Prevention of cardiovascular disease: an evidence-based clinical aid 2004*

	PATIENT RISK CATEGORY					
	Clinical manifestations of high risk					Calculated CVD risk§ < 10%–15% over 5 years (Note: individuals with extreme elevations in isolated risk factors may be independently at high risk)
TREATABLE RISK FACTORS	Clinically evident coronary heart disease ■ Previous AMI† ■ Chronic stable angina	Clinically evident cerebrovascular disease	Diabetes‡ [1]	Renal disease (Proteinuria or GFR < 80 mL/min)	Calculated CVD risk§ ⩾10%–15% over 5 years or high risk states ■ Familial dyslipidaemia ■ BP > 170/100 ■ Peripheral vascular disease	
Smoking	All smokers should be provided with an active cessation program + medication assistance, if appropriate.					
Physical inactivity Obesity	Diet low in saturated fat; increased physical activity (3 x 10 minutes daily); limit excessive alcohol consumption. Target body mass index (BMI) < 25 kg/m^2; waist < 80 cm for women and < 94 cm for men; waist : hip ratio < 1.[2,3]					
Normal BP (<140/90 mmHg)[3]	ACE inhibitor (ramipril 10 mg;¶ perindopril 8 mg)[4,5]	ACE inhibitor (ramipril 10 mg)¶ [4,6] Perindopril 4 mg + indapamide 2.5 mg [6,7]	BP < 130/85 [3] Observation, with repeated measurements annually [2,3] Consider treatment if other risk factors (eg, smoking) are present	BP < 130/85 [3] (BP < 125/75, if > 1 g proteinuria per day) [3] Observation, with repeated measurements 6 monthly [2,3,8]	Observation, with repeated measurements annually [2,3,8]	Observation, with repeated measurements every 5 years if < 60 years, every 2 years if > 60 years [2,3]
High BP (⩾140/90 mmHg)[3]	BP > 130/85 [3] ACE inhibitor (ramipril 10 mg;¶ perindopril 8 mg)[4,5] ACE inhibitor¶ [4,9-14] Non-ISA β-blocker† [3,15-18] Calcium channel blocker [3,14,18-20] Diuretic (thiazide) [3,14]	ACE inhibitor (ramipril 10 mg) ¶ [4,6] Diuretic (indapamide or thiazide) [6] Perindopril 4 mg + indapamide 2.5 mg [6,7]	BP > 130/85 [3] ACE inhibitor ¶ [3,4,14,21] β-Blocker** [3,21] Calcium channel blocker (2nd-line therapy to ACE inhibitor) [3,14,19,20,22] If LVF present, consider losartan [23] Diuretic (thiazide or chlorthalidone)** [3,14]	BP > 130/85 [3] ACE inhibitor¶ [4,24-27] β-Blocker [3,8] Calcium channel blocker (used with an ACE inhibitor) [22] Diuretic (thiazide) [3,8]	ACE inhibitor [3,8,14] β-Blocker [3,8] Calcium channel blocker (2nd-line therapy) [3,8,14,19,20] Diuretic (thiazide) [3,8,14]	Consider drug therapy if systolic BP > 150 or diastolic BP > 95 [3]
Dyslipidaemia	TC > 3.5 mmol/L Simvastatin 40 mg [28] TC > 4.0 mmol/L Pravastatin 40 mg [29,30] TC < 6.5 mmol/L Atorvastatin 80 mg [31] or Low HDL-C or high TG Fibrate (gemfibrozil) [32]	TC > 3.5 mmol/L Simvastatin 40 mg [28,33] TC > 4.0 mmol/L Pravastatin 40 mg [29,30]	TC > 3.5 mmol/L Simvastatin 40 mg [34] ACE inhibitor (ramipril 10 mg)¶ [4]	TC > 5.0 mmol/L Statin [35] Low HDL-C or high TG Fibrate (gemfibrozil) [35]	TC > 5.0 mmol/L Statin [35] TC < 6.5 mmol/L Atorvastatin 10 mg [36] Low HDL-C or high TG Fibrate (gemfibrozil) [35]	Consider drug therapy if TC > 8.0 mmol/L or TC : HDL-C ratio > 8.0 [37] Diagnosis of familial hypercholesterolaemia should be considered

