



Heart Disease Improvement Programme

Summary Local Reports | NHSScotland

September 2011

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www.healthcareimprovementscotland.org

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The NHS board managed clinical networks have taken the lead locally in completing the self-evaluation tool and supporting the measurement work. They will now take the lead on advising on local improvement plans using the information and intelligence gathered by this programme of work. We acknowledge the support provided by the managed clinical network managers and lead clinician in all the NHS boards, as well as the support provided by the local clinical effectiveness teams.

1 Setting the scene

Healthcare Improvement Scotland was launched on 1 April 2011. This health body was created by the Public Services Reform (Scotland) Act 2010 and marks a change in the way the quality of healthcare across Scotland will be supported nationally.

Our key purpose is to support healthcare providers in Scotland to deliver high quality, evidence-based, person-centred, safe and effective care; and to scrutinise services to provide public assurance about the quality and safety of that care.

We are building on work previously done by NHS Quality Improvement Scotland and the Care Commission.

For further information on Healthcare Improvement Scotland, please visit our website (www.healthcareimprovementscotland.org).

1.1 About the heart disease improvement programme

The heart disease improvement programme was set up in 2007. It aims to drive and support continuous improvements in care for people in Scotland with heart disease. The programme supports implementation of evidence and measurement of the effectiveness of this. The core elements include:

- the five SIGN heart disease guidelines, published in February 2007
- the *Clinical Standards for Heart Disease*, published in April 2010, together with a self-evaluation tool, and
- a measurement exercise aimed at identifying key improvement indicators that can be routinely measured and used for driving improvement.

This programme is ambitious, challenging and ground-breaking.

- **Ambitious** because it set out to provide the first ever Scotland-wide picture of heart disease services.
- **Challenging** because it required streamlining data collection and analysis to make future assessment at local and national level straightforward and improvement focused.
- **Ground-breaking** because we are moving away from measuring everyone against everything and targeting resources locally and nationally to achieve the best possible experiences and outcomes.

The data, intelligence and knowledge produced and developed as a result of this work are valuable resources, locally and nationally. We have used this to develop a national heart failure care bundle (see Appendix 3) as part of the Scottish Patient Safety Programme. The data also need to be used further to support local and national improvement.

1.2 Evaluation process

We held evaluation panels on 27–28 January 2011 to assess performance against the heart disease standards. These panels were multidisciplinary and included patient and public representatives and healthcare professionals. Each evaluation panel was led by an experienced clinician, who was responsible for guiding the panel in its work and making

sure that panel members agreed the assessment level reached. Appendix 2 gives details of the membership of the three evaluation panels. The evaluation panels drew on NHS boards' completed self-evaluation tools and supporting data in reaching their conclusions. For more information about these data sources, please see Appendix 1.

An assessment scale was used by each evaluation panel to assess performance against the standards. All panel members had training in the review process and scoring methodologies before panel meetings. The assessment scale was based on the Healthcare Improvement Scotland continuous quality improvement scale which is currently used in reviews of NHS boards' performance against standards. The scale consists of the following four levels:

- **Level 1:** The NHS board is **developing** its policies, strategies, systems and processes to deliver heart disease services in line with national evidence, standards and guidance.
- **Level 2:** The NHS board is **implementing** its policies, strategies, systems and processes to deliver care in line with national evidence, standards and guidance.
- **Level 3:** The NHS board is **monitoring** the effectiveness of its policies, strategies, systems and processes to deliver care in line with national evidence, standards and guidance.
- **Level 4:** The NHS board is **reviewing** and continuously improving its policies, strategies, systems and processes to deliver care in line with national evidence, standards and guidance.

The panel assessed each criterion and the scores were aggregated to give the NHS board's overall performance for each standard.

This scale reflects the infrastructure in place to provide person-centred, safe and effective care for people with heart disease.

We used this scale to reflect the growing maturity of heart disease services. We recognise that these are complex services to deliver and our aim is to pinpoint good practice and opportunities for further improvement. It is for NHS boards to determine their local priorities and we will support implementation of these key national initiatives.

