

**SUPPLEMENTARY MATERIAL**

**Supplemental Table S1.** Baseline characteristics of young women hospitalized for AMI who were readmitted and not readmitted within 1-year (comparison of all 59 candidate variables).

	All patients (N=2007)	All patients (Missing)	Not readmitted (N=1323)	Not readmitted (Missing)	Readmitted within 1 year (N=684)	Readmitted within 1 year (Missing)	P-value
<b>Socio-Demographics/SES</b>							
Age	47.2 (6.30)	0 (0.0%)	47.4 (6.16)	0 (0.0%)	46.7 (6.56)	0 (0.0%)	0.02
Age, Median (IQR)	48.0 (44.0, 52.0)	0 (0.0%)	49.0 (44.0, 52.0)	0 (0.0%)	48.0 (43.0, 52.0)	0 (0.0%)	0.04
Ethnicity White / Caucasian	1485 (74.0%)	0 (0.0%)	1009 (76.3%)	0 (0.0%)	476 (69.6%)	0 (0.0%)	0.001
Married or Living with spouse	1053 (52.5%)	0 (0.0%)	725 (54.8%)	0 (0.0%)	328 (48.0%)	0 (0.0%)	0.004
Primary earner	1484 (73.9%)	0 (0.0%)	1002 (75.7%)	0 (0.0%)	482 (70.5%)	0 (0.0%)	0.01
Low Income	956 (47.6%)	0 (0.0%)	573 (43.3%)	0 (0.0%)	383 (56.0%)	0 (0.0%)	<0.001
Working	1128 (56.2%)	0 (0.0%)	804 (60.8%)	0 (0.0%)	324 (47.4%)	0 (0.0%)	<0.001
Mean work hours per week	21.7 (21.62)	13 (0.6%)	23.6 (21.62)	10 (0.8%)	18.0 (21.16)	3 (0.4%)	<0.001
Has health insurance	1569 (78.2%)	0 (0.0%)	1024 (77.4%)	0 (0.0%)	545 (79.7%)	0 (0.0%)	0.31
ESSI 7 – Help with daily chores	1255 (62.5%)	0 (0.0%)	834 (63.0%)	0 (0.0%)	421 (61.5%)	0 (0.0%)	0.63
<b>Cardiac risk factors</b>							
Diabetes	799 (39.8%)	0 (0.0%)	468 (35.4%)	0 (0.0%)	331 (48.4%)	0 (0.0%)	<0.001
Obesity (BMI>30 kg/m <sup>2</sup> )	1107 (55.2%)	0 (0.0%)	704 (53.2%)	0 (0.0%)	403 (58.9%)	0 (0.0%)	0.02
Hypertension	1347 (67.1%)	0 (0.0%)	847 (64.0%)	0 (0.0%)	500 (73.1%)	0 (0.0%)	<0.001
Dyslipidemia	1679 (83.7%)	0 (0.0%)	1085 (82.0%)	0 (0.0%)	594 (86.8%)	0 (0.0%)	0.006