Proteinuria/ microalbuminuria or GFR < 80 mL/min	*ACE inhibitor (cardiovascular and renal risk reduction) (ramipril 10 mg)¶* [4] *ACE inhibitor (renal risk reduction) captopril* [24,27,38] *Statin (pravachol or simvastatin)* [29,30,34]	*ACE inhibitor (cardiovascular and renal risk reduction) (ramipril 10 mg)¶* [4] *ACE inhibitor (renal risk reduction)* [24,38]	*ACE inhibitor (cardiovascular and renal risk reduction) (ramipril 10 mg)¶* [4] *ACE inhibitor or irbesartan 300 mg (renal risk reduction)* [22,39-41]	*If > 1 g proteinuria:* *ACE inhibitor* [24-26,42] *Combination therapy trandolapril + losartan* [42]	*Check for diabetes or other causes* *If non-diabetic proteinuric nephropathy present:* *ACE inhibitor* [24] *Observation, with repeated measurements annually, if positive*	*Treat as per renal disease*
OTHER INTERVENTIONS						
Antiplatelet therapies	*Aspirin 75–150 mg for all patients at high risk of CVD.* [43,44] *Ensure that blood pressure is controlled to minimise risk of haemorrhagic stroke.* [45-47] *Alternative or additional antiplatelet therapy if aspirin not tolerated, or recurrent coronary heart disease/cerebrovascular disease events occur (dipyridamole, aspirin/dipyridamole, clopidogrel).* [48,49]					
Anticoagulation	*Paroxysmal atrial fibrillation; prior thromboembolic event; proteinuria > 3 g/day;* [50] *large anterior myocardial infarction; left ventricular aneurysm; intracardiac thrombus; or severe congestive cardiac failure.*					

AMI = acute myocardial infarction
ACE inhibitor = angiotensin-converting enzyme inhibitor
BP = blood pressure
CVD = cardiovascular disease
GFR = glomerular filtration rate
HDL-C = high-density lipoprotein cholesterol
LVF = left ventricular failure
non-ISA = non-intrinsic sympathomimetic activity
TC = total cholesterol
TG = triglycerides

* *Prevention of cardiovascular disease: an evidence-based clinical aid 2004* is intended as a guide for the management of vascular disease, integrating current local and international guidelines and clinical trial data. It should only be used in conjunction with the most recent published guidelines. Therapeutic choices are listed in alphabetical order and not by treatment priority, as this may differ for individual patients. Thresholds are referenced to current guidelines and indicate the level for commencement of therapy. Targets that should be aimed for by applying the recommended intervention are not given.

† Hypertensive and normotensive patients after AMI should receive non-ISA β-blockers.[15-17] There is evidence that, for patients who cannot take β-blockers, non-dihydropyridine calcium channel blockers may be beneficial.[51-53]

‡ Fasting blood sugar (≥ 8 h after consumption of food) ≥ 7.0 mm/L or non-fasting, ≥ 11.1 mmol/L.[1] These blood sugar levels suggest the possibility of diabetes; however, in the absence of symptoms, blood sugar levels should be confirmed on another occasion. Non-diagnostic estimations between 5.5 mmol/L and 7.0 mmol/L (fasting) and 5.5 mmol/L and 11.1 mmol/L (non-fasting) require a glucose tolerance test to confirm the diagnosis of diabetes. Routine management of diabetes will include attention to diet ± oral hypoglycaemic agents or insulin. Evidence that intensive glycaemic control will reduce macrovascular events is limited.

§ A patient's risk level is assessed using tools such as the Framingham calculator <www.nhlbi.nih.gov/about/framingham/riskabs.htm>. Family history may also modify assessment of a patient's risk. In addition, there is strong evidence of an independent and causal association between depression, social isolation and the prognosis of coronary heart disease, with the impact of these psychosocial factors being of a similar order to conventional risk factors such as smoking. It is therefore crucial that these factors are considered during individual coronary heart disease risk assessment. In circumstances in which a patient is in more than one risk category, a hierarchical approach (left to right) should be adopted.

¶ See titration schedule in the HOPE study.

** May interfere with diabetic control.

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