Suppl_Figures.pdf

Rapsomaniki

Prognostic models for stable coronary artery disease based on electronic health record cohort of 102,023 patients
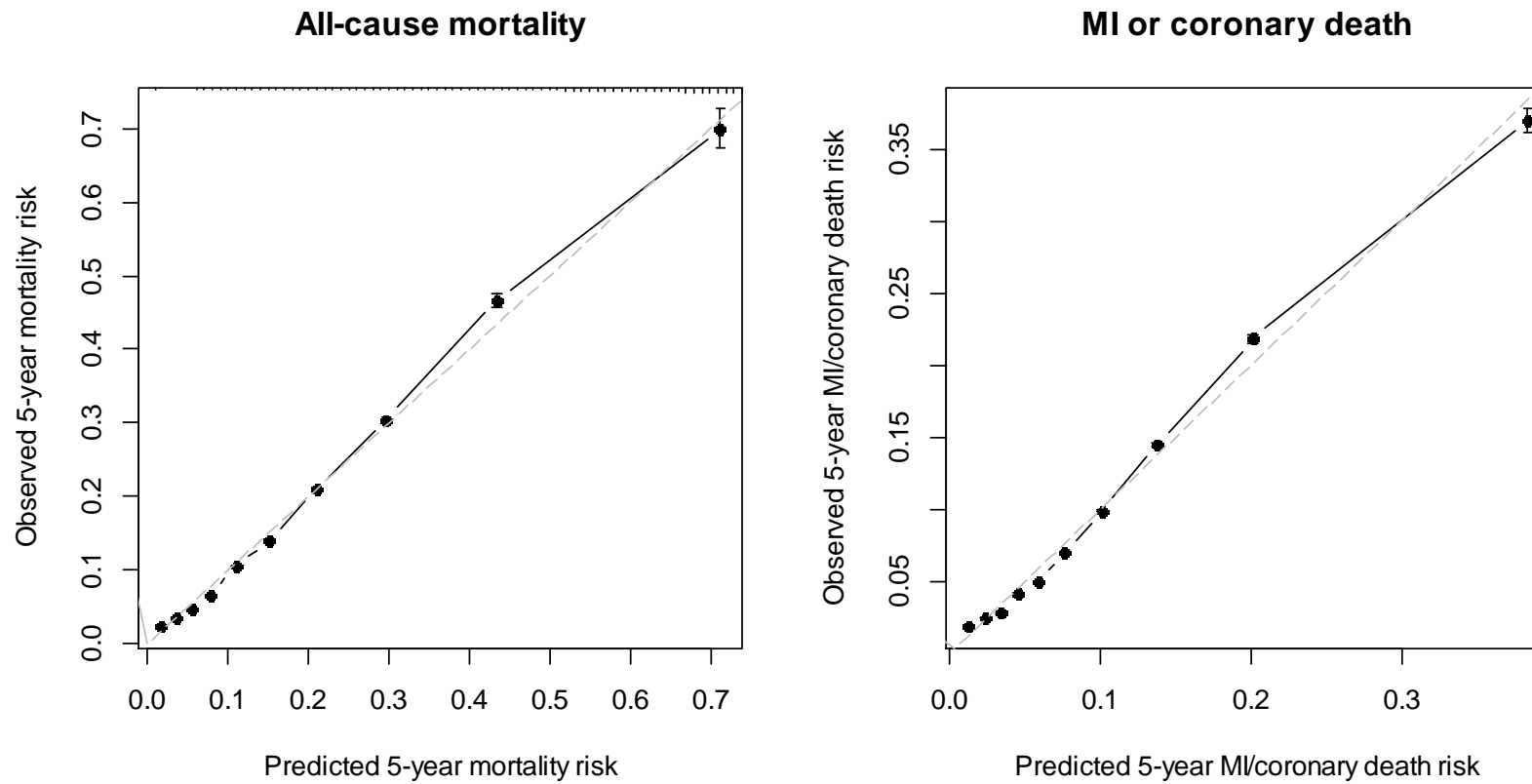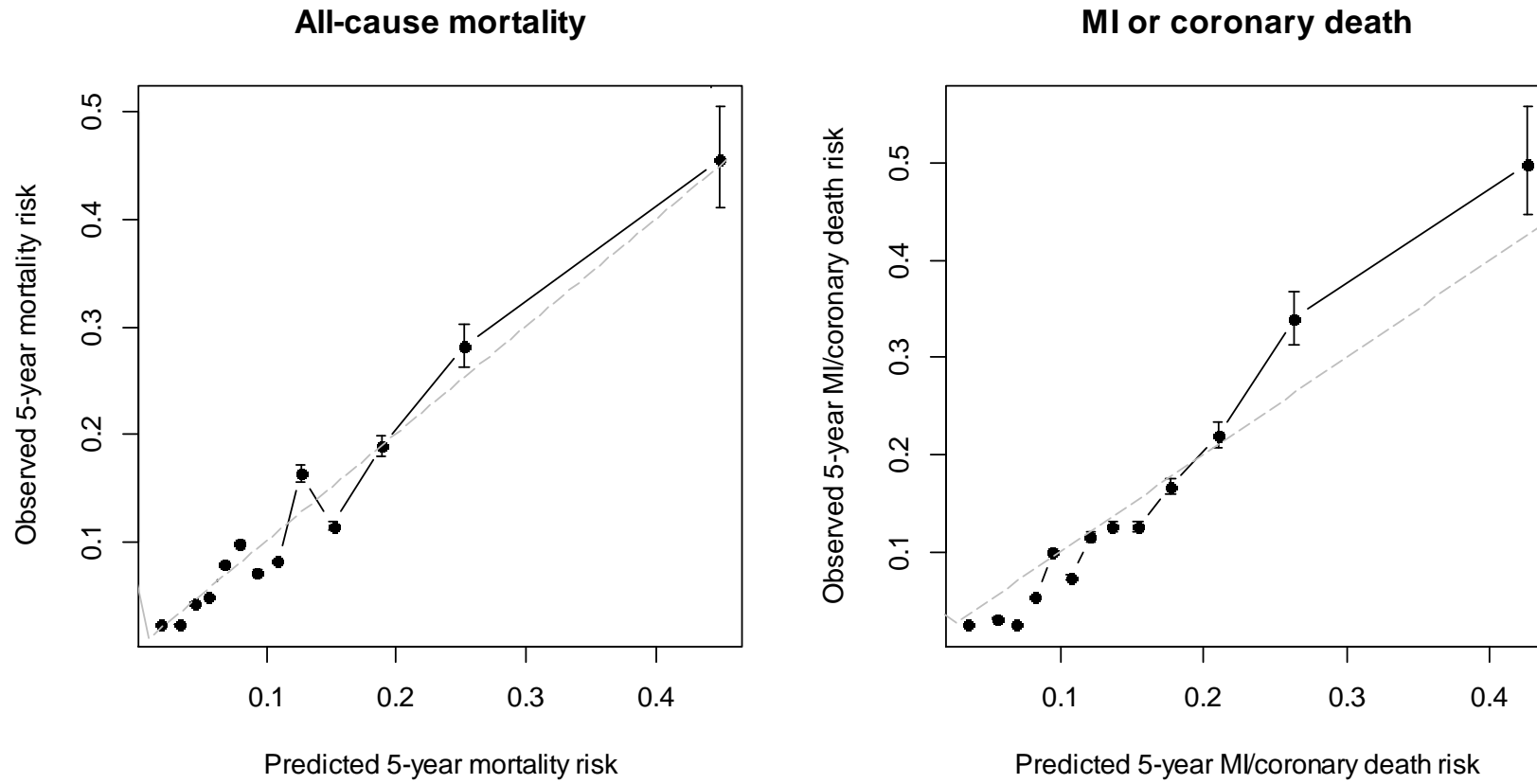
