

Clinical Standards ~ *April 2010*

Heart Disease

NHS Quality Improvement Scotland (NHS QIS) is committed to equality and diversity. We have assessed these standards for likely impact on the six equality groups defined by age, disability, gender, race, religion/belief and sexual orientation. A copy of the impact assessment is available upon request from the NHS QIS Equality and Diversity Officer.

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ISBN 1-84404-590-0

First published April 2010

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1 Introduction to the clinical standards for heart disease

Heart disease is the leading cause of death in the UK. The largest contribution to these deaths is due to coronary heart disease, which is responsible for approximately one in five deaths in men and one in six deaths in women, resulting in nearly 10,000 deaths every year in Scotland¹.

Although death rates from coronary heart disease 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 other regions of the UK. Mortality from coronary heart disease also varies across Scotland with the highest rates found in the west of Scotland¹.

In 2000, the Clinical Standards Board for Scotland published the Clinical Standards for Secondary Prevention following Acute Myocardial Infarction². 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 2002³. Reviews of this strategy took place in 2004⁴ and in 2009⁵. Other strategic initiatives have included the establishment of a National Advisory Committee and the development of managed clinical networks⁶ for heart disease, in each health board.

The ban on smoking in enclosed public spaces in March 2006⁷ also represents a landmark strategic initiative targeted at reducing morbidity and mortality associated with cardiovascular disease.

In 2005, the Scottish Intercollegiate Guidelines Network commenced a major review of its previous heart disease related guidelines. This resulted in the simultaneous publication of a set of five guidelines covering primary prevention of cardiovascular disease⁸, stable angina⁹, acute coronary syndromes¹⁰, chronic heart failure¹¹ and cardiac arrhythmias¹² in February 2007.

These guidelines, and Scottish Intercollegiate Guidelines Networks' cardiac rehabilitation guideline 2002¹³, are drawn from a contemporary evidence base and so provide an ideal opportunity to create standards of care for heart disease relevant to the needs of the patient in the 21st century. Following on from this, NHS Quality Improvement Scotland established a comprehensive programme of work to improve the delivery of heart disease care and the patient experience associated with that care. This programme of work includes the development and publication of the heart disease standards, assessment of each heart disease managed clinical network against the standards, a national programme of heart disease audit and the development of an ongoing sustainable process of improvement methodology linked to the Scottish Patient Safety Programme.

Taken together, these various initiatives constitute a wider Heart Disease Improvement Programme. This co-ordinated approach to service improvement reflects a new strategic direction for NHS Quality Improvement Scotland.

2 Development of the clinical standards for heart disease

NHS Quality Improvement Scotland held an initial meeting in May 2008, attended by a wide range of healthcare professionals and patient representatives from each of the heart disease managed clinical networks 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 heart disease.

Dr Martin Denvir, Consultant Cardiologist, University of Edinburgh, was recruited as a clinical advisor to provide clinical expertise to the programme. Dr Denvir also chairs the heart disease clinical standards development steering group, which brings together the chairs and leads of the project groups, taking forward the development of specific areas of the standards.

The project groups were:

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

As a result of feedback received during consultation of the draft standards, additional short-life project groups were established to provide specific expertise and guidance for the standards. These were:

- core standards project group, chaired by Mrs Denise Brown, Manager Heart and Stroke Managed Clinical Network, NHS Ayrshire & Arran and also chair of the National Heart Disease Managed Clinical Network Managers' Group
- cardiac rehabilitation project group, chaired by Mrs Catherine Mondoia, Consultant Nurse (Cardiology), NHS Forth Valley
- supportive and palliative care project group, chaired by Professor Elizabeth Ireland, General Practitioner, NHS Forth Valley and National Clinical Lead for Palliative and End of Life Care, and
- patient project group, chaired by Mr Alan Foster, Heart Disease Managed Clinical Network Co-ordinator, NHS Greater Glasgow and Clyde.

Scope of the clinical standards for 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 heart disease and their family/carer.

In addition to the core standards covering provision of patient information, principles of multidisciplinary working and education of staff, the project groups developed clinical standards for:

- primary prevention of cardiovascular disease
- management of the patient with chest pain in the non-emergency care setting
- management of the patient with chest pain in the emergency care setting
- cardiac rehabilitation
- management of the patient with arrhythmias
- management of the patient with heart failure, and
- supportive and palliative care for heart disease.

The patient project group also developed specific information on key expectations of patients with heart disease. The discussions at this group generated the publication of a separate summary of patient expectations which accompany these standards.

Patient and public involvement

NHS Quality Improvement Scotland actively sought the involvement of patients, carers, the public and voluntary organisations linked to heart disease for example British Heart Foundation Scotland, Chest Heart & Stroke Scotland and Arrhythmia Alliance. This ensured good engagement at various stages in the development of the clinical standards.

A number of patient-focused consultations also took place in different parts of the country to facilitate this process.

Communication and interaction were also maintained with the following groups during development of the 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.

Cardiac conditions not covered directly within the clinical standards

The foundation stones of the standards for heart disease are the six Scottish Intercollegiate Guidelines Network heart disease guidelines⁸⁻¹³. The standards are applicable to a range of patients with heart disease. However, some conditions were considered to be outside the scope of the project including:

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

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*¹⁴.

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 apply to at least one of the above healthcare quality dimensions.

Who do the clinical standards apply to?

The clinical standards are applicable to: all NHS territorial boards with responsibility for delivering heart disease services; the State Hospitals Board for Scotland; the National Waiting Times Centre Board; the Scottish Ambulance Service; NHS 24; and all heart disease 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 standards, but the development of the 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.

Next steps

Following publication and launch of the heart disease clinical standards:

- NHS boards will be expected to undertake a local assessment of the compliance of their heart disease services against the published heart disease clinical standards.
- NHS boards will be expected to produce an associated improvement plan.
- NHS boards will be expected to submit to NHS Quality Improvement Scotland their improvement plan and accompanying evidence to demonstrate their compliance against the heart disease clinical standards.
- NHS Quality Improvement Scotland will set up peer review panels that will examine each NHS board's evidence and associated improvement plan.
- the peer review panels will assess whether each NHS board is meeting the standards.
- the peer review panels assessment including any recommendations will be communicated to each NHS board.
- NHS Quality Improvement Scotland will undertake to report nationally on the progress NHSScotland has been making in meeting the heart disease clinical standards.

