

Supplementary Table 1. Detailed definitions of baseline major comorbidities and outcomes

Disease	Path	Field ID	Code
Baseline valvular heart disease	Verbal interview First occurrence before enrollment	Non-cancer illness, self-report (20002)	1095,1551,1650,1652,
		First reported of rheumatic mitral valve diseases	I05
		First reported of rheumatic aortic valve diseases	I06
		First reported of rheumatic tricuspid valve diseases	I07
		First reported of multiple valve diseases	I08
		First reported of nonrheumatic mitral valve disorder	I34
		First reported of nonrheumatic aortic valve disorders	I35
		First reported of nonrheumatic tricuspid valve disorders	I36
		First reported of pulmonary valve disorders	I37
		First reported of endocarditis and heart valve disorders in diseases classified elsewhere	I39
	Hospital inpatient data	Summary Diagnosis (ICD10, 41270)	I050, I051, I052, I058, I059, I060, I061, I062, I070, I071, I079, I080, I081, I082, I083, I088, I089, I340, I341, I342, I348, I349, I350, I351, I352, I358, I359, I361, I371, I372
Baseline congenital heart disease	First occurrence before enrollment	Summary Diagnosis (ICD9, 41271)	394, 395, 396, 424.0, 424.1, 424.3
		First reported of congenital malformations of pulmonary and tricuspid valve	Q22
		First reported of congenital malformations of aortic and mitral valves	Q23
Baseline dyslipidemia	Verbal interview	Non-cancer illness, self-report (20002)	High cholesterol (1473)
	First occurrence before enrollment	First reported of disorders of lipoprotein metabolism and other lipidemia (130815, 130816)	E78.x
	Medication	Medication for cholesterol, blood pressure or diabetes (6177)	Cholesterol lowering medication
Baseline hypertension	Verbal interview	Non-cancer illness, self-report (20002)	1065, 1072
	Touchscreen	Vascular/heart problems diagnosed by doctor (6150)	High blood pressure
	First occurrence before enrollment	First reported of essential hypertension (131286, 131287)	I10.x
		First reported of hypertensive heart disease (131288, 131289)	I11.x
		First reported of hypertensive renal disease (131290, 131291)	I12.x
		First reported of hypertensive heart and renal disease (131292, 131293)	I13.x
		First reported of secondary hypertension (131294, 131295)	I15.x
	Medication	Medication for cholesterol, blood pressure or diabetes (6177)	Blood pressure medication

Supplementary Table 1. Continued

Disease	Path	Field ID	Code
Baseline type 2 diabetes mellitus	Verbal interview	Non-cancer illness, self-report (20002)	Diabetes (1220)
			Type 2 diabetes (1223)
	Touchscreen	Diabetes diagnosed by doctor (2443)	Yes
	First occurrence before enrollment	First reported of non-insulin-dependent diabetes mellitus (130708, 130709)	E11.x
		First reported of unspecified diabetes mellitus (130714, 130715)	E14.x
	Medication	Treatment/medication code (20003)	Insulin (1140883066)
			Metformin (1140884600, 1141189090)
			Sulfonylurea (1141152590, 1140874744, 1140874718, 1141156984)
			Acarbose (1140868902)
			Thiazolidinedione (1141171646)
Meglitinide (1141168660, 1141173882)			
HbA1c at baseline	Glycated hemoglobin (HbA1c) (30750)	≥ 6.5%	
Verbal interview for exclusion type 1 diabetes	Non-cancer illness, self-report (20002)	Type 1 diabetes (1222)	
First occurrence for exclusion type 1 diabetes	First reported of insulin-dependent diabetes mellitus (130706, 130707)	E10.x	
Baseline coronary artery disease	Verbal interview	Non-cancer illness, self-report (20002)	1074 (angina)
			1075 (heart attack/myocardial infarction)
	Touchscreen	Vascular/heart problems diagnosed by doctor (6150)	Heart attack, angina
	First occurrence before enrollment	First reported of angina pectoris (131296, 131297)	I20.x
		First reported of acute myocardial infarction (131298, 131299)	I21.x
		First reported of subsequent myocardial infarction (131300, 131301)	I22.x
		First reported of certain current complications following acute myocardial infarction (131302, 131303)	I23.x
		First reported of other acute ischemic heart diseases (131304, 131305)	I24.x
		First reported of chronic ischemic heart disease (131306, 131307)	I25.x
Baseline peripheral artery disease	Verbal interview	Non-cancer illness, self-report (20002)	Peripheral vascular disease (1067)
	Hospital inpatient data	Summary Diagnosis (ICD10, 41270)	I70.0, I70.00, I70.01, I70.2, I70.21, I70.8, I70.80, I70.9, I70.90, I73.8, I73.9
		Summary Diagnosis (ICD9, 41271)	4400, 4402, 4438, 4439