1.3 About this report

This report presents the summary findings from the heart disease standards evaluation panels. The panel reviewed the completed self-evaluation tools provided by **NHS boards** and additional information from local audits and the measurement exercise. In each summary of findings, bold text highlights areas of good practice.

This report should be read in conjunction with the national overview report, *Take Heart*. The evaluation focuses on acute care and draws on primary care data as this is where ongoing care is generally provided.

A glossary of terms can be found on the British Heart Foundation's website using the following link: <http://www.bhf.org.uk/heart-health/glossary.aspx>

The glossary of terms can also be found on the Healthcare Improvement Scotland website.

We have also provided NHS boards with detailed working documents to inform their improvement plans.

2 NHS Ayrshire & Arran

2.1 Local service provision

Acute services for patients with heart disease are provided at Crosshouse Hospital, Kilmarnock, and Ayr Hospital. Non-acute services for patients with heart disease are also provided at Ayrshire Central Hospital, Irvine; Girvan Community Hospital; East Ayrshire Community Hospital, Cumnock; and Arran War Memorial Hospital, Isle of Arran.

The nearest specialist (tertiary) centres for complex treatment are the Golden Jubilee National Hospital, Clydebank, and Hairmyres Hospital, East Kilbride.

This NHS board has a managed clinical network for heart disease and stroke which brings together multidisciplinary professionals and patients to deliver heart disease services in a co-ordinated way.

Further information about the local NHS system can be accessed via the website of NHS Ayrshire & Arran (www.nhsayrshireandarran.com).

2.2 Summary of findings

General (Standards 1–3)

NHS Ayrshire & Arran provides a wide range of information about heart disease to patients and their families in a variety of formats. There is also a process for monitoring the level of uptake of and satisfaction with this information locally. There is evidence of good communication between different healthcare organisations, in some cases using electronic formats. There is some evidence of patient-held records for specific conditions which was commended by the evaluation panel. However, there was no evidence of a co-ordinated strategic approach to education for staff involved in managing patients with heart disease.

Individuals at risk of developing cardiovascular disease (Standard 4)

Documentation of blood pressure and smoking status in primary care data systems is good and in a sample of approximately half of GP practices in NHS Ayrshire & Arran, three quarters are using the ASSIGN risk tool for cardiovascular risk assessment. The Keep Well programme, limited to a number of practices in the NHS board area, is targeting primary prevention strategies at high risk groups.

Patients with chest pain (Standards 5–10)

There is a local protocol in place for the management of patients presenting with chest pain in the non-emergency setting. Patients with concerning symptoms are referred to a rapid access chest pain clinic. The NHS board is developing systems to ensure that the majority of these patients are seen within the recommended 5-day standard. The majority of patients with a confirmed diagnosis of coronary heart disease are reviewed within 3 months of diagnosis.

Patients presenting with chest pain in the emergency setting are managed according to a recently implemented protocol aimed at optimising the speed and effectiveness of treatment. The majority of patients with a confirmed acute coronary syndrome are managed by a multidisciplinary team. Diagnosis of these patients by electrocardiogram (ECG) is achieved in a timely way and patients are being assessed using a recognised risk score and referred for inpatient angiography appropriately. The use of secondary prevention medications is commendably high and the majority of patients with acute

coronary syndrome are referred for cardiac rehabilitation. The cardiac rehabilitation programme is well developed with clear evidence of regular measurement and feedback used for learning and service improvement.