The timescales and key dates for these actions will be communicated to the NHS boards following publication of the heart disease clinical standards.

3 Clinical standards for heart disease

Core standards for heart disease

- Standard 1 Provision of information to patients
 - Standard 2 Communication and multidisciplinary management of patients with 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 non-emergency care setting

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

Management of the patient with chest pain in the emergency care setting

- Standard 7 Assessment and diagnosis of suspected acute coronary syndrome
 - 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 Medication for heart failure
 - Standard 16 Multidisciplinary service delivery for heart failure
 - Standard 17 Implantable devices for heart failure
-

Supportive and palliative care for patients with heart disease

Standard 18 Supportive and palliative care for patients with heart disease

Standard 1: Provision of information to patients

Standard statement 1

Individuals with established heart disease and those at risk of developing cardiovascular disease, and their family/carers, are provided with information relevant to their needs.

Rationale

Clear, comprehensive and accessible information is essential for the delivery of healthcare by NHS boards, and can assist patients with the self-management of their condition.

References: 15, 16, 17

Essential criterion

- 1.1 The NHS board ensures the provision of up-to-date information at relevant stages of the patient's journey. The information is in an understandable format suitable to the needs of the patient and family/carer. The information explains:
- cardiovascular risk
 - diagnosis
 - test and interpretation of test results
 - procedures and their side effects
 - treatments (including drugs) and their side effects
 - psychosocial support
 - self-management and lifestyle issues, and
 - further information available from voluntary organisations and other groups.

Specifically, information is available for:

- cardiovascular risk factors
- high blood pressure
- angina
- heart attack
- cardiac rehabilitation
- cardiac arrhythmias
- heart failure
- cardiomyopathy
- pacemaker and defibrillator implantation
- coronary artery bypass surgery
- coronary angiography
- percutaneous coronary intervention, and
- radiofrequency catheter ablation.

Standard 2: Communication and multidisciplinary management of patients with heart disease

Standard statement 2

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

Rationale

Effective communication systems that meet the specific needs of individuals are essential to ensure prompt diagnosis, referral, investigations and management of patients.

Patients with suspected or confirmed heart disease need to be reassured that all healthcare professionals involved in their care communicate well with each other and with them.

References: 1, 5, 6, 16, 18, 19, 20

Essential criteria

- 2.1 There are locally agreed protocols in place between primary, secondary and tertiary care to ensure patients with suspected or confirmed heart disease receive timely referral (urgent and non-urgent), diagnosis and treatment of their condition.
- 2.2 There is a documented care plan agreed with the patient and available to the multidisciplinary team.
- 2.3 The care plan includes information about the patient's diagnosis, treatment and management of their condition.
- 2.4 There is a mechanism in place to ensure patients and, with consent, their family/carer receive:
 - a summary of the care plan
 - detailed instructions of what to do if their symptoms worsen
 - information explaining their condition, medication, therapy and risk factor management
 - education about their condition, medication, therapy and risk factor management
 - details of follow-up arrangements, and
 - a contact for further information and advice.
- 2.5 There is a mechanism in place to ensure planned discharge for patients admitted to hospital.
- 2.6 An immediate discharge letter is given to the patient at time of discharge.
- 2.7 An immediate discharge letter is sent electronically to the general practitioner at time of discharge.

- 2.8** Electronic referral arrangements between primary, secondary and tertiary care are used.

Standard 3: Education and training for staff

Standard statement 3

The NHS board delivers education and training to staff involved in the management of patients with established heart disease and those at risk of developing cardiovascular disease.

Rationale

Education and training for staff involved in the management of patients with established heart disease, and those at risk of developing cardiovascular disease, are central to the drive to improve quality of advice, treatment and care, thereby reducing morbidity and mortality.

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

Reference: 21

Essential criteria

- 3.1 The NHS board assesses the education and training needs of staff involved in the management of patients with established heart disease and those at risk of developing cardiovascular disease.
- 3.2 The NHS board has a heart disease action plan for education and training which includes:
 - identified resources to deliver the action plan
 - a specific induction process for new staff, including mentoring arrangements
 - regular heart disease updates of evidence-based practice as part of continuing professional development for existing staff, and
 - monitoring of uptake of induction and continuing professional development programmes.
- 3.3 The NHS board has a designated educational lead for heart disease overseeing education and training.
- 3.4 The NHS board has a system in place for the internal quality assurance of heart disease education and training.

Standard 4: Primary prevention of cardiovascular disease

Standard statement 4

Individuals without confirmed cardiovascular disease in high priority groups are identified and offered assessment, advice and treatment to reduce their risk of a cardiovascular event.

Rationale

Cardiovascular disease is a major cause of morbidity and mortality in Scotland. Identifying individuals without confirmed cardiovascular disease (coronary heart disease, angina, stroke/transient ischemic attack, peripheral arterial disease) in high priority groups and offering them assessment, advice and treatment can reduce their risk of a cardiovascular event.

Individuals with diabetes and familial hypercholesterolemia are already considered to be at high risk and do not require formal risk assessment. Also, cardiovascular disease risk scores may not be appropriate as a way of assessing risk in individuals who are at increased cardiovascular disease risk because of underlying medical conditions or treatment. This includes those:

- with active autoimmune disorders such as systemic lupus erythematosus and rheumatoid arthritis
- with chronic kidney disease (eGFR less than 60)
- on treatment for human immunodeficiency virus, and
- on antipsychotic medication.

Patients with these underlying medical conditions or treatment need their high risk to be actively addressed (criterion 4.5).

References: 5, 8, 22, 23, 24, 25, 26, 27, 28, 29

Essential criteria

- 4.1 Blood pressure is documented for individuals aged 40 and over, every 5 years.
- 4.2 Smoking status is documented for individuals aged 15 and over, every 2 years.
- 4.3 There is a mechanism in place for the identification of individuals without confirmed cardiovascular disease in the following high priority groups:
 - living in deprived circumstances, beginning with the most deprived
 - confirmed hypertension
 - regular smokers
 - first degree relatives with a history of premature cardiovascular disease
 - serious and enduring mental health problems
 - learning disability
 - obesity (body mass index greater than 30kg/m²), and
 - ethnic minorities (South Asian, black and Afro-Caribbean).

