



Cardiovascular Problems

One in a series of curriculum statements produced by the Royal College of General Practitioners:

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Key messages

- Cardiovascular problems are an important cause of morbidity and mortality.
- Management of the risk factors for cardiovascular problems is an essential part of health promotion activity in primary care.
- All general practitioners should be competent in the management of cardiovascular emergencies in primary care.
- Accurate diagnosis of symptoms that may potentially be due to cardiovascular causes is a key competence for general practice.

Introduction

Cardiovascular problems includes coronary heart disease (angina, acute coronary syndromes, cardiac arrest), heart failure, arrhythmias, other heart disease (valve disease, cardiomyopathy, congenital), peripheral vascular disease (arterial and venous), cerebrovascular disease (stroke and transient ischaemic attack [TIA]) and thromboembolic disease.

This statement relates to the management of these problems and the risk factors leading to them.

Rationale for this curriculum statement

Cardiovascular problems are important because they are common, causing high levels of morbidity and mortality, resulting in considerable costs to society:

- Coronary heart disease (CHD) is the greatest burden in terms of mortality worldwide¹
- 50% of 45-year-olds will die subsequently from coronary heart disease in the UK²
- Stroke is the commonest form of acquired disability
- Estimated direct health costs of cardiovascular problems are huge: £15 billion (2003 costs)²
- Primary and secondary prevention aimed at reducing risk factors (blood pressure, cholesterol, smoking, aspirin, better diabetic control) leads to clinically and statistically significant reductions in morbidity and mortality³
- Consulting rates for cardiovascular disease are increasing with an ageing population and account for at least 931 per 10,000 person years at risk⁴
- Current evidence is that management of cardiovascular disease and its risk factors is often suboptimal.⁵

UK health priorities

National Service Framework for Coronary Heart Disease (CHD)

This sets out twelve standards covering the detection and management of risk factors for CHD and established CHD. Separate standards cover the emergency treatment of CHD and rehabilitation of people with CHD.

National Service Framework for Older People

The NSF for Older People sets out a single standard for stroke that covers the appropriate detection and management of people at risk of and suffering from stroke as well as rehabilitation and secondary prevention.

General Medical Services 2 contract

The 2003 GMS contract includes seven relevant clinical domains in the Quality and Outcomes Framework. Of these, four cover CHD, stroke, atrial fibrillation and left ventricular dysfunction, with a further three domains involving the key cardiovascular risk factors of diabetes, CKD and hypertension. Additional relevant domains are regular monitoring of smoking status and blood pressure in the practice population.

Relevant NICE guidelines

NICE guidance is available for the management of stroke, post-myocardial infarction, atrial fibrillation, diabetes, hypertension, lipid lowering, anti-platelet therapy and heart failure.

Learning Outcomes

The following learning objectives describe the knowledge, skills and attitudes that a general practitioner (GP) requires when managing patients with cardiovascular problems. This curriculum statement should be read in conjunction with the other RCGP curriculum statements in the series. The full range of generic competences is described in the *core* RCGP curriculum statement 1, *Being a General Practitioner*.

Primary care management

- Manage primary contact with patients who have a cardiovascular problem.
- Make an initial diagnosis to elicit the appropriate signs and symptoms, and subsequently investigate and/or refer patients presenting with symptoms (below) that might be cardiac in origin, noting that in each case there will be a non-cardiac differential diagnosis:
 - ◆ chest pain
 - ◆ breathlessness
 - ◆ ankle swelling
 - ◆ symptoms or signs thought to be caused by peripheral vascular disease (arterial and venous)
 - ◆ palpitations and silent arrhythmias
 - ◆ signs and symptoms of cerebrovascular disease
 - ◆ dizziness and collapse.
- Be able to manage cardiovascular conditions, including:
 - ◆ coronary heart disease
 - ◆ heart failure
 - ◆ arrhythmias (atrial fibrillation is by far the commonest)
 - ◆ other heart disease (valve disease, cardiomyopathy, congenital problems)
 - ◆ peripheral vascular disease (arterial and venous)
 - ◆ cerebrovascular disease
 - ◆ thromboembolic disease (PE and DVT).
- Coordinate and commission care with other primary care health professionals, cardiologists and other appropriate specialists, leading to effective and appropriate acute and chronic disease management including prevention, rehabilitation and palliative care for those with end stage cardiac failure.
- Make timely appropriate referrals on behalf of patients to specialist services, especially to rapid-access chest pain, stroke/TIA and heart failure clinics.
- Promote cardiovascular wellbeing by applying health promotion and disease prevention strategies appropriately.

