

Supplemental Table A. National Health Service (NHS) Read Codes and variable descriptors for diagnosis of cardiovascular disease (CVD)

NHS Read Code	Description
G3...00	Ischaemic heart disease
G3...11	Arteriosclerotic heart disease
G3...12	Atherosclerotic heart disease
G3...13	IHD - Ischaemic heart disease
G30..00	Acute myocardial infarction
G30..11	Attack - heart
G30..12	Coronary thrombosis
G30..13	Cardiac rupture following myocardial infarction (MI)
G30..14	Heart attack
G30..15	MI - acute myocardial infarction
G30..16	Thrombosis - coronary
G30..17	Silent myocardial infarction
G300.00	Acute anterolateral infarction
G301.00	Other specified anterior myocardial infarction
G301000	Acute anteroapical infarction
G301100	Acute anteroseptal infarction
G301200	Anterior myocardial infarction NOS
G302.00	Acute inferolateral infarction
G303.00	Acute inferoposterior infarction
G304.00	Posterior myocardial infarction NOS
G305.00	Lateral myocardial infarction NOS
G306.00	True posterior myocardial infarction
G307.00	Acute subendocardial infarction
G307000	Acute non-Q wave infarction
G307100	Acute non-ST segment elevation myocardial infarction
G308.00	Inferior myocardial infarction NOS
G309.00	Acute Q-wave infarct
G30B.00	Acute posterolateral myocardial infarction
G30X.00	Acute transmural myocardial infarction of unspecif site
G30X000	Acute ST segment elevation myocardial infarction
G30y.00	Other acute myocardial infarction
G30y000	Acute atrial infarction
G30y100	Acute papillary muscle infarction
G30y200	Acute septal infarction
G30yz00	Other acute myocardial infarction NOS
G30z.00	Acute myocardial infarction NOS
G31..00	Other acute and subacute ischaemic heart disease
G310.00	Postmyocardial infarction syndrome
G310.11	Dressler's syndrome
G311.00	Preinfarction syndrome
G311.11	Crescendo angina
G311.12	Impending infarction
G311.13	Unstable angina
G311.14	Angina at rest
G311000	Myocardial infarction aborted
G311011	MI - myocardial infarction aborted
G311100	Unstable angina
G311200	Angina at rest
G311300	Refractory angina
G311400	Worsening angina
G311500	Acute coronary syndrome
G311z00	Preinfarction syndrome NOS
G312.00	Coronary thrombosis not resulting in myocardial infarction
G31y.00	Other acute and subacute ischaemic heart disease
G31y000	Acute coronary insufficiency
G31y200	Subendocardial ischaemia

G31y300	Transient myocardial ischaemia
G31yz00	Other acute and subacute ischaemic heart disease NOS
G32..00	Old myocardial infarction
G32..11	Healed myocardial infarction
G32..12	Personal history of myocardial infarction
G33..00	Angina pectoris
G330000	Nocturnal angina
G33z.00	Angina pectoris NOS
G33z300	Angina on effort
G33z400	Ischaemic chest pain
G33z500	Post infarct angina
G33z600	New onset angina
G33z700	Stable angina
G33zz00	Angina pectoris NOS
G34..00	Other chronic ischaemic heart disease
G340.00	Coronary atherosclerosis
G340.11	Triple vessel disease of the heart
G340.12	Coronary artery disease
G340000	Single coronary vessel disease
G340100	Double coronary vessel disease
G342.00	Atherosclerotic cardiovascular disease
G344.00	Silent myocardial ischaemia
G34y.00	Other specified chronic ischaemic heart disease
G34y000	Chronic coronary insufficiency
G34y100	Chronic myocardial ischaemia
G34yz00	Other specified chronic ischaemic heart disease NOS
G34z.00	Other chronic ischaemic heart disease NOS
G34z000	Asymptomatic coronary heart disease
G35..00	Subsequent myocardial infarction
G350.00	Subsequent myocardial infarction of anterior wall
G351.00	Subsequent myocardial infarction of inferior wall
G353.00	Subsequent myocardial infarction of other sites
G35X.00	Subsequent myocardial infarction of unspecified site
G36..00	Certain current complication follow acute myocardial infarct
G360.00	Haemopericardium/current comp folow acut myocard infarct
G361.00	Atrial septal defect/curr comp folow acut myocardal infarct
G362.00	Ventric septal defect/curr comp fol acut myocardal infarctn
G363.00	Ruptur cardiac wall w'out haemopericard/cur comp fol ac MI
G364.00	Ruptur chordae tendinae/curr comp fol acute myocard infarct
G365.00	Rupture papillary muscle/curr comp fol acute myocard infarct
G366.00	Thrombosis atrium,auric append&vent/curr comp foll acute MI
G38..00	Postoperative myocardial infarction
G380.00	Postoperative transmural myocardial infarction anterior wall
G381.00	Postoperative transmural myocardial infarction inferior wall
G384.00	Postoperative subendocardial myocardial infarction
G38z.00	Postoperative myocardial infarction, unspecified
Gyu3000	[X]Other forms of angina pectoris
Gyu3400	[X]Acute transmural myocardial infarction of unspecif site
G330.00	Angina decubitus
G330z00	Angina decubitus NOS
G33z000	Status anginosus
G33z100	Stenocardia
G33z200	Syncope anginosa
G68X.00	Sequelae of stroke, not specfd as h'morrhage or infarction
G663.00	Brain stem stroke syndrome
G664.00	Cerebellar stroke syndrome
G66..00	Stroke and cerebrovascular accident unspecified
G64..13	Stroke due to cerebral arterial occlusion
G66..12	Stroke unspecified
G61..12	Stroke due to intracerebral haemorrhage
G65..12	Transient ischaemic attack

