**Supplementary Material 3. Definition of comorbidities by ICD-10 diagnostic codes.**

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| **ICD-10 codes** | **Diseases** |
| **Myocardial infarction** |
| I21 | Acute myocardial infarction |
|  I22 | Subsequent myocardial infarction |
|  I25.2 | Old myocardial infarction |
| **Heart failure** |  |
|  I50 | Heart failure |
|  I11.0 | Hypertensive heart disease with (congestive) heart failure |
|  I13.2 | Hypertensive heart and renal disease with both (congestive) heart failure and renal failure |
|  I42.0 | Congestive cardiomyopathy |
| **Peripheral vascular disease**  |  |
|  I70 | Atherosclerosis |
|  I71 | Aortic aneurysm and dissection |
|  I73.1 | Thromboangiitis obliterans [Buerger] |
|  I73.8 | Other specified peripheral vascular diseases |
|  I73.9 | Peripheral vascular disease, unspecified |
|  I77.1 | Stricture of artery |
|  I79 | Disorders of arteries, arterioles and capillaries in diseases classified elsewhere |
|  K55 | Vascular disorders of intestine |
| **Cerebrovascular disease** |  |
|  G45 | Transient cerebral ischaemic attacks and related syndromes |
|  G46 | Vascular syndromes of brain in cerebrovascular diseases |
|  I60 | Subarachnoid haemorrhage |
|  I61  | Intracerebral haemorrhage |
|  I62  | Other nontraumatic intracranial haemorrhage |
|  I63 | Cerebral infarction |
|  I64 | Stroke, not specified as haemorrhage or infarction |
|  I65 | Occlusion and stenosis of precerebral arteries, not resulting in cerebral infarction |
|  I66 | Occlusion and stenosis of cerebral arteries, not resulting in cerebral infarction |
|  I67 | Other cerebrovascular diseases |
|  I68 | Cerebrovascular disorders in diseases classified elsewhere |
|  I69 | Sequelae of cerebrovascular disease |
| **Dementia** |  |
|  F00 | Dementia in Alzheimer’s disease |
|  F01 | Vascular dementia |
|  F02 | Dementia in other diseases classified elsewhere |
|  F03 | Unspecified dementia |
|  F05.1 | Delirium superimposed on dementia |
|  G30 | Alzheimer’s disease |
|  G31.00 | Behavioral variant frontotemporal dementia |
|  G31.92 | Dementia with Lewy bodies |
| **Chronic obstructive pulmonary disease** |
|  J42 | Unspecified chronic bronchitis |
|  J43 | Emphysema |
|  J44 | Other chronic obstructive pulmonary disease |
|  I27 | Other pulmonary heart diseases |
|  J68.4 | Chronic respiratory conditions due to chemicals, gases, fumes and vapours |
|  J70.1 | Chronic and other pulmonary manifestations due to radiation |
|  J70.3 | Chronic drug-induced interstitial lung disorders |
| **Connective tissue disease** |  |
|  M05 | Seropositive rheumatoid arthritis |
|  M06 | Other rheumatoid arthritis |
|  M30 | Polyarteritis nodosa and related conditions |
|  M31 | Other necrotizing vasculopathies |
|  M32 | Systemic lupus erythematosus |
|  M33 | Dermatopolymyositis |
|  M34 | Multiple sclerosis |
|  |  |
| M35  | Other systemic involvement of connective tissue |
| M36 | Systemic disorders of connective tissue in diseases classified elsewhere |
| **Mild iver disease: should not have ICD-10 diagnostic codes indicating ‘moderate to severe liver disease’.** |
|  B18 | Chronic viral hepatitis  |
|  K70 | Alcoholic liver disease |
|  K71 | Toxic liver disease |
|  K72 | Hepatic failure, NEC |
|  K73 | Chronic hepatitis, NEC |
|  K74 | Fibrosis and cirrhosis of liver |
|  K76 | Other diseases of liver |
| **Moderate to severe liver disease** |
|  K70.4 | Alcoholic hepatic failure |
|  K71.1 | Toxic liver diseas with hepatic necrosis |
|  K76.6 | Portal hypertension |
|  K76.7 | Hepatorenal syndrome |
|  I85 | Oesophageal varices |
|  I86.4 | Gastric varices |
|  I98.2 | Oesophageal varices without bleeding in diseases classified elsewhere |
| **Diabetes mellitus without complication: should not have ICD-10 diagnostic codes indicating ‘diabetes mellitus with complication’.** |
|  E10 | Insulin-dependent diabetes mellitus |
