

Draft Clinical Standards ~ *February 2009*

# **Prevention and Treatment of Coronary Heart Disease**

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# **1 Introduction to the draft clinical standards for the prevention and treatment of coronary heart disease**

## **Background**

Coronary heart disease (CHD) is the leading cause of death in the UK. It is responsible for approximately one in five deaths in men and one in six deaths in women resulting in over 101,000 deaths every year<sup>1</sup>.

Although death rates from CHD have been falling since the late 1970s, the rate in the UK is still amongst the highest in Western Europe and higher still in Scotland compared to the south of England. Mortality from CHD also varies across Scotland with the highest rates found in the west of Scotland<sup>1</sup>.

In 2000, the Clinical Standards Board for Scotland published the Clinical Standards for Secondary Prevention following Acute Myocardial Infarction<sup>2</sup>. The delivery of these standards was supported by the introduction of the National Strategy for Coronary Heart Disease and Stroke by the Scottish Executive in 2002<sup>3</sup>. The review of this strategy took place in 2004<sup>4</sup> and a further revision was issued for consultation in 2008<sup>5</sup>. Other strategic initiatives have included the establishment of a National Advisory Committee and the development of managed clinical networks (MCNs)<sup>6</sup>.

The ban on smoking in enclosed public spaces in March 2006<sup>7</sup> also represents a landmark strategic initiative targeted at reducing CHD morbidity and mortality.

In 2005, the Scottish Intercollegiate Guidelines Network (SIGN) undertook a major review of its previous CHD related guidelines. This resulted in the simultaneous publication of a set of five guidelines covering primary prevention of cardiovascular disease<sup>8</sup>, stable angina<sup>9</sup>, acute coronary syndromes<sup>10</sup>, chronic heart failure<sup>11</sup> and cardiac arrhythmias<sup>12</sup> in February 2007.

These guidelines, and the cardiac rehabilitation guideline from 2002<sup>13</sup>, are drawn from a contemporary evidence base and so provide an ideal opportunity to create standards of care for CHD relevant to the needs of the patient in the 21<sup>st</sup> century. Following on from this, NHS Quality Improvement Scotland (NHS QIS) is now undertaking a comprehensive programme of work in relation to CHD which includes the development of clinical standards, a national audit programme and the development of clinical indicators. These standards and clinical indicators are linked to the ongoing work of the Scottish Patient Safety Alliance.

## **2 Development of the draft clinical standards for the prevention and treatment of coronary heart disease**

NHS QIS held an initial meeting in May 2008, attended by a wide range of healthcare professionals and patient representatives from each of the CHD MCNs in Scotland, to highlight the areas in which the clinical standards should focus and to discuss key issues in relation to improving quality of care for patients with CHD.

Dr Martin Denvir, Consultant Cardiologist, NHS Lothian was recruited as a clinical advisor to provide clinical expertise and to chair the CHD clinical standards development steering group.

NHS QIS also established three project groups:

- chest pain project group, chaired by Dr Lewis Ritchie, MacKenzie Professor of General Practice at the University of Aberdeen. The extensive remit of this group was further divided into scheduled and unscheduled care subgroups, led by Dr Alan Begg, General Practitioner, Royal College of General Practitioners Scotland (scheduled care) and Dr Stephen Glen, Consultant Cardiologist, NHS Forth Valley (unscheduled care)
- arrhythmias project group, chaired by Dr Andrew Rankin, Professor of Medical Cardiology at Glasgow Royal Infirmary, and
- heart failure project group, chaired by Dr Allan Struthers, Professor of Cardiovascular Medicine and Therapeutics at the University of Dundee.

These project groups comprised patients, representatives from voluntary and charitable organisations linked to CHD and a broad range of NHS staff nominated by the CHD MCNs around Scotland. Appendix 3 sets out the membership of the subgroups and project groups. The clinical standards development steering group comprised the clinical adviser, the chairs of the three project groups, and the two leads of the unscheduled and scheduled care subgroups.

### **Scope of the clinical standards for the prevention and treatment of coronary heart disease**

Each project group was asked to develop clinical standards based on published evidence and best practice that address the whole patient journey and that would ultimately result in improvement in care and experience for patients with CHD and their family/carer.

In addition to the core standards, the project groups developed draft clinical standards for:

- primary prevention of cardiovascular disease
- management of the patient with chest pain in the scheduled care setting
- management of the patient with chest pain (suspected heart attack and acute coronary syndrome) in the unscheduled care setting
- cardiac rehabilitation
- management of the patient with arrhythmias, and
- management of the patient with heart failure.

Although the majority of these draft clinical standards relate to the effective diagnosis, treatment and rehabilitation of confirmed CHD, a draft clinical standard has also been proposed for the primary prevention of cardiovascular disease for those at particularly high risk. In order to give a fuller rationale and explanation for the proposals contained in this particular clinical standard, please see Appendix 4.

### **Cardiac conditions not covered directly within these draft clinical standards**

The following conditions were considered outside the scope of the project:

- inherited cardiac conditions
- adult congenital heart disease
- paediatric heart disease
- adult valvular heart disease
- pericardial disease
- infective endocarditis, and
- diseases of the thoracic aorta.

### **Patient and public involvement**

Patients, patient representatives, carers and the public have been involved and engaged at various stages in the development of these draft clinical standards and in particular in the project groups.

NHS QIS is working very closely with British Heart Foundation Scotland, Chest Heart Stroke Scotland and Arrhythmia Alliance to ensure good engagement of patients, and their family/carer during the consultation on the draft clinical standards. A number of patient-focused consultations will take place in different parts of the country to facilitate this process.

Links were also maintained with the following groups during development of the draft clinical standards:

- British Cardiovascular Society
- Royal College of General Practitioners
- Royal College of Physicians of Edinburgh
- Royal College of Surgeons of Edinburgh
- Royal College of Physicians and Surgeons of Glasgow
- Scottish Branch of the Society of Cardiological Science and Technology
- Scottish Cardiac Society, and
- Scottish Patient Safety Alliance.

### **Who do these draft clinical standards apply to?**

The draft clinical standards are applicable to: all NHS territorial boards with responsibility for delivering CHD services; the State Hospitals Board for Scotland; the National Waiting Times Centre Board; the Scottish Ambulance Service and NHS

24; and all CHD services provided in primary, secondary and tertiary care settings; whether directly provided by an NHS board or secured on behalf of the NHS board.

The following special health boards will not be directly assessed against the final clinical standards, but the development of the clinical standards may have implications for them:

- NHS Education for Scotland
- NHS Health Scotland
- NHS National Services Scotland (in particular Information Services Division), and
- NHS Quality Improvement Scotland.

### **Quality dimensions**

From the outset the project groups were asked to consider the development of standards with reference to the six dimensions of healthcare quality listed in a 2001 Institute of Medicine report titled, Crossing the Quality Chasm<sup>14</sup>.

The six dimensions of healthcare quality are:

- **Safe:** avoiding injuries to patients from the care that is intended to help them
- **Effective:** providing services based on scientific knowledge to all who could benefit, and refraining from providing services to those not likely to benefit
- **Patient-centred:** providing care that is respectful of and responsive to individual patient preferences, needs, values and ensuring that patient values guide all clinical decisions
- **Timely:** reducing waits and sometimes harmful delays for both those who receive and those who give care
- **Efficient:** avoiding waste, including waste of equipment, supplies, ideas, energy, and
- **Equitable:** providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status.

Each criterion within the clinical standards was found to apply to at least one of the above healthcare quality dimensions.

### **Next steps**

These draft clinical standards will undergo a 3-month consultation period with key stakeholders including NHS staff, members of the public, patients and patient organisations.

During the consultation period, NHS QIS will continue to work with members of the project groups and NHSScotland to develop a process by which the clinical standards may be used to assess the performance of NHS boards. The final clinical standards document will be published in late 2009 alongside an implementation plan, which will detail how the clinical standards should be implemented and how NHS QIS, and other organisations within NHSScotland, will support this process. This development reflects the new strategic direction of NHS QIS.

### 3 The consultation process

NHS QIS will use a range of consultation methods during the development of the draft clinical standards:

- wide circulation of the draft clinical standards to relevant professional groups, health service staff, voluntary organisations, patients, carers and members of the public
- open meetings
- public consultation exercises involving distribution of comments forms and/or electronic questionnaires, and
- pilot review visits.

If you would like to know how you can participate in the consultation process, please contact:

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GLASGOW G1 2NP

Phone: 0141 225 5550

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#### Submitting your comments

Responses to these draft clinical standards should be submitted (by post, phone, fax or email) to the above contact details by **Friday 22 May 2009**.

#### Consultation feedback

At the end of the consultation period, all comments will be collated and the project groups will respond to them. The responses to all comments will be available on request from Scott Horton, Project Officer.



## **4 Draft clinical standards for the prevention and treatment of coronary heart disease**

### **Core standards for the prevention and treatment of coronary heart disease**

- Standard 1 Provision of information to patients
  - Standard 2 Communication and multidisciplinary management of patients with coronary heart disease
  - Standard 3 Education and training for staff
- 

### **Primary prevention of cardiovascular disease**

- Standard 4 Primary prevention of cardiovascular disease
- 

### **Management of the patient with chest pain in the scheduled care setting**

- Standard 5 Assessment of chest pain in the scheduled care setting
  - Standard 6 Assessment and management of confirmed coronary heart disease in the scheduled care setting
- 

### **Management of the patient with chest pain (suspected heart attack and acute coronary syndrome) in the unscheduled care setting**

- Standard 7 Assessment and diagnosis of suspected heart attack
  - Standard 8 Initial management and treatment of suspected or confirmed acute coronary syndrome
  - Standard 9 Ongoing management and treatment of acute coronary syndrome
- 

### **Cardiac Rehabilitation**

- Standard 10 Cardiac rehabilitation
- 

### **Management of the patient with arrhythmias**

- Standard 11 Assessment, diagnosis and treatment of arrhythmias
  - Standard 12 Management of atrial fibrillation
  - Standard 13 Management of ventricular arrhythmias
- 

### **Management of the patient with heart failure**

- Standard 14 Diagnosis of heart failure
- Standard 15 Pharmacological treatment for heart failure
- Standard 16 Multidisciplinary service delivery for heart failure
- Standard 17 Implantable devices for heart failure
- Standard 18 Supportive and palliative care for heart failure

## Standard 1: Provision of information to patients

### Standard statement 1

Patients with CHD are provided with information relevant to their needs.

