification		
STEMI	12051 (75.7)	5991 (75.2)
NSTEMI	3874 (24.3)	1971 (24.8)
Anterior wall involvement	7406 (47.7)	3696 (47.5)
Laboratory results		
Creatinine, μmol/L	74.90 (62.00, 90.00)	74.60 (62.00, 90.40)
Creatinine clearance, ml/min	83.83 (61.61, 109.00)	83.70 (61.52, 108.71)
Hemoglobin, g/L	136.23±21.09	136.07±20.94
Leukocyte count, $\times 10^9$/L	10.09±3.69	10.04±3.60
LVEF, %	53.84±10.07	53.81±10.08
In-hospital treatment		
PCI	8951 (57.9)	4432 (57.2)
CABG	127 (0.8)	76 (1.0)
Adverse events during hospitalization		
New-onset heart failure	2082 (13.5)	1035 (13.4)
Recurrent myocardial ischemia	384 (2.5)	166 (2.2)
Recurrent myocardial infarction	61 (0.4)	22 (0.3)
Stroke	90 (0.6)	40 (0.5)
Other bleeding events	236 (1.5)	121 (1.6)
Medications at discharge		
Antiplatelet therapy		
Dual antiplatelet therapy	13212 (87.6)	6571 (87.1)
Single antiplatelet therapy	1261 (8.4)	648 (8.6)
None	603 (4.0)	327 (4.3)
Statins	13846 (91.8)	6976 (92.4)
β blockers	10341 (68.6)	5006 (66.3)
ACEI/ARB	8642 (57.3)	4326 (57.3)
Hospital level		
Province level	5516 (34.6)	2728 (34.3)
Prefecture level	8740 (54.9)	4371 (54.9)
County level	1668 (10.5)	863 (10.8)

Values are shown as mean ± standard deviation, median (interquartile range), or number (%)

without imputation of missing data. BMI, body mass index; PCI, percutaneous coronary intervention; CABG, coronary artery bypass graft; COPD, chronic obstructive pulmonary disease; AMI, acute myocardial infarction; STEMI, ST-segment elevation myocardial infarction; NSTEMI, non-ST-segment elevation myocardial infarction; LVEF, left ventricular ejection fraction; ACEI, angiotensin converting enzyme inhibitor; ARB, angiotensin II receptor blocker.

Supplemental Table 3. Baseline characteristics, medications, and outcomes of cohorts for developing and validating 2-year prognostic model

Variables	Derivation cohort (n=12136)	Validation cohort (n=6067)
Demographics		
Age, yrs	62.08±12.28	62.26±12.20
Female	2967 (24.4)	1459 (24.0)
BMI, kg/m^2	24.12±3.02	24.11±3.01
Medical history		
Diabetes	2213 (19.0)	1146 (19.6)
Hypertension	6021 (50.6)	3011 (50.7)
Hyperlipidemia	760 (7.2)	382 (7.2)
Current smoker	5565 (46.3)	2737 (45.5)
Prior angina pectoris	3173 (28.0)	1571 (27.8)
Prior myocardial infarction	821 (7.2)	420 (7.3)
Prior heart failure	243 (2.1)	120 (2.1)
Prior stroke	1038 (8.8)	572 (9.7)
Prior peripheral artery disease	72 (0.6)	30 (0.5)
Prior PCI	562 (4.8)	293 (5.0)
Prior CABG	38 (0.3)	25 (0.4)
Prior renal dysfunction	130 (1.1)	56 (1.0)
COPD	221 (1.9)	114 (2.0)
Presenting characteristics		
Symptom onset to admission time		
0-6h	5725 (47.6)	2798 (46.5)
>6h	6298 (52.4)	3216 (53.5)
Heart rate, beats/min	77±18	78±18
Systolic blood pressure	129.61±25.30	130.00±25.52
Killip class		
I	9163 (76.2)	4589 (76.3)
II-IV	2859 (23.8)	1424 (23.7)
Cardiac arrest at admission	95 (0.8)	62 (1.0)
AMI classification		

STEMI	9215 (75.9)	4560 (75.2)
NSTEMI	2921 (24.1)	1507 (24.8)
Anterior wall involvement	5743 (47.7)	2843 (47.2)
Laboratory results		
Creatinine, μmol/L	74.00 (61.80, 89.10)	73.90 (61.40, 89.60)
Creatinine clearance, ml/min	84.53 (62.60, 109.58)	84.92 (63.22, 110.16)
Hemoglobin, g/L	136.37±20.82	136.39±20.79
Leukocyte count, $\times 10^9$/L	10.09±3.65	10.02±3.52
LVEF, %	54.08±10.00	54.01±9.94
In-hospital treatment		
In-hospital PCI	6998 (58.4)	3468 (57.7)
In-hospital CABG	87 (0.7)	50 (0.8)
Adverse events during hospitalization		
New-onset heart failure	1616 (13.5)	805 (13.5)
Recurrent myocardial ischemia	281 (2.3)	125 (2.1)
Recurrent myocardial infarction	37 (0.3)	18 (0.3)
Stroke	65 (0.5)	29 (0.5)
Other bleeding events	183 (1.5)	94 (1.6)
Medications within 30 days		
Antiplatelet therapy		
Dual antiplatelet therapy	10518 (86.7)	5287 (87.1)
Single antiplatelet therapy	1292 (10.6)	610 (10.1)
None	326 (2.7)	170 (2.8)
Statins	11486 (94.6)	5736 (94.5)
β blockers	8751 (72.1)	4347 (71.6)
ACEI/ARB	7221 (59.5)	3591 (59.2)
Hospital level		
Province level	3876 (31.9)	1956 (32.2)
Prefecture level	6947 (57.2)	3461 (57.0)
County level	1313 (10.8)	650 (10.7)

Values are shown as mean ± standard deviation, median (interquartile range), or number (%) without imputation of missing data. BMI, body mass index; PCI, percutaneous coronary

intervention; CABG, coronary artery bypass graft; COPD, chronic obstructive pulmonary disease; AMI, acute myocardial infarction; STEMI, ST-segment elevation myocardial infarction; NSTEMI, non-ST-segment elevation myocardial infarction; LVEF, left ventricular ejection fraction; ACEI, angiotensin converting enzyme inhibitor; ARB, angiotensin II receptor blocker.

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Supplemental Table 4. Univariable analysis of 30-day mortality

	Unadjusted HR (95% CI)	P value
Age (per 1 year increase)	1.066 (1.052, 1.080)	<0.0001
Women (vs men)	1.662 (1.233, 2.241)	0.0009
BMI (per 1kg/m^2 increase)	0.893 (0.850, 0.939)	<0.0001
Diabetes (vs no)	1.545 (1.123, 2.126)	0.0075
Hypertension (vs no)	1.289 (0.958, 1.734)	0.0930
Hyperlipidemia (vs no)	0.749 (0.406, 1.384)	0.3547
Current smoking (vs no)	0.406 (0.293, 0.563)	<0.0001
Prior angina pectoris (vs no)	1.324 (0.972, 1.803)	0.0754
Prior myocardial infarction (vs no)	1.177 (0.709, 1.954)	0.5284
Prior heart failure (vs no)	5.078 (3.166, 8.144)	<0.0001
Prior stroke (vs no)	2.627 (1.842, 3.747)	<0.0001
Prior PCI (vs no)	0.814 (0.400, 1.659)	0.5717
Prior CABG (vs no)	—	—
Prior renal dysfunction (vs no)	1.596 (0.587, 4.338)	0.3591
COPD (vs no)	3.208 (1.744, 5.901)	0.0002
Prior peripheral artery disease (vs no)	—	—
Symptom onset to admission time (vs 0-6h)		
>6h	1.947 (1.431, 2.649)	<0.0001
Heart rate (per 1 beat increase)	1.024 (1.018, 1.029)	<0.0001
Systolic blood pressure (per 1mmHg increase)	0.994 (0.988, 1.000)	0.0358
Killip class (vs I)		
II-IV	3.980 (2.990, 5.298)	<0.0001
Cardiac arrest at admission (vs no)	1.921 (0.614, 6.011)	0.2620
NSTEMI (vs STEMI)	1.230 (0.898, 1.686)	0.1977
Anterior wall involvement (vs no)	1.255 (0.943, 1.671)	0.1185
Creatinine clearance (vs >90 ml/min)		
60-90	1.805 (1.222, 2.666)	0.0030
≤60	4.252 (2.985, 6.058)	<0.0001
Hemoglobin (per 1g/L increase)	0.988 (0.983, 0.993)	<0.0001
Leukocyte count (per 10^9/L increase)	1.055 (1.023, 1.088)	0.0006

LVEF (per 1% increase)	0.938 (0.923, 0.952)	<0.0001
In-hospital PCI (vs no)	0.220 (0.157, 0.308)	<0.0001
In-hospital CABG (vs no)	1.277 (0.317, 5.145)	0.7308
New-onset heart failure during hospitalization (vs no)	7.204 (5.414, 9.585)	<0.0001
Recurrent myocardial ischemia during hospitalization (vs no)	6.028 (3.938, 9.228)	<0.0001
Recurrent myocardial infarction during hospitalization (vs no)	13.299 (6.752 26.195)	<0.0001
Stroke during hospitalization (vs no)	2.908 (0.934, 9.052)	0.0654
Other bleeding events during hospitalization (vs no)	4.109 (2.235, 7.558)	<0.0001
Antiplatelet therapy at discharge (vs dual therapy)		
Single antiplatelet therapy	1.344 (0.762, 2.372)	0.3024
none	5.158 (3.468, 7.672)	<0.0001
Statins at discharge (vs no)	3.180 (2.246, 4.502)	<0.0001
β blockers at discharge (vs no)	1.483 (1.105, 1.991)	0.0087
ACEI/ARB at discharge (vs no)	1.481 (1.088, 2.017)	0.0128

BMI, body mass index; PCI, percutaneous coronary intervention; CABG, coronary artery bypass graft; COPD, chronic obstructive pulmonary disease; NSTEMI, non-ST-segment elevation myocardial infarction; STEMI, ST-segment elevation myocardial infarction; LVEF, left ventricular ejection fraction; ACEI, angiotensin converting enzyme inhibitor; ARB, angiotensin II receptor blocker; HR, hazard ratio; CI, confidence interval.

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Supplemental Table 5. Univariable analysis of mortality after 30 days

	Unadjusted HR (95% CI)	P value
Age (per 1 year increase)	1.084 (1.076, 1.092)	<0.0001
Women (vs men)	1.947 (1.679, 2.259)	<0.0001
BMI (per 1kg/m^2 increase)	0.895 (0.872, 0.919)	<0.0001
Diabetes (vs no)	1.571 (1.328, 1.857)	<0.0001
Hypertension (vs no)	1.533 (1.321, 1.779)	<0.0001
Hyperlipidemia (vs no)	0.631 (0.443, 0.900)	0.0111
Current smoking (vs no)	0.423 (0.359, 0.498)	<0.0001
Prior angina pectoris (vs no)	1.318 (1.131, 1.536)	0.0004
Prior myocardial infarction (vs no)	2.064 (1.657, 2.570)	<0.0001
Prior heart failure (vs no)	5.964 (4.685, 7.594)	<0.0001
Prior stroke (vs no)	2.013 (1.651, 2.455)	<0.0001
Prior PCI (vs no)	1.122 (0.817, 1.540)	0.4770
Prior CABG (vs no)	1.656 (0.618, 4.433)	0.3156
Prior renal dysfunction (vs no)	4.383 (2.969 6.470)	<0.0001
COPD (vs no)	2.897 (2.076, 4.044)	<0.0001
Prior peripheral artery disease (vs no)	2.273 (1.197, 4.314)	0.0122
Symptom onset to admission time (vs 0-6h)		
>6h	1.497 (1.287, 1.742)	<0.0001
Heart rate (per 1 beat increase)	1.021 (1.018, 1.024)	<0.0001
Systolic blood pressure (per 1mmHg increase)	1.005 (1.002, 1.008)	0.0005
Killip class (vs I)		
II-IV	3.225 (2.792, 3.726)	<0.0001
Cardiac arrest at admission (vs no)	1.068 (0.478, 2.388)	0.8724
NSTEMI (vs STEMI)	2.395 (2.070, 2.771)	<0.0001
Anterior wall involvement (vs no)	1.210 (1.047, 1.398)	0.0096
Creatinine clearance (vs >90 ml/min)		
60-90	1.725 (1.405, 2.119)	<0.0001
≤60	5.193 (4.328, 6.231)	<0.0001
Hemoglobin (per 1g/L increase)	0.980 (0.978, 0.983)	<0.0001
Leukocyte count (per 10^9/L increase)	1.010 (0.990, 1.030)	0.3333

