**Supplement Table 1. International Classification of Diseases (ICD-10) code for medical comorbidities**

|  |  |  |
| --- | --- | --- |
| **Comorbidities** | **ICD-10 code** | **Charlson Comorbidity Index score** |
| **Acute myocardial infarction** | I21, I25.2 | 1 |
| **Congestive heart failure** | I50 | 1 |
| **Peripheral vascular disease** | I702, I73 | 1 |
| **Cerebrovascular disease** | I60-64, I69 | 1 |
| **Dementia** | F00, F01, F03, G30 | 1 |
| **Chronic pulmonary disease** | J42-J47, J60-67, J70.1, J70.3 | 1 |
| **Connective tissue disease** | M05, M06, M30-36, M45 | 1 |
| **Peptic ulcer disease** | K25-28 | 1 |
| **Liver disease (mild)** | B18, K70.4, K71.1, K71.3, K71.4, K71.5, K73, Z94.4 | 1 |
| **Liver disease (moderate to severe)** | K70.3, K71.7, K72.1, K72.9, K74.3-6, I85, I86.4, I98.2 | 3 |
| **Diabetes mellitus (without complications)** | E10.0, E10.1, E10.6, E10.8, E10.9  E11.0, E11.1, E11.6, E11.8, E11.9  E12.0, E12.1, E12.6, E12.8, E12.9  E13.0, E13.1, E13.6, E13.8, E13,9  E14.0, E14.1, E14.6, E14.8, E14,9 | 1 |
| **Diabetes mellitus (with complications)** | E10.2, E10.3, E10.4, E10.5, E10.7  E11.2, E11.3, E11.4, E11.5, E11.7  E12.2, E12.3, E12.4, E12.5, E12.7  E13.2, E13.3, E13.4, E13.5, E13.7  E14.2, E14.3, E14.4, E14.5, E14.7 | 2 |
| **Hemiplegia/paraplegia** | G04.1, G11.4, G80.1, G81, G82, G83.0-4, G83.9 | 2 |
| **Renal disease (including end-stage renal disease)** | N18,  Z94.0, Z49.1, Z49.2, Z99.2  T861 | 2 |
| **Malignancy (without metastasis)** | C00-97 (except C77-80) | 2 |
| **Metastatic cancer** | C77-80 | 6 |
| **AIDS** | B20-22, B24 | 6 |
| **Hypertension** | I10, I11, I12, I13, I15 | - |
| **Atrial fibrillation/Atrial flutter** | I48 | - |

**Supplement Table 2.** **Factors associated with mortality by Cox proportional hazard model**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Variables** | **Univariate** | | | **Multivariate** | | | | | |
| **Model 1** | | **Model 2** | | **Model 3** | |
| **HR (95%CI)** | ***P*-value** | | **HR (95%CI)** | ***P*-value** | **HR (95%CI)** | ***P*-value** | **HR (95%CI)** | ***P*-value** |
| **Low SES (vs. high SES)** | 0.798 (0.752-0.847) | | <0.001 | 1.087 (1.022-1.155) | 0.008 | 1.078 (1.013-1.146) | 0.017 | 1.073 (1.009-1.14) | 0.025 |
| **Age, years** | 1.044 (1.041-1.046) | | <0.001 | 1.043 (1.041-1.046) | <0.001 | 1.036 (1.033-1.039) | <0.001 | 1.038 (1.035-1.04) | <0.001 |
| **Male (vs. female)** | 1.096 (1.046-1.149) | | 0.001 | 11.143 (1.09-1.198) | <0.001 | 1.211 (1.153-1.273) | <0.001 | 1.27 (1.207-1.335) | <0.001 |
| **CCI** | 1.125 (1.113-1.136) | | <0.001 | 1.1 (1.088-1.112) | <0.001 | 1.092 (1.081-1.104) | <0.001 | 1.095 (1.083-1.107) | <0.001 |
| **Atrial fibrillation or flutter (vs. none)** | 1.449 (1.34-1.567) | | <0.001 |  |  | 1.171 (1.083-1.267) | <0.001 |  |  |
| **Body mass index, kg/m2** | 0.963 (0.956-0.97) | | <0.001 |  |  | 0.968 (0.961-0.975) | <0.001 | 0.969 (0.961-0.976) | <0.001 |
| **Serum albumin, g/dL** | 0.443 (0.416-0.472) | | <0.001 |  |  | 0.639 (0.596-0.684) | <0.001 | 0.604 (0.563-0.649) | <0.001 |
| **Serum creatinine, mg/dL** | 0.888 (0.88-0.897) | | <0.001 |  |  | 0.969 (0.958-0.979) | <0.001 | 0.953 (0.942-0.965) | <0.001 |
| **Plasma Hb, g/dL** | 0.893 (0.869-0.919) | | <0.001 |  |  |  |  | 0.927 (0.9-0.954) | <0.001 |
| **Serum calcium, mg/dL** | 0.954 (0.927-0.981) | | 0.001 |  |  |  |  | 1.072 (1.05-1.094) | <0.001 |
| **Serum phosphorus, mg/dL** | 0.89 (0.874-0.907) | | <0.001 |  |  |  |  | 1.115 (1.081-1.149) | <0.001 |