**eFigure1 Calibration of 5-year risk predictions for all-cause mortality and non-fatal MI or coronary death based on internal cross-validation (within CALIBER).**
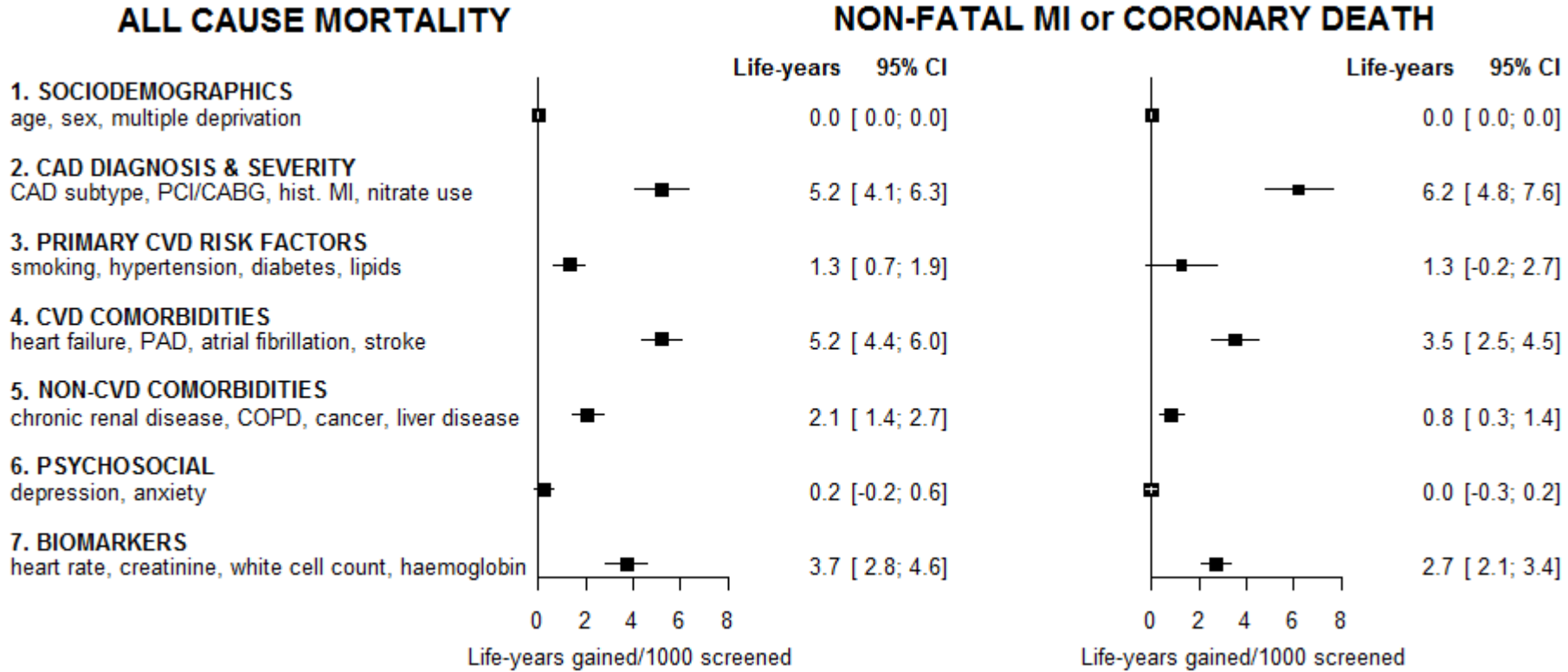