- Describe strategies for early detection of cardiovascular problems that may already be present but have not yet produced symptoms.

Person-centred care

- Identify the patient's health beliefs regarding cardiovascular problems and either reinforce, modify or challenge these beliefs as appropriate.
- Recognise that non-concordance is common for many preventative cardiovascular medicines and respect the patient's autonomy when negotiating management.
- Communicate the patient's risk of cardiovascular problems clearly and effectively in a non-biased manner.
- Utilise disease registers and data-recording templates effectively for opportunistic and planned monitoring of cardiovascular problems to ensure continuity of care between different healthcare providers.
- Consider how to involve the patient in self-monitoring and self-management (for instance of hypertension).

Specific problem-solving skills

- Intervene urgently when patients present with a cardiovascular emergency, e.g. myocardial infarction, stroke and critical ischaemia.
- Demonstrate an understanding of the importance of risk factors in the diagnosis and management of cardiovascular problems.
- Demonstrate a reasoned approach to the diagnosis of cardiovascular symptoms (e.g. chest pain – see above) using history, examination, incremental investigations and referral. Investigations you will be expected to understand and utilise include:
 - ◆ blood pressure measurement
 - ◆ 12-lead electrocardiogram
 - ◆ 24-hour ambulatory blood pressure measurement and ECG monitoring
 - ◆ venous dopplers and ankle brachial pressure index (ABPI) measurement
 - ◆ echocardiogram
 - ◆ secondary care investigations and treatment.

A comprehensive approach

- Prioritise interventions for multiple risk factors and symptoms of cardiovascular problems according to their severity and prognostic risk.
- Advise patients appropriately regarding lifestyle interventions according to their cardiovascular risk and level of disability.

Community orientation

- Describe the rationale for restricting certain investigations and treatments in the management of cardiovascular problems, e.g. open-access echocardiography, statin prescribing.
- Advise patients appropriately regarding driving according to their cardiovascular risk and DVLA guidelines.

A holistic approach

- Appreciate the importance of the social and psychological impact of cardiovascular problems on the patient.
- Appreciate the importance of the social and psychological impact of cardiovascular problems on the patient's family, friends, dependants and employers.
- Recognise the impact cardiovascular problems have on disability and fitness to work.

- Recognise the cultural significance that people attach to the heart as a seat of emotions.

Contextual aspects

- Describe current population trends in the prevalence of risk factors and cardiovascular disease in the community.
- Describe the key government policy documents that influence healthcare provision for cardiovascular problems.
- Describe how geographical distance influences the treatment of cardiovascular emergencies.

Attitudinal aspects

- Ensure that personal opinions regarding risk factors for cardiovascular problems (e.g. smoking, obesity, exercise, alcohol, age, race) do not influence management decisions.

Scientific aspects

- Describe and be able to implement the key national guidelines that influence healthcare provision for cardiovascular problems.
- Describe the key research findings that influence management of cardiovascular problems (e.g. heart protection study, Framingham study, Interheart).

Psychomotor skills

- Clinical skills including cardiovascular examination and blood pressure measurement.
- Calculation of cardiovascular risk.
- Performing an ECG and basic interpretation.
- Resuscitation for children and adults.