#### Rationale

Good information is essential for the delivery of healthcare by the NHS board.

**References: 15, 16**

#### Essential criterion

1.1	<p>The NHS board ensures the availability of up-to-date information, in a format suitable to the needs of the patient and family/carer. The information explains:</p> <ul style="list-style-type: none"><li>• cardiovascular risk</li><li>• diagnosis</li><li>• test results</li><li>• procedures and their side effects</li><li>• treatments and their side effects, and</li><li>• patient and family/carer support, including psychosocial issues.</li></ul> <p>Specifically, information is available for:</p> <ul style="list-style-type: none"><li>• cardiovascular risk factors</li><li>• high blood pressure</li><li>• angina</li><li>• heart attack</li><li>• cardiac rehabilitation</li><li>• cardiac arrhythmias</li><li>• heart failure</li><li>• cardiomyopathy</li><li>• pacemaker and defibrillator implantation</li><li>• cardiac by-pass surgery</li><li>• coronary angiography</li><li>• percutaneous coronary intervention (PCI), and</li><li>• radiofrequency catheter ablation.</li></ul>
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## Standard 2: Communication and multidisciplinary management of patients with coronary heart disease

### Standard statement 2

Clear arrangements are in place for communication between different healthcare providers and the patient.

#### Rationale

Effective communication systems are essential to ensure prompt diagnosis and management of patients.

Patients with suspected or confirmed CHD need to be reassured that all healthcare professionals involved in their care have clearly agreed roles and responsibilities and communicate well with each other and with them.

**References: 1, 5, 6, 16, 17, 18, 19**

#### Essential criteria

2.1	There is a locally agreed protocol to facilitate clear, open and transparent communication between each member of the multidisciplinary team (MDT) and each member understands their role and responsibility within that team.
2.2	There is a locally agreed protocol in place between primary, secondary and tertiary care to ensure patients with suspected or confirmed CHD receive timely referral (urgent and non-urgent), diagnosis and treatment of their condition.
2.3	There is a documented care plan agreed between the patient and their lead clinician, and the care plan includes information about the patient's diagnosis, treatment and management of their condition.
2.4	The care plan is communicated to the patient, all relevant members of the MDT and, with consent, to the family/carer, all within 5 working days of being agreed.
2.5	There is a mechanism in place to ensure planned discharge for patients admitted to hospital which includes: <ul style="list-style-type: none"> <li>• an immediate printed discharge letter</li> <li>• detailed instructions of what to do if their symptoms worsen</li> <li>• written information explaining and providing education about their condition, activity levels, diet, drugs and/or device therapy, and</li> <li>• a date for a follow-up appointment.</li> </ul>

#### Desirable criteria

2.6	Electronic referral arrangements between primary, secondary and tertiary care are used.
2.7	CHD inpatients have a named nurse responsible for their care, during each inpatient episode.

## Standard 3: Education and training for staff

### Standard statement 3

The NHS board has an action plan to deliver ongoing education and training for staff directly involved in the management of patients with CHD.

#### Rationale

Education and training for staff involved in the management of patients with CHD are central to the drive to reduce morbidity and mortality.

Knowledge and skills are essential to assist staff to deliver the highest possible quality of care.

**References: 20**

#### Essential criteria

3.1	The NHS board has a CHD action plan for education and training which includes: <ul style="list-style-type: none"><li>• identified resources to deliver the action plan</li><li>• a specific induction process for new staff, including mentoring arrangements</li><li>• regular CHD updates of evidence-based practice as part of continuing professional development (CPD) for existing staff, and</li><li>• effective monitoring of uptake of induction and CPD programmes.</li></ul>
3.2	The NHS board has a designated CHD education lead overseeing education and training.
3.3	The NHS board has a system in place for the internal quality assurance of CHD education and training.

## Standard 4: Primary prevention of cardiovascular disease

### Standard statement 4

GPs and primary care teams identify individuals without confirmed cardiovascular disease (CVD) at high risk of developing CVD and offer them assessment, advice and treatment to reduce their risk of a cardiovascular event.

#### Rationale

CVD is a major cause of morbidity and mortality in Scotland. Identifying those individuals in high priority groups, assessing their CVD risk and offering advice and treatment can reduce their risk of a CVD event. See also Appendix 4 for further clarification.

**References: 8, 21, 22, 23, 24, 25, 26, 27**

#### Essential criteria

4.1	Patients with hypertension and without confirmed CVD are offered CVD risk assessment as defined in the Quality and Outcomes Framework (QOF).
4.2	Individuals with a first degree relative with premature CVD are identified and offered CVD risk assessment.
4.3	Individuals with a first degree relative with familial hypercholesterolaemia (FH) are identified and offered CVD risk assessment.
4.4	GPs, and other members of the primary care teams, assess CVD risk in high priority groups using the ASSIGN risk assessment tool (or a Framingham- based alternative).
4.5	Following assessment of CVD risk, individuals identified at high risk have a management plan implemented in line with current national guidelines.
4.6	Patients already known to be at high risk with a personal history of diabetes (aged 40 and over) or FH (at any age) have a management plan implemented in line with current national guidelines.
4.7	Patients identified as high risk, as a minimum, have an annual risk factor monitoring review in general practice (more frequent monitoring may be indicated on the basis of specific management requirements).
4.8	Patients in high priority groups identified as not at high risk have a repeat CVD risk assessment every 5 years.

## Standard 5: Assessment of chest pain in the scheduled care setting

### Standard statement 5

Patients presenting with chest pain and/or symptoms suggestive of underlying CHD are assessed and referred for confirmation of diagnosis and appropriate further investigation.

#### Rationale

Prompt assessment, confirmation of diagnosis and treatment improves symptoms, outcomes and reduces anxiety for the patient.

**References: 9, 10, 21, 28, 29**

#### Essential criteria

5.1	Patients with chest pain or symptoms suggestive of underlying CHD presenting to primary care have a clinical assessment, examination and a past medical and family history taken.
5.2	Initial investigations including haemoglobin, cholesterol, blood glucose, renal and thyroid function tests are performed prior to identifying a management plan for the patient presenting with chest pain suggestive of angina.
5.3	An electrocardiogram (ECG) is performed and the results are interpreted by a trained member of staff.
5.4	Patients with new onset symptoms of chest pain, suggestive of underlying CHD, are seen by a chest pain evaluation service within 5 working days of referral from primary care.

## Standard 6: Assessment and management of confirmed coronary heart disease in the scheduled care setting

### Standard statement 6

Patients with a confirmed diagnosis of CHD have further assessment and continuing management of their condition.

#### Rationale

The management of symptoms is essential in improving the quality of life of the patient with CHD.

Drug therapy, or in more severe cases, invasive investigations and interventions, can be performed to manage symptoms and improve outcomes.

Lifestyle changes are an essential component of risk factor management in patients with CHD.

**References: 9, 10, 21**

#### Essential criteria

6.1	Patients with confirmed CHD receive optimal drug therapy as part of management of their condition, unless contraindicated.
6.2	Patients with confirmed CHD are offered information and advice about lifestyle changes and management including exercise and the importance of drug therapy adherence.
6.3	Coronary angiography is available to patients with suspected or confirmed CHD as clinically indicated.
6.4	Patients with continuing chest pain or other associated symptoms are assessed for coronary revascularisation.
6.5	Patients with confirmed CHD, who experience a worsening of angina, are referred to cardiology services.

## Standard 7: Assessment and diagnosis of suspected heart attack

### Standard statement 7

Patients who have symptoms of suspected heart attack are seen urgently by recognised emergency care services.

#### Rationale

Rapid assessment and accurate diagnosis lead to prompt treatment and better outcomes.

References: 9, 10, 21

#### Essential criteria

7.1	Patients contacting a general practice, the Scottish Ambulance Service or NHS 24 with symptoms of suspected heart attack are seen by an emergency care provider within the current national targets for ambulance response times.
7.2	Patients are assessed by a trained member of staff with equipment to initiate management as required. This includes cardiopulmonary resuscitation and access to: <ul style="list-style-type: none"><li>• defibrillation equipment</li><li>• aspirin</li><li>• clopidogrel</li><li>• heparin, and</li><li>• thrombolysis.</li></ul>
7.3	Patients with a suspected heart attack, in the pre-hospital setting, have an ECG performed and reported by a trained member of staff, within 30 minutes of the call for help.
7.4	Patients, presenting with a suspected heart attack in a hospital setting, have an ECG performed and reported by a trained member of staff, within 10 minutes of presentation.

## Standard 8: Initial management and treatment of suspected or confirmed acute coronary syndrome

### Standard statement 8

Patients with a suspected or confirmed acute coronary syndrome (ACS) have effective assessment, management and treatment of their condition.

#### Rationale

The effective management of patients with a suspected or confirmed ACS requires timely assessment, diagnosis and treatment to manage symptoms and improve outcomes.

**References: 9, 10, 30**

#### Essential criteria

8.1	Patients with a suspected or confirmed ACS receive 300mg aspirin immediately, unless contraindicated.
8.2	Patients diagnosed with ST elevation ACS receive optimal reperfusion therapy (thrombolysis or percutaneous coronary intervention), unless contraindicated.
8.3	The 'call to balloon' time is 120 minutes or less for patients with ST elevation ACS treated with primary percutaneous coronary intervention.
8.4	The 'call to needle' time is 60 minutes or less for patients with ST elevation ACS treated with thrombolysis.
8.5	The 'diagnostic ECG to balloon' time is 90 minutes or less for patients presenting directly to hospital with ST elevation ACS treated with primary percutaneous coronary intervention.
8.6	The 'diagnostic ECG to needle' time is 30 minutes or less for patients presenting directly to hospital with ST elevation ACS treated with thrombolysis.
8.7	Patients with a suspected ACS, with no ST elevation identified by ECG, are transported immediately to a hospital for further assessment where trained staff are available to manage acute chest pain.
8.8	Patients with a suspected ACS receive troponin testing on admission and 12 hours after onset of symptoms.
8.9	Patients with a confirmed ACS are managed by a cardiac specialist team using a multidisciplinary approach.
8.10	Formal risk stratification for recurrent events is performed and a decision is made and documented in the patient's case records regarding a medical or revascularisation strategy.

8.11	Patients at medium to high risk of recurrent events are offered an invasive strategy within 72 hours of diagnosis.
8.12	High risk non ST elevation ACS patients, identified for invasive treatment, are treated with an intravenous glycoprotein IIb/IIIa receptor antagonist, unless contraindicated.