Currently Smoking	601 (29.9%)	0 (0.0%)	394 (29.8%)	0 (0.0%)	207 (30.3%)	0 (0.0%)	0.82
Family History of CVD	1350 (67.3%)	0 (0.0%)	882 (66.7%)	0 (0.0%)	468 (68.4%)	0 (0.0%)	0.51
Inactivity	751 (37.4%)	0 (0.0%)	454 (34.3%)	0 (0.0%)	297 (43.4%)	0 (0.0%)	<0.001
<b>Medical History</b>							
Previous MI	413 (20.6%)	0 (0.0%)	231 (17.5%)	0 (0.0%)	182 (26.6%)	0 (0.0%)	<0.001
History of Renal Disease	254 (12.7%)	0 (0.0%)	144 (10.9%)	0 (0.0%)	110 (16.1%)	0 (0.0%)	<0.001
History of COPD	284 (14.2%)	0 (0.0%)	159 (12.0%)	0 (0.0%)	125 (18.3%)	0 (0.0%)	<0.001
History of stroke	82 (4.1%)	0 (0.0%)	46 (3.5%)	0 (0.0%)	36 (5.3%)	0 (0.0%)	0.05
History of heart failure	115 (5.7%)	0 (0.0%)	48 (3.6%)	0 (0.0%)	67 (9.8%)	0 (0.0%)	<0.001
History of PAD	53 (2.6%)	0 (0.0%)	20 (1.5%)	0 (0.0%)	33 (4.8%)	0 (0.0%)	<0.001
<b>Presentation Characteristics</b>							
Ejection Fraction less than 40 percent	211 (10.5%)	0 (0.0%)	133 (10.1%)	0 (0.0%)	78 (11.4%)	0 (0.0%)	0.34
Angiogram		203 (10.1%)		126 (9.5%)		77 (11.3%)	0.003
Non-obstructive CAD <50%	232 (11.6%)		174 (13.2%)		58 (8.5%)		
Obstructive >= CAD 50%	1572 (78.3%)		1023 (77.3%)		549 (80.3%)		
Peak Troponin, Median (IQR)	5.9 (1.3 – 23.0)	26 (1.3%)	5.9 (1.4 – 23.6)	18 (1.4%)	5.8 (1.3 – 22.1)	8 (1.2%)	0.41
Estimated Glomerular Filtration Rate (eGFR)	88.1 (25.74)	8 (0.4%)	89.2 (23.84)	6 (0.5%)	86.0 (28.96)	2 (0.3%)	0.01
First White Blood Cell Count	10.8 (3.89)	8 (0.4%)	10.7 (3.74)	4 (0.3%)	10.8 (4.16)	4 (0.6%)	0.75
First Hematocrit	39.7 (4.95)	9 (0.4%)	39.9 (4.64)	5 (0.4%)	39.2 (5.47)	4 (0.6%)	0.002
Chest pain as primary symptom	1733 (86.3%)	0 (0.0%)	1149 (86.8%)	0 (0.0%)	584 (85.4%)	0 (0.0%)	0.36
Killip class		103 (5.1%)		71 (5.4%)		32 (4.7%)	0.05
I (no rales)	1810 (90.2%)		1202 (90.9%)		608 (88.9%)		
II (rales in bases / S3)	66 (3.3%)		36 (2.7%)		30 (4.4%)		