Supplemental File B. Calculation of 10-year CVD risk from multivariate prediction models derived from Cox regression

Step 1: Form the individual patient prediction component (A) of the linear equation using the β -coefficients estimates

For instance, A can be estimated for Framingham Risk Factors + AST/ALT ratio can be estimated by the raw untransformed β coefficients which derive the adjusted hazard ratios presented in Table 2:

For men:

If patient has not received blood pressure treatment:

$$A_{m(1)} = 3.9765 * \log(\text{age}) + 0.0518 * \log(\text{total cholesterol}) + -0.6362 * \log(\text{HDL cholesterol}) + 0.7277 * \log(\text{systolic blood pressure}) + 0.3924 * \text{smoking} + 0.2982 * \text{diabetes} + 0.3145 * \log(\text{AST/ALT ratio})$$

If patient has received blood pressure treatment:

$$A_{m(2)} = 3.9765 * \log(\text{age}) + 0.0518 * \log(\text{total cholesterol}) + -0.6362 * \log(\text{HDL cholesterol}) + 0.7157 * \log(\text{systolic blood pressure}) + 0.3924 * \text{smoking} + 0.2982 * \text{diabetes} + 0.3145 * \log(\text{AST/ALT ratio})$$

For women:

If patient has not received blood pressure treatment:

$$A_{f(1)} = 5.0667 * \log(\text{age}) + 0.0991 * \log(\text{total cholesterol}) + -0.8627 * \log(\text{HDL cholesterol}) + 0.9650 * \log(\text{systolic blood pressure}) + 0.7350 * \text{smoking} + 0.5260 * \text{diabetes} + 0.0559 * \log(\text{AST/ALT ratio})$$

If patient has received blood pressure treatment:

$$A_{f(2)} = 5.0667 * \log(\text{age}) + 0.0991 * \log(\text{total cholesterol}) + -0.8627 * \log(\text{HDL cholesterol}) + 0.9810 * \log(\text{systolic blood pressure}) + 0.7350 * \text{smoking} + 0.5260 * \text{diabetes} + 0.0559 * \log(\text{AST/ALT ratio})$$

Step 2: Form the mean patient prediction constant (B) of the linear equation

For men:

If patient has not received blood pressure treatment:

$$B_{m(1)} = 3.9765 * \text{mean}[\log(\text{age})] + 0.0518 * \text{mean}[\log(\text{total cholesterol})] + -0.6362 * \text{mean}[\log(\text{HDL cholesterol})] + 0.7277 * \text{mean}[\log(\text{systolic blood pressure})] + 0.3924 * \text{mean}(\text{smoking}) + 0.2982 * \text{mean}(\text{diabetes}) + 0.3145 * \text{mean}[\log(\text{AST/ALT ratio})] = \mathbf{19.6546}$$

If patient has received blood pressure treatment:

$$B_{m(2)} = 3.9765 * \text{mean}[\log(\text{age})] + 0.0518 * \text{mean}[\log(\text{total cholesterol})] + -0.6362 * \text{mean}[\log(\text{HDL cholesterol})] + 0.7157 * \text{mean}[\log(\text{systolic blood pressure})] + 0.3924 * \text{mean}(\text{smoking}) + 0.2982 * \text{mean}(\text{diabetes}) + 0.3145 * \text{mean}[\log(\text{AST/ALT ratio})] = \mathbf{19.6312}$$

For women:

If patient has not received blood pressure treatment:

$$B_{f(1)} = 5.0667 * \text{mean}[\log(\text{age})] + 0.0991 * \text{mean}[\log(\text{total cholesterol})] + -0.8627 * \text{mean}[\log(\text{HDL cholesterol})] + 0.9650 * \text{mean}[\log(\text{systolic blood pressure})] + 0.7350 * \text{mean}(\text{smoking}) + 0.5260 * \text{mean}(\text{diabetes}) + 0.0559 * \text{mean}[\log(\text{AST/ALT ratio})] = \mathbf{25.4339}$$

If patient has received blood pressure treatment:

$$B_{f(2)} = 5.0667 * \text{mean}[\log(\text{age})] + 0.0991 * \text{mean}[\log(\text{total cholesterol})] + -0.8627 * \text{mean}[\log(\text{HDL cholesterol})] + 0.9810 * \text{mean}[\log(\text{systolic blood pressure})] + 0.7350 * \text{mean}(\text{smoking}) + 0.5260 * \text{mean}(\text{diabetes}) + 0.0559 * \text{mean}[\log(\text{AST/ALT ratio})] = \mathbf{25.5822}$$

Step 3: Calculate baseline 10-year survival probability for the mean values of the risk factors in the model (S). This can be estimated by fitting a Cox model to the mean values of all the risk factors and then calculating the median baseline survival.

For men: $S_m = \mathbf{0.9119}$

For women: $S_f = \mathbf{0.9318}$

Step 4: Calculate the 10-year risk of CVD by combining the parameters A, B, S in the prediction equation (P)

For men:

If patient has not received blood pressure treatment:

$$P = 1 - S_m^{\exp[A_m(1) - B_m(1)]} = 1 - 0.9119^{\exp(A_m(1) - 19.6546)}$$

If patient has received blood pressure treatment:

$$P = 1 - S_m^{\exp[A_m(2) - B_m(2)]} = 1 - 0.9119^{\exp(A_m(2) - 19.6312)}$$

For women:

If patient has not received blood pressure treatment:

$$P = 1 - S_f^{\exp[A_f(1) - B_f(1)]} = 1 - 0.9318^{\exp(A_f(1) - 25.4339)}$$

If patient has received blood pressure treatment:

$$P = 1 - S_f^{\exp[A_f(2) - B_f(2)]} = 1 - 0.9318^{\exp(A_f(2) - 25.5822)}$$