

**Table S1 . Codes of International Classification of Diseases, 9th Revision and**

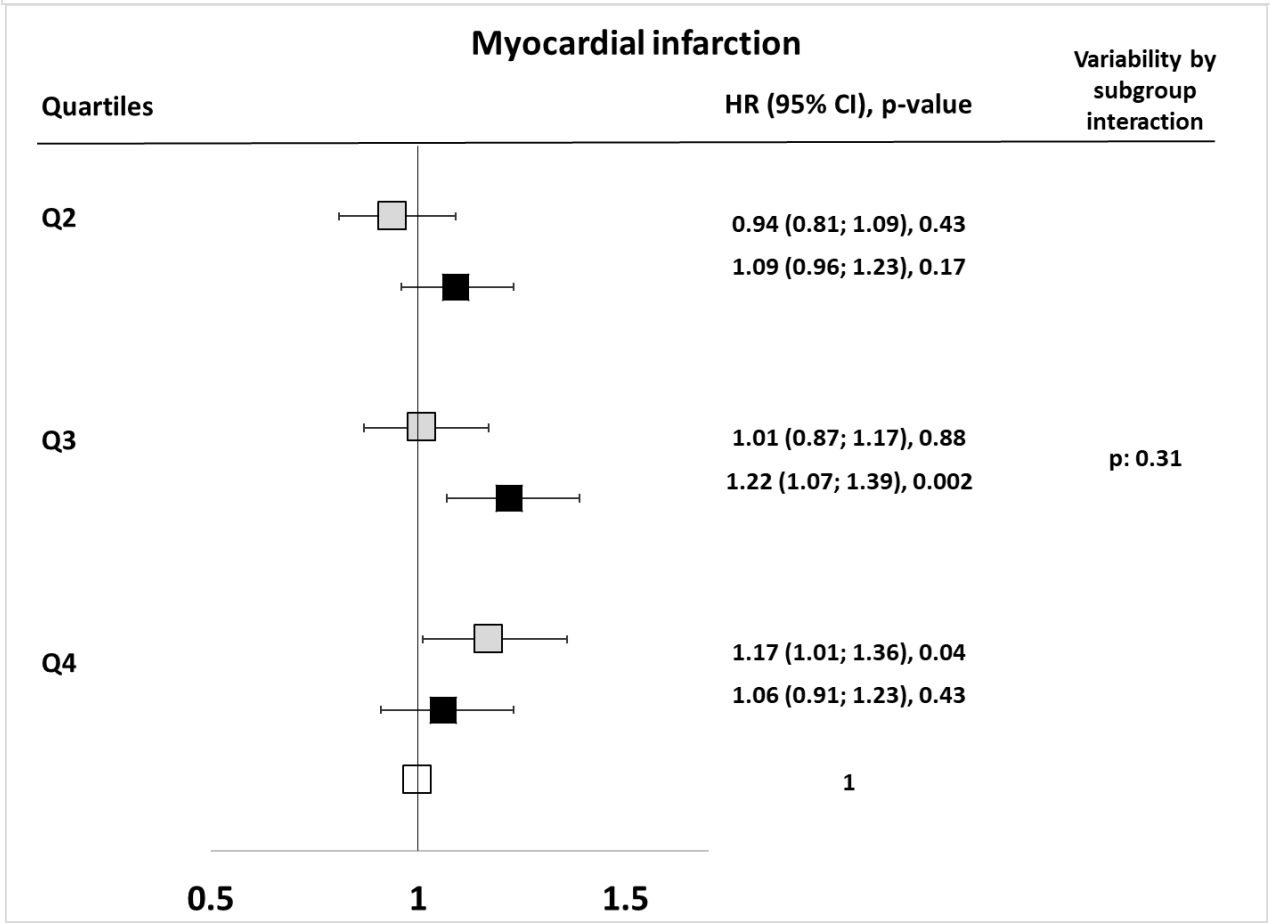
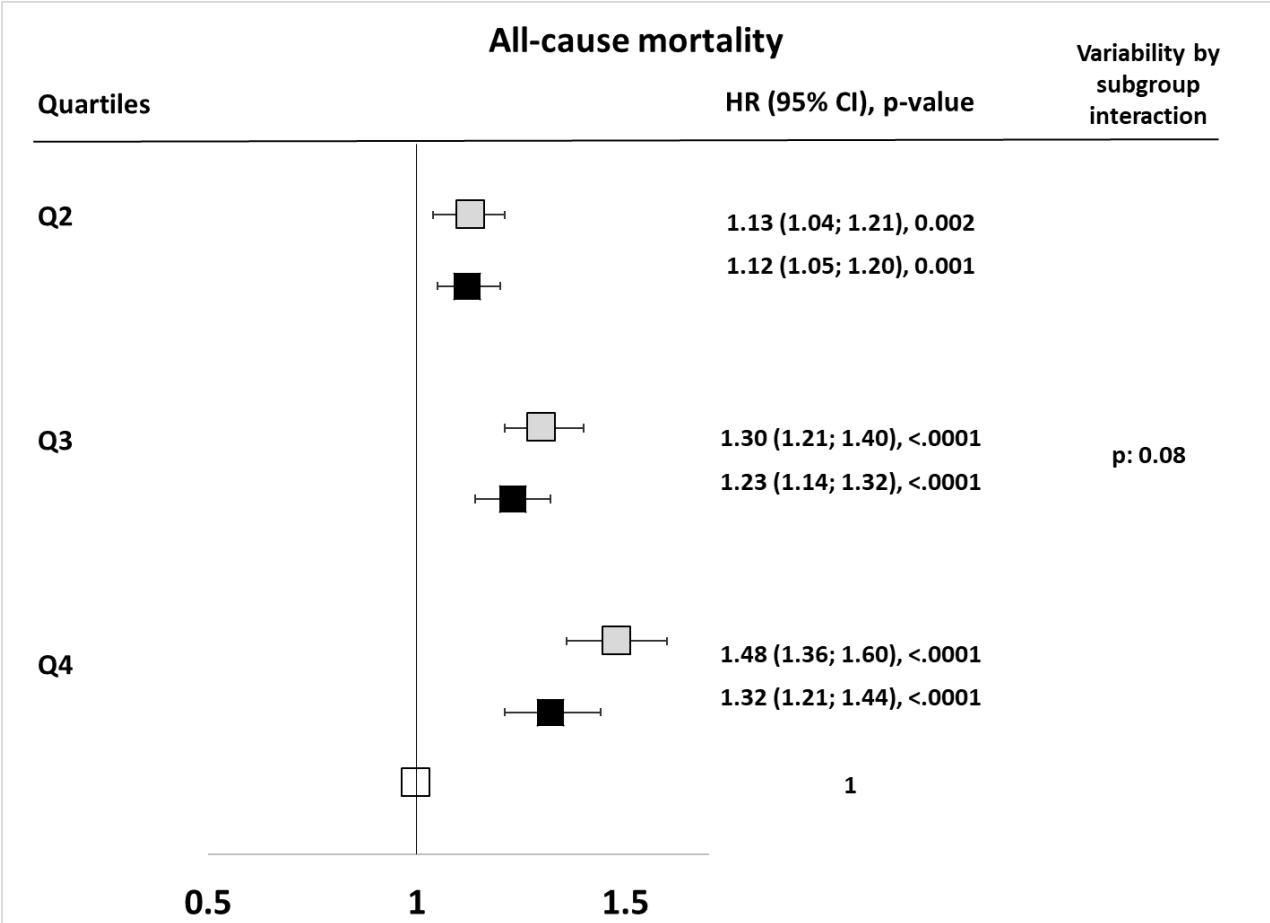
**10th Revision for the outcomes assessed.**

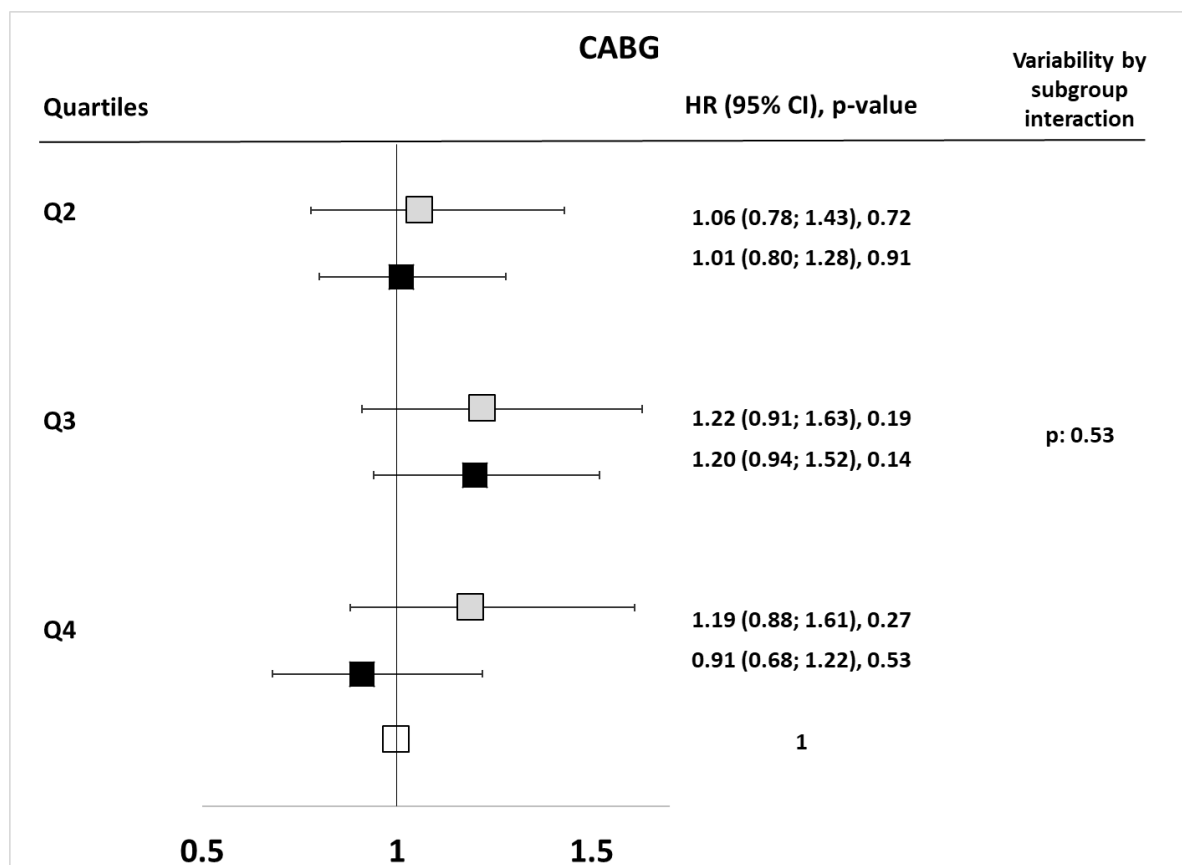
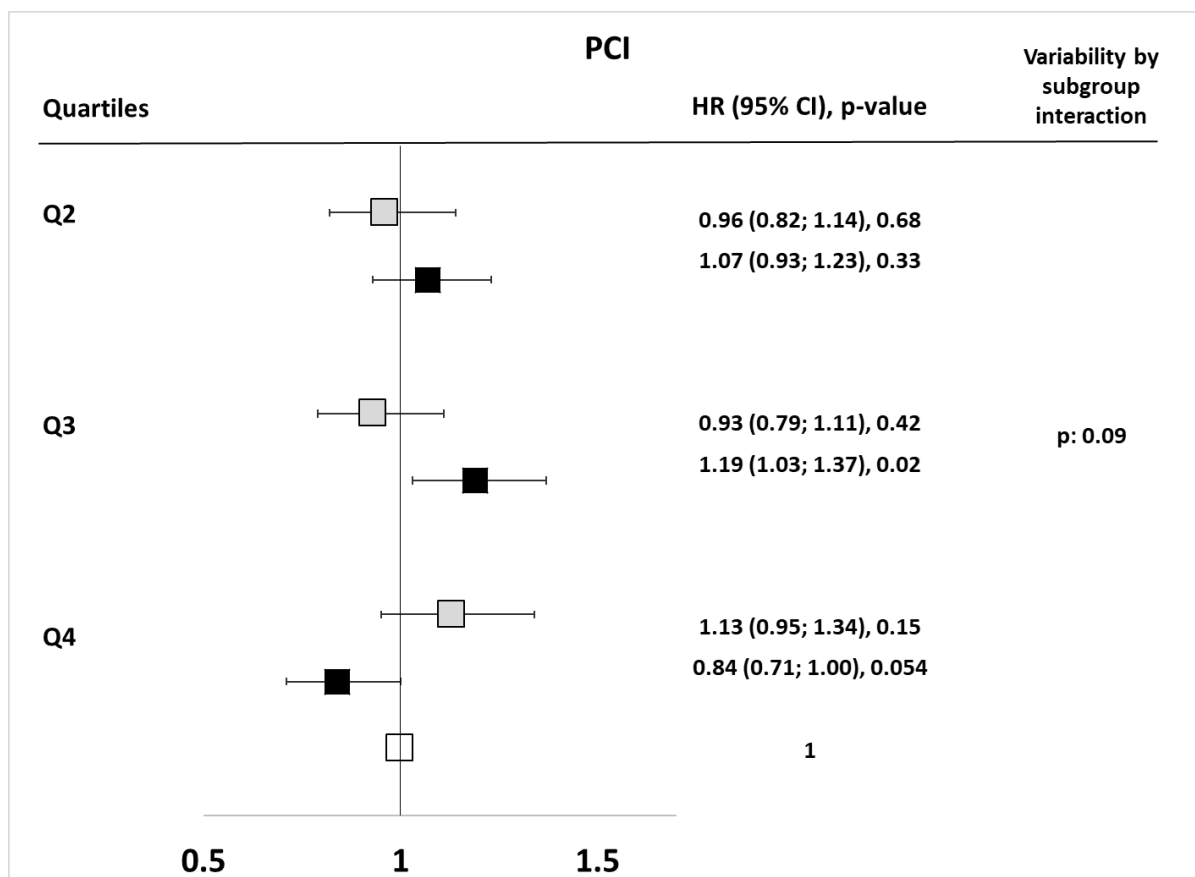
| Outcome                                   | ICD9 code (Diagnosis and OP-codes)<br>1987-1996 | ICD10 code (Diagnosis and OP-codes)<br>1997-2019                                                                                                                                           |
|-------------------------------------------|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Major cardiovascular events</b>        |                                                 |                                                                                                                                                                                            |
| <i>Acute myocardial infarction</i>        | '410'                                           | I21...,                                                                                                                                                                                    |
| <i>Coronary heart disease</i>             | '410' '411' '412' '413' '414' '                 | I20..., I21..., I22..., I23..., I24..., I25...                                                                                                                                             |