## Standard 9: Ongoing management and treatment of acute coronary syndrome

### Standard statement 9

Patients with confirmed ACS are offered secondary prevention measures.

#### Rationale

Pharmacological interventions can reduce symptoms and improve outcomes.

References: 9, 10

#### Essential criteria

9.1	Patients with a confirmed myocardial infarction (MI) have an assessment of left ventricular function prior to discharge, and the results are recorded.
9.2	Patients with confirmed ACS are treated with anticoagulant therapy (low-molecular-weight heparin [LMWH] or fondaparinux) according to national guidelines.
9.3	Patients with confirmed ACS with blood glucose >11 mmol/L have immediate intensive blood glucose control for at least 24 hours.
9.4	Patients with confirmed ACS receive the following treatment, unless contraindicated: <ul style="list-style-type: none"> <li>• aspirin</li> <li>• clopidogrel</li> <li>• beta blocker</li> <li>• statin therapy</li> <li>• angiotensin converting enzyme inhibitor (ACEI) or angiotensin receptor blocker (ARB) therapy is started within 36 hours of admission, and</li> <li>• GTN spray.</li> </ul>
9.5	Patients with a myocardial infarction complicated by left ventricular dysfunction (ejection fraction <0.40), in the presence of either clinical signs of heart failure or diabetes mellitus, are commenced on long-term eplerenone therapy.
9.6	Patients with confirmed ACS are assessed by their local cardiac rehabilitation team during their hospital admission.
9.7	Patients with confirmed ACS have discharge planning (see Criterion 2.5), in conjunction with the MDT.

## Standard 10: Cardiac rehabilitation

### Standard statement 10

Patients with specified CHD are assessed for a menu-based cardiac rehabilitation programme and structured long-term follow-up.

#### Rationale

There is evidence that cardiac rehabilitation and structured long-term follow-up will significantly improve clinical outcomes associated with secondary prevention, medical risk factor modification, health behaviour change, morbidity and mortality in patients with CHD.

**References: 13, 31**

#### Essential criteria

10.1	<p>Patients with the following CHD conditions and/or have undergone specified procedures, who are assessed and identified as requiring cardiac rehabilitation, at the time of diagnosis or procedure, are offered a menu-based programme:</p> <ul style="list-style-type: none"><li>• acute coronary syndrome as defined in SIGN 93 guideline</li><li>• coronary by-pass surgery (elective and urgent)</li><li>• percutaneous coronary intervention (elective and urgent)</li><li>• patients with new onset or worsening angina to whom none of the above applies, and</li><li>• heart valve surgery.</li></ul> <p>The key elements of a menu-based cardiac rehabilitation programme are:</p> <ul style="list-style-type: none"><li>• an exercise programme including risk stratification and functional assessment with access to a long-term exercise programme</li><li>• formal assessment for anxiety and depression</li><li>• psychological and educational interventions targeted at the needs of individual patients</li><li>• health behaviour change including smoking cessation and dietary advice</li><li>• access to staff with specialist training in techniques such as cognitive behaviour therapy and motivational interviewing, and</li><li>• delivery using established principles of adult education and health behaviour change.</li></ul>
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10.2	<p>Patients with specified CHD conditions and/or have undergone specified procedures (see groups above), who have been assessed and identified as requiring cardiac rehabilitation have structured long-term follow-up, including:</p> <ul style="list-style-type: none"> <li>• review within 3 months of hospital discharge/diagnosis to ensure optimal therapy has been initiated and risk factors are being addressed, and</li> <li>• annual review in general practice includes (as a minimum): <ul style="list-style-type: none"> <li>- monitoring of symptoms and assessment of quality of life</li> <li>- optimisation of medical therapy</li> <li>- blood chemistry tests</li> <li>- reinforcement of lifestyle changes and referral for specialist support (eg smoking cessation), and</li> <li>- inclusion on the CHD register in their GP practice.</li> </ul> </li> </ul>
10.3	<p>The cardiac rehabilitation programme is initiated, in discussion between the patient and their healthcare professional and, where possible, with the patient's family/carer when patient consent is given.</p>
<b>Desirable criterion</b>	
10.4	<p>A cardiac rehabilitation programme and structured long-term follow-up is also considered for patients with the following diagnoses:</p> <ul style="list-style-type: none"> <li>• chronic stable angina</li> <li>• implantable cardioverter defibrillator (ICD) patients</li> <li>• heart transplant patients, and</li> <li>• chronic heart failure (see also Criterion 16.5).</li> </ul>

## Standard 11: Assessment, diagnosis and treatment of arrhythmias

### Standard statement 11

Patients with arrhythmias (suspected, proven or those at high risk from arrhythmias) receive timely assessment, diagnosis, treatment and referral, according to clinical need.

#### Rationale

Cardiac arrhythmias are a common cause of morbidity and mortality. They occur in patients with, and without, CHD. Prompt assessment, accurate diagnosis and appropriate treatment can improve morbidity and mortality caused by arrhythmias.

**References: 12, 32, 33, 34, 35, 36, 37**

#### Essential criteria

11.1	The NHS board has a structured care pathway for patients with arrhythmias (suspected, proven or those at high risk of arrhythmias).
11.2	Patients presenting with arrhythmias (suspected, proven or those at high risk of arrhythmias) have an ECG within 3 working days which is recorded and reported by a trained member of staff.
11.3	Patients presenting with arrhythmias (suspected, proven or those at high risk of arrhythmias) have a preliminary diagnosis and a treatment plan commenced within 6–8 weeks of initial presentation.  (Time to assessment will allow procedural treatments to be carried out within current national waiting times target.)
11.4	Patients on amiodarone are informed about and monitored for adverse effects, including increasing breathlessness, and have liver and thyroid function tests every 6 months.
11.5	Patients with supraventricular tachycardia (SVT) are referred to a specialist/cardiologist for consideration of ablation therapy.
11.6	Patients at risk of and diagnosed with hereditary arrhythmias syndromes are referred to a cardiology specialist who is part of the Familial Arrhythmias Network of Scotland (FANS).

## Standard 12: Management of atrial fibrillation

### Standard statement 12

Patients with atrial fibrillation or atrial flutter are diagnosed, assessed and treated according to individual need.

#### Rationale

The assessment and management of atrial fibrillation and atrial flutter are similar in most respects. Throughout these standards, the abbreviation AF refers to both atrial fibrillation and atrial flutter unless otherwise specified.

Atrial fibrillation is the most common arrhythmia. It may be associated with symptoms, but may also be asymptomatic. It is associated with increased morbidity and mortality. Prompt diagnosis and treatment of AF can improve the quality of life and health of patients, by improving cardiac function and reducing the risk of stroke.

**References: 12, 35, 36, 37, 38, 39**

#### Essential criteria

12.1	Patients with AF (paroxysmal, persistent or permanent) are prescribed anti-thrombotic drugs, unless contraindicated, following a stroke risk assessment using a recognised risk assessment tool (eg NICE 36 stroke risk stratification algorithm or CHADS2).
12.2	When patients are in a moderate to high risk group and warfarin is not prescribed, the reason for this is documented and explained to the patient.
12.3	Patients with persistent AF are assessed for their suitability for either a rate control or rhythm control strategy and those selected for rhythm control with direct current cardioversion, are treated within current waiting times target.
12.4	Patients with newly diagnosed, or with new onset AF, are investigated for underlying causes (eg hypertension, structural heart disease, thyrotoxicosis).
12.5	Patients with persistent AF have an assessment of rate control and treatment is modified in accordance with national or international guidelines.
12.6	Patients with AF, who are symptomatic despite optimal tolerated medical therapy, are assessed by a specialist/cardiologist, and where necessary, referred to a heart rhythm specialist.
12.7	Patients whose main arrhythmias are AF are considered for referral to a heart rhythm specialist for ablation therapy.

## Standard 13: Management of ventricular arrhythmias

### Standard statement 13

Patients who have survived cardiac arrest, or have had life-threatening ventricular arrhythmia, or are at high risk of sudden death, are assessed and considered for optimal therapy.

#### Rationale

Evidence shows that patients surviving life threatening arrhythmia, or identified as at high risk, have improved survival following ICD implantation, except within 1 month of an acute MI.

**References: 12, 34, 36, 40, 41, 42, 43, 44**

#### Essential criteria

13.1	Patients who have survived cardiac arrest (ventricular tachycardia [VT] or ventricular fibrillation [VF]), life-threatening ventricular arrhythmia or are at high risk of sudden cardiac death are referred to a specialist/cardiologist for assessment and treatment of underlying heart disease (eg drug therapy, revascularisation).
13.2	<p>In the absence of acute ischaemia or treatable cause, patients surviving:</p> <ul style="list-style-type: none"> <li>• cardiac arrest (VT or VF)</li> <li>• VT with syncope or haemodynamic compromise, and</li> <li>• VT without syncope if left ventricle ejection fraction (LVEF) &lt;0.35 (not New York Heart Association [NYHA] IV).</li> </ul> <p>are assessed for ICD implantation and this is clearly documented in the patient's case record.</p>
13.3	Patients identified as requiring an ICD for secondary prevention have this implanted within 10 working days and prior to hospital discharge.
13.4	Patients with VT who do not fulfil the criteria for ICD implantation are referred to a specialist/cardiologist for further assessment and management.
13.5	<p>Patients with moderate to severe left ventricular systolic dysfunction (LVSD) (eg ejection fraction &lt;0.35) at least 1 month after MI, are referred to a specialist/cardiologist for consideration of ICD implantation and this process is clearly documented in the patient's case record.</p> <p>Priority is given to those with high risk features, which include:</p> <ul style="list-style-type: none"> <li>• severely impaired ejection fraction (&lt;0.25)</li> <li>• spontaneous non-sustained VT, and</li> <li>• prolonged QRS complex duration (&gt;120ms).</li> </ul>

13.6	Patients, who have had an ICD implanted, receive regular device follow-up by a trained member of staff, at least 6 monthly.
13.7	Patients who have survived cardiac arrest, or have had life-threatening ventricular arrhythmias, or are at high risk of sudden death, are screened for anxiety and depression (using the Hospital Anxiety and Depression Scale [HADS] or Patient Health Questionnaire number 9 [PHQ-9]).
13.8	Patients, who survive cardiac arrest, have their cognitive function assessed.
13.9	Patients assessed who have significant problems with depression, anxiety and or memory loss, are referred to psychological services for further assessment and treatment.

