Supplemental Data

This Online-Only Data Supplement has been provided by the authors to provide readers with additional information.

Supplement to:

Prediction models for the 5- and 10-year incidence of home morning hypertension: The Ohasama Study

Table S1. Characteristics in the not followed-up participants without home hypertension

Variables at baseline	Followed	Not followed	*P*
N	978	221	-
Men, %	30.1	44.8	<0.0001
Age, years	53.3±9.9	56.1±12.0	0.0011
BMI, kg/m^2	23.2±2.9	23.2±2.9	0.93
Current smokers, %	17.2	23.5	0.034
Current drinkers, %	21.3	35.0	<0.0001
Diabetes, %	7.6	10.0	0.27
Total cholesterol, mmol/L	5.0±0.9	5.0±0.8	0.79
Home SBP, mmHg	114.9±9.6	117.7±10.0	0.0001
Home DBP, mmHg	70.0±7.4	71.4±7.4	0.011
Office SBP, mmHg	123.8±14.7	127.4±15.5	0.0020
Office DBP, mmHg	71.4±9.8	72.8±9.5	0.046

BMI, body mass index; SBP, systolic blood pressure; DBP, diastolic blood pressure.

Table S2. The discrimination ability of the full model according to age category

Age category	Harrell's C-statistics (95% confidence interval)	
	The 5-year risk prediction	The 10-year risk prediction
<45 years old	0.7410 (0.6022–0.8603)	0.7033 (0.6027–0.7917)
45–54 years old	0.8346 (0.7477–0.9157)	0.7800 (0.6942–0.8635)
55–64 years old	0.7499 (0.6756–0.8161)	0.6866 (0.6260–0.7409)
≥65 years old	0.6706 (0.5288–0.8106)	0.6778 (0.5531–0.7964)

Table S3. Summary of Harrell's C-statistics in the validation cohort

Model (condition)	Harrell's C statistics (95% confidence interval)		Calibration plot Slope/intercept		Figure number
	5-year risk	10-year risk	5-year risk	10-year risk	
Full model	0.7637 (0.7195–0.8100)	0.7308 (0.6932–0.7677)	1.10/−0.04	1.02/ 0.06	Figure 1
Model without home SBP	0.6889 (0.6299–0.7430)	0.6689 (0.6266–0.7067)	0.79/0.01	1.05/0.03	Figure 1
Full Model (initial 5-day home SBP used)	0.7249 (0.6714–0.7784)	0.6911 (0.6514–0.7333)	0.81/0.03	0.98/0.07	Figure S3
Full Model (initial 7-day home SBP used)	0.7352 (0.6781–0.7868)	0.6966 (0.6568–0.7375)	0.91/0.00	0.99/0.05	Figure S3
Full Model (hypertension outcome based on the ACC/AHA guidelines)	0.7307 (0.6878–0.7738)	0.7226 (0.6893–0.7561)	0.97/0.03	1.11/0.07	Figure S4
Only home SBP model	0.7665 (0.7175–0.8114)	0.7324 (0.6954–0.7684)	1.20/−0.07	1.09/0.02	Figure S5
Framingham Heart Study model*	0.6390 (0.5938–0.6822)	-	0.43/0.11	-	Figure S6