Patients with heart rhythm problems (Standards 11–13)

There is a local protocol for the management of patients with heart rhythm disorders, although the level of implementation of this was not clear. This protocol recommends that patients with atrial fibrillation are assessed for their risk of stroke. Evidence was provided to indicate that the majority of patients receive either antiplatelet or anticoagulant drugs. Patients with life-threatening heart rhythm disorders are managed according to a local protocol and the rate of insertion of implantable cardioverter defibrillators is high. **The NHS board provided evidence that it was using local psychology services to assess patients who survive cardiac arrest for anxiety and cognitive impairment.**

Breathless patients (Standards 14–18)

There are local guidelines for diagnosis and initial management of patients presenting with suspected heart failure. NHS Ayrshire & Arran is currently implementing a clinical care bundle for patients with heart failure in conjunction with the Scottish Patient Safety Programme. Access to echocardiography for the diagnosis of patients with suspected heart failure is limited and the NHS board is developing plans to improve this. The use of evidence-based drug therapies for patients with a confirmed diagnosis of heart failure suggested moderately good use of these drugs but there was limited evidence of these data being used for feedback, learning and improvement. There is a well-developed, multidisciplinary service which involves specialist heart failure nurses. **The NHS board has well-developed palliative care systems for patients with heart failure incorporating anticipatory care plans and links to primary care palliative care registers.**

2.3 Assessment levels

The assessment levels listed in the NHS board column below illustrate the most appropriate assessment category agreed by the evaluation panel to describe the NHS board's performance against each standard. The assessments listed in the NHSScotland column below indicate the average assessment received for each standard across Scotland.

Heart disease standards	Assessment	
	NHS Ayrshire & Arran	NHSScotland
1: Provision of information to patients	M	I
2: Communication and multidisciplinary management of patients with heart disease	M	I
3: Education and training for staff	D	I
4: Primary prevention of cardiovascular disease	I	I
5: Assessment of chest pain in the non-emergency care setting	I	I
6: Assessment and management of confirmed coronary heart disease in the non-emergency care setting	I	I
7: Assessment and diagnosis of suspected acute coronary syndrome	I	I
8: Initial management and treatment of suspected or confirmed acute coronary syndrome	I	I
9: Ongoing management and treatment of acute coronary syndrome	M	I
10: Cardiac rehabilitation	M	I
11: Assessment, diagnosis and treatment of arrhythmias	D	D
12: Management of atrial fibrillation	I	D
13: Management of ventricular arrhythmias	I	D
14: Diagnosis of heart failure	D	D
15: Medication for heart failure	I	I
16: Multidisciplinary service delivery for heart failure	I	I
17: Implantable devices for heart failure	D	D
18: Supportive and palliative care for patients with heart disease	M	D

Key:

D	Developing
I	Implementing
M	Monitoring
R	Reviewing

3 NHS Borders

3.1 Local service provision

Acute services for patients with heart disease are provided at Borders General Hospital, Melrose.

The nearest specialist (tertiary) centre for complex treatment is the Royal Infirmary of Edinburgh.

This NHS board has a managed clinical network which brings together multidisciplinary professionals and patients to deliver heart disease services in a co-ordinated way.

Further information about the local NHS system can be accessed via the website of NHS Borders (www.nhsborders.org.uk).

3.2 Summary of findings

General (Standards 1–3)

NHS Borders has a wide range of information available for patients with heart disease and their families. There is a local system for supporting access to this information which was commended by the evaluation panel. There is no system to measure or review the uptake or provide feedback on the quality and availability of the information. There are standard communication systems in place across the NHS board area with plans to develop electronic systems further. Most patients receive a copy of their discharge letter upon leaving hospital. There is a generic unitary patient record in hospital with plans to develop specific care plans for various heart disease conditions. The evaluation panel felt that there was insufficient evidence to assess the standards of heart disease education for staff in NHS Borders.

Individuals at risk of developing cardiovascular disease (Standard 4)

NHS Borders is implementing cardiovascular screening of high risk groups using well established structures in primary care. The Keep Well programme provides a comprehensive health check and cardiovascular risk assessment targeted at people aged 45–64 in the most disadvantaged and deprived households. The ASSIGN tool is widely available and the majority of patients with established hypertension have undergone formal risk assessment. **There is a commendable Scottish enhanced service for cardiovascular risk screening of people with learning difficulties.**

Patients with chest pain (Standards 5–10)

The NHS board has a rapid access chest pain clinic with protocols to guide referral and management of patients with concerning symptoms of chest pain. There were no measurement data provided to assess whether protocols were followed, appropriate drugs prescribed or whether patients were seen within the recommended standard of 5 working days. Access to ECG from primary care appears variable and inconsistent across the NHS board area. There are protocols for managing patients with established coronary heart disease in the community setting. **The use of secondary prevention medications in primary care is commendably high.** Coronary heart disease patients are reviewed annually for influenza vaccination.