## Standard 14: Diagnosis of heart failure

### Standard statement 14

Patients with suspected heart failure receive a diagnosis of heart failure and its cause, based on symptoms, signs and investigations.

#### Rationale

A prompt diagnosis based on reliable and available investigations with expert interpretation ensures prompt treatment. This is important since the death rate in new heart failure is 19% in the first month, 25% in the first 3 months, 30% at 6 months, 38% at 12 months and 43% at 18 months.

Brain natriuretic peptide (BNP) normal ranges are worked out locally to account for regional variations.

**References: 11, 45, 46, 47, 48, 49, 50, 51**

#### Essential criteria

14.1	Patients with suspected heart failure have an assessment, including history and physical examination, at the time of presentation and an ECG or BNP carried out within 3 working days of presentation with the findings being interpreted by a trained member of staff.
14.2	Patients presenting in primary care settings with suspected heart failure and an abnormal ECG or BNP, have an echocardiogram carried out within 14 working days of referral.
14.3	Patients admitted to hospital with suspected heart failure have an ECG carried out within 24 hours, and if abnormal or clinically indicated have an echocardiogram performed within 2 working days or prior to discharge (if discharge before 2 days).
14.4	The result of the echocardiogram is communicated and explained to the patient.
14.5	The result of the echocardiogram is communicated promptly to the patient's GP in an understandable format.
14.6	Patient with heart failure symptoms and signs and where the echocardiogram report transcript indicates preserved systolic function are referred to a heart failure specialist/cardiologist.
14.7	Heart failure patients with potentially reversible causes of their heart failure (eg ischaemia, valve disease) are referred to a heart failure specialist/cardiologist.

## Standard 15: Pharmacological treatment for heart failure

### Standard statement 15

Patients with LVSD are commenced on medication to reduce symptoms and improve prognosis, unless contraindicated.

#### Rationale

A number of large multi-centre trials have shown that pharmacological therapy significantly improves prognosis and symptom control in patients with heart failure due to LVSD.

**References: 11, 48**

#### Essential criteria

15.1	Patients have a review of current medication before starting any new drug.
15.2	Patients receive diuretics at a dose that controls fluid retention and/or symptoms.
15.3	Patients receive the optimal dose of ACEI tolerated, unless contraindicated.
15.4	Patients intolerant of an ACEI, because of a cough, receive an ARB.
15.5	Patients receive the optimal tolerated dose of beta blocker, unless contraindicated.
15.6	Patients who are still symptomatic despite first line treatment (eg diuretic, ACEI, beta blocker) are referred to an MDT team of healthcare specialists in heart failure including heart failure specialists/cardiologists, nurses and pharmacists.
15.7	Patients with persistent NYHA III heart failure and have been NYHA IV in the last 6 months receive spironolactone, unless contraindicated or not tolerated.
15.8	Where patients have contraindications to any of the evidence-based therapies, these are recorded and reviewed annually.
15.9	Patients with severe heart failure despite optimal tolerated medication, without significant co-morbidities, are referred to the Scottish Advanced Heart Failure Service.

15.10	<p>Patients have an annual review which includes reassessment of all medications and dosage.</p> <p>The annual review includes:</p> <ul style="list-style-type: none"><li>• vaccination status</li><li>• re-evaluation of NYHA status. If there is a change in symptomatic status to III and IV, an ECG performed to monitor QRS duration</li><li>• changes in contraindication status, and</li><li>• concurrent illnesses.</li></ul>
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## Standard 16: Multidisciplinary service delivery for heart failure

### Standard statement 16

Patients with heart failure due to LVSD, who were previously hospitalised, have access to a multi disciplinary team.

#### Rationale

Access to a multi disciplinary team of healthcare specialists in heart failure including heart failure specialists/cardiologists, nurses and pharmacists can produce better outcomes than generalist services.

References: 11

#### Essential criteria

16.1	Patients with heart failure due to LVSD who have previously been hospitalised have access to a multi disciplinary team of healthcare specialists in heart failure including a heart failure specialist/cardiologist, a heart failure nurse and a pharmacist.
16.2	Ongoing management of stable heart failure patients is carried out in the community by the primary care team, with access to specialist support according to identified needs.
16.3	Patients who have had decompensated heart failure due to LVSD have access to a specialist heart failure nurse.
16.4	Patients and their family/carer are offered a package of information to support the self-management of their condition.
16.5	Stable heart failure patients, who are in NYHA II–IV, are offered enrolment to a supervised exercise training programme.

## Standard 17: Implantable devices for heart failure

### Standard statement 17

Patients with LVSD who may benefit from cardiac resynchronisation therapy (CRT) and or Implantable cardioverter defibrillator (ICD) are offered these therapies.

#### Rationale

Selected LVSD patients receive a mortality benefit from CRT and/or ICD

References: 11, 46

#### Essential criteria

17.1	Patients meeting the following criteria are assessed for CRT: <ul style="list-style-type: none"><li>• QRS &gt;120ms</li><li>• NYHA III–IV</li><li>• LVEF&lt;35%, and</li><li>• already receiving optimal therapy.</li></ul>
17.2	Patients meeting the following criteria, 1 month or more after acute MI, are assessed for ICD: <ul style="list-style-type: none"><li>• NYHA II-III</li><li>• receiving optimum therapy</li><li>• expected survival &gt;1 year</li><li>• low LVEF (&lt;35%), and</li></ul> <p>for patients who are survivors of VF or haemodynamically unstable VT refer to Criterion 13.2.</p>
17.3	Cardiac resynchronisation therapy-defibrillator (CRT-D) is offered to patients who fulfil criteria for both CRT and ICD.

## Standard 18: Supportive and palliative care for heart failure

### Standard statement 18

Patients who remain symptomatic despite optimal treatment/maximum tolerated therapy, are identified and offered supportive and palliative care approach.

#### Rationale

Patients who are seriously ill or approaching the end of life have physical, psychological, social and religious/spiritual needs, and benefit from supportive and palliative care.

A joined up, consistent approach improves quality of life for the patient and family/carer.

**References: 11, 52, 53**

#### Essential criteria

18.1	Patients in need of supportive and palliative care are identified in all settings using the Gold Standards Framework (GSF) criteria.
18.2	The NHS board ensures there is a register of heart failure patients who require supportive and palliative care.
18.3	Heart failure patients on the palliative care register are assessed by a trained member of staff using a multidimensional assessment in line with guidance in the GSF.
18.4	An individual palliative care plan is developed for heart failure patients on the palliative care register covering multidimensional aspects (eg resuscitation preference, preferred place of death and information regarding family/carer).
18.5	An individual palliative care plan is documented in the patient's emergency care summary.
18.6	Supportive and palliative care for heart failure patients are delivered in a cohesive and co-ordinated way across the NHS board.



## **5 Appendices**

**Appendix 1 About NHS Quality Improvement Scotland**

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**Appendix 2 Development of NHS Quality Improvement Scotland standards**

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**Appendix 3 Membership of the draft clinical standards for the prevention and treatment of coronary heart disease project groups**

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**Appendix 4 Developing a standard for the primary prevention of cardiovascular disease**

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**Appendix 5 Pathway for the patient with chest pain in the scheduled care setting**

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**Appendix 6 Pathway for the patient with chest pain in the unscheduled care setting**

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**Appendix 8 Pathway for the management of the patient with heart failure**

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**Appendix 9 Evidence base**

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**Appendix 10 Glossary**

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## Appendix 1: About NHS Quality Improvement Scotland

NHS QIS' vision is of an NHS that achieves excellence in the care of every patient every time. We lead on the use of knowledge to promote improvement in the quality of healthcare for the people of Scotland and perform three key functions:

- providing advice and guidance on effective clinical practice, including setting standards
- driving and supporting implementation of improvements in quality, and
- assessing the performance of the NHS, reporting and publishing the findings.

Within this remit we also have central responsibility for patient safety and clinical governance across NHSScotland.

NHS QIS has four corporate objectives:

- **improving quality** – to lead advances in the quality of care in NHSScotland based on a continually refreshed framework for quality improvement.
- **making an impact** – to make a demonstrable impact on the quality and safety of patient care and treatment.
- **sharing the knowledge** – to contribute to the advancement of knowledge and understanding on quality improvement.
- **working effectively** – to ensure NHS QIS delivers its functions effectively and efficiently.

Further information about NHS QIS is available at [www.nhshealthquality.org](http://www.nhshealthquality.org) or directly by using the contact information given on page 7 of these draft clinical standards.

## Appendix 2: Development of NHS Quality Improvement Scotland standards

### Basic principles

A major part of the remit of NHS QIS is to develop and run a national system of quality assurance of clinical services. Working in partnership with healthcare professionals and members of the public, NHS QIS sets standards for clinical services, assesses performance throughout NHS Scotland against these standards, and publishes the findings. The standards are based on the patient's journey as he or she moves through different parts of the health service.

In fulfilling its responsibility to develop and run a system of quality assurance, NHS QIS takes account of the principles set out in Fair for All and Partnership for Care, to ensure that 'our health services recognise and respond sensitively to the individual needs, background and circumstances of people's lives'. Therefore NHS QIS endeavours to ensure that consideration of equality and diversity issues feature prominently in the design, development and delivery of all its functions and policies.

NHS QIS standards are developed in accordance with the commitments of the National Health Service Reform (Scotland) Act (2004) which state that 'individual patients receive the service they need in the way most appropriate to their personal circumstances and all policy and service developments are shown not to disadvantage any of the people they serve'.

### Format of NHS QIS standards and definition of terminology

NHS QIS standards are designed to be clear and measurable, based on appropriate evidence, and written to take into account other recognised standards and clinical guidelines. All NHS QIS standards follow the same format.

- Each standard has a **title**, which summarises the area on which that standard focuses.
- This is followed by the **standard statement**, which explains the level of performance to be achieved.
- The **rationale** section provides the reasons why the standard is considered to be important.
- The standard statement is expanded in the section headed **criteria**, which states exactly what must be achieved for the standard to be reached. Some criteria are **essential**, in that it is expected that they will be met wherever a service is provided. Other criteria are **desirable** in that they are being met in some parts of the service, and demonstrate levels of quality, which other providers of a similar service should strive to achieve. The criteria are numbered for the sole reason of making the document easier to work with, particularly for the assessment process. The numbering of the criteria is not a reflection of priority.