Further Reading

Examples of relevant texts and resources

- BEEVERS G, LIP GHY, O'BRIEN E. *ABC of Hypertension (5th edn)* London: BMJ Books, 2006
- BRITISH MEDICAL ASSOCIATION AND ROYAL PHARMACEUTICAL SOCIETY OF GREAT BRITAIN. *The British National Formulary* London: BMJ Books, updated annually
- BRITISH MEDICAL ASSOCIATION, ROYAL PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, ROYAL COLLEGE OF PAEDIATRICS AND CHILD HEALTH. *The Neonatal and Paediatric Pharmacists Group BNF for Children* London: BMA, 2005
- CHAMBERS R, WAKELY G, IQBAL Z. *Cardiovascular Disease Matters* Oxford: Radcliffe Medical Press, 2001
- HAMPTON JR. *The ECG Made Easy (6th edn)* London: Churchill Livingstone, 2003
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- JONES R, BRITTEN N, CULPEPPER L, *et al.* (eds). *Oxford Textbook of Primary Medical Care* Oxford: Oxford University Press, 2004
- JULIAN DG, COWEN JC, MCLENACHAN J. *Cardiology (7th edn)* London: Saunders, 1998
- LIP GHY, DAVIES R, DAVIES MK. *ABC of Heart Failure (2nd edn)* London: BMJ Books, 2006
- WAINE C. *Coronary Heart Disease* London: RCGP, 1996
- WARRELL D, COX TM, FIRTH JD, BENZ EJ (eds). *Oxford Textbook of Medicine (4th edn)* Oxford: Oxford University Press, 2004

Web resources

British Cardiovascular Society

www.bcs.com/

Chronic Disease Management Paper from RCGP

www.rcgp.org.uk/PDF/Corp_chronic_disease_nhs.pdf

NHS Evidence Health Information Resources

www.evidence.nhs.uk/

NICE

www.nice.org.uk (for copies of guidelines)

Personal experiences of illness and health (multimedia)

www.healthtalkonline.org/

Primary Care Cardiovascular Society

www.pccs.org.uk/

Interesting papers

Acute coronary syndrome

HOENIG MR, ARONEY CN, SCOTT IA. Early invasive versus conservative strategies for unstable angina and non-ST elevation myocardial infarction in the stent era *Cochrane Database of Systematic Reviews* 2010; **3**: CD004815

ROE MT, OHMAN EM, POLLACK CV JR, *et al.* Changing the model of care for patients with acute coronary syndromes *American Heart Journal* 2003; 146(4): 605–12

Angina

CREA F AND LANZA GA. Angina pectoris and normal coronary arteries: cardiac syndrome X *Heart* 2004; 90(4): 457–63

PFISTERER ME, ZELLWEGER MJ, GERSH BJ. Management of stable coronary artery disease *Lancet* 2010; **375(9716)**: 763–72

Cardiac rehabilitation

DAVIES EJ, MOXHAM T, REES K, *et al.* Exercise based rehabilitation for heart failure *Cochrane Database of Systematic Reviews* 2010; **4**: CD003331.

TAYLOR RS, BROWN A, EBRAHIM S, *et al.* Exercise-based rehabilitation for patients with coronary heart disease: systematic review and meta-analysis of randomized controlled trials *American Journal of Medicine* 2004; 116(10): 682–92

CHD – economics of treatment

MARSHALL T AND ROUSE A. Resource implications and health benefits of primary prevention strategies for cardiovascular disease in people aged 30 to 74: mathematical modelling study *British Medical Journal* 2002; 325(7357): 197. Erratum in: *British Medical Journal* 2002; 325(7367): 756

OFMAN JJ, BADAMGARAV E, HENNING JM, *et al.* Does disease management improve clinical and economic outcomes in patients with chronic diseases? A systematic review *American Journal of Medicine* 2004; 117(3): 182–92

CHD – specialised topics

BASS C AND MAYOU R. Chest pain (ABC of Psychological Medicine) *British Medical Journal* 2002; 325(7364): 588–91

CAMBIEN F AND TIRET L. Genetics of cardiovascular diseases: from single mutations to the whole genome *Circulation* 2007; **116(15)**: 1714–24

CHATURVEDI N. Ethnic differences in cardiovascular disease *Heart* 2003; 89(6): 681–6

Heart disease statistics

The best source of these can be downloaded as both PDF and Excel spreadsheet from the British Heart Foundation ‘Heart Stats’ website: www.heartstats.org/homepage.asp.