CCI, Age-unadjusted Charlson comorbidity index; Hb, hemoglobin; HD, hemodialysis; SES, socioeconomic status

**Supplement Table 3.** **Factors associated with hospitalization by Cox proportional hazard model**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Variables** | **Univariate** | | **Multivariate** | | | | | |
| **Model 1** | | **Model 2** | | **Model 3** | |
| **HR (95%CI)** | ***P*-value** | **HR (95%CI)** | ***P*-value** | **HR (95%CI)** | ***P*-value** | **HR (95%CI)** | ***P*-value** |
| **Low SES (vs. high SES)** | 1.017 (0.987-1.048) | 0.264 | 1.149 (1.115-1.185) | <0.001 | 1.142 (1.108-1.178) | <0.001 | 1.142 (1.108-1.178) | <0.001 |
| **Age, years** | 1.016 (1.015-1.017) | <0.001 | 1.014 (1.013-1.015) | <0.001 | 1.01 (1.009-1.012) | <0.001 | 1.011 (1.01-1.013) | <0.001 |
| **Male (vs. female)** | 0.953 (0.929-0.977) | <0.001 | 0.947 (0.923-0.972) | <0.001 | 0.971 (0.945-0.998) | 0.035 | 1.006 (0.978-1.034) | 0.679 |
| **CCI** | 1.131 (1.125-1.138) | <0.001 | 1.115 (1.108-1.121) | <0.001 | 1.108 (1.19-1.114) | <0.001 | 1.109 (1.102-1.115) | <0.001 |
| **Atrial fibrillation or flutter (vs. none)** | 1.449 (1.378-1.523) | <0.001 |  |  | 1.261 (1.198-1.326) | <0.001 |  |  |
| **Body mass index, kg/m2** | 1.001 (0.997-1.004) | 0.747 |  |  | 1.0 (0.996-1.004) | 0.922 | 1.0 (0.996-1.004) | 0.925 |
| **Serum albumin, g/dL** | 0.592 (0.57-0.614) | <0.001 |  |  | 0.733 (0.705-0.763) | <0.001 | 0.721 (0.692-0.75) | <0.001 |
| **Serum creatinine, mg/dL** | 0.943 (0.939-0.948) | <0.001 |  |  | 0.993 (0.987-0.999) | 0.014 | 0.984 (0.978-0.99) | <0.001 |
| **Plasma Hb, g/dL** | 0.9 (0.886-0.914) | <0.001 |  |  |  |  | 0.928 (0.914-0.943) | <0.001 |
| **Serum calcium, mg/dL** | 0.963 (0.949-0.978) | <0.001 |  |  |  |  | 1.047 (1.03-1.064) | <0.001 |
| **Serum phosphorus, mg/dL** | 0.959 (0.95-0.969) | <0.001 |  |  |  |  | 1.045 (1.033-1.056) | <0.001 |

CCI, Age-unadjusted Charlson comorbidity index; Hb, hemoglobin; HD, hemodialysis; SES, socioeconomic status