# Supplementary material

# Competing risks of cancer mortality and cardiovascular events in individuals with multimorbidity

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**Supplementary Table 1** Codes used to define cardiovascular risk.

| Condition | Patient electronic data source | Code type | Code ranges |
|---|---|---|---|
| Statin prescription | Pharmacy prescription fill electronic data | Generic product index (GPI) | 39000000000000 through 39999999999999 |
| LDL cholesterol control | Laboratory results | NA | LDL greater than the appropriate goal, given health history. Cut-off goals were <100 (based on having any diagnosis of diabetes, CKD, CAD, PVD, AAA, or stroke), <130 (based on having ≥2 risk factors for hypertension, smoking, obesity, and family history of CAD, premature CAD, or stroke), '<160' (based on having 0 or 1 of the above risk factors)<br><br>Includes test results for cholesterol LDL calculated fasting (91%), cholesterol LDL calculated – fasting not specified (2%), and cholesterol LDL direct (7%) |
| Family history CAD, premature CAD, stroke | Health history | NA | A text field indicating, CAD, premature CAD, or stroke among primary family members (brother, father, mother, sister) |
| Hypertension | Institutional hypertension registry, drawn from: encounters/ diagnoses, vital statistics, pharmacy | Multiple code types: ICD-9 diagnoses (DX), GPIs, vital statistic BPs | Hypertension was defined as meeting any one the following four sets of criteria:<br><br>1. Two ambulatory diagnoses on different dates (ICD-9 DX: 401.\*–405.\*)<br>2. One ambulatory diagnosis and one fill of an anti-HTN medication (GPIs: 361000\*, 361500\*, 362010\*, 362020\*, 362500\*, 372000\*, 376000\*, 371000\*, 364000\*, 362030\*, 340000\*, 331000\*, 332000\*, 333000\*, 369915\*, 369918\*, 369940\*, 369920\*, 379900\*, 369990\*, 369910\*)<br>3. One non-urgent elevated BP (EBP) and one DX (EBP is systolic ≥140 or diastolic ≥90; or systolic ≥130 or diastolic ≥80, if diabetic or CKD DX)<br>4. Two consecutive non-urgent EBP on different dates |

| Condition | Patient electronic data source | Code type | Code ranges |
|---|---|---|---|
| CAD | Encounters/DX/ procedures | ICD-9 DX, ICD-9 procedures, HCPCS, and CPT codes | ICD-9 DX: 410.*, 411.*, 412.*, 414.0*, 414, 414.2, 414.3, 414.8, 414.9, V45.81, V45.82, 996.03<br><br>ICD-9 procedures: 36.0*, 36.1*, 36.2*, 00.66, 00.49<br><br>HCPCS: A5200, C1900, G0036, G0037, G0290, G0291, G0392, G0393, G0396, G0397, G8033, G8034, G8035, G8036, G8037, G8038, G8039, G8040, G8041, G8158, G8159, G8160, G8161, G8162, G8163, G8164, G8165, G8166, G8167, G8170, G8171, G8172, S0340, S0341, S0342, S2205, S2206, S2207, S2208, S2209, S2348, S2360<br><br>CPT codes: 92973, 92974, 92975, 92977, 92979, 92980, 92981, 92982, 92984, 92987, 92995, 92996, 33510, 33511, 33512, 33513, 33514, 33516, 33517, 33518, 33519, 33521, 33522, 33523, 33530, 33533, 33534, 33535, 33536 |
| AAA | Encounters/DX | ICD-9 DX | 441.3, 441.4 |
| CHF | Encounters/DX | ICD-9 DX | 428.*, 398.91, 402.01, 402.11, 402.91, 404.01, 404.03, 404.11, 404.13, 404.91, 404.93, 425.4, 425.5, 425.6, 425.7, 425.8, 425.9 |
| Stroke | Encounters/DX | ICD-9 DX | 433.*, 434.*, 436.*, 430.*, 431.*, 432.*, 435.*, 438.*, 852.0*, 852.2*, 852.4*, 853.0*, V12.54 |
| Diabetes | Encounters/DX | ICD-9 DX | Two DX of 250.* (at least 30 days apart) |
| PVD | Encounters/DX | ICD-9 DX | 441.*, 443.9 |
| CKD | Patient lab results | NA | Two lab results at least 90 days apart where GFR MDRD ≤59 |

[*]Any numeric value.

AAA, abdominal aortic aneurysm; BP, blood pressure; CAD, coronary artery disease; CHF, congestive heart failure; CKD, chronic kidney disease; CPT, current procedural terminology; GFR, glomerular filtration rate; HCPCS, Healthcare Common Procedure Coding System; ICD, international classification of diseases; LDL, low density lipoprotein; MDRD, Modification of Diet in Renal Disease study equation; NA, not applicable; PVD, peripheral vascular disease.