SBP, systolic blood pressure

*Parikh NI et al. (2008) have not provided the 10-year risk probability according to the prediction score of the Framingham Heart Study model.
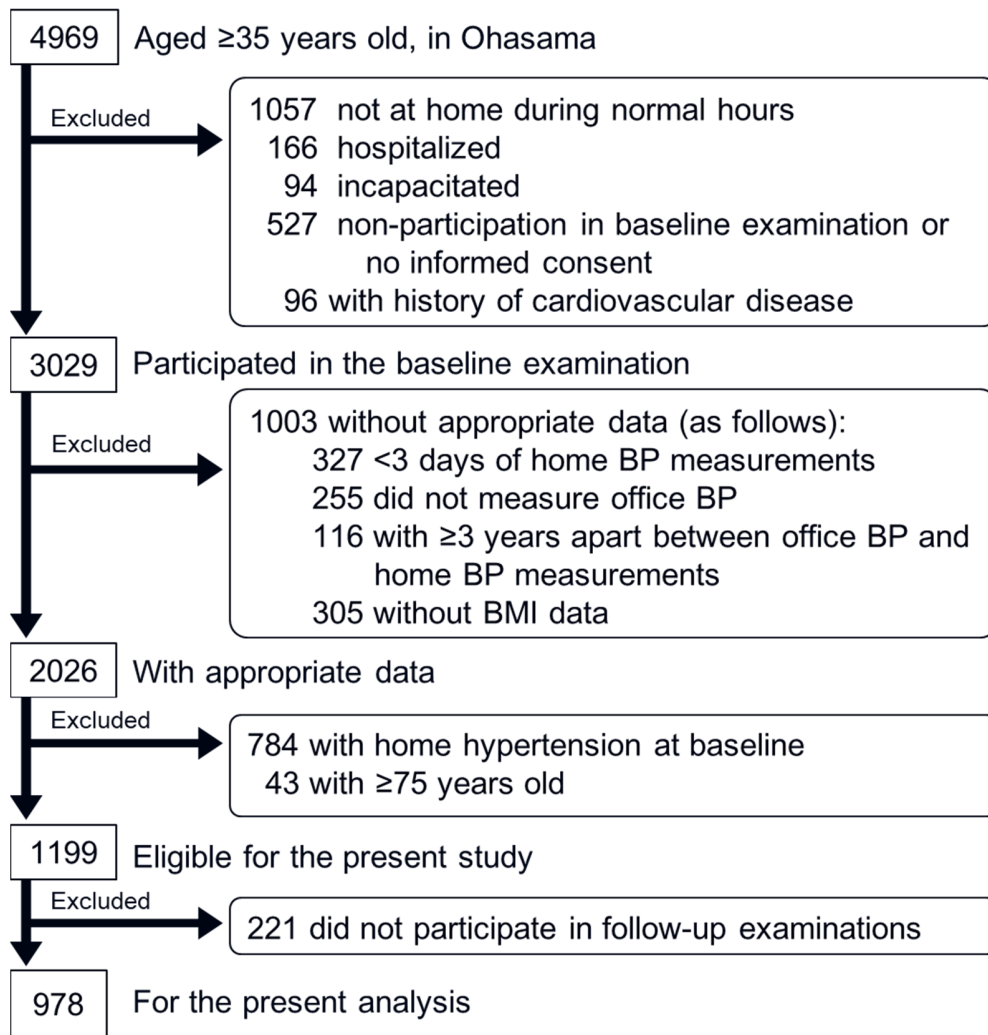
4969	Aged ≥35 years old, in Ohasama

Excluded →
- 1057 not at home during normal hours
- 166 hospitalized
- 94 incapacitated
- 527 non-participation in baseline examination or no informed consent
- 96 with history of cardiovascular disease

3029	Participated in the baseline examination

Excluded →
1003 without appropriate data (as follows):
- 327 <3 days of home BP measurements
- 255 did not measure office BP
- 116 with ≥3 years apart between office BP and home BP measurements
- 305 without BMI data