Heart failure

ARROLL B, DOUGHTY R, ANDERSEN V. Investigation and management of congestive heart failure *British Medical Journal* 2010; **14**: 341, c3657. doi: 10.1136/bmj.c3657

HOLLAND R, BATTERSBY J, HARVEY I, *et al.* Systematic review of multidisciplinary interventions in heart failure *Heart* 2005; **91(7)**: 899–906

PAULUS WJ. Novel strategies in diastolic heart failure *Heart* 2010; **96(14)**: 1147–53

Patient’s perspective

MCALISTER FA, O’CONNOR AM, WELLS G, *et al.* When should hypertension be treated? The different perspectives of Canadian family physicians and patients *Canadian Medical Association Journal* 2000; **163(4)**: 403–8

PATTENDEN J, WATT I, LEWIN RJP, *et al.* Decision making processes in people with symptoms of acute myocardial infarction: qualitative study *British Medical Journal* 2002; 324: 1006

Peripheral vascular disease

BURNS P, GOUGH S, BRADBURY AW. Management of peripheral arterial disease in primary care *British Medical Journal* 2003; **326(7389)**: 584–8

SIMON RW, SIMON-SCHULTHESS A, AMANN-VESTI BR. Intermittent claudication *British Medical Journal* 2007; **334(7596)**: 746. Review. Erratum in: *British Medical Journal* 2007; **334(7598)**

Risk factors for CHD

BECKETT NS, PETERS R, FLETCHER AE, *et al.* Treatment of hypertension in patients 80 years of age or older *New England Journal of*

Medicine 2008; **358**: 1887–98

CAPPUCCIO FP, OAKESHOTT P, STRAZZULLO P, *et al.* Application of Framingham risk estimates to ethnic minorities in United Kingdom and implications for primary prevention of heart disease in general practice: cross sectional population based study *British Medical Journal* 2002; **325(7375)**: 1271. Erratum in: *British Medical Journal* 2003; **327(7420)**: 919

Hippisley-Cox J, Coupland C, Vinogradova Y, *et al.* Predicting cardiovascular risk in England and Wales: prospective derivation and validation of QRISK2 *British Medical Journal* 2008; **336(7659)**: 1475–82

LEWIS DK, ROBINSON J, WILKINSON E. Factors involved in deciding to start preventive treatment: qualitative study of clinicians' and lay people's attitudes *British Medical Journal* 2003; **327(7419)**: 841

SUDLOW CL, MASON G, MAURICE JB, *et al.* Thienopyridine derivatives versus aspirin for preventing stroke and other serious vascular events in high vascular risk patients *Cochrane Database of Systematic Reviews* 2009; **7(4)**: CD001246

TURNBULL F, NEAL B, PFEFFER M, *et al.* Blood Pressure Lowering Treatment Trialists' Collaboration: blood pressure-dependent and independent effects of agents that inhibit the renin–angiotensin system *Journal of Hypertension* 2007; **25(5)**: 951–8. Erratum in: *Journal of Hypertension* 2007; **25(7)**: 1524

Self-management

PARATI G, STERGIU GS, ASMAR R, *et al.* European Society of Hypertension guidelines for blood pressure monitoring at home: a summary report of the Second International Consensus Conference on Home Blood Pressure Monitoring. *Journal of Hypertension* 2008; **26**: 1505–26.