- 4.4 Identified individuals are assessed using a recognised risk assessment tool (ASSIGN) and the result is recorded.
- 4.5 Following assessment, individuals at high risk have a care plan implemented in line with current national guidelines.
- 4.6 Individuals who are relatives of patients with familial hypercholesterolemia are identified through cascade testing and managed in line with current national guidelines.
- 4.7 Individuals deemed not to be at high risk, as in criterion 4.4, have repeat cardiovascular risk assessment every 5 years.

Standard 5: Assessment of chest pain in the non-emergency care setting

Standard statement 5

Individuals presenting with chest pain and/or symptoms suggestive of underlying coronary heart disease 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, 30, 31, 32

Essential criteria

- 5.1** Patients with chest pain, or symptoms suggestive of underlying heart disease, presenting to primary care have an initial clinical assessment, examination and a past medical and family history taken.
- 5.2** Initial investigations include haemoglobin, lipid profile, blood glucose, renal, liver and thyroid function tests.
- 5.3** An electrocardiogram is performed and the results are recorded and reported by staff with relevant training.
- 5.4** Where symptoms are suggestive of underlying heart disease, drug therapy (glyceryl trinitrate spray, beta blocker and aspirin) is commenced prior to further assessment except where contraindicated. The reason for contraindication is documented.
- 5.5** Patients with new onset symptoms of chest pain, suggestive of underlying coronary heart disease, are seen by a chest pain assessment service within 5 working days of referral from primary care.

Standard 6: Assessment and management of confirmed coronary heart disease in the non-emergency care setting

Standard statement 6

Patients with a confirmed diagnosis of coronary heart disease have further assessment and ongoing management of their condition.

Rationale

The management of symptoms is essential in improving the quality of life of the patient with coronary heart disease.

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

Lifestyle changes are an essential component of risk factor management in patients with coronary heart disease.

References: 9, 10, 30

Essential criteria

- 6.1** Patients with confirmed coronary heart disease receive optimal drug therapy in line with current national guidelines except where contraindicated. The reason for contraindication is documented.
- 6.2** Patients with confirmed coronary heart disease are offered information and advice about lifestyle changes and ongoing management.
- 6.3** Patients with confirmed coronary heart disease, who experience a worsening of angina symptoms, despite optimal therapy, are referred to cardiology services.
- 6.4** Patients with confirmed coronary heart disease are reviewed within 3 months of diagnosis to ensure therapy is optimised and risk factors are addressed.
- 6.5** Patients with confirmed coronary heart disease are reviewed annually, including immunisation status.

Standard 7: Assessment and diagnosis of individuals suspected of having acute coronary syndrome

Standard statement 7

Individuals suspected of having acute coronary syndrome are seen and assessed urgently by emergency care services.

Rationale

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

References: 9, 10, 30

Essential criteria

- 7.1 Individuals suspected of having acute coronary syndrome are seen and assessed by staff with relevant training, within the current national targets for ambulance response times.
- 7.2 Individuals suspected of having acute coronary syndrome are assessed by staff with relevant training who have access to essential drugs and equipment to initiate management as required. This includes cardiopulmonary resuscitation and:
 - defibrillation equipment
 - aspirin
 - clopidogrel
 - heparin, and
 - thrombolysis.
- 7.3 Individuals suspected of having acute coronary syndrome presenting, in the pre-hospital setting, have an electrocardiogram recorded and reported by staff with relevant training, within 30 minutes of the call for help.
- 7.4 Individuals suspected of having acute coronary syndrome presenting in a hospital setting, have an electrocardiogram recorded and reported by staff with relevant training, within 10 minutes of presentation.
- 7.5 Individuals suspected of having acute coronary syndrome receive 300mg aspirin at presentation except where contraindicated. The reason for contraindication is documented.
- 7.6 Individuals suspected of having acute coronary syndrome, with no ST elevation identified by electrocardiogram, are transported immediately to a hospital for further assessment, including a repeat electrocardiogram on arrival, where staff with relevant training are available to manage acute chest pain.
- 7.7 Individuals suspected of having acute coronary syndrome receive troponin testing on admission and, if negative, 12 hours after onset of symptoms.

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

Standard statement 8

Patients with confirmed acute coronary syndrome have effective assessment, management and treatment of their condition.

Rationale

The effective management of patients with confirmed acute coronary syndrome requires timely assessment, diagnosis and treatment to manage symptoms and improve outcomes.

References: 9, 10, 33

Essential criteria

- 8.1 Patients with confirmed acute coronary syndrome receive 300mg aspirin at presentation except where contraindicated. The reason for contraindication is documented.
- 8.2 Patients diagnosed with ST-elevation acute coronary syndrome receive optimal reperfusion therapy except where contraindicated. The reason for contraindication is documented.
- 8.3 The 'call to balloon' time is 120 minutes or less for patients with ST-elevation acute coronary syndrome treated with primary percutaneous coronary intervention.
- 8.4 The 'call to needle' time is 60 minutes or less for patients with ST-elevation acute coronary syndrome treated with thrombolysis.
- 8.5 The 'diagnostic electrocardiogram to balloon' time is 90 minutes or less for patients with ST-elevation acute coronary syndrome treated with primary percutaneous coronary intervention.
- 8.6 The 'diagnostic electrocardiogram to needle' time is 30 minutes or less for patients with ST-elevation acute coronary syndrome treated with thrombolysis.
- 8.7 Patients with confirmed acute coronary syndrome are managed by a cardiac specialist team using a multidisciplinary approach.
- 8.8 Formal risk scoring for recurrent events is performed within 24 hours of admission using GRACE risk score.
- 8.9 Patients at medium and high risk of recurrent events have coronary angiography within 72 hours of risk scoring.
- 8.10 Patients at medium and high risk of recurrent events, who do not proceed to coronary angiography, have reasons for this documented.

Standard 9: Ongoing management and treatment of acute coronary syndrome

Standard statement 9

Patients with confirmed acute coronary syndrome are offered secondary prevention measures.

Rationale

Pharmacological interventions and lifestyle changes can reduce symptoms and improve outcomes.

References: 9, 10

Essential criteria

- 9.1 Patients with myocardial infarction have an assessment of left ventricular function within 6 weeks of their admission.
- 9.2 Patients with confirmed acute coronary syndrome are treated with anticoagulant therapy (low-molecular-weight heparin or fondaparinux) according to current national guidelines except where contraindicated. The reason for contraindication is documented.
- 9.3 Patients with confirmed acute coronary syndrome receive the following treatment except where contraindicated. The reason for contraindication is documented:
 - aspirin
 - clopidogrel or equivalent
 - beta blocker
 - statin therapy, and
 - angiotensin converting enzyme inhibitor.
- 9.4 Patients with myocardial infarction complicated by left ventricular dysfunction (ejection fraction 40% or less), in the presence of either clinical signs of heart failure or diabetes mellitus, are commenced aldosterone antagonist therapy except where contraindicated. The reason for contraindication is documented.
- 9.5 Patients with confirmed acute coronary syndrome are referred to their local cardiac rehabilitation team prior to discharge.