| <i>Cardio vascular disease</i>            | 410' '431' '432' '433' '434' '436'              | I21..., I61..., I63..., I64...                                                                                                                                                             |
| <i>Peripheral arterial disease</i>        | 250, 440, 443, 250G, 440C                       | I702, E11.5                                                                                                                                                                                |
| <i>PCI</i>                                | 3080,                                           | FNG0, FNG00, FNG02, FNG05, FNG06, FNG10, FNG30, FNG96                                                                                                                                      |
| <i>cabg</i>                               | 3067, 3127                                      | FNA0, FNA00, FNA10, FNA20, FNA96, FNB00, FNB20, FNB96, FNC10, FNC20, FNC30, FNC40, FNC50, FNC60, FNC96, FND10, FND20, FND96, FNE00, FNE10, FNE20, FNE96, FNF00, FNF10, FNF20, FNF30, FNF96 |
| <i>Stroke</i>                             | 431' '432' '433' '434' '436'                    | I61..., I63..., I64...                                                                                                                                                                     |
| <i>Heart failure</i>                      | 402, 404, 428                                   | I50..                                                                                                                                                                                      |
| <b>Diabetes complication</b>              |                                                 |                                                                                                                                                                                            |
| <i>Retinopathy</i>                        | 369, 362                                        | H360                                                                                                                                                                                       |
| <i>Foot ulcer</i>                         | 707, 440, 785, 440, 730, L98                    | I702C (Arterial insufficiency ulcer)                                                                                                                                                       |