### Clinical governance and risk management standards

Every individual using healthcare services should expect these to be safe and effective. There are existing NHS QIS standards for clinical governance and risk management to ensure NHS boards can provide assurance that clinical governance

and risk management arrangements are in place, and that they are supporting the delivery of safe, effective, patient-focused care and services. The clinical governance and risk management standards underpin all care and services delivered by NHSScotland and provide the context within which NHS QIS service and condition-specific standards apply. They should be read in conjunction with these prevention and treatment of coronary heart disease standards. The clinical governance and risk management standards are available on request from NHS QIS or can be downloaded from the website ([www.nhshealthquality.org](http://www.nhshealthquality.org)).

### **Assessment of performance against the standards**

We are currently looking at developing our methods of performance assessment for the prevention and treatment of coronary heart disease standards. We intend to assess services against the final standards in an innovative way that is both non-burdensome and meaningful for NHS boards. We will do further work on this during the consultation period but would welcome any comments or views. Please send your comments using the contact details provided on page 7 of these draft clinical standards.

### **Appendix 3: Membership of the draft clinical standards for the prevention and treatment of coronary heart disease project groups**

#### **Chest pain in the scheduled care setting subgroup**

<b>Name</b>	<b>Title</b>	<b>NHS board area/organisation</b>
Professor Lewis Ritchie (Chair of project group)	MacKenzie Professor of General Practice	University of Aberdeen
Dr Alan Begg (Subgroup lead)	General Practitioner	Royal College of General Practitioners Scotland
Mrs Linda Callan	CHD Lead Nurse	NHS Lanarkshire
Mr Andy Carver	Prevention and Care Advisor	British Heart Foundation Scotland
Mr Dominic Dale	Patient/Carer/Public Involvement Group	NHS Lanarkshire
Mr Greg Fearn	CHD MCN Manager	NHS Fife
Dr Iain Findlay	Consultant Cardiologist	NHS Greater Glasgow and Clyde
Miss Jane Johnston	Patient/Carer/Public Involvement Group	NHS Lanarkshire
Mrs Catriona MacGregor	Head of Clinical Physiology	NHS Ayrshire & Arran
Mrs Fiona Reid	Pharmacist	NHS Lothian
Miss Joanna Toohey	Cardiology Nurse Specialist	NHS Dumfries & Galloway

#### **Chest pain in the unscheduled care setting subgroup**

<b>Name</b>	<b>Title</b>	<b>NHS board area/organisation</b>
Professor Lewis Ritchie (Chair of project group)	MacKenzie Professor of General Practice	University of Aberdeen
Dr Stephen Glen (Subgroup lead)	Consultant Cardiologist	NHS Forth Valley
Mrs Kate Black	Specialist Physiotherapist	NHS Lothian
Dr Stephen Cross	Consultant Cardiologist	NHS Highland

Ms Jane Dalrymple	CHD MCN Co-ordinator	NHS Lothian
Dr Ahmed Elwasseif	Consultant Cardiologist	NHS Ayrshire & Arran
Dr Ian Gordon	Clinical Director – East Dunbartonshire CHP	NHS Greater Glasgow and Clyde
Dr Kevin Jennings	Consultant Cardiologist	Royal College of Physicians of Edinburgh
Mr Derek Louttit	Area Service Manager	Scottish Ambulance Service
Dr Paul MacIntyre	Consultant Physician and Cardiologist	NHS Greater Glasgow and Clyde
Mr Michael McNulty	Patient Representative	NHS Lothian
Mrs Catherine Mondoia	Consultant Nurse - Cardiology	NHS Forth Valley
Mr Ford Paterson	Patient Representative	NHS Lothian
Mr Dennis Sandeman	Chest Pain Nurse Specialist	NHS Fife
Dr Rani Sinnak	Consultant Clinical Neuro/Health Psychologist	NHS Ayrshire & Arran
Dr Neal Uren	Consultant Cardiologist	British Cardiovascular Society
Mr Vipin Zamvar	Consultant Cardiothoracic Surgeon	NHS Lothian

### **Arrhythmias project group**

<b>Name</b>	<b>Title</b>	<b>NHS board area/organisation</b>
Professor Andrew Rankin (Chair of project group)	Professor of Medical Cardiology	University of Glasgow
Dr Alison Bramley	CHD MCN Manager	NHS Lothian
Mrs Denise Brown	Manager Heart and Stroke MCN	NHS Ayrshire & Arran
Dr Anna Maria Choy	Senior Clinical Lecturer and Consultant Cardiologist	University of Dundee
Dr Derek Connelly	Consultant Cardiologist	Arrhythmia Alliance
Miss Sarah-Anne Corney	Cardiac Physiology Service Manager	NHS Greater Glasgow and Clyde

Miss Brenda Cottam	Community Resuscitation Co-ordinator	British Heart Foundation Scotland
Dr Martin Denvir	Clinical Advisor	NHS Quality Improvement Scotland
Ms Diane Devenney	Lead Cardiac Specialist Nurse/ Lead Clinician CHD MCN	NHS Borders
Dr Frank Dunn	Vice President (Medical)	Royal College of Physicians and Surgeons of Glasgow
Mr Alan Foster	Heart Disease MCN Co-ordinator	NHS Greater Glasgow and Clyde
Dr John Gemmill	Consultant Physician	NHS Ayrshire & Arran
Dr Neil Grubb	Consultant Cardiologist	NHS Lothian
Ms Karen Hunter	Primary Care Nurse/CHD Lead Nurse	NHS Lanarkshire
Mrs Adele Lewis	Cardiac Rhythm Management Nurse Practitioner	NHS Grampian
Miss Joan Mackintosh	Senior Clinical Pharmacist – Medical Directorate	NHS Highland
Miss Morag Maillie	Clinical Development Officer – CHD MCN	NHS Fife
Mrs Hazel Moss	Patient Representative	Arrhythmia Alliance
Dr Morag Osborne	Consultant Clinical Psychologist	NHS Greater Glasgow and Clyde
Miss Christine Proudfoot	Cardiac Rehabilitation Physiotherapist	NHS Lanarkshire
Mrs Janet Reid	Lead Heart Failure Nurse	NHS Lothian
Dr David Rigby	GP Locum	NHS Western Isles
Dr Karen Smith	Nurse Consultant Cardiology	NHS Tayside
Mr George Stewart	Patient Representative – MCN (Heart)	NHS Greater Glasgow and Clyde
Dr Graeme Tait	Consultant Cardiologist and Physician	NHS Dumfries & Galloway

## Heart failure project group

Name	Title	NHS board area/ organisation
Professor Allan Struthers (Chair of project group)	Professor of Cardiovascular Medicine	University of Dundee
Mrs Lynda Blue	Nurse Project Manager	British Heart Foundation Scotland
Dr Allan Bridges	Consultant Cardiologist	NHS Forth Valley
Ms Maureen Carroll	CHD & Respiratory MCN Network Manager	NHS Lanarkshire
Dr Leslie Cruickshank	Falkirk CHP Clinical Lead/ CHD MCN Clinical Lead	NHS Forth Valley
Dr Martin Denvir	Clinical Advisor	NHS Quality Improvement Scotland
Mr Paul Forsyth	Heart Failure Pharmacist (Primary Care)	NHS Greater Glasgow and Clyde
Dr Mark Francis	Consultant Cardiologist	NHS Fife
Dr Kerry-Jane Hogg	Consultant Cardiologist	NHS Greater Glasgow and Clyde
Miss Marie Hurson	Cardiac Nurse Specialist	NHS Shetland
Miss Mary Kerr	Cardiology Service Manager	NHS Lanarkshire
Mrs Amanda Manson	Heart Failure Specialist Nurse	NHS Orkney
Ms Janet McKay	Consultant Nurse	NHS Ayrshire & Arran
Professor Scott Murray	St Columba's Hospice Chair of Primary Palliative Care	University of Edinburgh
Mrs Lesley O'Brien	Senior I Physiotherapist – Cardiac Rehabilitation	NHS Lanarkshire
Mr Sai Prasad	Consultant Cardiac Surgeon	NHS Lothian
Mr George Selkirk	Patient Representative	NHS Lothian
Ms Amanda Smith	Lead Heart Failure Nurse	NHS Highland
Mr Wilson Smith	Patient/Carer/Public Involvement Group	NHS Lanarkshire

Dr John Stout	MCN Clinical Lead	NHS Grampian
Mr Peter Thomson	Chair/Secretary	Heartbeat Edinburgh
Dr Deborah Tinson	Clinical Psychologist	NHS Lothian

Support from NHS QIS was provided by the Standards Development Unit: Ms Katy Bullock (Project Officer to October 2008), Mrs Anne Coote (Project Administrator), Ms Hilary Davison (Acting Director of Guidance and Standards), Ms Clare Echlin (Acting Head of Standards Development), Miss Louise Fitzpatrick (Project Officer to November 2008), Mr Scott Horton (Project Officer from November 2008), Mr Prince Obike (Programme Manager) and Mr Jim Smith (Project Officer from November 2008), and by the Performance Assessment Unit: Ms Sharon Keane (Programme Manager).

## **Appendix 4: Developing a standard for the primary prevention of cardiovascular disease**

Although the majority of the draft standards for consideration relate to the effective diagnosis, treatment and rehabilitation of confirmed CHD, a draft standard (Standard 4) has also been proposed for the primary prevention of CVD for those at particularly high risk.

In coming to a view of what constitutes 'high risk' it must be recognised that there is no absolute threshold for high cardiovascular risk. SIGN 97<sup>8</sup> (and other UK guidance such as NICE 67<sup>25</sup> and JBS2<sup>26</sup>) have identified a 10-year risk of CVD event  $\geq 20\%$  as a pragmatic definition for high risk. Over the past 10 years, this definition has been lowered from a 10-year risk of CVD event of  $\geq 40\%$  (equivalent to a 10-year risk of CHD of  $\geq 30\%$  in SIGN 40<sup>54</sup>, JBS1<sup>55</sup>) and in so doing has significantly increased the numbers of those who might be considered eligible for intervention.

CVD risk increases with age, in those with a first degree relative with premature CVD, in smokers, in those with obesity, in confirmed hypertension, in diabetes and impaired glucose regulation, in FH, in chronic kidney disease and with left ventricular hypertrophy. In addition, individuals with a British Asian ethnic background may be at increased risk and there is a well-defined gradient of increasing risk with socioeconomic deprivation.

Cardiovascular risk in individuals may be assessed by using a risk score based on the Framingham risk function, as described in SIGN 97<sup>8</sup>. Cardiovascular risk scores continue to evolve and all have limitations. The ASSIGN cardiovascular risk score<sup>22</sup> was developed as part of the SIGN 97<sup>8</sup> process to reduce the deprivation-related underestimation of CVD risk inherent in previous Framingham based risk scores<sup>23</sup> for the Scottish population.