Standard 10: Cardiac rehabilitation

Standard statement 10

Patients with specified heart disease have access to a menu-based cardiac rehabilitation programme.

Rationale

Cardiac rehabilitation can significantly reduce morbidity and mortality and improve health-related quality of life.

References: 13, 34, 35, 36

Essential criteria

- 10.1** Patients with the following are identified for assessment by the cardiac rehabilitation service:
- acute coronary syndrome
 - coronary by-pass surgery (elective and urgent)
 - percutaneous coronary intervention (elective and urgent)
 - patients attending chest pain assessment services with new onset or worsening angina
 - heart valve surgery
 - heart transplant
 - implantable cardioverter defibrillator, and
 - chronic stable heart failure.
- 10.2** Patients identified are assessed by the cardiac rehabilitation team for a menu-based programme as specified in current national guidelines.
- 10.3** Assessed patients are offered a menu-based programme according to their needs.

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.

Rationale

Cardiac arrhythmias are a common cause of morbidity and mortality. They occur in patients with or without heart disease. Some patients may be at high risk of sudden death. Prompt assessment, accurate diagnosis and appropriate treatment can improve morbidity and mortality caused by arrhythmias.

References: 12, 37, 38, 39, 40, 41, 42

Essential criteria

- 11.1 The NHS board has a structured care pathway for patients with arrhythmias (suspected, proven or those at high risk from arrhythmias).
- 11.2 Patients presenting with arrhythmias (suspected, proven or those at high risk from arrhythmias) have an electrocardiogram which is recorded and reported by staff with relevant training.
- 11.3 Patients on amiodarone are informed about and monitored for adverse effects, including increasing breathlessness, and have liver and thyroid function tests every 6 months.
- 11.4 Patients presenting with supraventricular tachycardia are assessed by a cardiologist.
- 11.5 Patients at risk of, or diagnosed with, hereditary arrhythmias syndromes are referred to the Familial Arrhythmias Network of Scotland.

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

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 and is a major cause of stroke. Prompt diagnosis and treatment of atrial fibrillation can improve the quality of life and health of patients, by improving cardiac function and reducing the risk of stroke.

References: 12, 40, 41, 42, 43, 44

Essential criteria

- 12.1 Patients with atrial fibrillation and or atrial flutter (paroxysmal, persistent or permanent) undergo a stroke risk assessment using a recognised risk assessment tool (eg National Institute of Health and Clinical Excellence 36 stroke risk stratification algorithm or CHADS2).
- 12.2 Patients with atrial fibrillation and or atrial flutter are prescribed anti-thrombotic drugs except where contraindicated. The reason for contraindication is documented.
- 12.3 Patients with atrial fibrillation and or atrial flutter, with moderate to high risk of stroke, are prescribed anticoagulant, except where contraindicated. The reason for contraindication is documented.
- 12.4 Patients with newly diagnosed, or with new onset atrial fibrillation and or atrial flutter, are investigated for underlying causes (eg hypertension, structural heart disease, thyrotoxicosis).
- 12.5 Patients with atrial fibrillation, who are symptomatic despite optimal tolerated medical therapy, are assessed by a cardiologist.
- 12.6 Patients whose main arrhythmia is atrial flutter are referred to a cardiologist for consideration of catheter ablation therapy.

Standard 13: Management of ventricular arrhythmias

Standard statement 13

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

Rationale

Patients surviving life-threatening arrhythmias, or identified as at high risk, have improved survival following cardioverter defibrillator implantation, except within 1 month of an acute myocardial infarction.

References: 12, 39, 41, 45, 46, 47, 48, 49

Essential criteria

- 13.1** Patients who are survivors of cardiac arrest (ventricular tachycardia or ventricular fibrillation), life-threatening ventricular arrhythmias or are at high risk of sudden cardiac death, are seen by a cardiologist for assessment and treatment of underlying heart disease (eg drug therapy, revascularisation).
- 13.2** Patients surviving one of the following ventricular arrhythmias, in the absence of acute ischaemia or treatable cause, are assessed for implantable cardioverter defibrillator:
- cardiac arrest due to ventricular tachycardia or ventricular fibrillation
 - ventricular tachycardia with syncope
 - ventricular tachycardia with haemodynamic compromise, and
 - ventricular tachycardia without syncope if left ventricle ejection fraction is 35% or less (not including those with New York Heart Association class IV symptoms).

For patients with left ventricular systolic dysfunction, being considered for implantable cardioverter defibrillator for primary prevention of sudden cardiac death, refer to criterion 17.2.

- 13.3** Patients, identified as requiring implantable cardioverter defibrillator for secondary prevention, have this implanted within 10 working days of that decision and prior to discharge.
- 13.4** Patients, who have had a cardioverter defibrillator implanted, receive regular device follow-up by staff with relevant training, at least every 6 months.
- 13.5** Patients who are survivors of cardiac arrest, or have had life-threatening ventricular arrhythmias, or are at high risk of sudden death (including those with implantable cardioverter defibrillator experiencing device-related symptoms), are screened for anxiety and depression using a recognised tool (eg the Hospital Anxiety and Depression Scale).

- 13.6** Patients, who survive cardiac arrest, have specific cognitive screening using a recognised tool (eg Addenbrooke's Cognitive Examination).
- 13.7** Patients who have significant problems with depression, anxiety and/or memory loss, are referred to staff with relevant training for further assessment and treatment.

Standard 14: Diagnosis of heart failure

Standard statement 14

Patients with suspected heart failure are referred for confirmation of diagnosis 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 patients is 6% in the first month, 11% in the first 3 months and 14% in the first 6 months.