LVEF (per 1% increase)	0.948 (0.941, 0.955)	<0.0001
In-hospital PCI (vs no)	0.207 (0.175, 0.246)	<0.0001
In-hospital CABG (vs no)	0.421 (0.106, 1.674)	0.2184
New-onset heart failure during hospitalization (vs no)	3.418 (2.932, 3.984)	<0.0001
Recurrent myocardial ischemia during hospitalization (vs no)	2.653 (1.949, 3.610)	<0.0001
Recurrent myocardial infarction during hospitalization (vs no)	1.773 (0.659, 4.771)	0.2565
Stroke during hospitalization (vs no)	3.455 (1.991, 5.996)	<0.0001
Other bleeding events during hospitalization (vs no)	2.233 (1.486, 3.356)	0.0001
Recurrent myocardial infarction within 30 days (vs no)	3.032 (1.130-8.134)	0.0276
Heart failure worsening within 30 days (vs no)	4.790 (3.631, 6.319)	<0.001
Antiplatelet therapy within 30 days (vs dual antiplatelet therapy)		
Single antiplatelet therapy	2.147 (1.779, 2.591)	<0.0001
none	4.371 (3.385, 5.643)	<0.0001
Statins within 30 days (vs no)	2.454 (1.960, 3.073)	<0.0001
β blockers within 30 days (vs no)	1.594 (1.374, 1.850)	<0.0001
ACEI/ARB within 30 days (vs no)	1.153 (0.997, 1.333)	0.0546

BMI, body mass index; PCI, percutaneous coronary intervention; CABG, coronary artery bypass graft; COPD, chronic obstructive pulmonary disease; NSTEMI, non-ST-segment elevation myocardial infarction; STEMI, ST-segment elevation myocardial infarction; LVEF, left ventricular ejection fraction; ACEI, angiotensin converting enzyme inhibitor; ARB, angiotensin II receptor blocker; HR, hazard ratio; CI, confidence interval.

Supplemental Table 6. Discrimination of 30-day prognostic nomogram in subgroups of patients

Subgroup	Sample size	C statistic (95% CI)
Age, yrs		
≤75	4766	0.74 (0.65-0.84)
>75	935	0.83 (0.71-0.94)
Sex		
Male	4359	0.79 (0.69-0.88)
Female	1342	0.75 (0.62-0.88)
Diabetes		
Yes	1106	0.81 (0.62-1.00)
No	4431	0.78 (0.70-0.87)
Diagnosis		
STEMI	4302	0.77 (0.68-0.86)
NSTEMI	1399	0.83 (0.72-0.93)
In-hospital PCI		
Yes	3498	0.76 (0.63-0.88)
No	2203	0.76 (0.66-0.85)
Hospital level		
Province level	1984	0.78 (0.66-0.90)
Prefecture level	3168	0.80 (0.70-0.90)
County level	549	0.74 (0.51-0.97)

STEMI, ST-segment elevation myocardial infarction; NSTEMI, non-ST-segment elevation myocardial infarction; PCI, percutaneous coronary intervention; CI, confidence interval.

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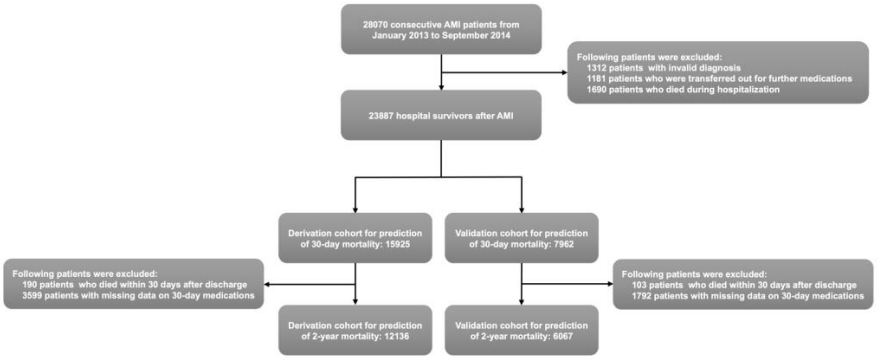
Supplemental Table 7. Discrimination of 2-year prognostic nomogram in subgroups of patients

Subgroup	Sample size	C statistic (95% CI)
Age, yrs		
≤75	3766	0.79 (0.75-0.83)
>75	695	0.66 (0.62-0.71)
Sex		
Male	3412	0.83 (0.80-0.86)
Female	1049	0.75 (0.70-0.80)
Diabetes		
Yes	845	0.81 (0.76-0.86)
No	3496	0.81 (0.78-0.84)
AMI classification		
STEMI	3364	0.81 (0.78-0.84)
NSTEMI	1097	0.81 (0.76-0.85)
In-hospital PCI		
Yes	3104	0.82 (0.78-0.87)
No	1357	0.72 (0.68-0.76)
Hospital level		
Province level	1460	0.83 (0.78-0.88)
Prefecture level	2552	0.81 (0.77-0.84)
County level	449	0.78 (0.70-0.85)

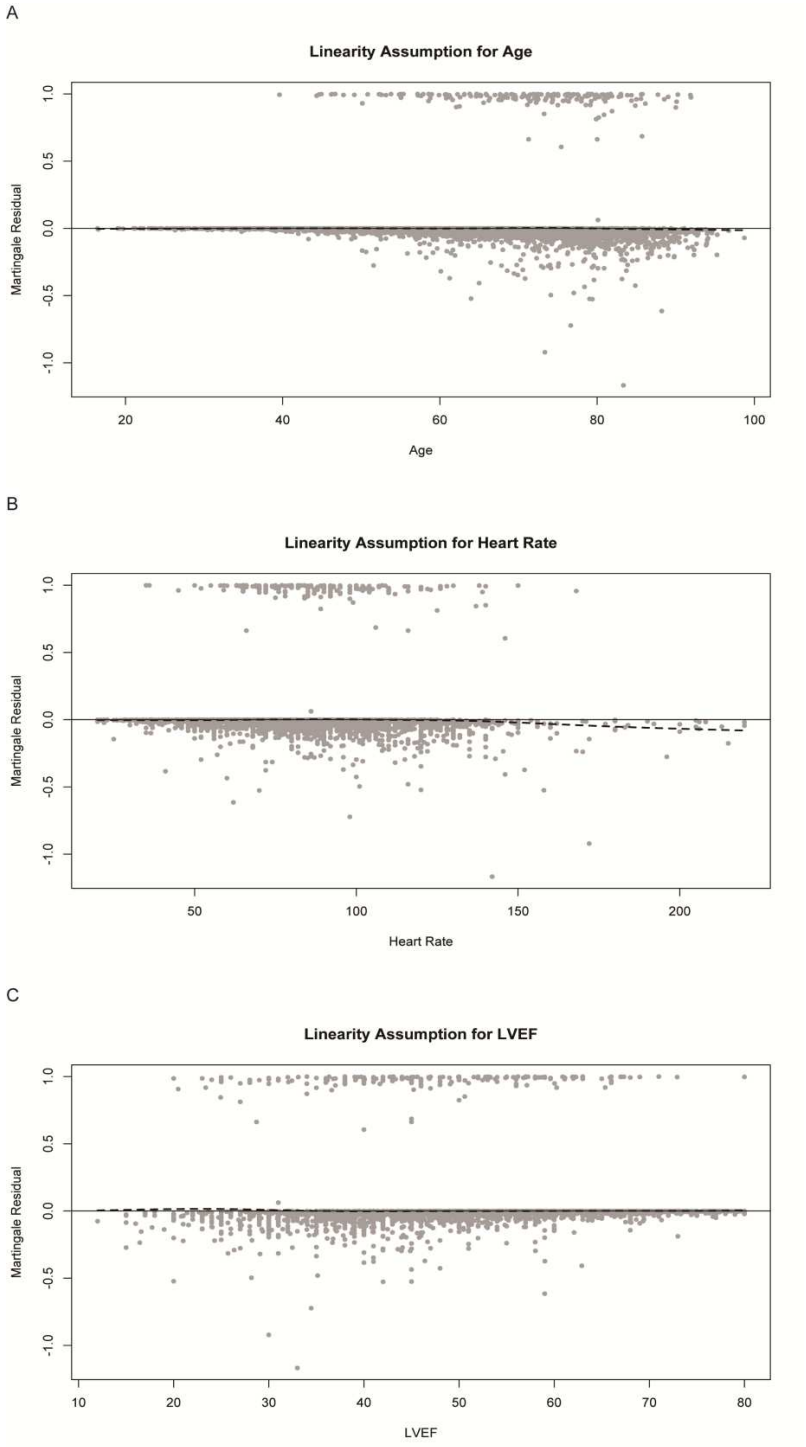
AMI, acute myocardial infarction; STEMI, ST-segment elevation myocardial infarction; NSTEMI, non-ST-segment elevation myocardial infarction; PCI, percutaneous coronary intervention; CI, confidence interval.

II. Supplemental Figures.

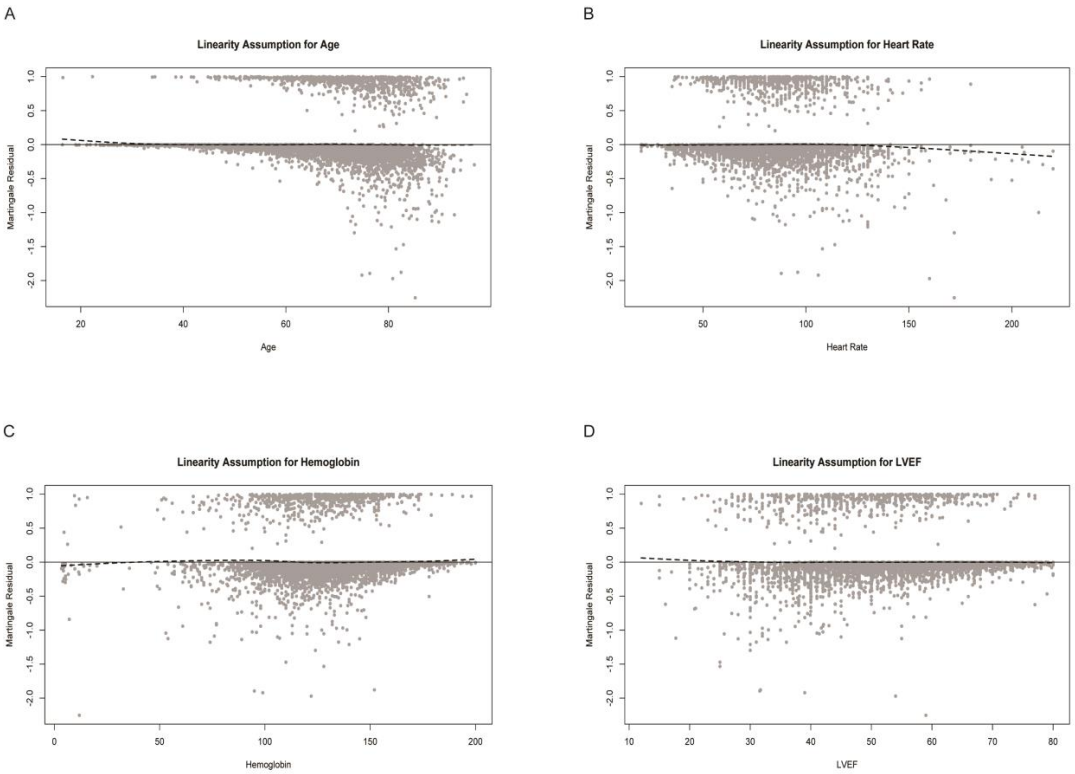
Supplemental Figure 1. Flowchart of this study