| <i>amputation</i>                         | Not available                                   | NHQ09, NHQ11, NGQ09, NGQ11, NGQ19, NGQ99, NFQ09, NFQ19, NFQ99, NEQ19, NEQ99                                                                                                                |
| <i>Minor amputation</i>                   | Not available                                   | NHQ16, NHQ17                                                                                                                                                                               |
| <i>Major amputation</i>                   | Not available                                   | NFQ19, NFQ99, NGQ09, NGQ19, NGQ99, NHQ09, NHQ11, NHQ12, NHQ13, NHQ14, NHQ99                                                                                                                |
| <i>Dialysis</i>                           | Not available                                   | DR015, DR016, DR023, DR024                                                                                                                                                                 |
| <i>Peripheral vascular angioplasty_PE</i> | Not available                                   | PEA, PEC, PEE, PEF, PEG, PEH, PEL, PEM, PEN, PEP, PEQ, PER, PES, PET, PEU, PEW                                                                                                             |
| <i>Peripheral vascular angioplasty_PE</i> | Not available                                   | PFA, PFB, PFC, PFE, PFG, PFH, PFL, PFN, PFP, PFQ, PFR, PFS, PFT, PFU                                                                                                                       |

**Table S2 . Average HbA1c levels and HbA1c variability during the follow-up, overall and by average HbA1c level during the exposure phase, according to HbA1c variability quartiles. Data are reported as median and interquartile range.**

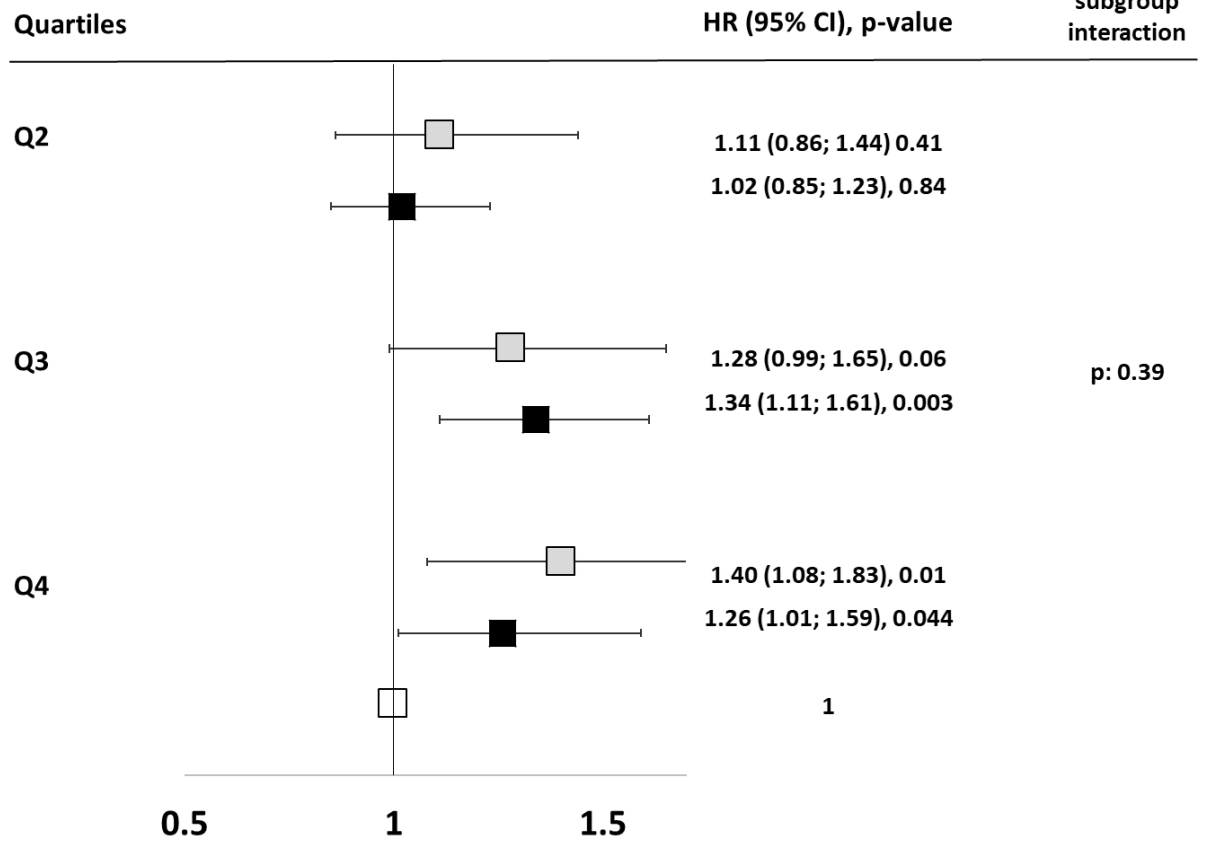
|                              | Quartiles of HbA1c variability |                  |                  |                  |
|------------------------------|--------------------------------|------------------|------------------|------------------|
|                              | Q1                             | Q2               | Q3               | Q4               |
| <b>Overall population</b>    |                                |                  |                  |                  |
| N                            | 25143                          | 25442            | 25426            | 25522            |
| HbA1c (mmol/mol)             | 46.5 (42.0-52.0)               | 51.3 (45.8-57.6) | 56.0 (49.3-63.7) | 57.0 (49.3-66.8) |
| HbA1c SD                     | 2.8 (1.7-4.9)                  | 4.3 (2.6-7.1)    | 6.0 (3.6-9.1)    | 6.7 (3.7-10.8)   |
| <b>HbA1c ≤ 53 mmol/mol</b>   |                                |                  |                  |                  |