References: 11, 50, 51, 52, 53, 54, 56

Essential criteria

- 14.1 Patients presenting in primary care with suspected heart failure have an electrocardiogram or brain natriuretic peptide test carried out and reported by staff with relevant training within 3 working days.
- 14.2 Patients presenting in primary care with suspected heart failure and an abnormal electrocardiogram or brain natriuretic peptide test, have an echocardiogram carried out within 10 working days from secondary care receiving the referral from primary care.
- 14.3 Patients with heart failure symptoms and an echocardiogram abnormality are assessed by a doctor with specific expertise in heart failure.
- 14.4 Patients admitted to hospital with suspected heart failure have an electrocardiogram carried out as part of initial assessment.
- 14.5 Patients admitted to hospital for the first time with suspected heart failure, whose electrocardiogram is abnormal, have an echocardiogram performed within 2 working days of admission.
- 14.6 Patients admitted to hospital with a primary diagnosis of heart failure are assessed by a doctor with specific expertise in heart failure during their admission.

Standard 15: Medication for heart failure

Standard statement 15

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

Rationale

Pharmacological therapy significantly improves prognosis and symptom control in patients with heart failure due to left ventricular systolic dysfunction.

References: 11, 53

Essential criteria

- 15.1 Patients with heart failure receive diuretics at a dose that controls fluid retention and/or symptoms except where contraindicated. The reason for contraindication is documented.
- 15.2 Patients with left ventricular systolic dysfunction receive the optimal dose of angiotensin converting enzyme inhibitor or the maximum tolerated except where contraindicated. The reason for contraindication is documented.
- 15.3 Patients with left ventricular systolic dysfunction intolerant of an angiotensin converting enzyme inhibitor, because of a cough, receive an angiotensin receptor blocker at the optimal tolerated dose except where contraindicated. The reason for contraindication is documented.
- 15.4 Patients with left ventricular systolic dysfunction receive the optimal dose of beta blocker, or the maximum tolerated except where contraindicated. The reason for contraindication is documented.
- 15.5 Patients with left ventricular systolic dysfunction and persistent New York Heart Association class III heart failure and who have been New York Heart Association class IV in the last 6 months receive spironolactone except where contraindicated. The reason for contraindication is documented.
- 15.6 Patients with confirmed heart failure due to left ventricular systolic dysfunction have an annual review including immunisation review and a medication contraindication review.
- 15.7 Patients with advanced heart failure despite optimal tolerated medication, without significant co-morbidities, are referred to the Scottish Advanced Heart Failure Service.

Standard 16: Multidisciplinary service delivery for heart failure

Standard statement 16

Patients with heart failure have access to a multidisciplinary team.

Rationale

Access to a multidisciplinary team of healthcare specialists in heart failure, including a doctor with specific expertise in heart failure, nurses and pharmacists can produce better outcomes than non-specialist services.

Reference: 11

Essential criteria

- 16.1 Management of heart failure patients is carried out by a multidisciplinary team with access to specialist support according to identified needs.
- 16.2 Patients with heart failure and, with consent, their family/carer, are offered a package of information to support their self-management.
- 16.3 Patients with heart failure due to left ventricular systolic dysfunction who have previously been hospitalised have access to a heart failure multidisciplinary team that includes a specialist heart failure nurse.

Standard 17: Implantable devices for heart failure

Standard statement 17

Patients with left ventricular systolic dysfunction, who may benefit from cardiac resynchronisation therapy and/or implantable cardioverter defibrillator, are assessed for these therapies.

Rationale

Selected patients with left ventricular systolic dysfunction receive symptomatic and mortality benefits from cardiac resynchronisation therapy and a mortality benefit from an implantable cardioverter defibrillator.

References: 11, 51

Essential criteria

- 17.1** Patients meeting the following criteria are assessed for cardiac resynchronisation therapy:
- QRS 120ms or greater
 - New York Heart Association III–IV
 - left ventricle ejection fraction 35% or less, and
 - receiving optimal therapy.

The assessment is documented.

- 17.2** Patients meeting the following criteria, 1 month or more after acute myocardial infarction or with non-ischaemic cardiomyopathy, are assessed for implantable cardioverter defibrillator:
- New York Heart Association I–III
 - receiving optimal therapy
 - expected survival 1 year or greater, and
 - left ventricle ejection fraction 35% or less.

The assessment is documented.

For patients who have survived cardiac arrest (ventricular tachycardia or ventricular fibrillation) or haemodynamically unstable ventricular tachycardia, refer to criterion 13.2.

- 17.3** Patients who fulfil the criteria for both cardiac resynchronisation therapy and implantable cardioverter defibrillator are assessed for combined cardiac resynchronisation/defibrillator therapy.

Standard 18: Supportive and palliative care for patients with heart disease

Standard statement 18

Patients with heart disease who remain symptomatic despite optimal treatment have access to supportive and palliative care according to their needs.

Rationale

Patients with heart disease, particularly heart failure, who remain symptomatic despite optimal treatment have physical, psychological, social and spiritual needs that may benefit from supportive and palliative care leading to improved quality of life.

References: 11, 57, 58

Essential criteria

- 18.1 Patients in need of supportive and palliative care are identified using recognised triggers, for example the Gold Standard Framework-Prognostic Indicator Guidance.
- 18.2 Patients identified as per 18.1, are assessed using recognised tools, for example the Edmonton Symptom Assessment Scale.
- 18.3 An individual care plan is documented for these patients covering multidimensional aspects, such as implantable cardioverter defibrillator deactivation, and as defined in *Living and Dying Well*.
- 18.4 The documented care plan is communicated to out-of-hours and other relevant services.
- 18.5 The individual care plan is reviewed at least every 3 months.

4 Appendices

Appendix 1 About NHS Quality Improvement Scotland

Appendix 2 NHS Quality Improvement Scotland standards development methodology

Appendix 3 Membership of the heart disease project groups

Appendix 4 Evidence base

Appendix 5 Glossary

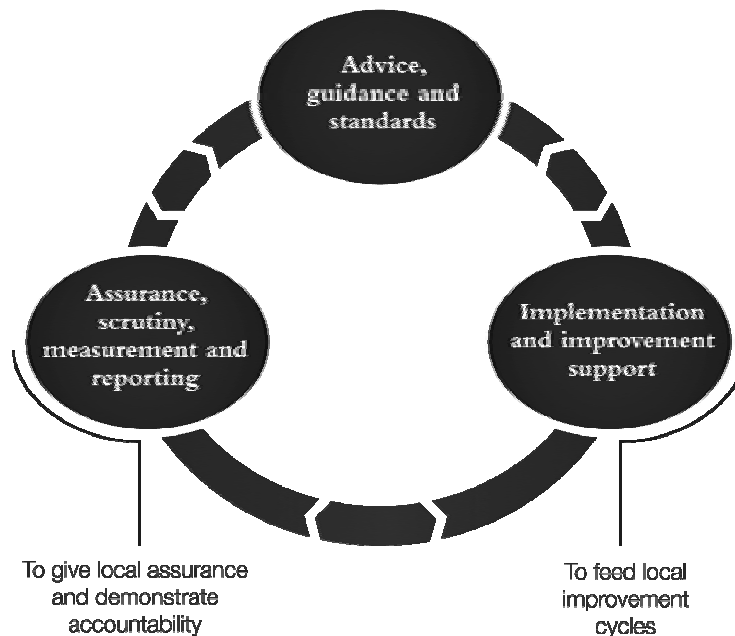
Appendix 1: About NHS Quality Improvement Scotland

NHS Quality Improvement Scotland is a Special Health Board that provides support to NHSScotland.