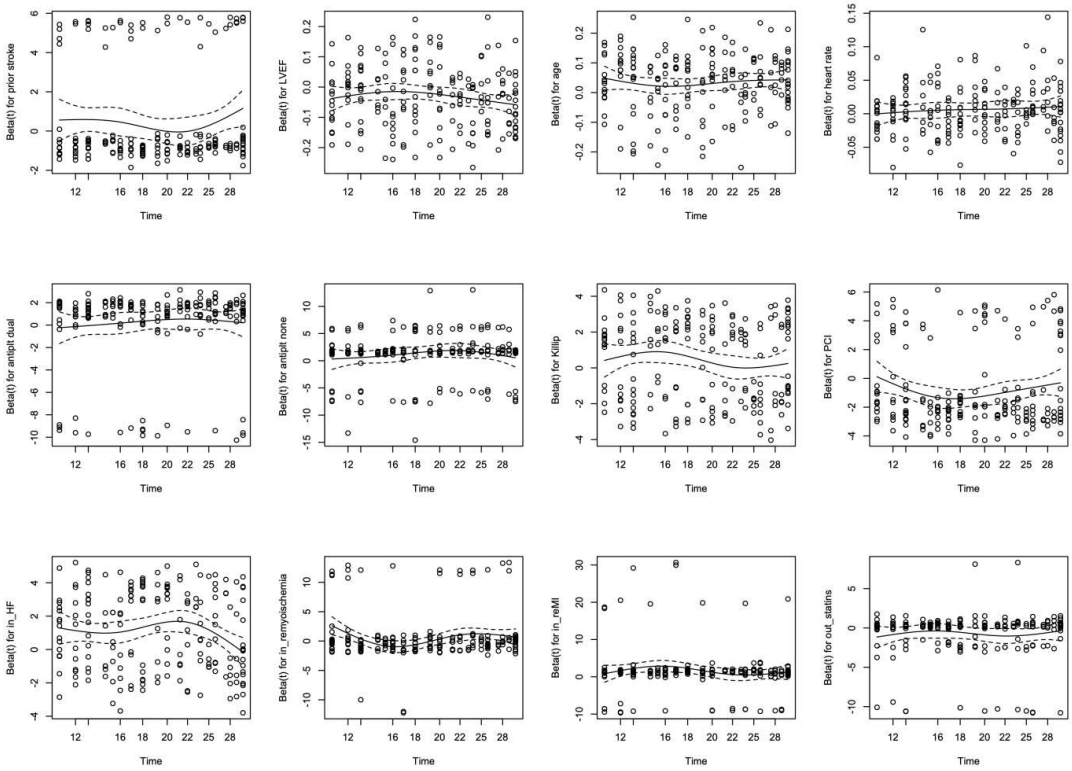
Supplemental Figure 2. Martingale residual plots for testing the linearity assumption before developing the 30-day model



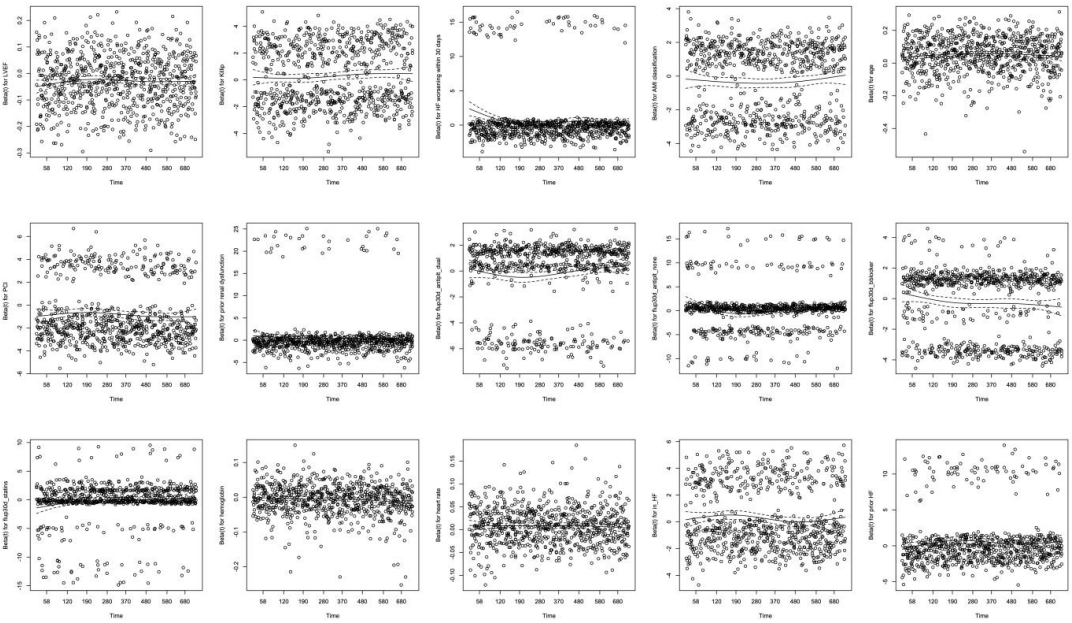
Supplemental Figure 3. Martingale residual plots for testing the linearity assumption before developing the 2-year model



Supplemental Figure 4. Schoenfeld residual plots for testing the proportional hazards assumption before developing the 30-day model



Supplemental Figure 5. Schoenfeld residual plots for testing the proportional hazards assumption before developing the 2-year model



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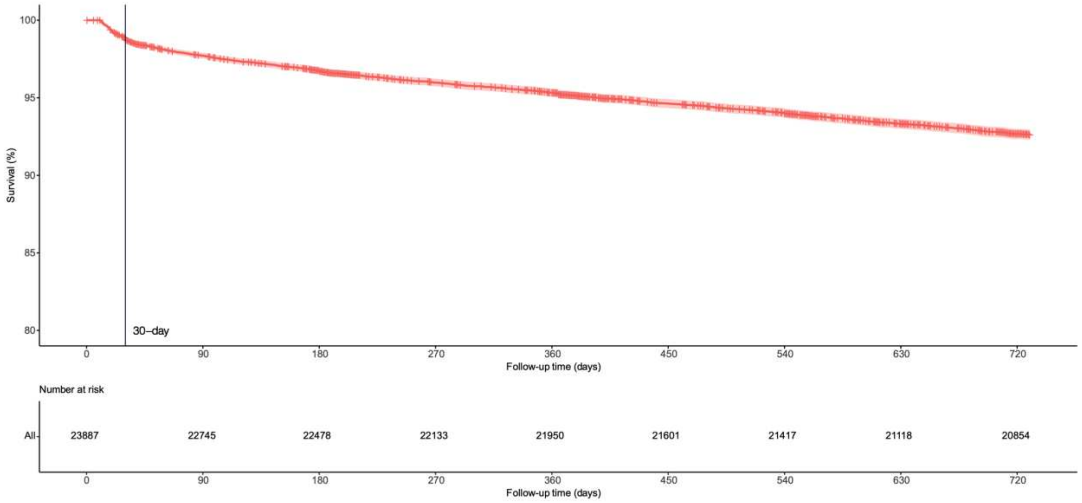
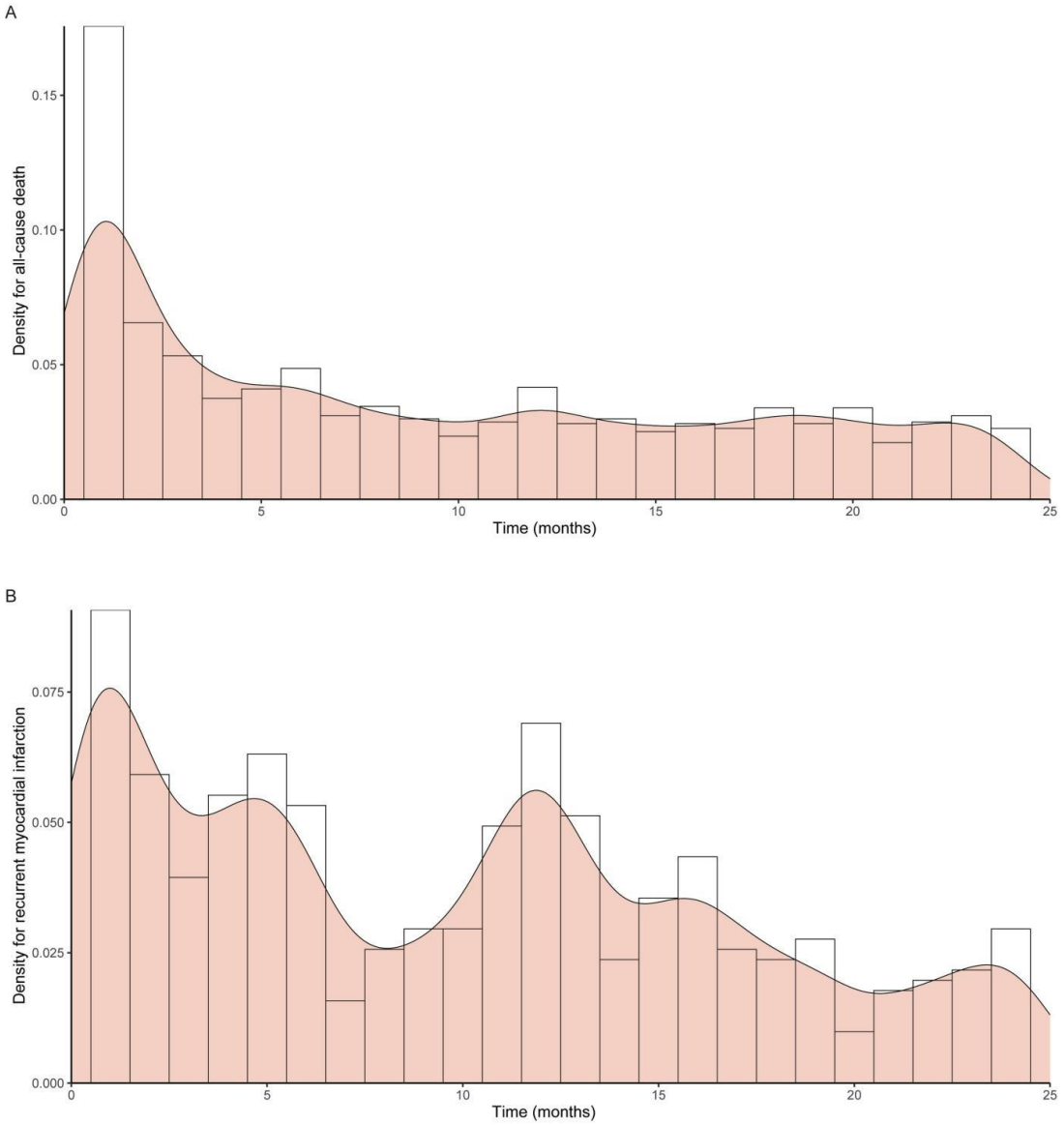
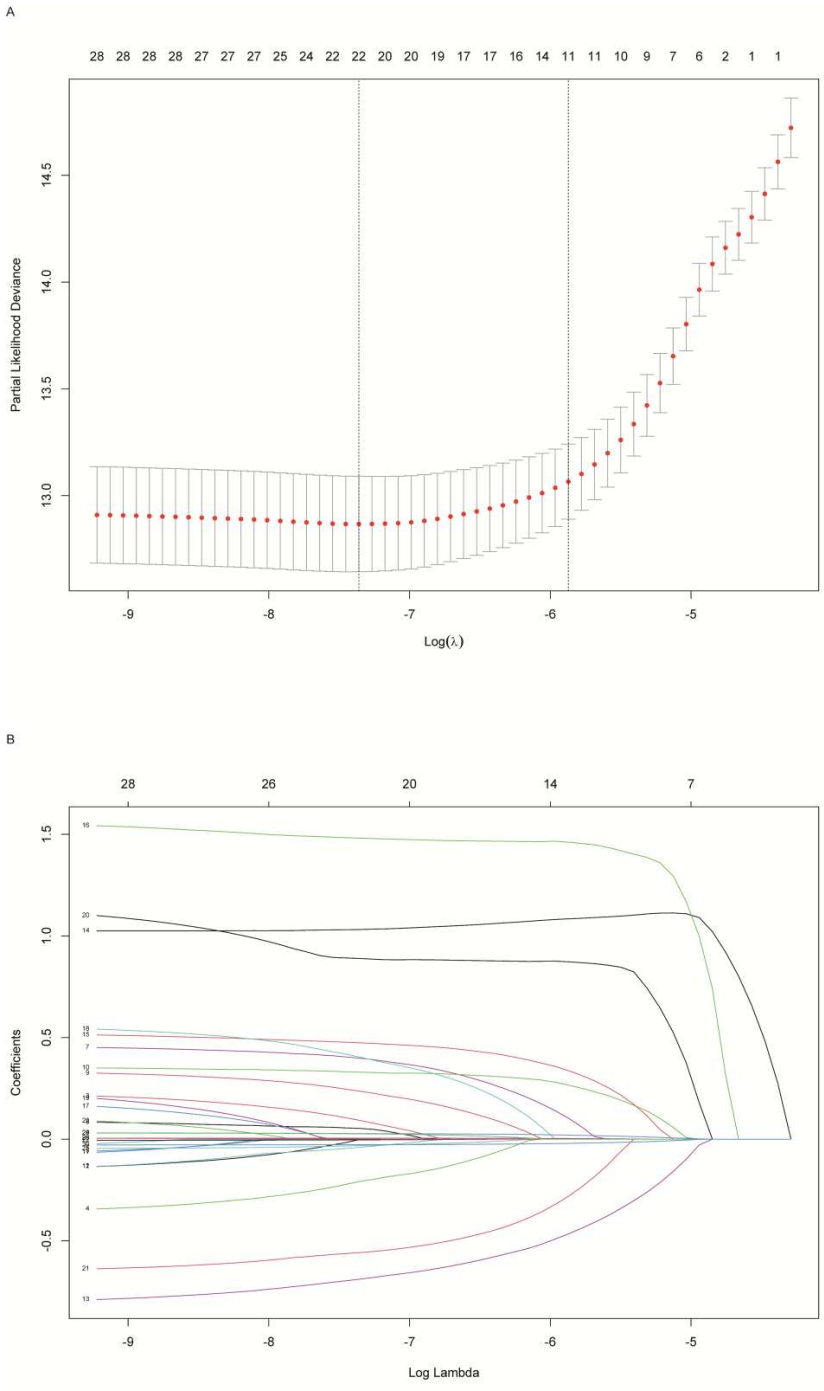
Supplemental Figure 6. Kaplan-Meier curve for patients after AMI hospitalization