III (rales over 1/2 the lungs / Pulmonary edema)	18 (0.9%)		8 (0.6%)		10 (1.5%)		
IV (Cardiogenic shock)	10 (0.5%)		6 (0.5%)		4 (0.6%)		
Prior coronary artery bypass grafting (CABG)	77 (3.8%)	0 (0.0%)	37 (2.8%)	0 (0.0%)	40 (5.8%)	0 (0.0%)	<0.001
Type of Myocardial Infarction		0 (0.0%)		0 (0.0%)		0 (0.0%)	0.24
STEMI	920 (45.8%)		619 (46.8%)		301 (44.0%)		
NSTEMI	1087 (54.2%)		704 (53.2%)		383 (56.0%)		
Grace Score	76.0 (19.27)	39 (1.9%)	75.7 (17.92)	19 (1.4%)	76.6 (21.69)	20 (2.9%)	0.36
Total length of stay in Days, Median (IQR)	3.0 (2.0 – 5.0)	10 (0.5%)	3.0 (2.0 – 4.0)	6 (0.5%)	3.0 (2.0 – 6.0)	4 (0.6%)	<0.001
Disposition to other institutions at discharge	1884 (93.9%)	0 (0.0%)	1249 (94.4%)	0 (0.0%)	635 (92.8%)	0 (0.0%)	0.001
Admitted to CCU/ICU	95 (4.7%)	0 (0.0%)	61 (4.6%)	0 (0.0%)	34 (5.0%)	0 (0.0%)	0.72
<b>Discharge Counseling</b>							
Recommended Counselling (Cardiac+Diet+Smoking)	631 (31.4%)	0 (0.0%)	418 (31.6%)	0 (0.0%)	213 (31.1%)	0 (0.0%)	0.84
Medication Counselling at discharge	1975 (98.4%)	0 (0.0%)	1305 (98.6%)	0 (0.0%)	670 (98.0%)	0 (0.0%)	0.25
Exercise Counselling at discharge	1845 (91.9%)	0 (0.0%)	1215 (91.8%)	0 (0.0%)	630 (92.1%)	0 (0.0%)	0.83
<b>Discharge Medication</b>							
Clopidogrel/Thienopyridines	1355 (67.5%)	0 (0.0%)	889 (67.2%)	0 (0.0%)	466 (68.1%)	0 (0.0%)	0.67
Statins	1814 (90.4%)	0 (0.0%)	1188 (89.8%)	0 (0.0%)	626 (91.5%)	0 (0.0%)	0.21
Dual Antiplatelet Therapy (DAPT)	1289 (64.2%)	0 (0.0%)	848 (64.1%)	0 (0.0%)	441 (64.5%)	0 (0.0%)	0.87
ACEI/ARBs	1229 (61.2%)	0 (0.0%)	797 (60.2%)	0 (0.0%)	432 (63.2%)	0 (0.0%)	0.20
Beta Blockers	1798 (89.6%)	0 (0.0%)	1188 (89.8%)	0 (0.0%)	610 (89.2%)	0 (0.0%)	0.67
Calcium Channel Blocker	122 (6.1%)	0 (0.0%)	77 (5.8%)	0 (0.0%)	45 (6.6%)	0 (0.0%)	0.50

<b>In-hospital complications</b>							
Bleeding	134 (6.7%)	0 (0.0%)	85 (6.4%)	0 (0.0%)	49 (7.2%)	0 (0.0%)	0.53
Re-infarction	21 (1.0%)	0 (0.0%)	11 (0.8%)	0 (0.0%)	10 (1.5%)	0 (0.0%)	0.19
Heart failure	160 (8.0%)	0 (0.0%)	83 (6.3%)	0 (0.0%)	77 (11.3%)	0 (0.0%)	<0.001
Cardiac arrhythmias	132 (6.6%)	0 (0.0%)	74 (5.6%)	0 (0.0%)	58 (8.5%)	0 (0.0%)	0.01
<b>Gender Psychosocial factors, Mean (SD)</b>							
Social Support (ESSI 5), Median (IQR)	27.0 (23.0 – 30.0)	39 (1.9%)	27.0 (23.0 – 30.0)	19 (1.4%)	27.0 (22.0 – 30.0)	20 (2.9%)	0.134
Depression (PHQ-9), Median (IQR)	8.0 (3.0 – 13.0)	82 (4.1%)	7.0 (3.0 – 12.0)	44 (3.3%)	9.0 (4.0 – 15.0)	38 (5.6%)	<0.001
Stress (PSS-14), Median (IQR)	27.0 (21.0 – 33.0)	131 (6.5%)	27.0 (20.0 – 33.0)	75 (5.7%)	28.5 (22.0 – 35.0)	56 (8.2%)	<0.001
Physical Limitation (SAQ), Median (IQR)	91.7 (58.3 – 100.0)	56 (2.8%)	94.4 (66.7 – 100.0)	32 (2.4%)	80.6 (47.2 – 100.0)	24 (3.5%)	<0.001
Anginal Frequency (SAQ), Median (IQR)	90.0 (70.0 – 100.0)	7 (0.3%)	90.0 (70.0 – 100.0)	5 (0.4%)	90.0 (60.0 – 100.0)	2 (0.3%)	<0.001
Treatment satisfaction (SAQ), Median (IQR)	100.0 (87.5 – 100.0)	18 (0.9%)	100.0 (87.5 – 100.0)	13 (1.0%)	100.0 (81.25 – 100.0)	5 (0.7%)	0.006
Quality of life (SAQ), Median (IQR)	58.3 (41.7 – 75.0)	14 (0.7%)	58.3 (41.7 – 75.0)	10 (0.8%)	50.0 (33.3 – 66.7)	4 (0.6%)	<0.001
General Health, PCS (SF-12), Median (IQR)	42.9 (32.5 – 42.9)	92 (4.6%)	45.1 (35.2 – 53.5)	58 (4.4%)	38.8 (28.6 – 48.4)	34 (5.0%)	<0.001
General Health, MCS (SF-12), Median (IQR)	44.9 (34.9 – 54.4)	92 (4.6%)	46.4 (36.2 – 54.7)	58 (4.4%)	43.2 (32.7 – 53.4)	34 (5.0%)	<0.001