NHS Quality Improvement Scotland supports NHS boards to improve the quality of patient care by:

- 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 our findings.

NHS Quality Improvement Scotland has central responsibility to support NHS boards to deliver patient safety and clinical governance across NHSScotland.



The Scottish Health Council, the Scottish Intercollegiate Guidelines Network and the Healthcare Environment Inspectorate are key components of the organisation.

NHS Quality Improvement Scotland also takes a leading role in co-ordinating the work of the Scottish Patient Safety Programme and provides support to the Scottish Medicines Consortium.

Further information about NHS Quality Improvement Scotland is available on our website (www.nhshealthquality.org).

Further information on the organisations mentioned above is available on their website.

Scottish Health Council: www.scottishhealthcouncil.org

Scottish Intercollegiate Guidelines Network: www.sign.ac.uk

Scottish Medicines Consortium: www.scottishmedicines.org.uk

Scottish Patient Safety Programme: www.patientsafetyalliance.scot.nhs.uk

Appendix 2: NHS Quality Improvement Scotland standards development methodology

Basic principles

A major part of the remit of NHS Quality Improvement Scotland 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 Quality Improvement Scotland sets standards for clinical services, evaluates performance 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 Quality Improvement Scotland 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 Quality Improvement Scotland 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 Quality Improvement Scotland 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 Quality Improvement Scotland standards and definition of terminology

NHS Quality Improvement Scotland 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 Quality Improvement Scotland standards follow the same format.

Each standard has a **title** that 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** that 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 that 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 the healthcare service should expect these to be safe and effective. There are existing NHS Quality Improvement Scotland 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 Quality Improvement Scotland service and condition-specific standards apply. The clinical governance and risk management standards are available on request from NHS Quality Improvement Scotland or can be downloaded from the website (www.nhshealthquality.org).

Appendix 3: Membership of the heart disease project groups

Steering group

Name	Title	NHS board area/ Organisation
Dr Martin Denvir (Chair)	Clinical Advisor/Consultant Cardiologist	NHS Quality Improvement Scotland /University of Edinburgh
Dr Alan Begg	General Practitioner	Royal College of General Practitioners Scotland
Dr Allan Bridges	Consultant Cardiologist	NHS Forth Valley
Professor Henry Dargie	Consultant Cardiologist	NHS National Waiting Times Centre
Dr Iain Findlay	Consultant Cardiologist	NHS Greater Glasgow and Clyde
Dr Stephen Glen	Consultant Cardiologist	NHS Forth Valley
Mrs Catherine Mondoia	Consultant Nurse - Cardiology	NHS Forth Valley
Dr David Murdoch	Consultant Cardiologist	NHS Greater Glasgow and Clyde
Professor Andrew Rankin	Professor of Medical Cardiology	University of Glasgow
Professor Lewis Ritchie	MacKenzie Professor of General Practice	University of Aberdeen
Professor Allan Struthers	Professor of Cardiovascular Medicine and Therapeutics	University of Dundee

Core standards project group

Name	Title	NHS board area/ Organisation
Mrs Denise Brown (Chair)	Manager Heart and Stroke MCN	NHS Ayrshire & Arran
Dr Alison Bramley	CHD MCN Manager	NHS Lothian
Mr Andy Carver	Prevention and Care Advisor	British Heart Foundation Scotland

Mr Alan Foster	Heart Disease MCN Co-ordinator	NHS Greater Glasgow and Clyde
Ms Linda Lockhart	Cardiology Nurse Manager	NHS Dumfries & Galloway
Ms Lorna McTernan	Health Information Manager	Chest Heart & Stroke Scotland
Mr David Munro	MCN Manager	NHS Forth Valley

Chest pain in the non-emergency care setting project group

Name	Title	NHS board area/ Organisation
Professor Lewis Ritchie (Chair)	MacKenzie Professor of General Practice	University of Aberdeen
Dr Alan Begg (project group 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 emergency care setting project group

Name	Title	NHS board area/ Organisation
Professor Lewis Ritchie (Chair)	MacKenzie Professor of General Practice	University of Aberdeen
Dr Stephen Glen (project group 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	Clinical Governance & Quality Lead	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

Cardiac rehabilitation project group

Name	Title	NHS board area/ Organisation
Mrs Catherine Mondoia (Chair)	Consultant Nurse - Cardiology	NHS Forth Valley
Mrs Brenda Anderson	Cardiac Rehabilitation Manager	NHS Grampian
Miss Gillian Armstrong	Cardiac Rehabilitation Team Lead	NHS Greater Glasgow and Clyde
Ms Frances Divers	Cardiologist Nurse Consultant	NHS Lothian
Dr Paul MacIntyre	Consultant Physician and Cardiologist	NHS Greater Glasgow and Clyde
Ms Janet McKay	Consultant Nurse	NHS Ayrshire & Arran
Miss Helen Miller	Cardiac Rehabilitation Nurse Specialist	NHS Tayside
Dr Iain Todd	Consultant in Rehabilitation Medicine	NHS Lothian

Arrhythmias project group

Name	Title	NHS board area/ Organisation
Professor Andrew Rankin (Chair)	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
Mr Andy Carver	Prevention and Care Advisor	British Heart Foundation Scotland
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
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 Paul Neary	Consultant Cardiologist	NHS Borders
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	General Practitioner	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)	Professor of Cardiovascular Medicine and Therapeutics	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
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