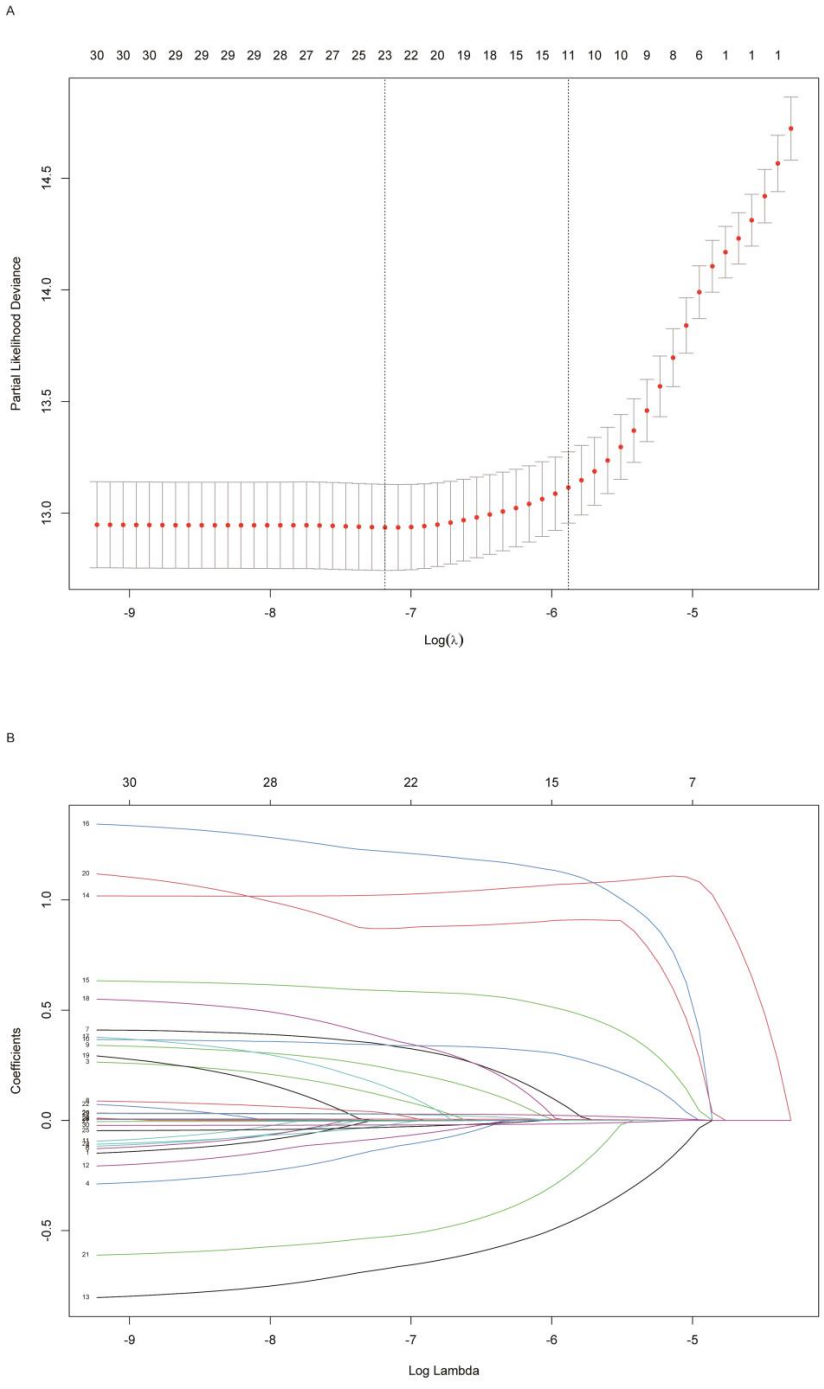
Supplemental Figure 7. Density plots for all-cause death and recurrent myocardial infarction during follow-up



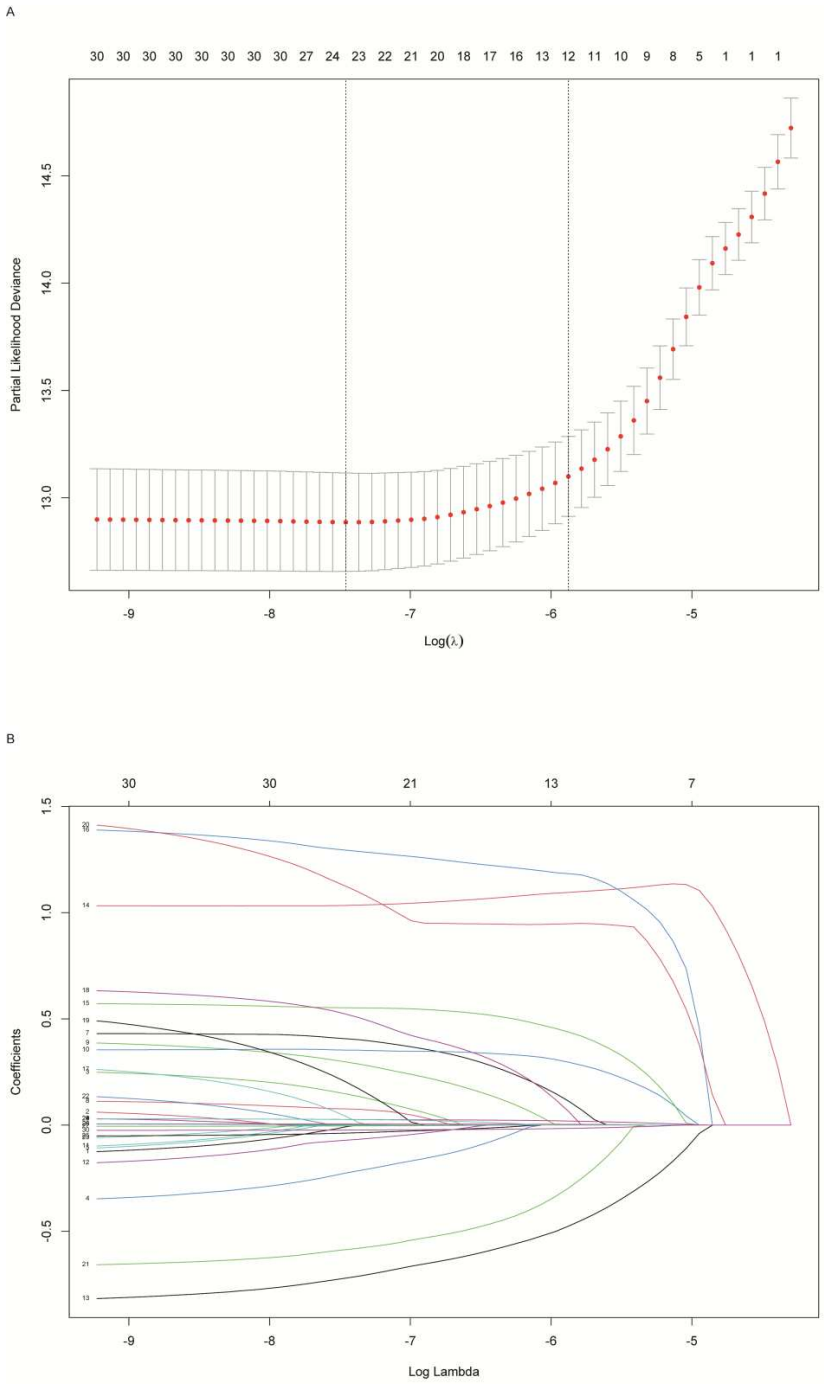
Supplemental Figure 8. Variable selection by LASSO method for 30-day prognostic model in imputation dataset 1



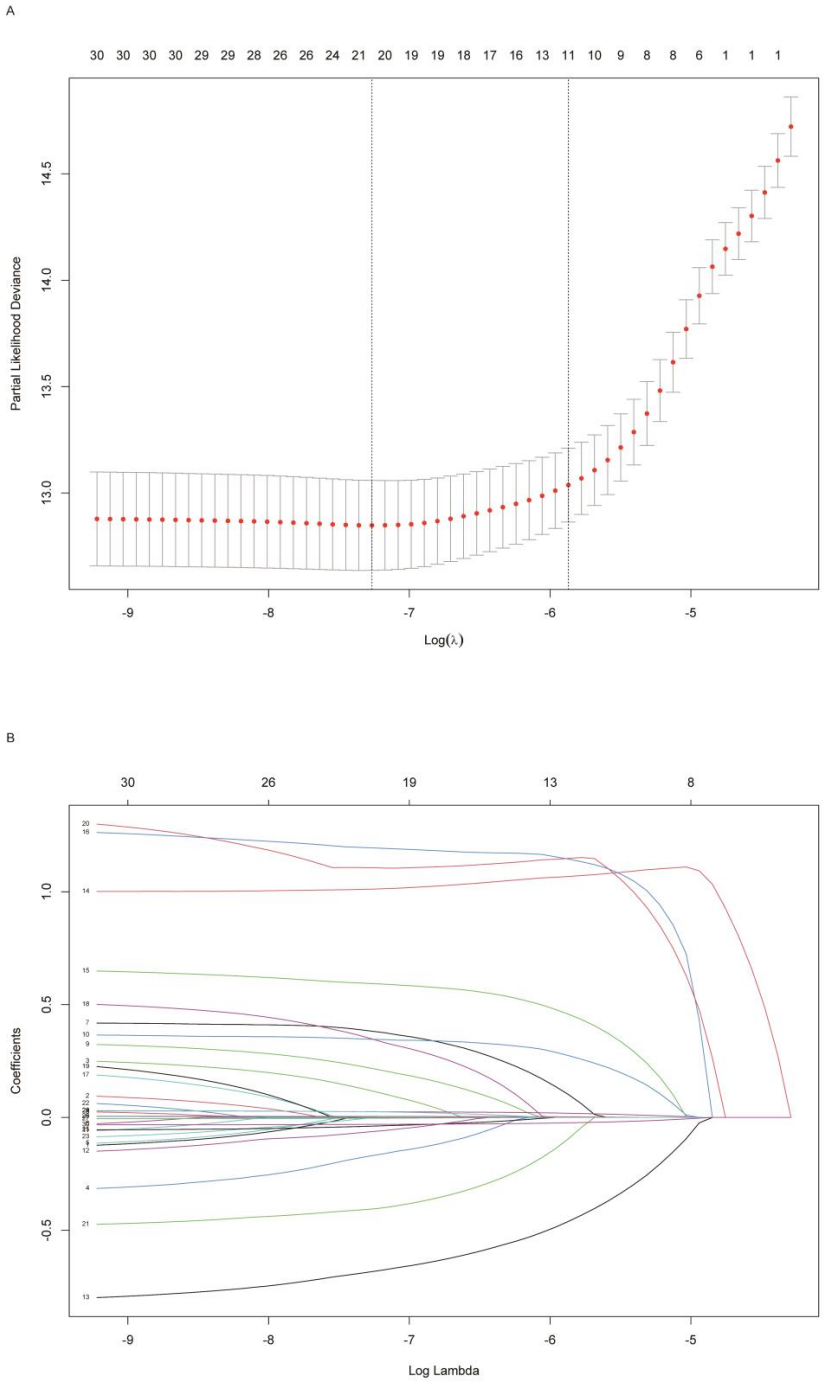
Supplemental Figure 9. Variable selection by LASSO method for 30-day prognostic model in imputation dataset 2