| N                            | 14667                          | 14619            | 14644            | 14641            |
| HbA1c (mmol/mol)             | 45.0 (41.0-49.7)               | 47.4 (43.0-52.3) | 49.5 (44.8-54.6) | 49.3 (44.0-55.7) |
| HbA1c SD                     | 2.5 (1.5-4.1)                  | 3.2 (1.9-5.3)    | 4.2 (2.4-6.7)    | 4.8 (2.7-4.0)    |
| <b>HbA1c &gt;53 mmol/mol</b> |                                |                  |                  |                  |
| N                            | 10741                          | 10740            | 10741            | 10740            |
| HbA1c (mmol/mol)             | 59.4 (54.4-65.5)               | 60.8 (54.8-68.0) | 61.3 (54.0-70.0) | 57.4 (50.0-67.7) |
| HbA1c SD                     | 6.0 (4.0-8.8)                  | 6.9 (4.5-10.1)   | 7.5 (4.7-11.1)   | 6.7 (3.6-11.3)   |

**Figure S1 . Hazard ratios (HR) for all-cause mortality, myocardial infarction, percutaneous coronary intervention (PCI), coronary artery bypass graft (CABG), peripheral artery disease, hospitalization for heart failure, lower limb revascularization, and foot ulcer, in the subgroups of patients with a mean HbA1c  $\leq$  7% (grey squares) or  $>$  7% (black squares) stratified according to quartiles of HbA1c variability. Q1 is the reference group.**





### Peripheral artery disease



### Hospitalization for heart failure