**Abbreviations:** BMI (body mass index); CVD (cardiovascular disease); MI (myocardial infarction); COPD (chronic obstructive pulmonary disease); PAD (peripheral artery disease); CAD (coronary artery disease); CABG (coronary artery bypass grafting); STEMI

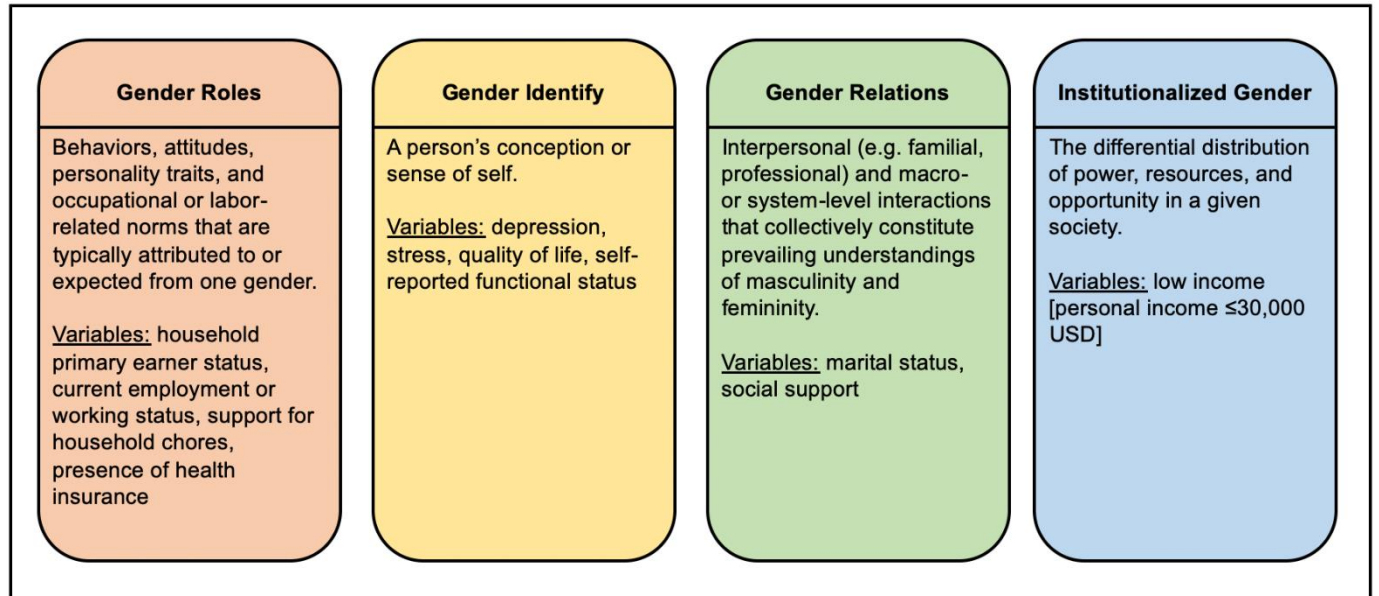
(ST-Elevation MI); CCU (cardiac care unit); ICU (intensive care unit); ACEI/ARBs (angiotensin-converting enzyme inhibitors/angiotensin receptor blockers); NSTEMI (Non-ST Elevation MI); ESSI-5 (ENRICHD Social Support instrument); PHQ-9 (Patient Health Questionnaire-9); PSS-14 (Perceived Stress Scale), SAQ (Seattle Angina Questionnaire); SF-12 PCS (Short Form-12 physical component score); SF-12 MCS (Short Form-12 mental component score)