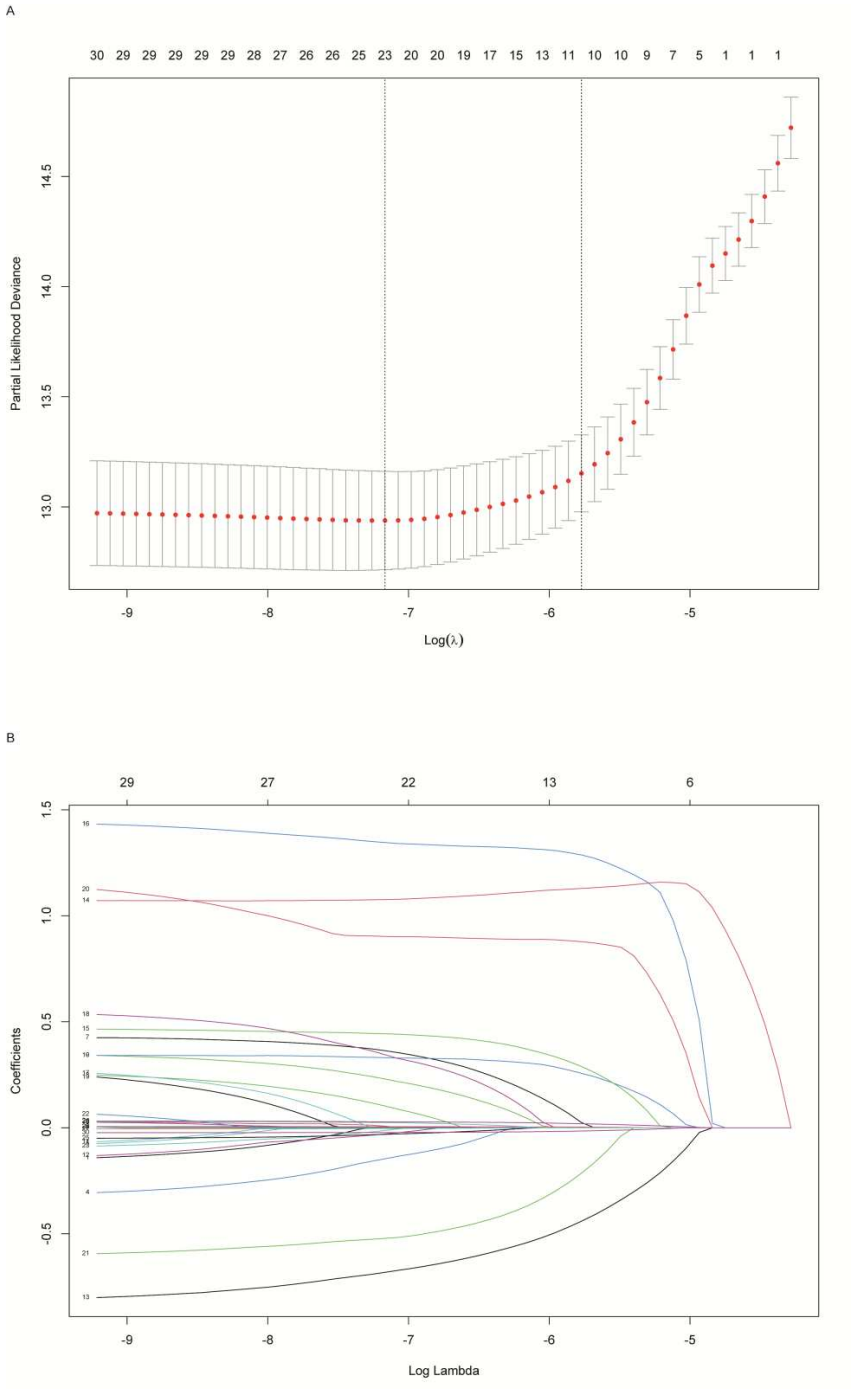
Supplemental Figure 10. Variable selection by LASSO method for 30-day prognostic model in imputation dataset 3



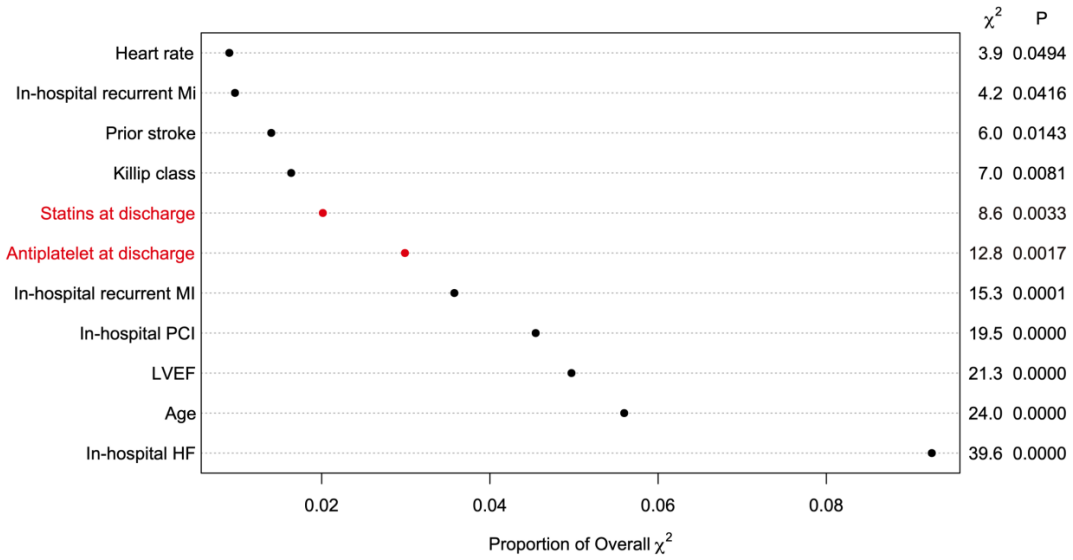
Supplemental Figure 11. Variable selection by LASSO method for 30-day prognostic model in imputation dataset 4



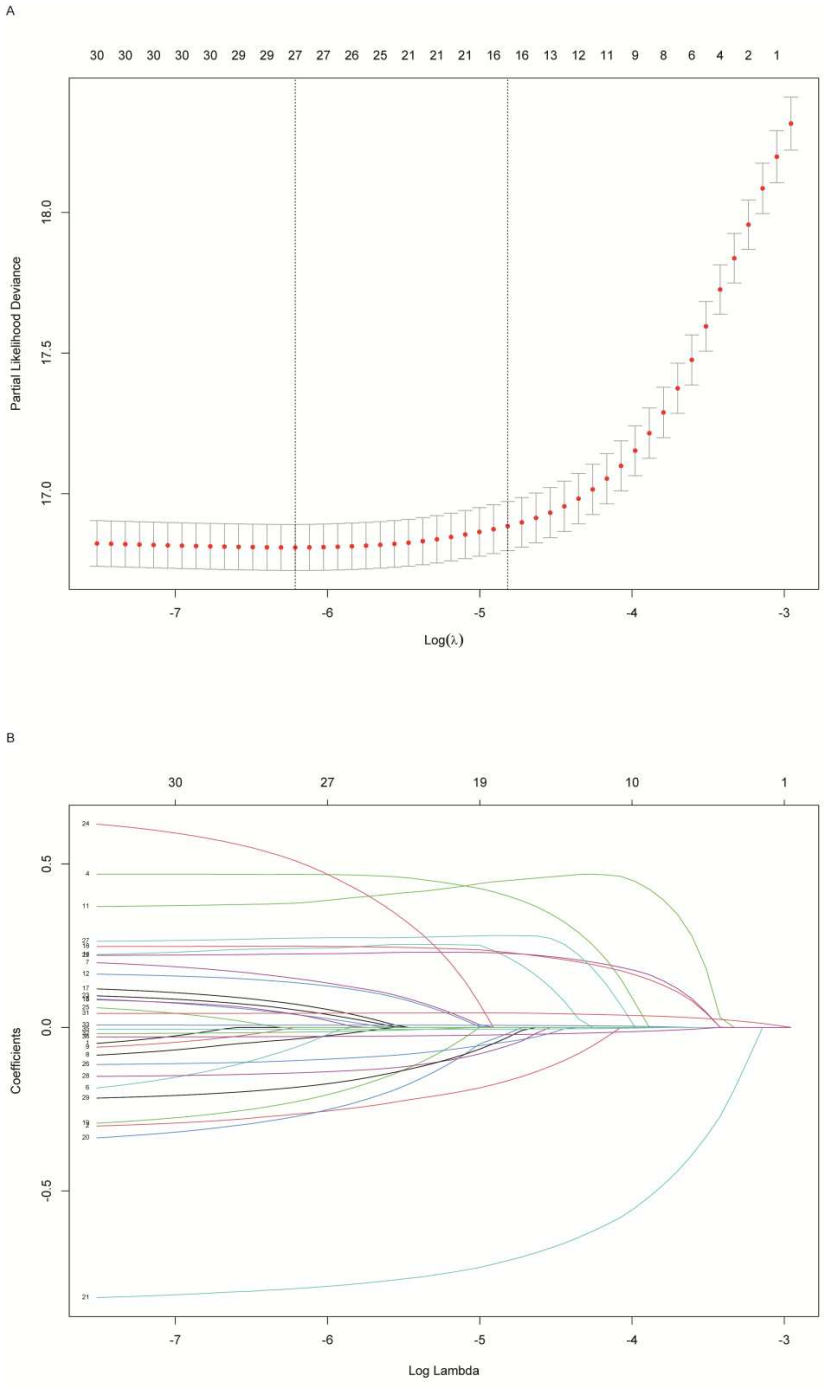
Supplemental Figure 12. Variable selection by LASSO method for 30-day prognostic model in imputation dataset 5



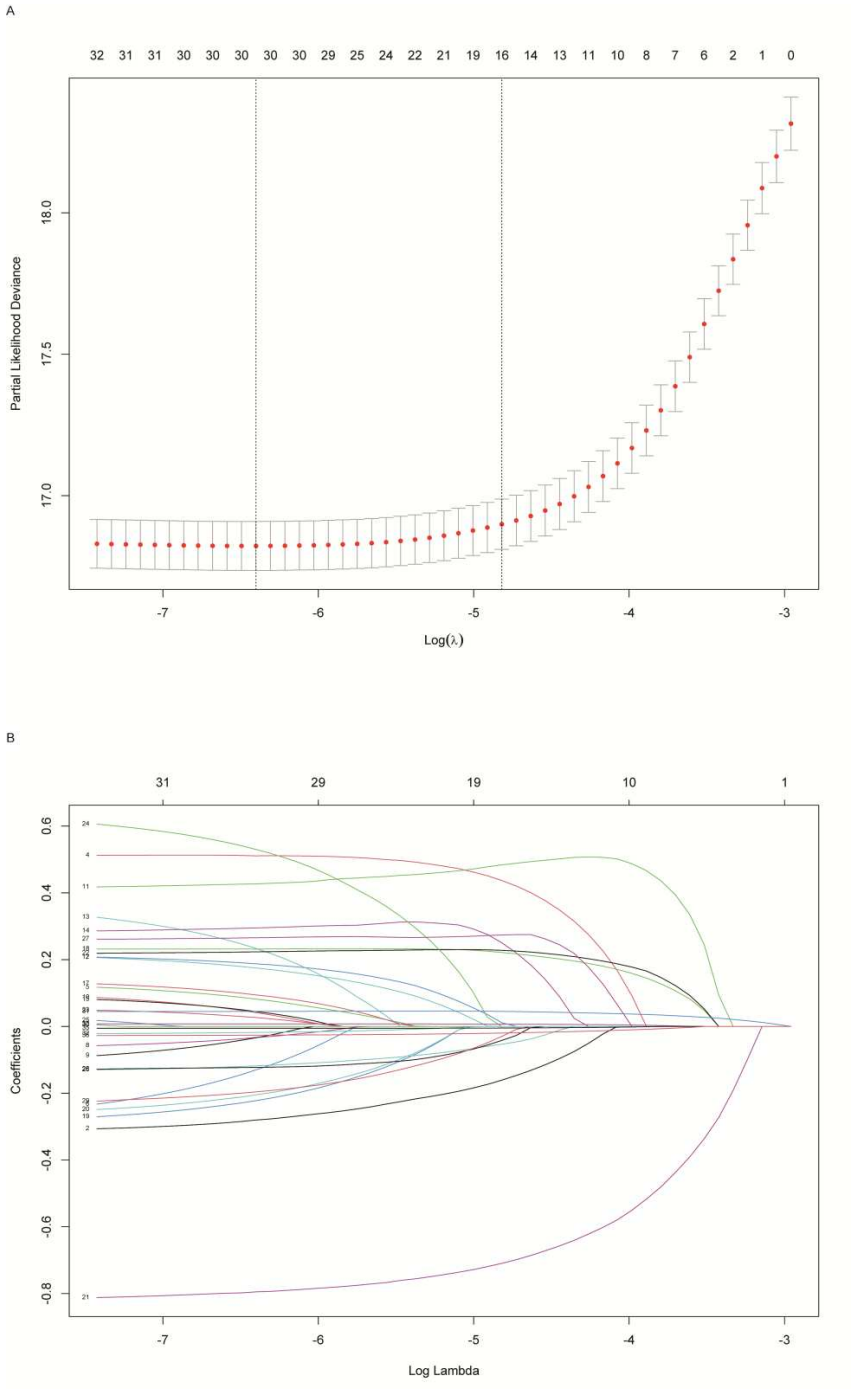
Supplemental Figure 13. Relative importance of selected predictors for 30-day mortality