2026	With appropriate data

Excluded →
- 784 with home hypertension at baseline
- 43 with ≥75 years old

1199	Eligible for the present study

Excluded →
- 221 did not participate in follow-up examinations

978	For the present analysis

Figure S1. Flow chart outlining the participant selection procedure
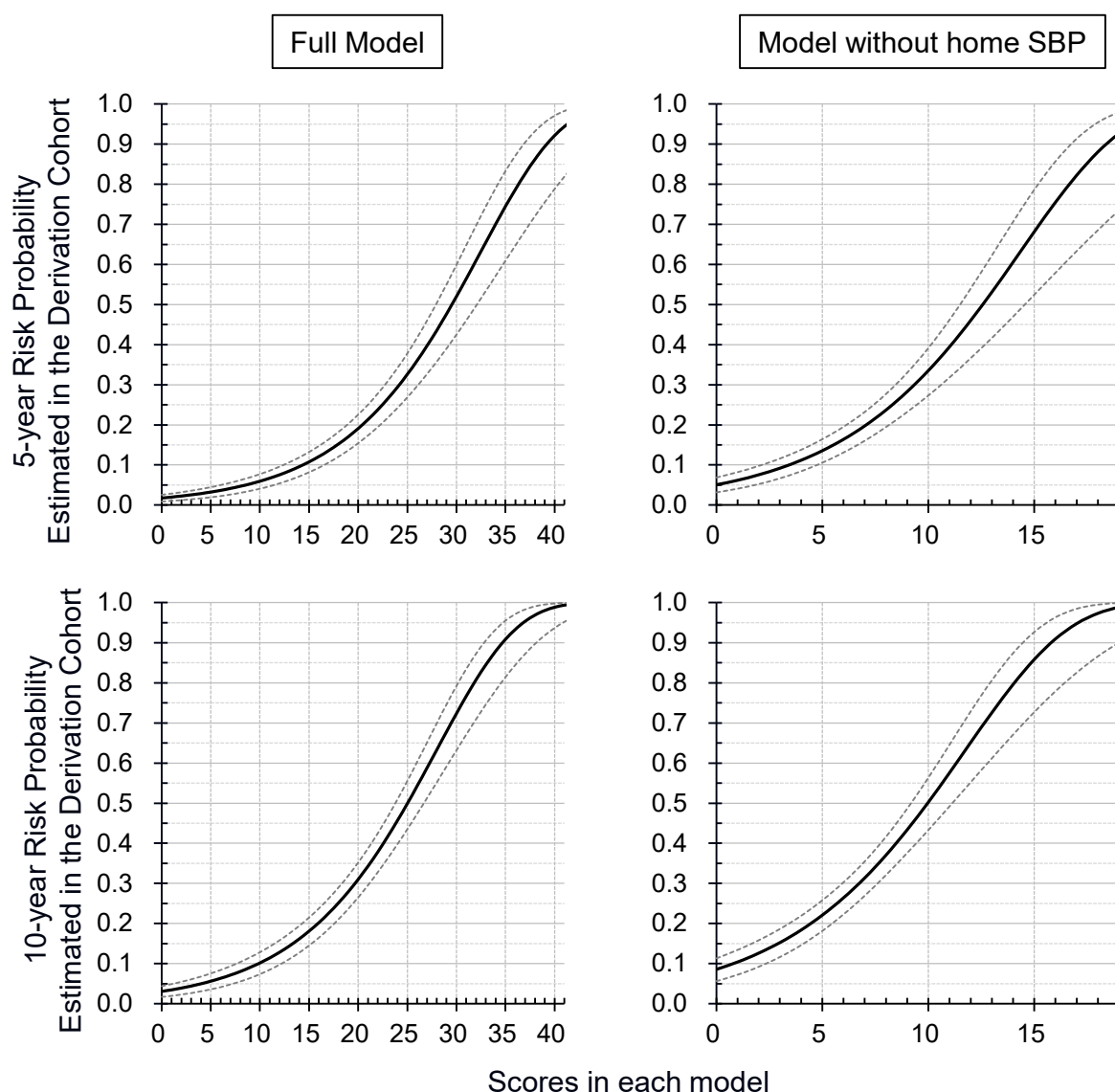
BMI, body mass index; BP, blood pressure.

Figure S2. 5- and 10-year home hypertension risk according to scores.