|  E11 | Non-insulin dependent diabetes mellitus |
|  E12 | Malnutrition-related diabetes mellitus |
|  E13 | Other specified diabetes mellitus |
|  E14 | Unspecified diabetes mellitus |
| **Diabetes mellitus with complication** |  |
|  E10.0 | Insulin-dependent diabetes mellitus with coma |
|  E10.1 | Insulin-dependent diabetes mellitus with acidosis |
|  E10.2 | Insulin-dependent diabetes mellitus with renal complications |
|  E10.3 | Insulin-dependent diabetes mellitus with retinopathy |
|  E10.4 | Insulin-dependent diabetes mellitus with neurologic complications |
|  E10.5 | Insulin-dependent diabetes mellitus with peripheral circulatory complications |
|  E10.6 | Insulin-dependent diabetes mellitus with other specified complications |
|  E11.0 | Non-insulin-dependent diabetes mellitus with coma |
|  E11.1 | Non-insulin-dependent diabetes mellitus with acidosis |
|  E11.2 | Non-insulin-dependent diabetes mellitus with renal complications |
|  E11.3 | Non-insulin-dependent diabetes mellitus with retinopathy |
|  E11.4 | Non-insulin-dependent diabetes mellitus with neurologic complications |
|  E11.5 | Non-insulin-dependent diabetes mellitus with peripheral circulatory complications |
|  E11.6 | Non-insulin-dependent diabetes mellitus with other specified complications |
|  E12.0 | Malnutrition-related diabetes mellitus with coma |
|  E12.1 | Malnutrition-related diabetes mellitus with acidosis |
|  E12.2 | Malnutrition-related diabetes mellitus with renal complications |
|  E12.3 | Malnutrition-related diabetes mellitus with retinopathy |
|  E12.4 | Malnutrition-related diabetes mellitus with neurologic complications |
|  E12.5 | Malnutrition-related diabetes mellitus with peripheral circulatory complications |
|  E12.6 | Malnutrition-related diabetes mellitus with other specified complications |
|  E13.0 | Other specified diabetes mellitus with coma |
|  E13.1 | Other specified diabetes mellitus with acidosis |
|  E13.2 | Other specified diabetes mellitus with renal complications |
|  E13.3 | Other specified diabetes mellitus with retinopathy |
|  E13.4 | Other specified diabetes mellitus with neurologic complications |
|  E13.5 | Other specified diabetes mellitus with peripheral circulatory complications |
|  E13.6 | Other specified diabetes mellitus with other specified complications |
|  E14.0 | Unspecified diabetes mellitus with coma |
|  E14.1 | Unspecified diabetes mellitus with acidosis |
|  E14.2 | Unspecified diabetes mellitus with renal complications |
|  E14.3 | Unspecified diabetes mellitus with retinopathy |
|  E14.4 | Unspecified diabetes mellitus with neurologic complications |
|  E14.5 | Unspecified diabetes mellitus with peripheral circulatory complications |
|  E14.6 | Unspecified diabetes mellitus with other specified complications |
| **Moderate to severe chronic kidney disease** |
| I12.0 | Hypertensive renal disease with renal failure |
| I13 | Hypertensive heart and renal disease |
|  N18 | Chronic kidney disease |
|  N19 | Unspecified kidney failure |
| **Neoplasms (both solid and hematologic): All ‘C’ codes**  |
| **Metastatic neoplasms** |  |
|  C77 | Secondary and unspecified malignant neoplasm of lymph nodes |
|  C78 | Secondary malignant neoplasm of respiratory and digestive organs |
|  C79 | Secondary malignant neoplasm of other and unspecified sites |
|  C80 | Malignant neoplasm without specification of site |
| **Human immunodeficiency virus (HIV) infection and acquired immunodeficiency syndrome (AIDS)** |
|  B20 | Human immunodeficiency virus [HIV] disease resulting in infectious and parasitic diseases |
|  B21 | Human immunodeficiency virus [HIV] disease resulting in malignant neoplasms |
|  B22 | Human immunodeficiency virus [HIV] disease resulting in other specified diseases |
|  B23 | Human immunodeficiency virus [HIV] disease resulting in other conditions |
|  B24 | Unspecified human immunodeficiency virus [HIV] disease |