Supplemental Figure 14. Variable selection by LASSO method for 2-year prognostic model in imputation dataset 1



Supplemental Figure 15. Variable selection by LASSO method for 2-year prognostic model in imputation dataset 2



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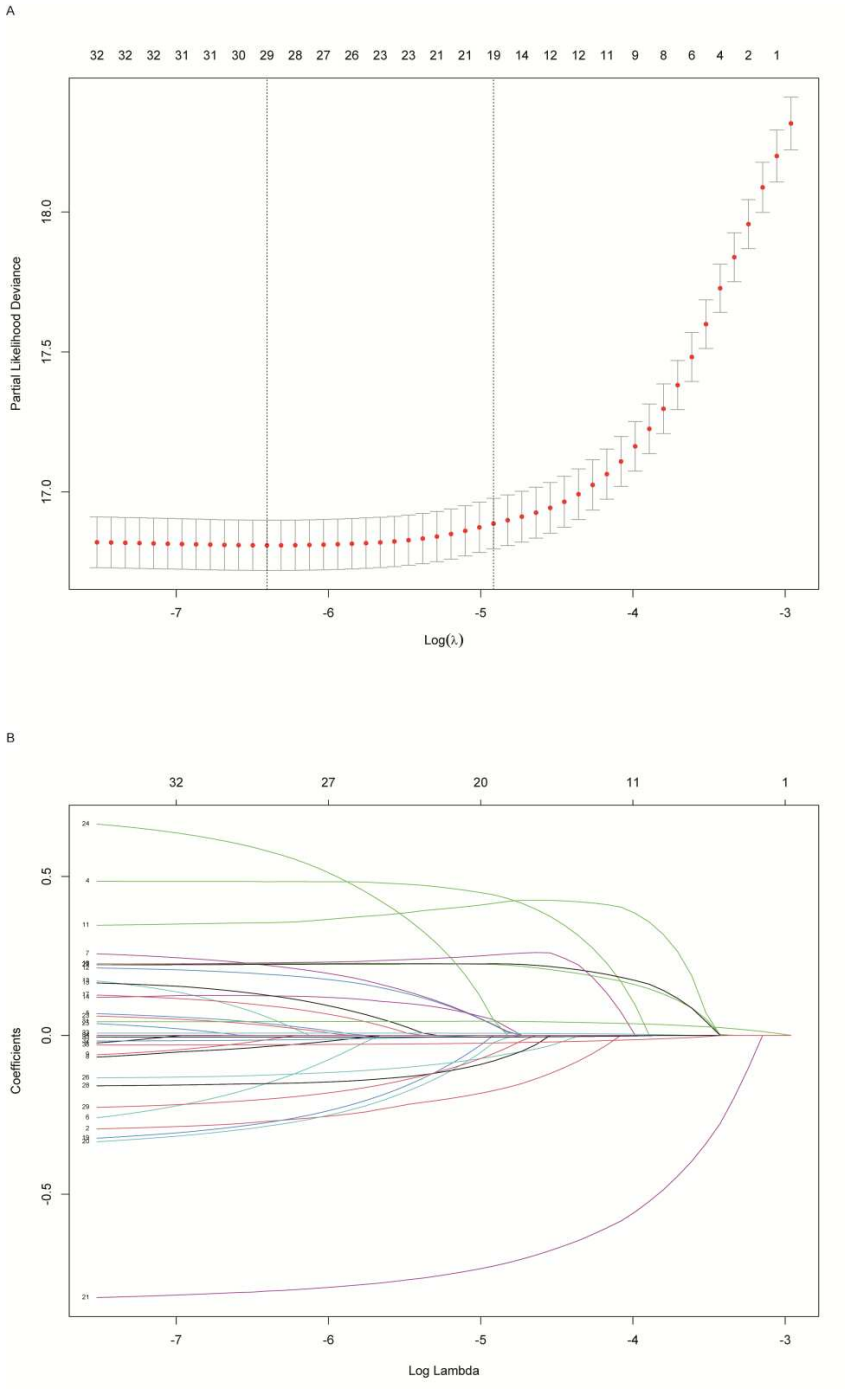
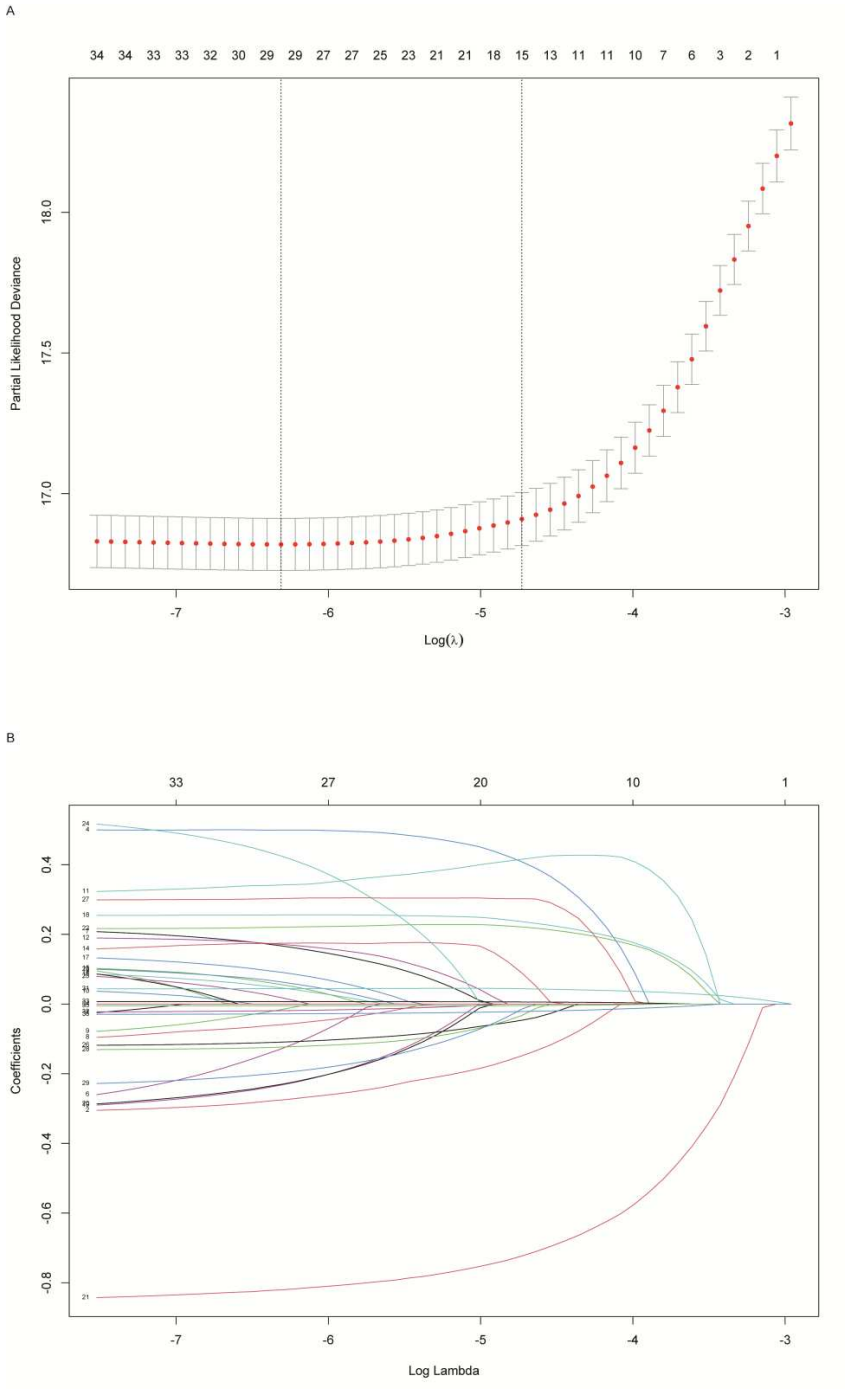
Supplemental Figure 16. Variable selection by LASSO method for 2-year prognostic model in imputation dataset 3