The solid and broken gray lines indicate the 5-year or 10-year home hypertension risk and their 95% confidence intervals, respectively. The probability was calculated in the derivation cohort. The full model included sex, body mass index, current smoking status, office SBP, and home SBP. Models without home SBP did not contain home SBP. SBP, systolic blood pressure.
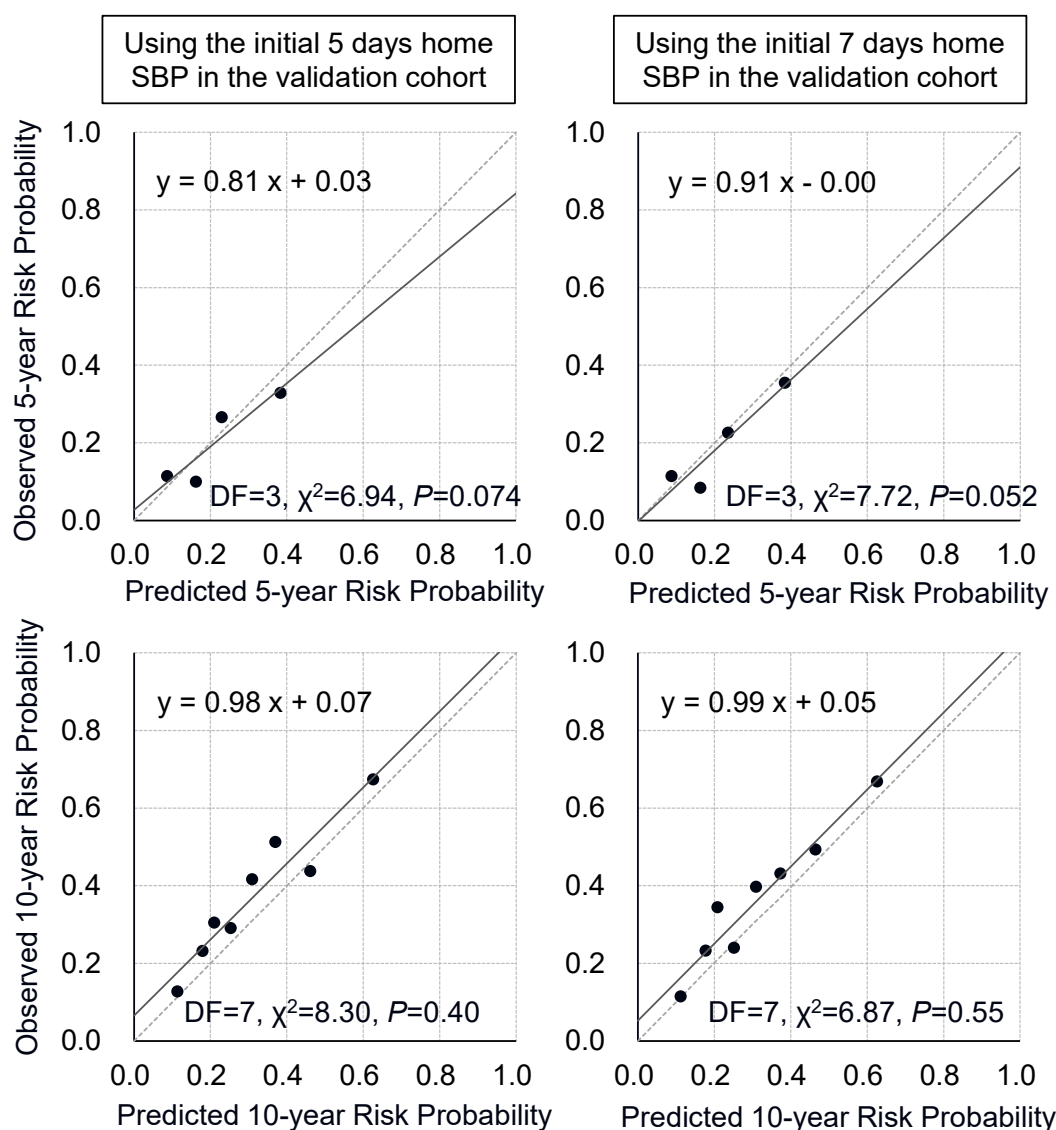
Figure S3. The calibration plot using the initial 5- or 7-days home SBP values to estimate the predicted values

Home SBP from the initial 5 days (left) or 7 days (right) measurements, instead of all home SBP measurements, were applied to the full model in the validation cohort. We then excluded 32 or 28 patients with home hypertension (≥135/85 mmHg) based on the initial 5 days or 7 days home SBP values, respectively. In the regression equation, "y" means the observed risk probability and "x" means the predicted risk probability. SBP, systolic blood pressure; DF, degrees of freedom.