Supportive and palliative care for patients with heart disease project group

Name	Title	NHS board area/ Organisation
Professor Elizabeth Ireland (Chair)	National Clinical Lead for Palliative and End of Life Care	NHS Forth Valley
Mrs Yvonne Millerick	Heart Failure Palliative Care Project Nurse	NHS Greater Glasgow and Clyde
Professor Scott Murray	St Columba's Hospice Chair of Primary Palliative Care	University of Edinburgh
Dr David Oxenham	Consultant	Marie Curie Hospice Edinburgh
Professor Allan Struthers	Professor of Cardiovascular Medicine and Therapeutics	University of Dundee
Mrs Patricia Wallace	Director	Scottish Partnership for Palliative Care

Patient project group

Name	Title	NHS board area/ Organisation
Mr Alan Foster (Chair)	Heart Disease MCN Co-ordinator	NHS Greater Glasgow and Clyde
Mr Andy Carver	Prevention and Care Advisor	British Heart Foundation Scotland
Mr Dominic Dale	Patient/Carer/Public Involvement Group	NHS Lanarkshire
Miss Jane Johnston	Patient/Carer/Public Involvement Group	NHS Lanarkshire

Mr Michael McNulty	Patient Representative	NHS Lothian
Ms Lorna McTernan	Information Officer	Chest, Heart & Stroke Scotland
Mrs Hazel Moss	Patient Representative	Arrhythmia Alliance
Mr Ford Paterson	Patient Representative	NHS Lothian
Mr George Selkirk	Patient Representative	NHS Lothian
Mr Wilson Smith	Patient/Carer/Public Involvement Group	NHS Lanarkshire
Mr George Stewart	Patient Representative – MCN (Heart)	NHS Greater Glasgow and Clyde
Mr Peter Thomson	Chair/Secretary	Heartbeat Edinburgh

NHS Quality Improvement Scotland provided support to all of the heart disease project groups.

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Appendix 5: Glossary

ablation therapy	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.
acute coronary syndrome	Acute coronary syndrome is a condition where there is a sudden interruption in blood flow in one or more of the coronary arteries supplying the heart. The reduction in blood supply results in damage to the heart muscle. The amount of damage can vary between a small amount with very mild, or even no symptoms; to injury of a large amount of heart muscle with severe symptoms (usually chest pain and/or breathlessness) and even sudden death.
advanced heart failure	New York Heart Association Class III/IV Category D: Severe symptoms of heart failure despite optimal tolerated standard medications associated with objective evidence of severe structural heart disease.
amiodarone	Medication used to treat rhythm disturbances of the heart.
angina	Discomfort in the chest, jaw or arm which often typically occurs on exertion due to a reduced blood supply to the heart.
angiotensin	Angiotensin 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.
angiotensin converting enzyme inhibitor	A group of drugs which lower blood pressure by dilating blood vessels.
angiotensin receptor blocker	Medications that block the receptors of angiotensin in the heart and blood vessels (see angiotensin).
anticoagulant therapy	Medications that thin the blood and reduce the risk of blood clots.
arrhythmias	Any variation from the normal, regular heartbeat.
aspirin	A medication which thins the blood, by reducing the activity of cells in the blood called platelets, to prevent clots forming.
ASSIGN risk assessment tool	A web-based computer software tool used to assess a person's risk of developing cardiovascular disease over the next 10 years, taking socio-economic deprivation status into account.
atrial fibrillation	A type of arrhythmia, in which the top chambers of the heart (the atria) beat very rapidly and irregularly, causing the heart to beat in an irregular way.
atrial flutter	A type of arrhythmia, in which the top chambers of the heart (the atria) beat very rapidly and regularly, causing the heart to beat fast.
beta blocker	A group of drugs that block or reduce the effects of adrenaline on the heart and blood vessels.
brain natriuretic peptide	A blood test used to diagnose heart failure.
call to balloon time	The time between the ambulance being called (ambulance call-time) and the placement of the first treatment device (balloon or stent or thrombus extraction device) in the coronary artery responsible for the heart attack.
call to needle time	The time between the ambulance being called (ambulance call-time) and the first intravenous administration of clot-busting therapy (thrombolysis).

cardiac arrest	Medical emergency with absent or inadequate contraction of the heart that immediately causes circulatory failure.
cardiac rehabilitation	Cardiac rehabilitation is the process by which patients with cardiac disease, in partnership with a multidisciplinary team of health professionals, are encouraged and supported to achieve and maintain optimal physical and psychosocial health. The involvement family and carers is also important.
cardiac resynchronisation therapy (CRT)	A form of therapy that uses a pacemaker to help improve co-ordination of heart contraction for patients with congestive heart failure.
cardiac resynchronisation therapy-defibrillator (CRT-D)	A form of therapy that uses a pacemaker to help improve co-ordination of heart contraction and that will also treat abnormal heart rhythms.
cardiac specialist team	A team of healthcare professionals with relevant specialist cardiology training and expertise.
cardiologist	A doctor specialising in the diagnosis and management of diseases of the heart and blood vessels.
cardiomyopathy	A disease of the heart muscle that affects the contraction and/or relaxation of the heart chambers.
cardiopulmonary resuscitation	A group of treatments used when an individual's heart and/or breathing stops.
cardiovascular disease	A general term used to describe disorders affecting the heart, kidneys, brain and blood vessels.
cardiovascular event	An episode or event involving the class of diseases that involve the heart or blood vessels (eg a myocardial infarction or a stroke).
cascade testing	The identification of people at risk of a genetic condition through family tracing.
CHADS/CHADS2 score	A clinical scoring system for predicting 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. This score is used to inform the decision regarding appropriate antithrombotic therapy.
clopidogrel	Medication that reduces the activity of cells called platelets in the blood and so reduces the risk of blood clots forming
congenital heart disease	Abnormal structure of the heart or major blood vessels affecting newborn infants.
congestive heart failure	A condition in which the heart has reduced ability to pump enough blood to the body.
continuing professional development	An ongoing commitment to learning in various forms, which maintains and enhances professional standards of work, and develops the ability to recognise good practice.
contraindications	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.
coronary angiography	A special type of X-ray that allows a blockage or obstruction in the coronary arteries to be viewed.
coronary heart disease	Narrowing of the coronary arteries, leading to reduced blood supply to the heart muscle. This can result in heart attack or angina. Also known as ischaemic heart disease.
defibrillator	An electronic device used to establish normal heartbeat.