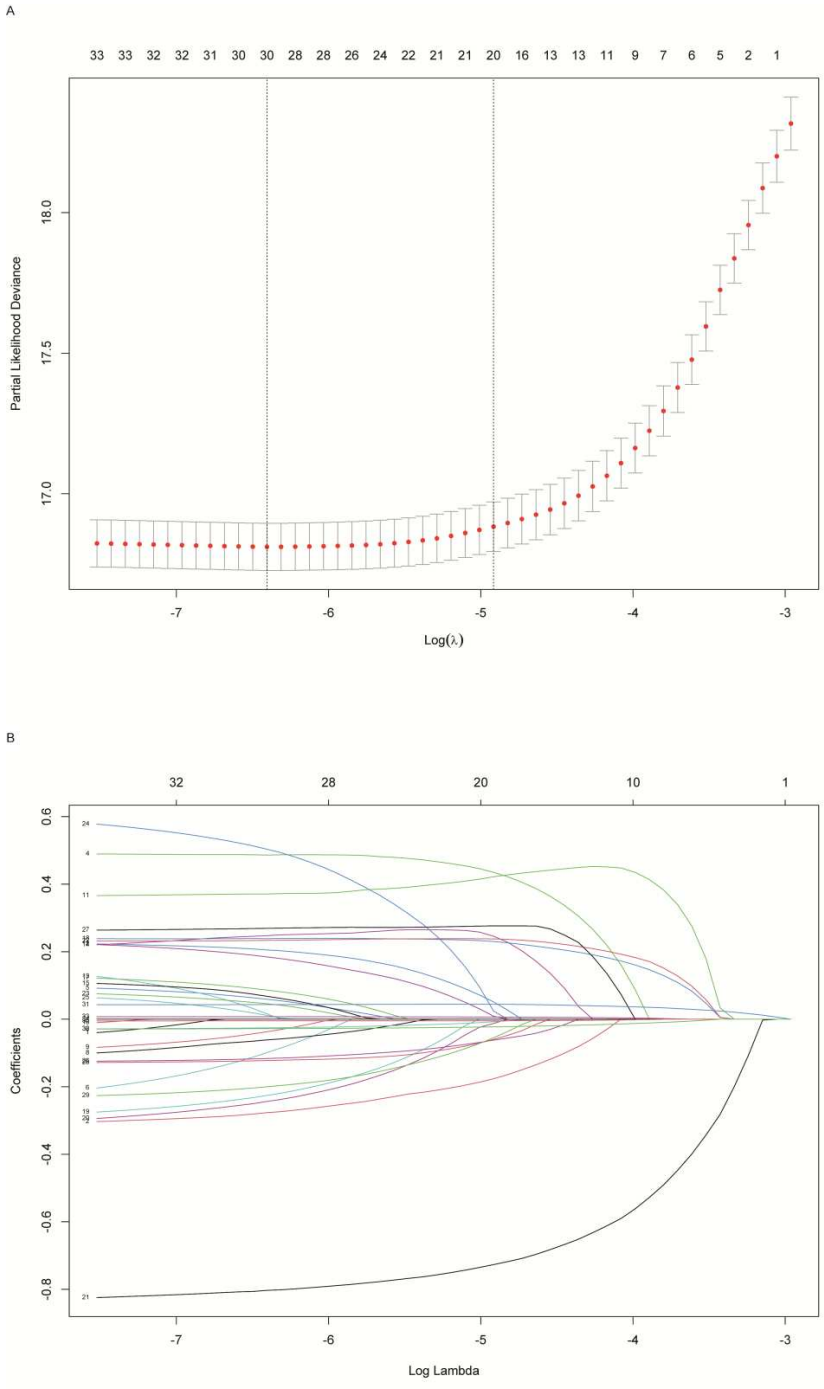


Lv J, *et al. BMJ Open* 2023; 13:e069505. doi: 10.1136/bmjopen-2022-069505

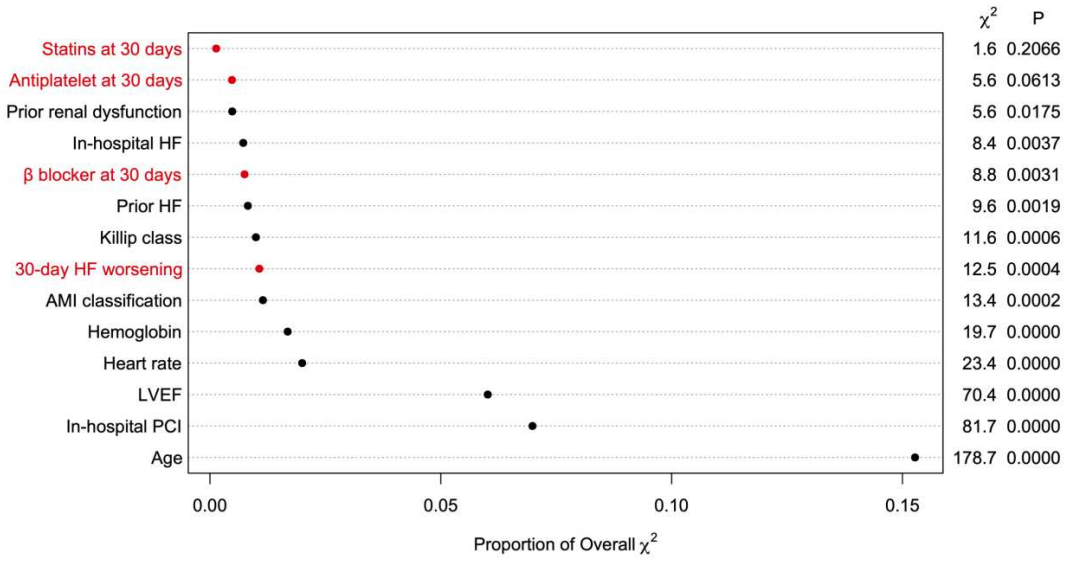
Supplemental Figure 17. Variable selection by LASSO method for 2-year prognostic model in imputation dataset 4



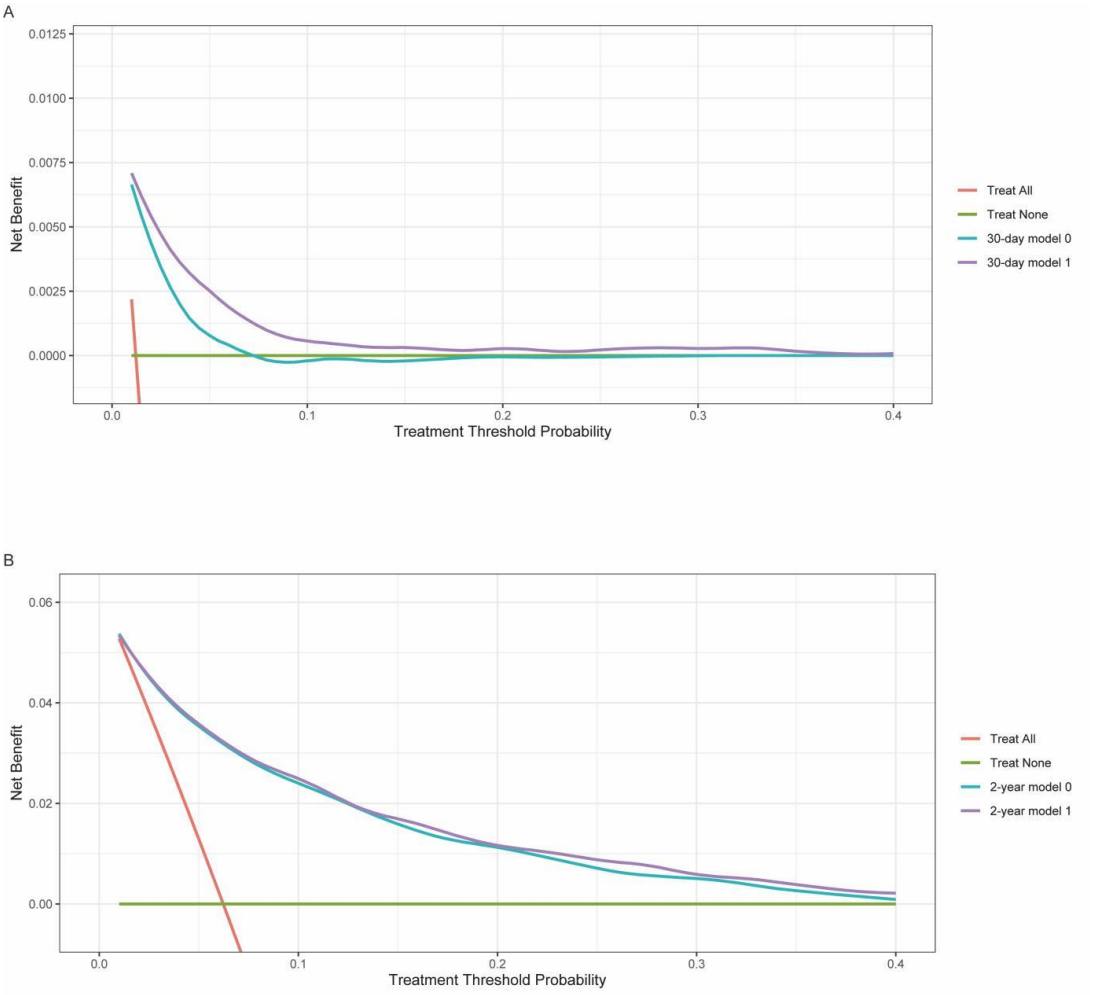
Supplemental Figure 18. Variable selection by LASSO method for 2-year prognostic model in imputation dataset 5



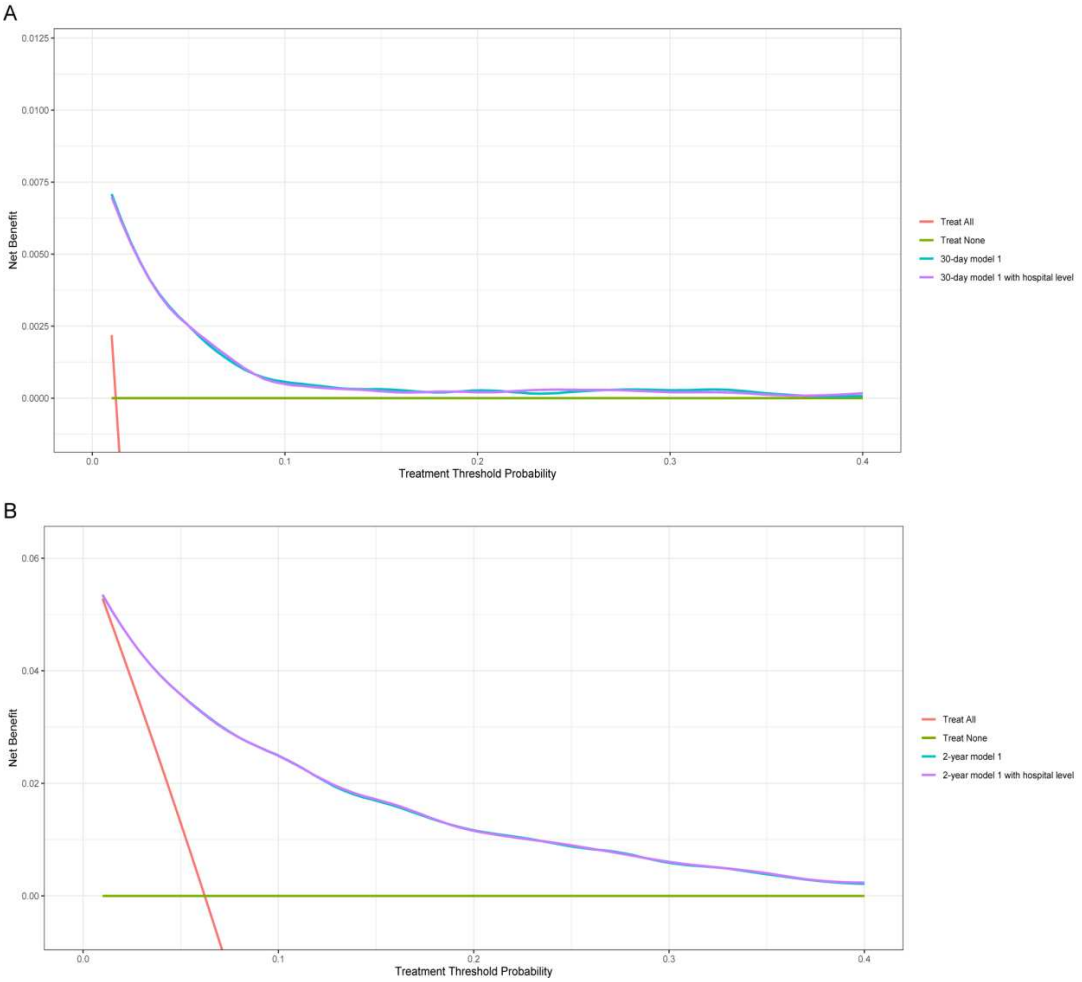
Supplemental Figure 19. Relative importance of selected predictors for 2-year mortality



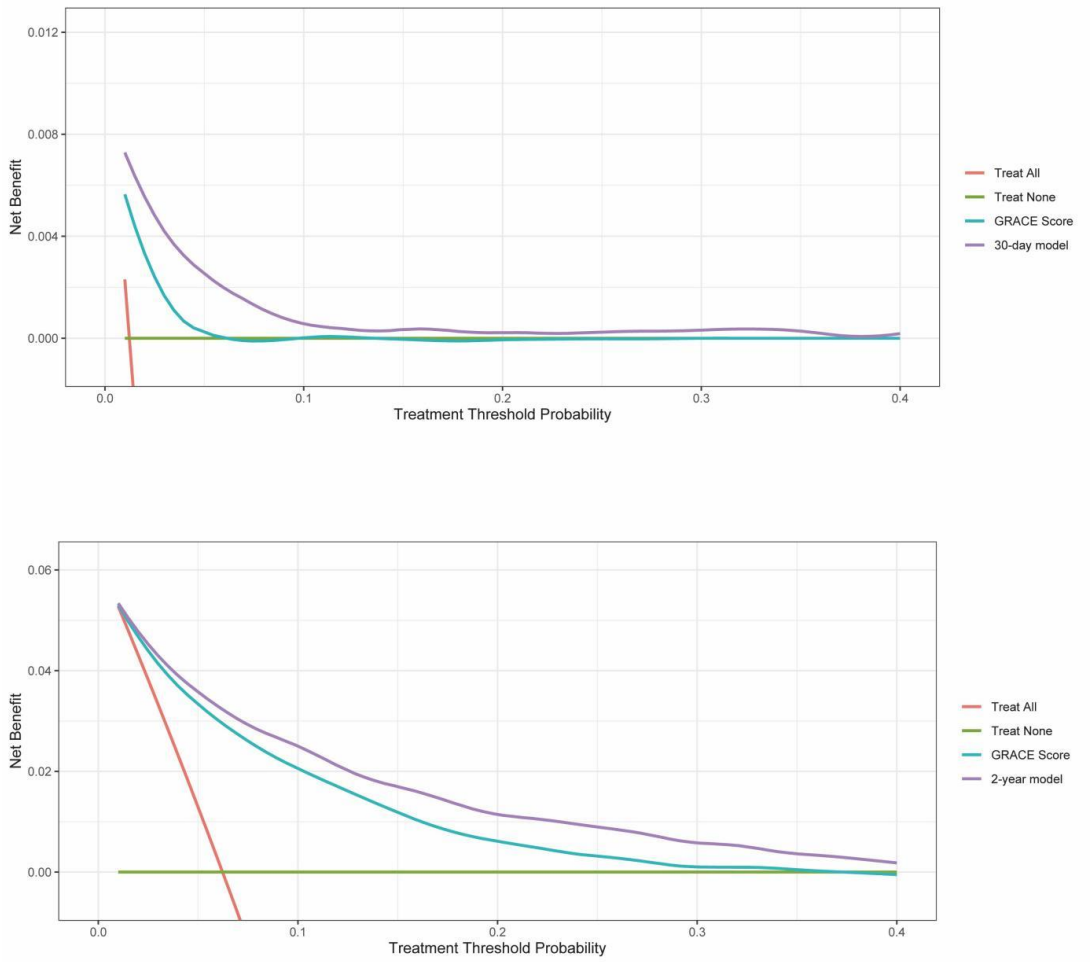
Supplemental Figure 20. Comparisons of clinical utility between models with or without adverse events and medications