Supplementary Table 1. Continued

Disease	Path	Field ID	Code
Baseline heart failure	Verbal interview	Non-cancer illness, self-report (20002)	Heart failure (1076, 1079)
	Hospital inpatient data	Summary Diagnosis (ICD10, 41270)	I50, I50.0, I50.1, I50.9
		Summary Diagnosis (ICD9, 41271)	4254, 4280, 4281, 4289
Baseline heart arrhythmia	Verbal interview	Non-cancer illness, self-report (20002)	Heart arrhythmia (1094)
	First occurrence before enrollment	First reported of atrial fibrillation/flutter (131350, 131351)	I48.x
		First reported of other cardiac arrhythmias (131352, 131353)	I49.x
Baseline ischemic stroke	Verbal interview	Non-cancer illness, self-report (20002)	Stroke (1081,1082,1583)
	First occurrence before enrollment	First reported of cerebral infarction (131366, 131367)	I63.x
Baseline hemorrhagic stroke	Verbal interview	Non-cancer illness, self-report (20002)	Stroke (1081)
	First occurrence before enrollment	First reported of subarachnoid hemorrhage (131360, 131361)	I60.x
		First reported of intracerebral hemorrhage (131362, 131363)	I61.x
		First reported of other nontraumatic intracranial hemorrhage (131364, 131365)	I62.x
Valvular heart disease during follow-up	First occurrence before enrollment	First reported of rheumatic mitral valve diseases	I05
		First reported of rheumatic aortic valve diseases	I06
		First reported of rheumatic tricuspid valve diseases	I07
		First reported of multiple valve diseases	I08
		First reported of nonrheumatic mitral valve disorder	I34
		First reported of nonrheumatic aortic valve disorders	I35
		First reported of nonrheumatic tricuspid valve disorders	I36
		First reported of pulmonary valve disorders	I37
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	Hospital inpatient data	Summary Diagnosis (ICD10, 41270)	I050, I051, I052, I058, I059, I060, I061, I062, I070, I071, I079, I080, I081, I082, I083, I088, I089, I340, I341, I342, I348, I349, I350, I351, I352, I358, I359, I361, I371, I372
		Summary Diagnosis (ICD9, 41271)	394, 395, 396, 424.0, 424.1, 424.3

Supplementary Table 1. Continued

Disease	Path	Field ID	Code
Mitral valvular heart disease during follow-up	First occurrence before enrollment	First reported of nonrheumatic mitral valve disorder	I34
	Hospital inpatient data	Summary Diagnosis (ICD10, 41270)	I340, I341, I342, I348, I349
		Summary Diagnosis (ICD9, 41271)	394, 424.0
Aortic valvular heart disease during follow-up	First occurrence before enrollment	First reported of nonrheumatic aortic valve disorders	I35
	Hospital inpatient data	Summary Diagnosis (ICD10, 41270)	I350, I351, I352, I358, I359
		Summary Diagnosis (ICD9, 41271)	395, 424.1
Aortic stenosis during follow-up	Hospital inpatient data	Summary Diagnosis (ICD10, 41270)	I350
		Summary Diagnosis (ICD9, 41271)	395