**Supplemental Table S2.** Causes of 1-year readmission among young women hospitalized for AMI (cardiac versus non-cardiac).

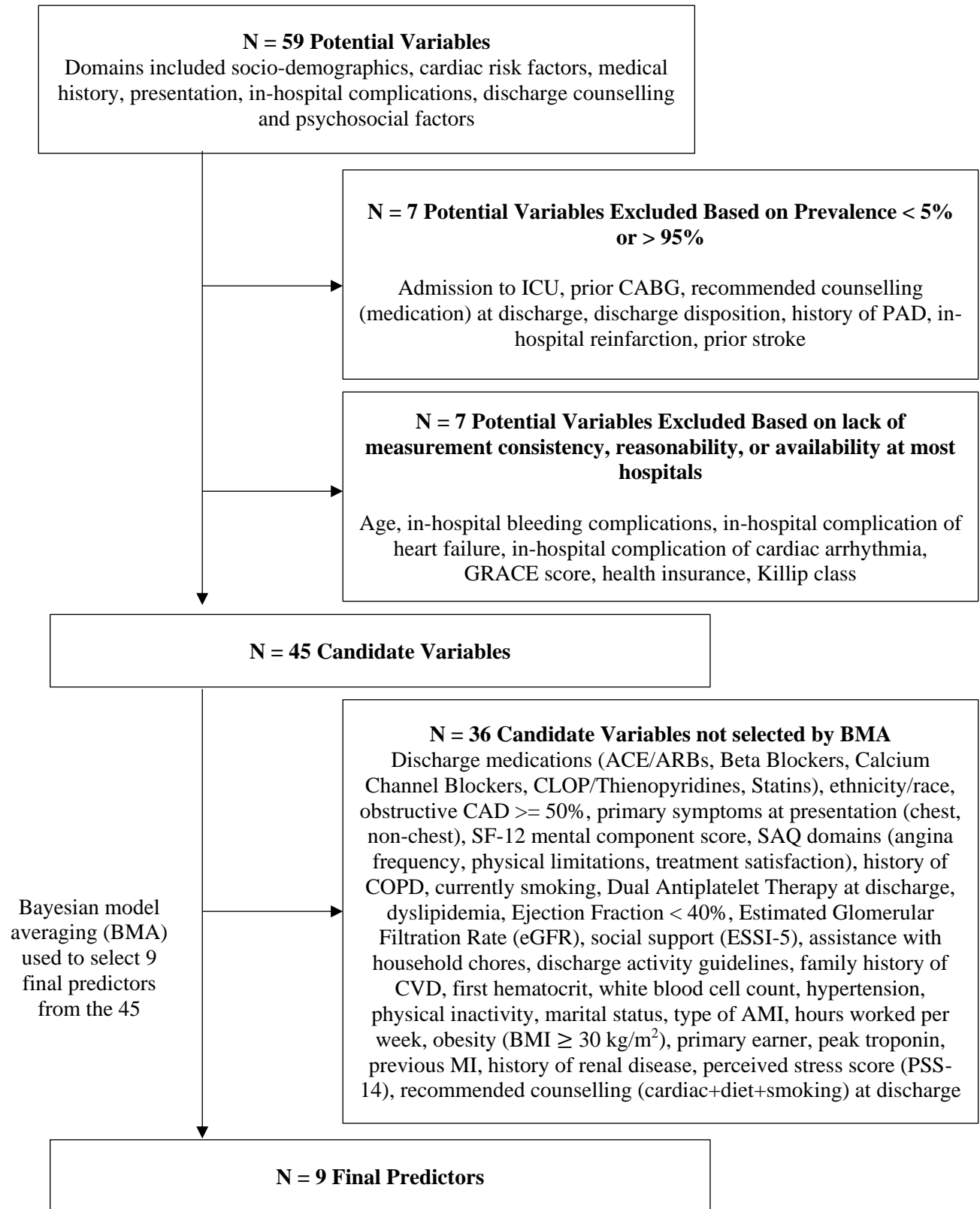
	<b>Total Number of Readmissions 1 year post AMI (N=1293)</b>	<b>Percent Total Readmissions at 1-year post AMI</b>
<b>Cardiac Readmission</b>	<b>743</b>	<b>57.46%</b>
AMI	97	7.50%
Heart Failure	103	7.97%
Stable/unstable angina	432	33.41%
Stroke	9	0.70%
Other cardiac	102	7.89%
<b>Non-cardiac readmission</b>	<b>546</b>	<b>42.23%</b>
<b>Unknown</b>	<b>4</b>	<b>0.31%</b>