Individuals with a previous personal history of CVD, with diabetes (Type 1 or 2) aged 40 and over, or FH at any age, are already known to be at high risk and do not require prior CVD risk assessment using a scoring system. All of these patients require active management of their risk factors, as recommended in SIGN 97<sup>8</sup>. In particular, individuals with FH should be treated aggressively.

SIGN 97<sup>9</sup> identifies as desirable for systematic CVD risk assessment on a 5-yearly basis: all those aged 40 and over and all those at any age with a first degree relative with premature CVD or FH. Effective from April 2009, the QOF for general practice will target individuals with hypertension, without confirmed CVD, for risk assessment (see [www.nhsemployers.org/pay-conditions/primary-890.cfm](http://www.nhsemployers.org/pay-conditions/primary-890.cfm)).

It is recognised that there is a move towards a universal age-based CVD risk assessment programme, as advocated in SIGN 97<sup>8</sup>. However, the important groundwork for this is still being developed – specifically in terms of workload implications for general practice – and particularly in areas of socioeconomic deprivation.

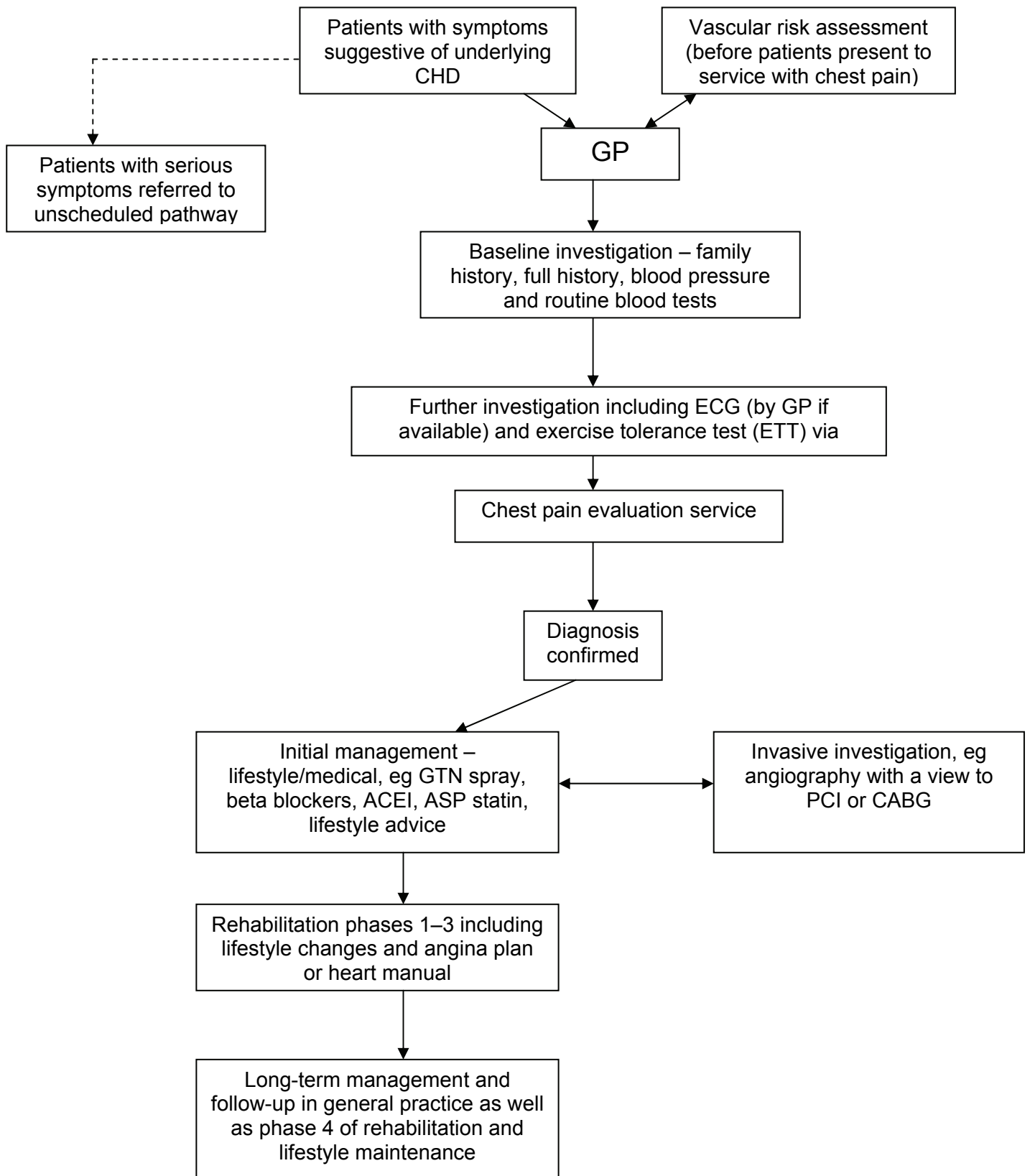
It is important to strike a balance between what is desirable and what is achievable for primary prevention of CVD and, therefore, an incremental approach has been adopted in this draft standard which focuses on individuals from priority groups at high clinical risk.

These priority groups are proposed as follows:

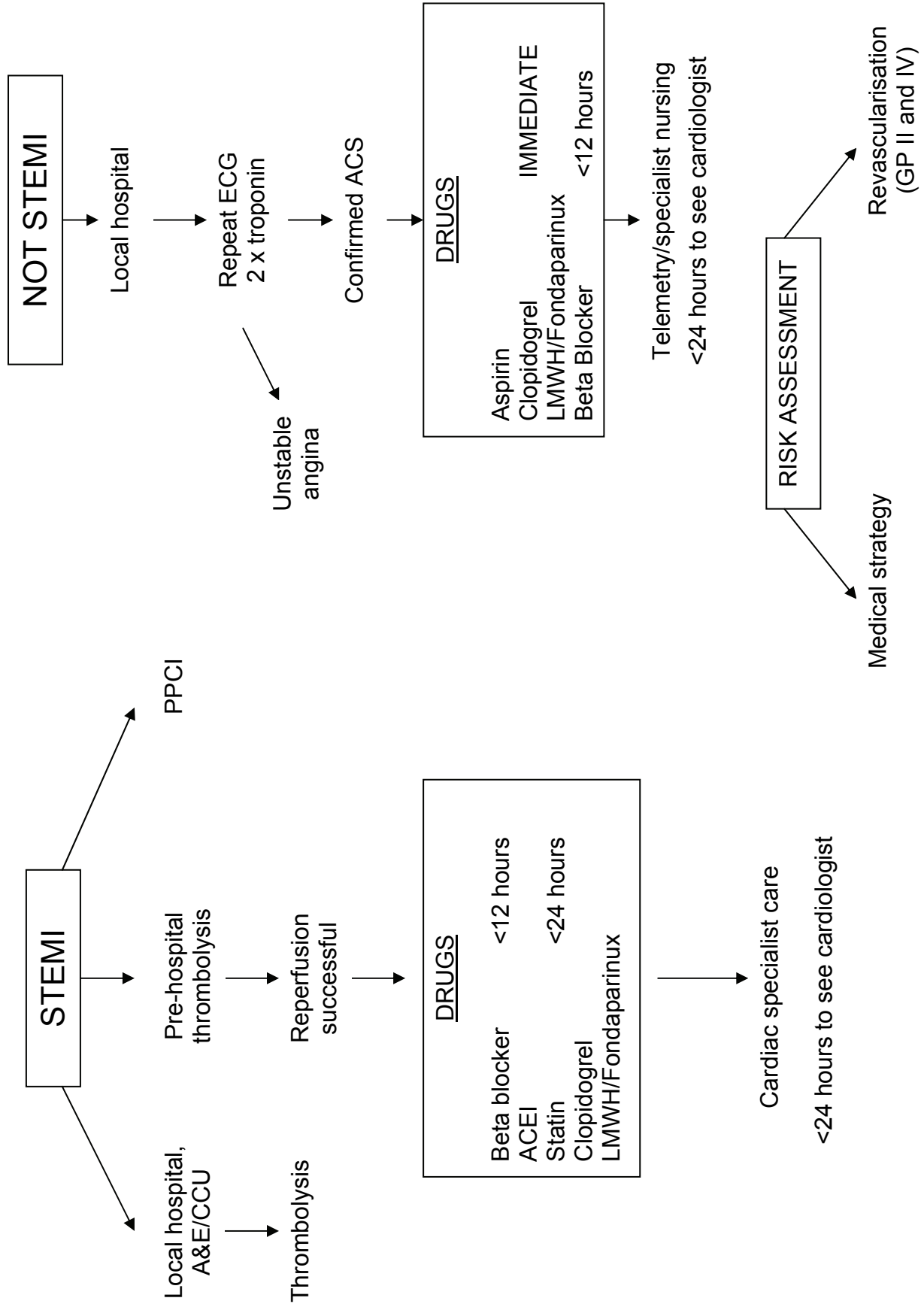
- 1 Those who require formal CVD risk assessment – patients with:
  - hypertension without confirmed CVD
  - a first degree relative with premature CVD, and
  - a first degree relative with FH.
  
- 2 Those already known to be at high risk – patients with a personal history of:
  - diabetes (Type 1 and 2) aged 40 and over, and
  - FH at any age.

The development of this Primary Prevention Standard will also be influenced by findings from the Keep Well Project<sup>24</sup> and by further evaluation and implementation work on the ASSIGN risk score<sup>22</sup>, towards its adoption as the preferred CVD risk scoring tool in Scotland.