Observed risks are based on Kaplan-Meier. Individuals are split into 10 equally sized subgroups and the mean 5-year predicted risk is computed.

**eFigure2 Calibration of 5-year risk predictions for all-cause mortality and non-fatal MI or coronary death based on external validation in patients from the ACRE study.**



Observed risks are based on Kaplan-Meier. Individuals are split into 10 equally sized subgroups and the mean 5-year predicted risk is computed.

**eFigure3 Number of life years gained (event-free life years for the non-fatal MI or coronary death endpoint) when the models are used to support management decisions for very high risk patients\*.**



## ALL CAUSE MORTALITY

| | Life-years | 95% CI |
|---|---|---|
| **1. SOCIODEMOGRAPHICS** age, sex, multiple deprivation | 0.0 | [ 0.0; 0.0] |
| **2. CAD DIAGNOSIS & SEVERITY** CAD subtype, PCI/CABG, hist. MI, nitrate use | 5.2 | [ 4.1; 6.3] |
| **3. PRIMARY CVD RISK FACTORS** smoking, hypertension, diabetes, lipids | 1.3 | [ 0.7; 1.9] |
| **4. CVD COMORBIDITIES** heart failure, PAD, atrial fibrillation, stroke | 5.2 | [ 4.4; 6.0] |
| **5. NON-CVD COMORBIDITIES** chronic renal disease, COPD, cancer, liver disease | 2.1 | [ 1.4; 2.7] |
| **6. PSYCHOSOCIAL** depression, anxiety | 0.2 | [-0.2; 0.6] |
| **7. BIOMARKERS** heart rate, creatinine, white cell count, haemoglobin | 3.7 | [ 2.8; 4.6] |

Life-years gained/1000 screened

## NON-FATAL MI or CORONARY DEATH

| | Life-years | 95% CI |
|---|---|---|
| | 0.0 | [ 0.0; 0.0] |
| | 6.2 | [ 4.8; 7.6] |
| | 1.3 | [-0.2; 2.7] |
| | 3.5 | [ 2.5; 4.5] |
| | 0.8 | [ 0.3; 1.4] |
| | 0.0 | [-0.3; 0.2] |
| | 2.7 | [ 2.1; 3.4] |

Life-years gained/1000 screened

\* assuming that management is associated with hazard ratio 0·8 (20% risk reduction) and is cost-effective at very high risk (>20% over 5-years)