**Abbreviations:** AMI (acute myocardial infarction)

**Supplemental Figure S1.** Domains of gender and gender-related variables considered for inclusion in the multivariable model according to Canadian Institutes of Health Research (CIHR).



**Supplemental Figure S2.** Stages of Selection for the Final Multivariable Risk Prediction Model.





**Abbreviations:** Clopidogrel (CLOP), angiotensin converting enzyme inhibitors (ACE-i), angiotensin receptor blockers (ARBs), peripheral arterial disease (PAD), cardiac or medical intensive care unit (CCU/ICU), coronary artery bypass grafting (CABG), aspirin (ASA), Seattle Angina Score (SAQ), cardiovascular disease (CVD), acute myocardial infarction (AMI), ENRICH Social Support Instrument (ESSI-5), coronary artery disease (CAD)

**Supplemental Figure S3.** Prediction of probabilities of readmission from model coefficients and predictor values

One can take the coefficients for the 9 predictors to calculate the predicted probability for a given individual as follows. First calculate the linear predictor by taking the sum of the model intercept and the 9 products of each coefficient by the corresponding predictor value for that individual.

Linear Predictor =

(Intercept

+ 0.225\*(any in-hospital complication)

- 0.021\* (baseline perceived physical health from SF-12)

+ 0.266\* (obstructive coronary artery disease)

+ 0.254\* (diabetes)

+ 0.502\* (history of congestive heart failure)

+ 0.155\* (low income)

+ 0.027\* (baseline depression score from PHQ9)

+ 0.033\* (length of hospital stay in days)

- 0.269\*(white race))

The predicted probability is calculated as:  $\hat{p} = \frac{1}{1 + e^{-(Linear\ Predictor)}}$

**Abbreviations:** Patient Health Questionnaire-9 (PHQ9); Seattle Angina Questionnaire (SAQ); Short Form-12 (SF-12)

**Supplemental Figure S4. An integrated predictiveness cure (IPC) demonstrating important predictors of 1-year readmission among young women with acute myocardial infarction**

(AMI). The figure shows the average predicted risk of 1-year readmission based on our model within each decile of predicted risk. **Blue dotted curve:** the IPC curve. **Red dotted lines:** The average predicted risk of 1-year readmission among women with history of CHF (58%) and women with any in-hospital complication (41%). **Purple dotted line:** The observed rate of one-year readmission among all women in the study (34%). **Green dotted line:** The marginal risk of 1-year readmission among women with SF-12 PCS scores in the highest quartile (23%).