diabetes mellitus	A metabolic disease characterised by abnormally high levels of glucose in the blood.
diuretics	Medicines that help reduce the amount of water in the body.
doctor with specific expertise	A doctor with specific skills and training in the relevant condition.
doctor with specific expertise in heart failure	Normally either a consultant cardiologist or a consultant physician/geriatrician with specialist training and expertise in heart failure or a general practitioner with a special interest in heart failure.
echocardiogram	An image and measurement of the heart obtained using ultrasound.
electrocardiogram	A recording of the electrical activity of the heart.
emergency care setting	Situation where emergency care is provided such as in an ambulance or in a hospital.
familial arrhythmia	Heart rhythm disturbances that are inherited some of which may be life-threatening. Examples include long QT syndrome.
Familial Arrhythmia Network of Scotland	A national, specialist managed clinical network set up to improve the diagnosis and care of individuals and their families affected by familial arrhythmia in Scotland.
familial hypercholesterolaemia	An inherited metabolic disorder resulting in very high levels of cholesterol in the blood and premature onset of cardiovascular disease.
first degree relative	A relative such as your parents, children and siblings.
fondaparinux	A type of anticoagulant medication given by injection.
glyceryl trinitrate spray	A type of medication used to ease angina pains.
Gold Standards Framework-PIG	A systematic approach to enhance the care for patients nearing the end of life in primary care.
GRACE	The Global Register of Acute Coronary Events hospital discharge score mathematically combines clinical characteristics to predict mortality from acute coronary syndromes.
haemodynamic	The circulation of blood in the body.
healthcare professional	Professionals trained in a particular area of healthcare delivery and directly involved in the delivery of clinical care to patients (eg doctors and nurses).
heart failure specialist nurse	The heart failure specialist nurse is a nurse who is specifically trained in heart failure management. The role incorporates expert clinical advice, ensuring patients are given evidence based treatments and self-management support and supporting co-ordination of patient care by the multidisciplinary team.
heparin	A medication which is used to prevent the clotting of blood.
high priority groups	Individuals deemed to be at higher than average risk of developing cardiovascular disease.
high risk	In relation to primary prevention, based on consensus, this refers to a 20% or greater total risk of developing a first cardiovascular event over the next 10 years.
Hospital Anxiety and Depression Scale	A standardised questionnaire or tool that allows healthcare workers to identify people experiencing anxiety and depression in the

	hospital setting.
hypertension	High blood pressure
immediate discharge letter	The discharge letter is primarily used to summarise a hospital stay and is usually addressed to the general practitioner
implantable cardioverter defibrillator	A battery-operated device implanted in the body and connected to the heart that can treat abnormal heart rhythms.
improvement plan	A description of a plan to improve an aspect of care using recognised method
infective endocarditis	Infection, usually with bacteria, of the heart valves or lining of the heart.
ischaemia	Insufficient supply of blood to an organ, usually due to a blocked or obstructed artery.
left ventricle ejection fraction	The fraction (percentage) of blood ejected by the heart during each beat.
left ventricular hypertrophy	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.
left ventricular systolic dysfunction	Abnormal or reduced capacity of the heart to eject blood.
managed clinical networks	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.
menu-based programme	An individualised programme based on an assessment of the patient's needs and choices.
multidisciplinary team	A team composed of members from different healthcare professions with specialised skills and training.
myocardial infarction	Scientific term for a heart attack, which occurs when a blood vessel to the heart becomes blocked, or severely obstructed usually by a blood clot, resulting in damage to the heart muscle.
New York Heart Association	A classification tool which assesses exercise tolerance in patients with heart disease.
non-emergency care	Care that is pre-arranged and not requiring an emergency response.
non-ST elevation	Myocardial infarction without associated ST elevation on the electrocardiogram.
nurse specialist	A nurse who has specialised knowledge and competence in a particular area of heart disease, such as in heart failure, angina or arrhythmias. Also known as a clinical nurse specialist in some settings.
optimal therapy	All recommended treatments for a given condition at recommended doses or maximum tolerated dose (this may be less than that recommended due to side effects).
palliative care	An approach that improves the quality of life of patients and their families facing the problems associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual.

peer review panel	A panel of individuals representing the interest of people with heart disease
percutaneous coronary intervention	A procedure performed through a small incision in the skin to open or reduce obstruction of blood vessels in the heart. This procedure is sometimes referred to as coronary angioplasty.
pericardial disease	Disease affecting the sack around the heart called the pericardium.
primary care	The conventional first point of contact between a patient and the NHS which is most often through a general practice.
QRS duration	A pattern of electrical activity seen in an electrocardiogram.
radiofrequency catheter ablation	A procedure used to remove abnormal electrical pathways in heart tissue that can result in abnormal heart rhythms.
reperfusion therapy	Treatment that opens blocked coronary arteries at the time of a heart attack, usually used to mean either thrombolysis or primary percutaneous coronary intervention.
revascularisation	A procedure to restore and improve blood flow to the heart usually meaning either percutaneous coronary intervention or coronary artery by-pass surgery.
Scottish Advanced Heart Failure Service	A specialised unit providing expert care, including heart transplantation, for patients with advanced heart failure based at the Golden Jubilee National Hospital, Clydebank.
secondary care	Hospital-based care services which are provided on an inpatient or outpatient basis.
side effect	An effect of a drug that is not wanted.
spironolactone	A medication used to improve symptoms and outcomes for patients with congestive heart failure.
ST-elevation	Elevation of the ST segment of the electrocardiogram typically seen with heart attack.
stakeholder	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.
statin	A drug which lowers cholesterol levels in the blood.
STEMI	Myocardial infarction associated with elevation of the ST segment of the electrocardiogram.
supraventricular tachycardia	A very fast heartbeat usually arising in the small chambers of the heart called the atrium
syncope	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.
tertiary care	Medical care in a highly specialised centre.
thoracic aorta	The main artery in the chest arising directly from the heart.
thrombolysis	A treatment which involves administering drugs that dissolve blood clots in an artery.
thyrotoxicosis	The presence of too much thyroid hormone (a hormone that affects heart rate and blood pressure) in the body.
troponin	An enzyme released from the heart when an individual has a heart attack.
valvular heart disease	Diseases affecting the valves of the heart.

ventricular fibrillation	An abnormal heart rhythm arising from the ventricles of the heart that results in cardiac arrest and will result in death if untreated.
ventricular tachycardia	An abnormal heart rhythm arising from the ventricles of the heart that can result in cardiac arrest and death if untreated.
working days	Monday to Friday inclusive, excluding recognised holidays.

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