**eFigure 4 Scoring tables to assess 5-year risk of death or MI/CHD death in stable CAD patients.**

| Age | Death | | MI/CHD death | |
|---|---|---|---|---|
| | MEN | WOM | MEN | WOM |
| 30 | 23 | 0 | 33 | 0 |
| 35 | 30 | 8 | 39 | 8 |
| 40 | 36 | 16 | 44 | 16 |
| 45 | 42 | 24 | 50 | 24 |
| 50 | 49 | 32 | 55 | 32 |
| 55 | 55 | 40 | 61 | 40 |
| 60 | 62 | 48 | 66 | 47 |
| 65 | 68 | 56 | 72 | 55 |
| 70 | 74 | 64 | 78 | 63 |
| 75 | 81 | 71 | 83 | 71 |
| 90 | 100 | 95 | 100 | 95 |

| CAD DIAGNOSIS | Death | MI/CHD death |
|---|---|---|
| Stable angina | 0 | 0 |
| Angina symptoms* | 3 | 9 |
| Asymptomatic CHD | 0 | 5 |
| Unstable angina | 0 | 5 |
| STEMI | 2 | 17 |
| NSTEMI | 5 | 22 |
| No PCI/CABG | 11 | 16 |

| CVD risk factors | Death | MI/CHD death |
|---|---|---|
| Non smoker | 0 | 0 |
| Current smoker | 5 | 5 |
| Diabetic | 4 | 8 |

| MEDICAL HISTORY | Death | MI/CHD death |
|---|---|---|
| Recurrent MI | 2 | 8 |
| Heart failure | 9 | 11 |
| PAD | 5 | 9 |
| Atrial fibrillation | 5 | 5 |
| Stroke | 6 | 4 |
| Renal disease | 3 | 3 |
| COPD | 3 | 2 |
| Cancer | 6 | 0 |
| Liver disease | 10 | 3 |
| Depression | 4 | 1 |
| Anxiety | 3 | 0 |

**LOOKUP TABLE**

| 5-year risk | Death score | MI/CHD death score |
|---|---|---|
| 1% | 96 | 152 |
| 2% | 110 | 170 |
| 3% | 118 | 181 |
| 4% | 123 | 188 |
| 5% | 128 | 194 |
| 10% | 142 | 212 |
| 15% | 150 | 223 |
| 20% | 157 | 231 |
| 25% | 161 | 238 |
| 30% | 166 | 243 |
| 40% | 173 | 253 |
| 50% | 179 | 260 |

| Total cholesterol mmol/L | Death | MI/CHD death | HDL mmol/L | Death | MI/CHD death | Heart rate, beats/min | Death | MI/CHD death | Creatinine µmol/L | Death | MI/CHD death | White cell count, $10^9$/L | Death | MI/CHD death | Haemo globin, g/dL | Death | MI/CHD death |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 1 | 1 | 1.0 | 0 | 24 | 40 | 4 | 4 | <15 | 0 | 0 | 5 | 6 | 7 | 2 | 64 | 63 |
| 3 | 1 | 3 | 1.5 | 0 | 22 | 60 | 8 | 9 | 15-39 | 1 | 2 | 10 | 12 | 13 | 4 | 57 | 56 |
| 4 | 1 | 4 | 2.0 | 0 | 19 | 80 | 11 | 13 | 40-69 | 2 | 4 | 15 | 18 | 20 | 6 | 50 | 49 |
| 5 | 1 | 6 | 2.5 | 0 | 17 | 100 | 15 | 18 | 70-99 | 3 | 6 | 20 | 23 | 26 | 8 | 43 | 42 |
| 6 | 1 | 7 | 3.0 | 0 | 15 | 120 | 19 | 22 | 100-149 | 4 | 8 | 25 | 29 | 33 | 10 | 36 | 35 |
| 7 | 0 | 9 | 3.5 | 0 | 13 | 140 | 23 | 27 | 150-199 | 6 | 10 | 30 | 35 | 40 | 12 | 29 | 28 |
| 8 | 0 | 10 | 4.0 | 0 | 11 | | | | 200-299 | 7 | 20 | 35 | 41 | 46 | 14 | 21 | 21 |
| 9 | 0 | 11 | 4.5 | 1 | 9 | | | | 300-399 | 11 | 20 | 40 | 46 | 53 | 16 | 14 | 14 |
| 10 | 0 | 13 | 5.0 | 1 | 6 | | | | >400 | 14 | 28 | 45 | 52 | 59 | 18 | 7 | 7 |

* Use of nitrates used as a proxy for angina symptoms

** If patient belongs to the 5th most deprived quintile of the population add 3 to the total score for either outcome (death or MI/CHD death).