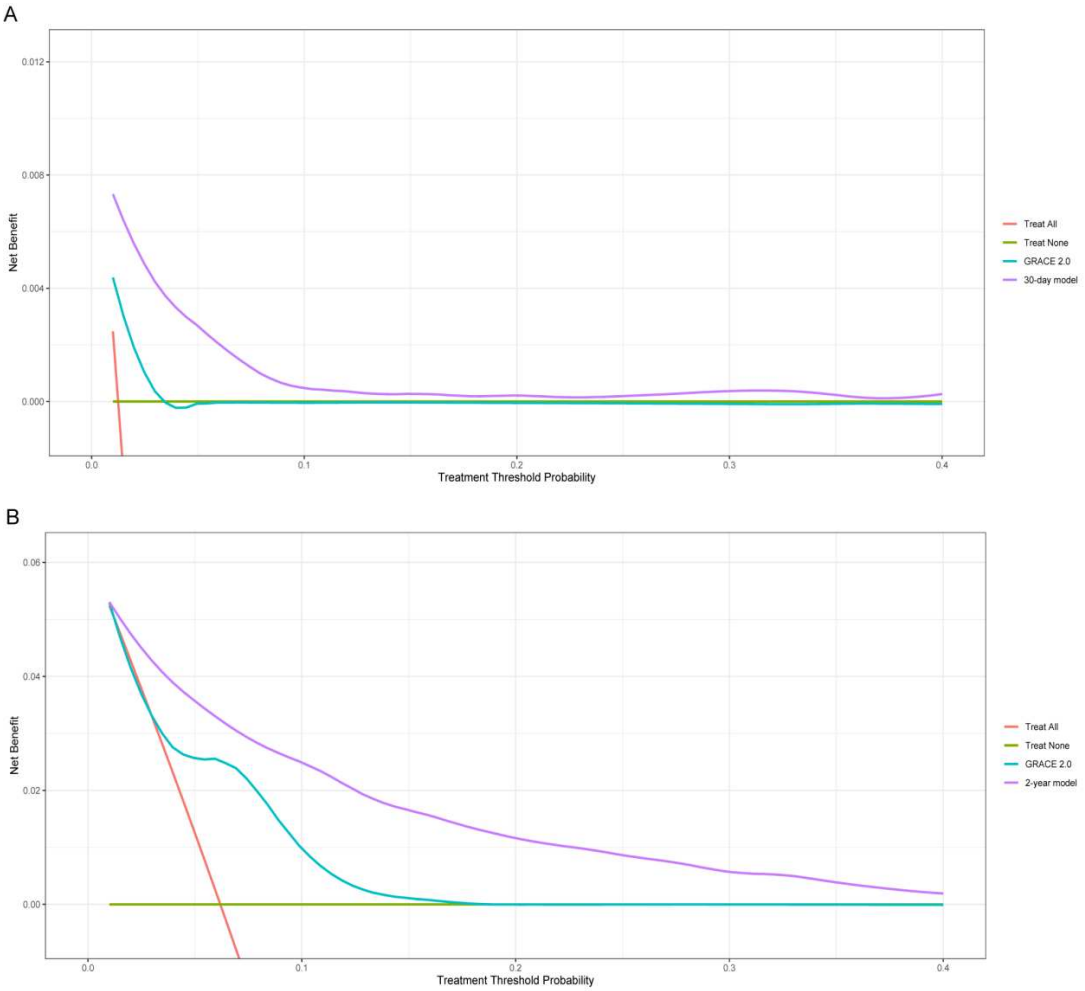
Supplemental Figure 21. Comparisons of clinical utility between models with or without hospital level



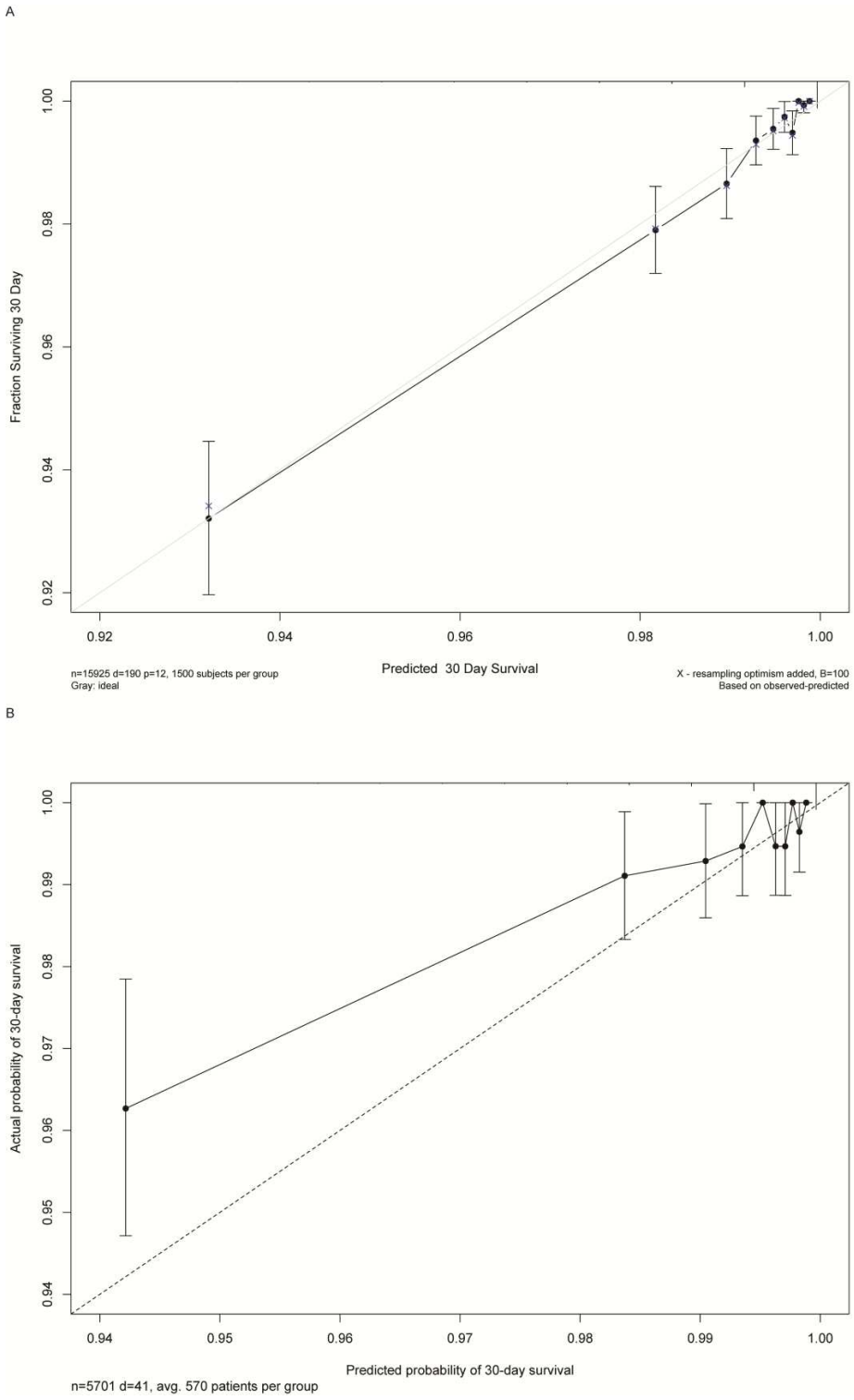
Supplemental Figure 22. Comparisons of clinical utility between models and GRACE 1.0 score



Supplemental Figure 23. Comparisons of clinical utility between models and GRACE 2.0 score



Supplemental Figure 24. Calibration curves of 30-day prognostic nomogram



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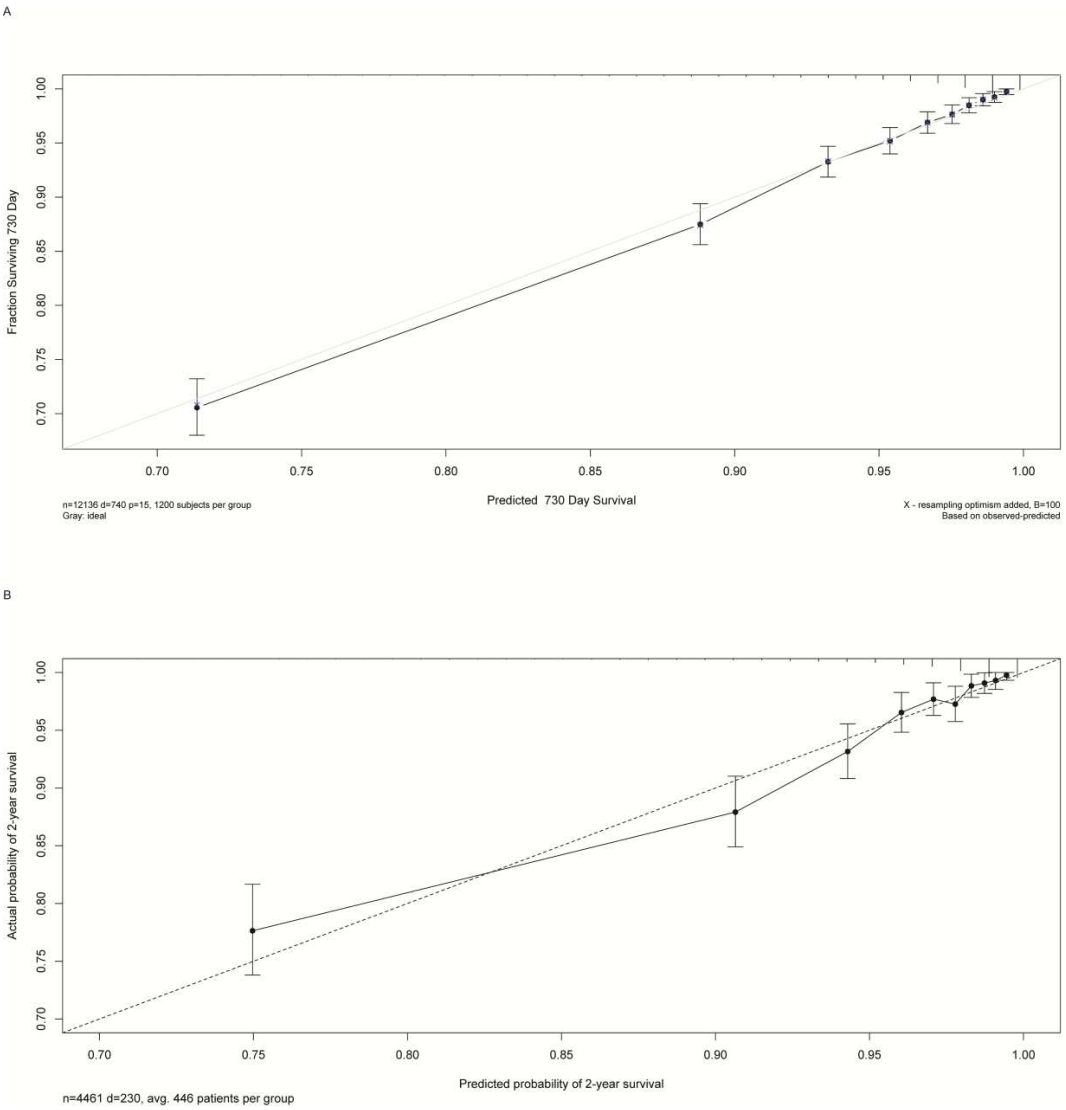
Supplemental Figure 25. Calibration curves of 2-year prognostic nomogram



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