Patients presenting with chest pain in the emergency setting are taken to hospital by the Scottish Ambulance Service although less than half are transported by a paramedic crew

with the appropriate equipment as recommended in the standards. A low proportion of chest pain patients presenting directly to accident and emergency have a timely ECG performed. All patients receive aspirin and have troponin testing performed. Once the diagnosis of acute coronary syndrome is confirmed, all patients are managed by a multidisciplinary team. Reperfusion therapy is delivered in a timely way for the majority of ST-elevation myocardial infarction, also known as STEMI, patients, despite geographical challenges in the NHS board area. NHS Borders is developing systems to ensure use of the Global Registry of Acute Coronary Events (GRACE) risk score and Information Services Division data supported the fact that acute coronary syndrome patients are being referred for invasive investigations. There is a high use of secondary prevention medications following acute coronary syndrome, although there are no systems to provide ongoing measurement and feedback for improvement. The majority of acute coronary syndrome patients are referred for cardiac rehabilitation where they receive a well-developed, menu-based approach.

Patients with heart rhythm problems (Standards 11–13)

There are no referral guidelines or protocols for the management of patients with arrhythmia or suspected arrhythmia. NHS Borders reported its intention to consider producing a formal protocol for the management of this group of patients. The NHS board is developing arrangements for the management of patients with atrial fibrillation. The majority of patients from one sample GP practice received anti-thrombotic drugs. There were some arrangements for referring patients with atrial fibrillation for ongoing expert cardiology care; however, it was not possible for the panel to assess from the evidence provided how widely implemented these were across the NHS board. Patients with life-threatening heart rhythm problems are seen by a cardiologist. The use of implantable cardioverter defibrillators is relatively high in the NHS board area. However, systems are not well developed for local follow-up of patients with such devices. There are no systems to ensure that patients who have had cardiac arrest are assessed for psychological or memory problems.

Breathless patients (Standards 14–18)

NHS Borders is in the early stages of introducing a heart failure care bundle, as part of the Scottish Patient Safety Programme, for patients with breathlessness due to heart failure. In primary care, the majority of heart failure patients have an ECG but only just over one third have an echocardiogram. Systems to ensure that patients with a confirmed diagnosis of heart failure are seen by a doctor with expertise in heart failure are in development using the Scottish Patient Safety Programme care bundle. Evidence-based drug therapies are widely used for patients with heart failure and the NHS board is developing systems to monitor and feedback data for learning and improvement. The NHS board has a multidisciplinary team which includes a specialist nurse for managing patients with a confirmed diagnosis of heart failure. As previously noted, the use of implantable cardioverter defibrillators is relatively high but no data were provided on use of cardioverter resynchronisation therapy. The NHS board is developing systems to ensure that patients with heart disease reaching end of life have access to appropriate palliative care support services.

3.3 Assessment levels

The assessment levels listed in the NHS board column below illustrate the most appropriate assessment category agreed by the evaluation panel to describe the NHS board's performance against each standard. The assessments listed in the NHSScotland column below indicate the average assessment received for each standard across Scotland.