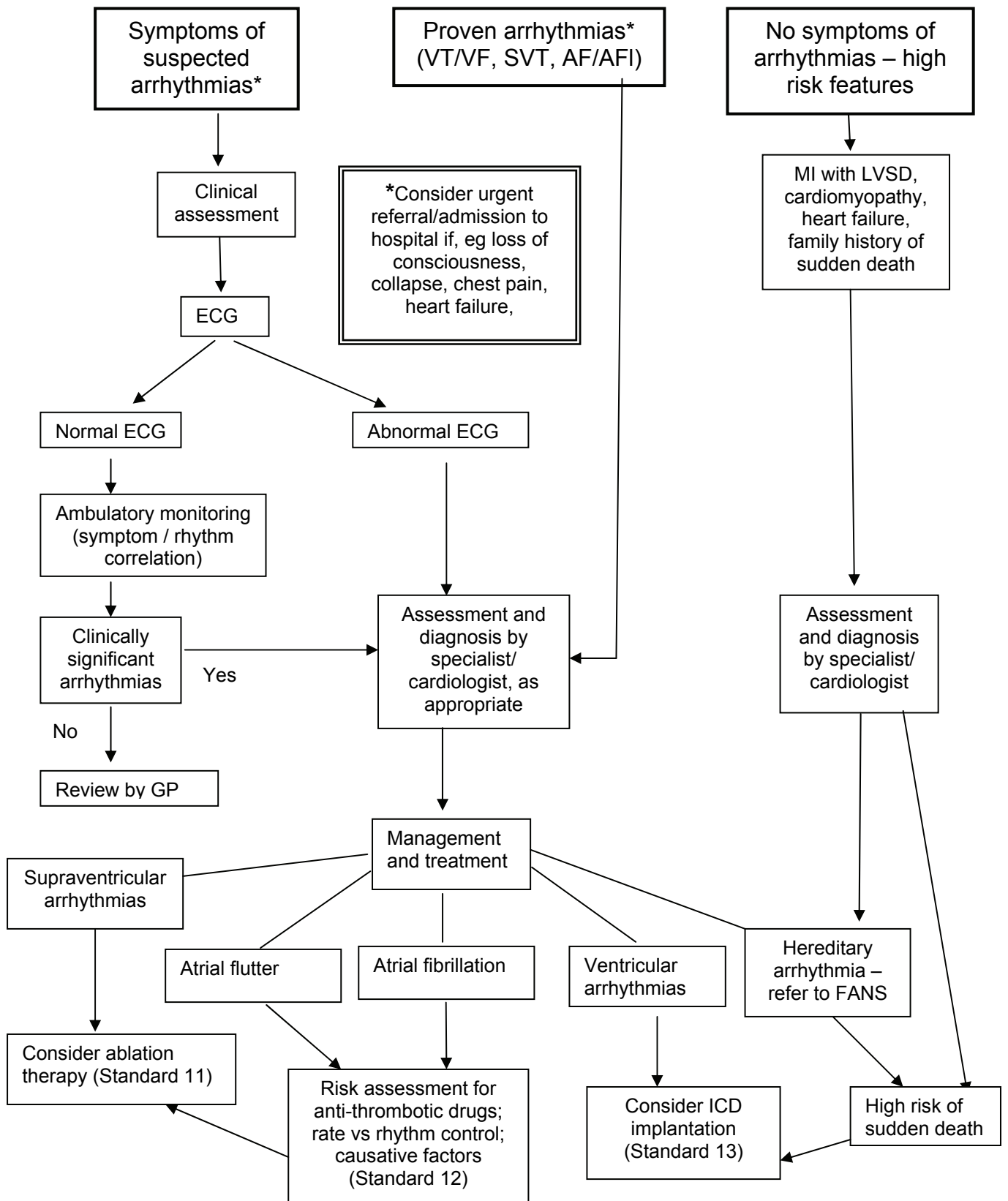
## Appendix 5: Pathway for the patient with chest pain in the scheduled care setting



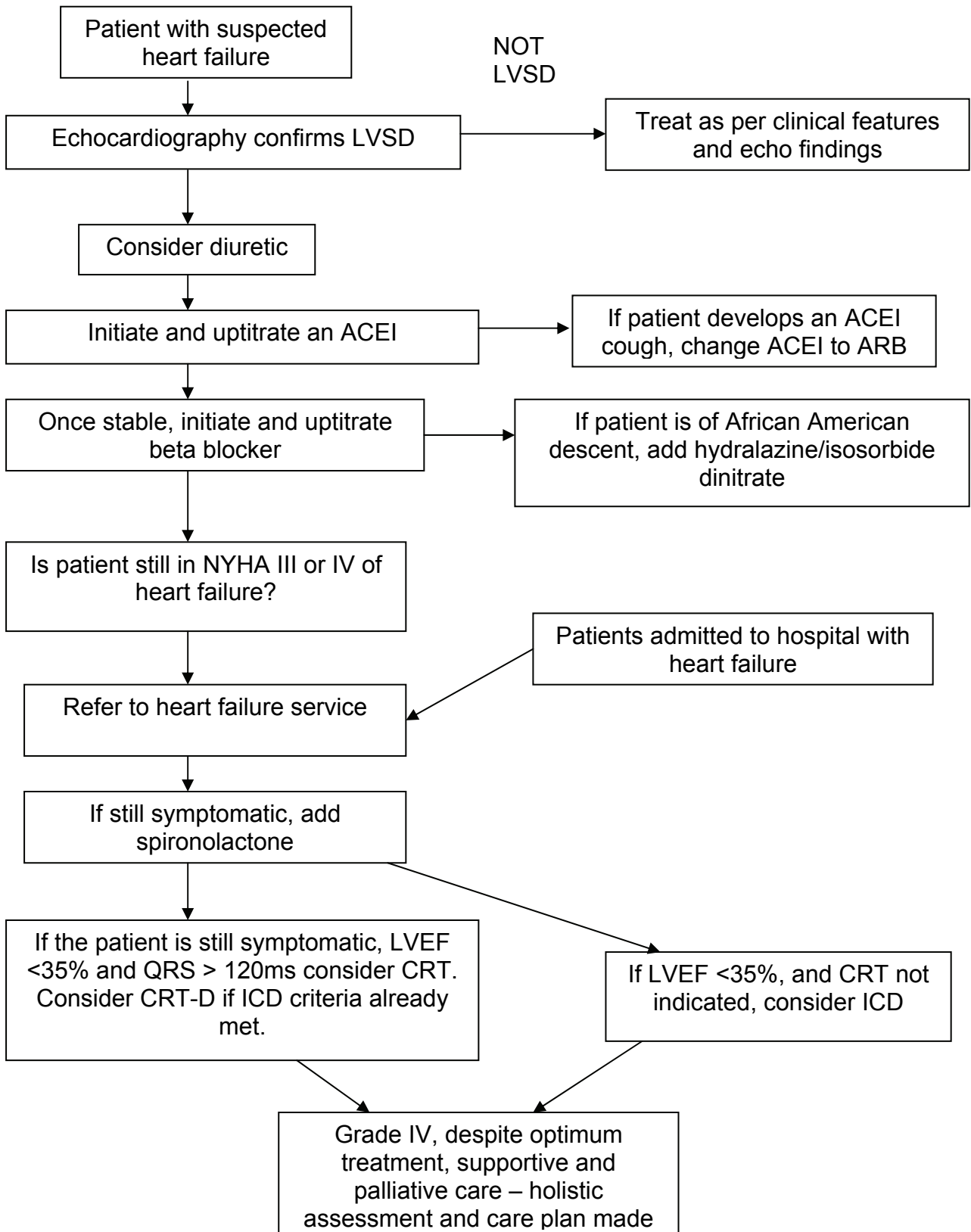
**Appendix 6: Pathway for the patient with chest pain in the unscheduled care setting**



## Appendix 7: Pathway for the management of the patient with arrhythmias



## Appendix 8: Pathway for the management of the patient with heart failure



## Appendix 9: Evidence base

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## Appendix 10: Glossary

<b>ablation therapy</b>	Ablation therapy using radiofrequency waves on the heart is used to cure a variety of cardiac arrhythmias such as supraventricular tachycardia, ventricular tachycardia and atrial fibrillation.
<b>acute coronary syndrome (ACS)</b>	Signs and symptoms resulting from inadequate blood flow to the heart. Subtypes of this condition include myocardial infarction and unstable angina.
<b>amiodarone</b>	A type of medication used to treat rhythm disturbances of the heart.
<b>angina</b>	Discomfort in the chest, jaw or arm which often typically occurs on exertion and which is due to a reduced blood supply to the heart.
<b>angiogram</b>	A type of X-ray that shows where the heart artery has narrowed or blocked.
<b>angiotensin</b>	Angiotensin II is a potent chemical/hormone that occurs naturally in the body and causes the muscles surrounding blood vessels to contract. This contraction increases the pressure within the blood vessels and can cause hypertension.
<b>angiotensin converting enzyme inhibitor (ACEI)</b>	A group of drugs which lower blood pressure and expand the blood vessels.
<b>angiotensin receptor blocker (ARB)</b>	Medications that block the receptors of angiotensin in the heart and blood vessels (see angiotensin).
<b>anticoagulant therapy</b>	Medications that thin the blood and reduces the risk of blood clots.
<b>anticoagulation drugs</b>	Medications that prevent clotting of blood.
<b>arrhythmias</b>	Any variation from the normal, regular heartbeat.
<b>aspirin</b>	A medication which thins the blood, by reducing the activity of cells in the blood called platelets, to prevent clots forming.
<b>ASSIGN risk assessment tool</b>	A web-based computer software tool used to assess a person's risk of developing cardiovascular disease over the next 10 years.
<b>atrial fibrillation and atrial flutter (AF)</b>	A type of arrhythmia, in which the heart beats in an irregular way, causing it to pump inefficiently. The abbreviation AF refers to both atrial fibrillation and atrial flutter unless otherwise specified.
<b>beta blocker</b>	A group of drugs that block or reduce the effects of adrenaline on the heart and blood vessels.
<b>brain natriuretic peptide (BNP)</b>	A blood test used to diagnose heart failure.
<b>cardiac arrest</b>	Medical emergency with absent or inadequate contraction of the heart that immediately causes circulatory failure.
<b>cardiac rehabilitation</b>	A long-term multidisciplinary programme addressing a variety of issues, which enables patients to have some control and responsibility for their own health, as well as reducing their risk of subsequent cardiac events.