WARSI A, WANG PS, LAVALLEY MP, *et al.* Self-management education programs in chronic disease: a systematic review and methodological critique of the literature *Archives of Internal Medicine* 2004; **164(15)**: 1641–9

Stroke

JOHNSTON SC, ROTHWELL PM, NGUYEN-HUYNH MN, *et al.* Validation and refinement of scores to predict very early stroke risk after transient ischaemic attack *Lancet* 2007; **369(9558)**: 283–92

LEWINGTON S, WHITLOCK G, CLARKE R, *et al.* Prospective Studies Collaboration: blood cholesterol and vascular mortality by age, sex, and blood pressure – a meta-analysis of individual data from 61 prospective studies with 55,000 vascular deaths *Lancet* 2007; **370(9602)**: 1829–39

MANT J, MCMANUS RJ, HARE R. Applicability to primary care of national clinical guidelines on blood pressure lowering for people with stroke: cross sectional study *British Medical Journal* 2006; **332**: 635–7

ROTHWELL PM, GILES MF, CHANDRATHEVA A, *et al.* Effect of urgent treatment of transient ischaemic attack and minor stroke on early recurrent stroke (EXPRESS study): a prospective population-based sequential comparison *Lancet* 2007; **370(9596)**: 1432–42.

Venous thromboembolism

TOVEY C AND WYATT S. Diagnosis, investigation, and management of deep vein thrombosis *British Medical Journal* 2003; **326(7400)**: 1180–4, online, updated yearly

MCMANUS RJ MURRAY E, TAYLOR CJ, *et al.* *Thromboembolism in Clinical Evidence* London: BMJ Publications, 2008

Promoting Learning about Cardiovascular Problems

Work-based learning – in primary care

Primary care is a good place to learn how to manage cardiovascular problems because of the wealth of clinical material presenting. Patients will present various symptoms, at varying stages of the natural history. Critical, professional discourse with a trainer will aid the specialty registrars (GP) in developing heuristics to aid problem-solving. Supervised practice will engender confidence.

In particular, the specialty registrar (GP) should be able to learn about risk factor management and gain experience in the management of cardiovascular problems as they present (acute and chronic) including emergencies. Primary care is also the best place to learn about chronic disease management (angina, post-myocardial infarction (MI), heart failure, stroke, peripheral vascular disease).

Non-work-based learning

Many postgraduate deaneries provide courses on cardiovascular problems. Other providers include universities and the Royal College of General Practitioners.

Work-based learning - in secondary care

Some GP training programmes will contain placements of varying length with cardiologists. The acute setting is the place to learn about the acute management of acute coronary syndrome (ACS), MI, stroke and aortic aneurysms. The specialty registrar will also learn about the invasive management of cardiovascular problems: angioplasty, coronary artery bypass grafts, transplantation, other forms of vascular surgery (carotid endarterectomy, vascular bypass). Outpatient or clinic settings are ideal places for seeing concentrated groups of patients with cardiovascular problems. They provide opportunities to learn about secondary care investigation of cardiovascular problems (exercise tests, radionuclide scans, MRI/CT, carotid dopplers, angiography and echocardiography).

Vocational training programmes should offer the opportunity to attend cardiovascular clinics when working in other hospital posts and should also consider attending specialist clinics during their general practice-based placements.

Learning with other healthcare professionals

Chronic disease management in primary care is a multidisciplinary activity. It is important for the specialty registrar to attend nurse-led cardiovascular disease annual review assessments in practice and gain an understanding of the follow-up of hypertensive patients in the practice's clinics that are often led and delivered by a practice nurse. It is also important to understand the role of district nurses in the assessment and management of leg ulcers or ankle oedema by attending their clinics or home visits. Opportunity should also be taken to observe cardiovascular rehabilitation programmes led by physiotherapists.

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- 3 NICE. *CG18 and CG34 Hypertension (Persistently High Blood Pressure) in Adults – NICE guideline* [original and treatment update] London: National Institute for Health and Clinical Excellence, www.nice.org.uk/Guidance/CG34 [accessed January 2009]
- 4 MCCORMICK A, FLEMING D, CHARLTON J. *Morbidity Statistics from General Practice Fourth National Study 1991–1992* London: Office for National Statistics, www.statistics.gov.uk/downloads/theme_health/MB5No3.pdf [accessed January 2009]
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