Hypertension outcome: the ACC/AHA guideline definition
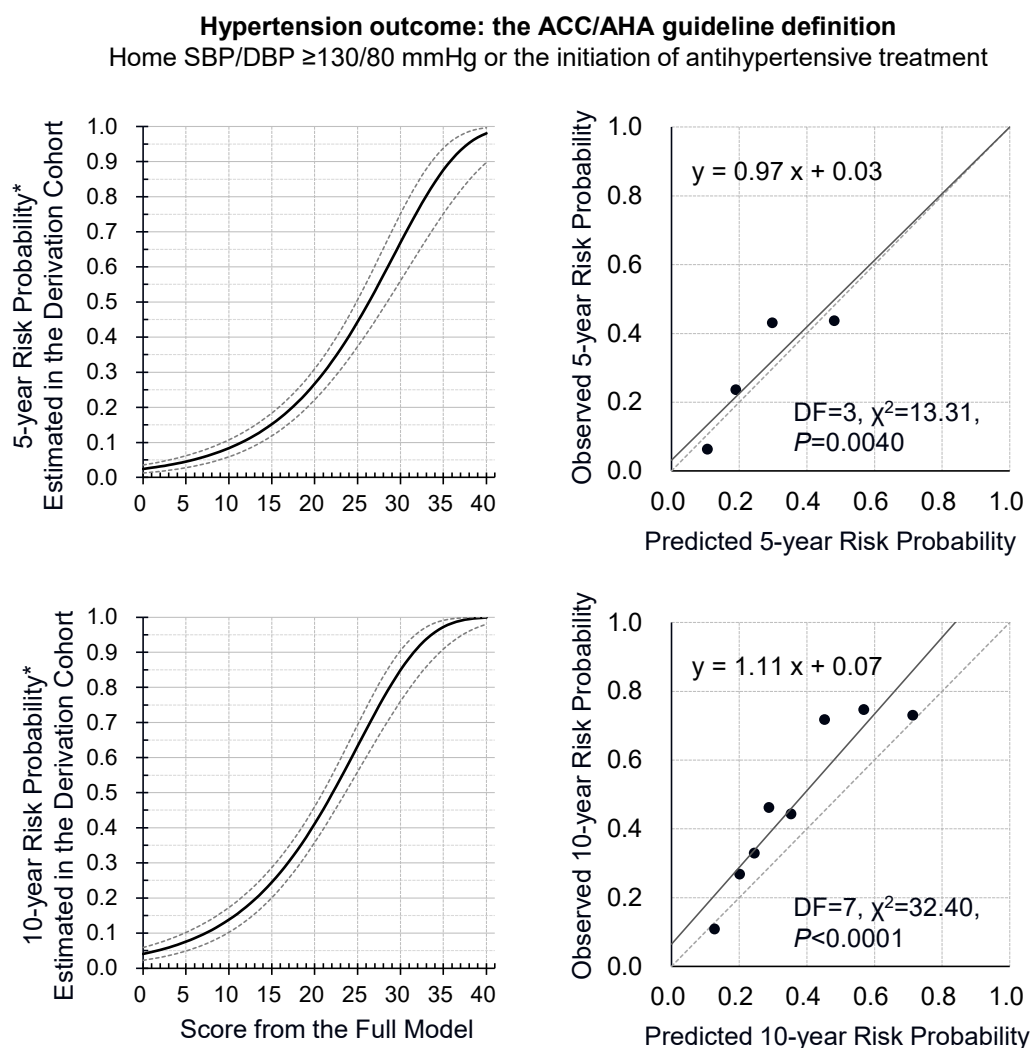Home SBP/DBP ≥130/80 mmHg or the initiation of antihypertensive treatment

Figure S4. The calibration plot based on the full model for the ACC/AHA hypertension outcome

Calibration plot between the sixtilies/deciles of the predicted probabilities with the observed outcome rate in the validation cohort. The 1–3 sixties/deciles were merged into one group since the number of events was limited. Participants with home BP ≥130/80 mmHg at baseline (n= 57 in the derivation cohort and n= 68 in the validation cohort) were additionally excluded from this analysis; in this analysis, 432 patients were included in the derivation cohort, while 421 patients were included in the validation cohort.