<b>cardiac resynchronisation therapy (CRT)</b>	A form of therapy that utilises a pacemaker to help improve co-ordination of heart contraction for patients with congestive heart failure.
<b>cardiac resynchronisation therapy-defibrillator (CRT-D)</b>	A form of therapy that utilises a pacemaker to help improve co-ordination of heart contraction for patients with congestive heart failure. The 'D' means that a defibrillator has been added to the device.
<b>cardiomyopathy</b>	A disease of the heart muscle that affects the contraction and/or relaxation of the heart chambers.
<b>cardiopulmonary resuscitation (CPR)</b>	A group of treatments used when an individual's heart and/or breathing stops.
<b>cardiovascular disease (CVD)</b>	A general term used to describe disorders affecting the heart and/or blood vessels.
<b>CHADS/CHADS2 score</b>	A clinical prediction rule for estimating the future risk of stroke in patients with non-rheumatic, or non-valvular, atrial fibrillation. The higher a CHADS2 score, the greater the risk of stroke.
<b>clopidogrel</b>	A type of medication that reduces the activity of cells called platelets in the blood and so reduces the risk of blood clots forming in patients that have had a recent ACS.
<b>cognitive behaviour therapy</b>	A short-term form of psychotherapy based on the idea that the way we think about things affects how we feel emotionally.
<b>cognitive function</b>	Awareness and capacity for judgement.
<b>congenital heart disease</b>	Abnormal structure of the heart or major blood vessels affecting newborn infants.
<b>congestive heart failure</b>	A condition in which the heart cannot pump enough blood to the body's other organs.
<b>continuing professional development (CPD)</b>	An ongoing commitment to learning in various forms, which maintains and enhances professional standards of work, and develops the ability to recognise good practice.
<b>contraindications</b>	A condition or factor that increases the risks involved in using a particular drug, carrying out a medical procedure, or engaging in a particular activity.
<b>coronary angiography</b>	A special type of x-ray that allows a blockage or obstruction in the coronary arteries to be viewed and recorded on film.
<b>coronary heart disease (CHD)</b>	A type of CVD caused by atherosclerosis of the coronary arteries, leading to a reduced blood supply to the heart muscle. This can result in heart attack or chest pain of heart origin, known as angina. Also known as ischemic heart disease.
<b>CVD event</b>	An episode or event involving the class of diseases that involve the heart or blood vessels (eg a myocardial infarction or a stroke).
<b>DC cardioversion</b>	The process of restoring the heart's normal rhythm by applying a controlled electric current to the external chest wall.
<b>defibrillator</b>	An electronic device used to establish normal heartbeat.

<b>diabetes mellitus</b>	A metabolic disease characterised by abnormally high levels of glucose in the blood.
<b>diuretics</b>	Medicines that help reduce the amount of water in the body.
<b>echocardiogram</b>	An image and measurement of the heart obtained using ultrasound.
<b>electrocardiogram (ECG)</b>	A recording of the electrical activity of the heart.
<b>eplerenone therapy</b>	A medication used in the treatment of MI and also chronic heart failure.
<b>Familial Arrhythmia Network of Scotland (FANS)</b>	A national MCN developed to raise awareness of familial arrhythmias in Scotland.
<b>familial hypercholesterolaemia (FH)</b>	An inherited metabolic disorder resulting in very high levels of cholesterol in the blood.
<b>fondaparinux</b>	A type of anticoagulant medication given by injection.
<b>first degree relative</b>	A relative that you share 50% of your genes with such as your parents, children and siblings.
<b>Framingham</b>	A town in North America where a long-term study of the inhabitants has allowed healthcare workers throughout the world to predict the risk of future CVD events using a mathematical model.
<b>glycoprotein IIb/IIIa receptor antagonist</b>	A blood thinning drug used in patients with acute coronary syndrome.
<b>Gold Standards Framework (GSF)</b>	A systematic approach to enhance the care for patients nearing the end of life in primary care.
<b>GTN spray</b>	A type of medication used to ease angina pains.
<b>haemodynamic</b>	The circulation of blood in the body.
<b>healthcare professional</b>	Professionals trained in a particular area of healthcare delivery and directly involved in the delivery of clinical care to patients (ie physicians and nurses).
<b>heparin</b>	A medication which is used to prevent the clotting of blood.
<b>Hospital Anxiety and Depression Scale (HADS)</b>	A standardised questionnaire or tool that allows healthcare workers to identify people experiencing anxiety and depression in the hospital setting.
<b>hypertension</b>	High blood pressure which, if uncontrolled, can increase the risk of heart disease or a stroke.
<b>implantable cardioverter defibrillator (ICD)</b>	A battery-operated device implanted in the body and connected to the heart that can treat abnormal heart rhythms.
<b>infective endocarditis</b>	Infection, usually with bacteria, of the heart valves or lining of the heart.
<b>invasive strategy</b>	Treatment involving puncture or incision of a part of the body in this setting usually involving coronary angiography, coronary angioplasty and/or coronary artery by-pass surgery.
<b>ischaemia</b>	Insufficient supply of blood to an organ, usually due to a blocked or obstructed artery.

<b>Joint British Societies Guidelines (JBS1/JBS2)</b>	Guidelines used in clinical practice to promote a consistent multidisciplinary approach to the management of people with established cardiovascular disease and those at high risk of developing symptomatic disease.
<b>left ventricle ejection fraction (LVEF)</b>	The fraction (percentage) of blood ejected by the heart during each beat usually measured by echocardiography.
<b>left ventricular hypertrophy</b>	Thickening of the walls of the heart muscle resulting from abnormal growth or increased stress on the heart, for example due to high blood pressure.
<b>left ventricular systolic dysfunction (LVSD)</b>	Abnormal or reduced capacity of the heart to eject blood.
<b>managed clinical networks (MCNs)</b>	Linked groups of healthcare professionals and organisations from primary (local), secondary (regional) and tertiary (national) care, working in a co-ordinated manner, unconstrained by existing professional and health board boundaries, to ensure equitable provision of high-quality, clinically-effective services throughout Scotland.
<b>multidisciplinary team (MDT)</b>	A team composed of members from different healthcare professions with specialised skills and expertise.
<b>myocardial infarction (MI)</b>	Scientific term for a heart attack, which occurs when a blood vessel to the heart becomes blocked, usually by a blood clot, resulting in damage to the heart muscle.
<b>New York Heart Association (NYHA)</b>	A classification tool which assesses exercise tolerance in patients with heart disease.
<b>NICE</b>	National Institute of Health and Clinical Excellence
<b>NSTEMI</b>	Myocardial infarction without associated ST elevation on the ECG.
<b>nurse specialist</b>	A nurse who has specialised knowledge and competence in a particular area of heart disease, such as in angina or arrhythmias. Also known as a clinical nurse specialist in some settings.
<b>palliative care</b>	Care that can be provided at any stage after diagnosis of a life-limiting illness or condition, but it has increasing importance in the last few days, weeks or months of the illness when a progressive decline becomes clear.
<b>paroxysmal AF</b>	AF ending spontaneously and interspersed with episodes of normal heart rhythm.
<b>percutaneous coronary intervention (PCI)</b>	A procedure performed through a small incision in the skin to open or reduce obstruction of blocked blood vessels in the heart. This procedure is sometimes referred to as coronary angioplasty.
<b>pericardial disease</b>	Disease affecting the sack around the heart called the pericardium.
<b>permanent AF</b>	A type of AF characterised by the inability to restore normal rhythm.
<b>persistent AF</b>	AF that persists until treated.

<b>Patient Health Questionnaire number 9 (PHQ-9)</b>	A tool for assisting primary care clinicians in diagnosing depression as well as selecting and monitoring treatment.
<b>preserved systolic function</b>	Where the pumping action and ejection of blood by the heart is normal.
<b>primary care</b>	The conventional first point of contact between a patient and the NHS which is most often through a general practice.
<b>Quality and Outcomes Framework (QOF)</b>	The system for the performance management and payment of GPs in the NHS in England and Scotland. It was introduced as part of the new general medical services (GMS) contract in April 2004.
<b>QRS duration</b>	A pattern of electrical activity seen in an ECG.
<b>radiofrequency catheter ablation</b>	A procedure used to remove abnormal electrical pathways in heart tissue that can result in abnormal heart rhythms.
<b>rate control</b>	Reduction and control of the heart rate in patients with AF usually to less than 90 beats per minute.
<b>reperfusion therapy</b>	Treatment that opens blocked coronary arteries at the time of a heart attack, usually used to mean either thrombolysis or primary percutaneous coronary intervention.
<b>revascularisation</b>	A surgical procedure to restore and improve blood flow to the heart usually meaning either percutaneous coronary intervention or coronary artery by-pass surgery.
<b>rhythm control</b>	Restoration of normal heart rhythm in patients with AF.
<b>scheduled care setting</b>	Treatment given to patients presenting to community-based healthcare teams.
<b>Scottish Advanced Heart Failure Service</b>	A specialised unit providing expert care, including heart transplantation, for patients with advanced heart failure based at the Golden Jubilee National Hospital, Clydebank.
<b>secondary care</b>	Hospital-based care services which are provided on an inpatient or outpatient basis.
<b>side effect</b>	An effect of a drug that is not wanted.
<b>specialist/cardiologist</b>	Doctors that have specialist training in the treatment of patients with heart disease.
<b>spironolactone</b>	A medication used to improve symptoms and outcomes for patients with congestive heart failure.
<b>ST elevation</b>	Abnormal characteristic on the electrocardiogram that can result from MI.
<b>stakeholder</b>	An individual or group with an interest in the success of an organisation in delivering results and maintaining the quality of the organisation's products and services.
<b>statin</b>	A drug which lowers cholesterol levels in the blood.
<b>STEMI</b>	Myocardial infarction associated with elevation of the ST segment of the ECG.
<b>supraventricular tachycardia (SVT)</b>	A very fast heartbeat arising above the ventricles of the heart.

<b>syncope</b>	The medical term for fainting, a sudden, usually temporary, loss of consciousness generally caused by insufficient oxygen in the brain. It is a condition that can be caused by heart disease.
<b>tertiary care</b>	Medical care in a highly specialised centre.
<b>thoracic aorta</b>	The main artery in the chest arising directly from the heart.
<b>thrombolysis</b>	A treatment which involves administering drugs that dissolve blood clots that cause blockage in an artery, allowing the blood to pass more freely and renourish the organ.
<b>thyrotoxicosis</b>	The presence of too much thyroid hormone (a hormone that affects heart rate and blood pressure) in the body.
<b>troponin</b>	An enzyme released from the heart when an individual has a heart attack.
<b>unscheduled care setting</b>	Treatment given to patients presenting to hospital in an emergency setting.
<b>valvular heart disease</b>	Diseases affecting the valves of the heart.
<b>ventricular fibrillation (VF)</b>	An abnormal heart rhythm arising from the ventricles of the heart that results in cardiac arrest and will result in death if untreated.
<b>ventricular tachycardia (VT)</b>	An abnormal heart rhythm arising from the ventricles of the heart that can result in cardiac arrest and death if untreated.
<b>warfarin</b>	A blood thinning medication taken orally.
<b>working days</b>	Monday to Friday inclusive, excluding recognised holidays.



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