* Estimated risk probabilities were recalculated due to the change in outcome.
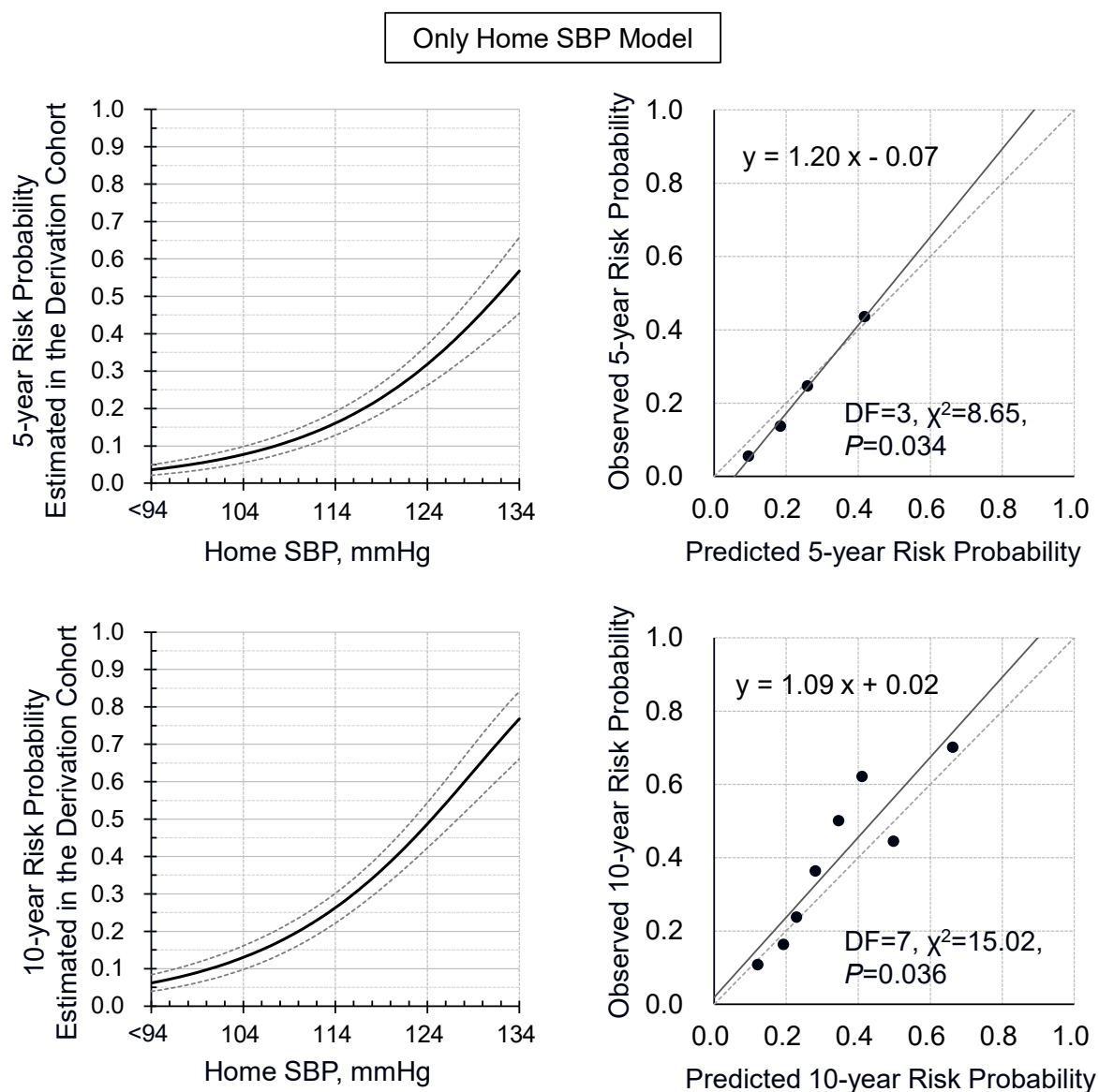
Only Home SBP Model

Figure S5. The calibration plot based on the only home SBP model

The predicted risk probability was calculated from the home SBP values (continuous variables) in the derivation cohort. In the regression equation, "y" means the observed risk probability and "x" means the predicted risk probability.

SBP, systolic blood pressure; DF, degree of freedom.

Framingham Heart Study model

y = 0.43 x + 0.11

DF=3, χ^2=30.44, P<0.0001

Predicted 5-year Risk Probability
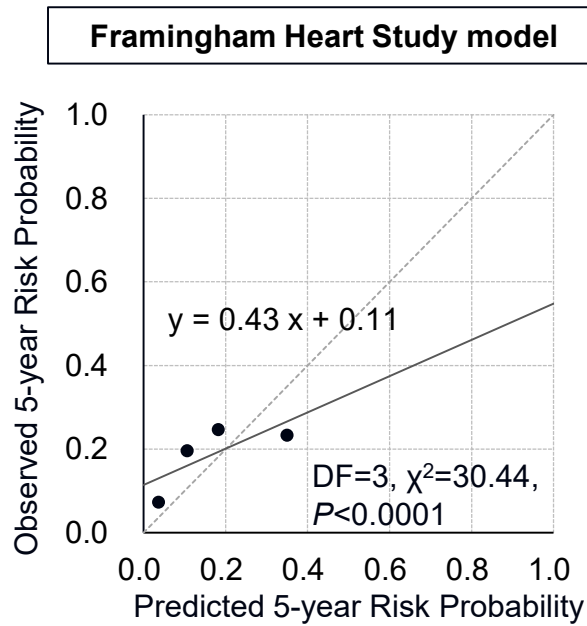
Observed 5-year Risk Probability

Figure S6. The calibration plot based on Framingham Heart Study model

The result was from the whole cohort (n=978) since the Framingham Heart study model was constructed in a different cohort. In the regression equation, "y" means the observed risk probability and "x" means the predicted risk probability.

SBP, systolic blood pressure; DF, degree of freedom.