Heart disease standards	Assessment	
	NHS Borders	NHSScotland
1: Provision of information to patients	I	I
2: Communication and multidisciplinary management of patients with heart disease	D	I
3: Education and training for staff	D	I
4: Primary prevention of cardiovascular disease	I	I
5: Assessment of chest pain in the non-emergency care setting	D	I
6: Assessment and management of confirmed coronary heart disease in the non-emergency care setting	I	I
7: Assessment and diagnosis of suspected acute coronary syndrome	I	I
8: Initial management and treatment of suspected or confirmed acute coronary syndrome	I	I
9: Ongoing management and treatment of acute coronary syndrome	I	I
10: Cardiac rehabilitation	M	I
11: Assessment, diagnosis and treatment of arrhythmias	D	D
12: Management of atrial fibrillation	D	D
13: Management of ventricular arrhythmias	D	D
14: Diagnosis of heart failure	D	D
15: Medication for heart failure	I	I
16: Multidisciplinary service delivery for heart failure	I	I
17: Implantable devices for heart failure	D	D
18: Supportive and palliative care for patients with heart disease	D	D

Key:

D	Developing
I	Implementing
M	Monitoring
R	Reviewing

4 NHS Dumfries & Galloway

4.1 Local service provision

Acute services for patients with heart disease are provided at the following hospitals: Dumfries & Galloway Royal Infirmary and Galloway Community Hospital, Stranraer.

The nearest specialist (tertiary) centre for complex treatment is the Golden Jubilee National Hospital, Clydebank.

A heart failure nursing service is in operation throughout NHS Dumfries & Galloway. Several outpatient services such as cardiac rehabilitation exercise classes and physiotherapy clinics are provided in a number of community settings.

This NHS board has a managed clinical network which brings together multidisciplinary professionals and patients to deliver heart disease services in a co-ordinated way.

Further information about the local NHS system is available from the NHS Dumfries & Galloway website (www.nhsdg.scot.nhs.uk).

4.2 Summary of findings

General (Standards 1–3)

NHS Dumfries & Galloway has well-developed systems in place to provide patients with heart disease, their families and carers with information that is relevant to their needs. Information is available in a variety of formats and languages. Patients are consulted with on the development of this information.

The NHS board also has effective communication arrangements between healthcare providers, staff and the patients.

Staff are offered a range of educational activities but how the educational needs of medical staff and staff working in primary care are assessed was not clear. As a result the panel was unclear if a coordinated approach to education has been adopted by NHS Dumfries & Galloway.

Individuals at risk of developing cardiovascular disease (Standard 4)

Blood pressure and smoking status are well documented within primary care data systems. The NHS board has arrangements in place to assess people at risk of cardiovascular disease. However, the panel considered that these required further development and evaluation.

Patients with chest pain (Standards 5–10)

Patients presenting with chest pain in the non-emergency setting are seen and assessed by a cardiologist using a comprehensive protocol. The waiting time for the rapid access clinic is more than the recommended 5 days; however, this is under review. There are systems in place to follow-up patients with a confirmed diagnosis of coronary heart disease but evidence of these arrangements was not provided. It was unclear to the panel if these arrangements are systematically measured and reviewed.

NHS Dumfries & Galloway recently introduced an optimal reperfusion service pathway to manage patients who present with chest pain in the emergency setting. The panel found

evidence that the pathway is working reasonably well and being evaluated, and that data is being used to support learning and improvement. The number of patients assessed by ECG and treated promptly with thrombolysis should be subject to ongoing review to support continuous improvement. The panel considered that the NHS board should assume a greater level of accountability for patients sent to the interventional centre in the acute setting.

Patients confirmed as having acute coronary syndrome are risk assessed with a high proportion referred for in-patient invasive investigations and treatment. **The panel commended the arrangements for offering, and the high use of appropriate evidence-based secondary prevention medications in these patients. The NHS board has a comprehensive and well-developed cardiac rehabilitation service and the majority of patients are referred to cardiac rehabilitation services prior to discharge.**

Patients with heart rhythm problems (Standards 11–13)

The panel considered that the pathways and protocols for referral and management of patients with arrhythmias required further development. The majority of patients with atrial fibrillation are prescribed warfarin or antiplatelet therapy. However, the use of warfarin in moderate and high risk patients is lower than expected. Systems for assessing patients who have survived cardiac arrest due to serious arrhythmias are in development. **The panel commended the rate of use of internal cardiac defibrillators.**

Breathless patients (Standards 14–18)

The NHS board is testing the care bundle approach developed by the Scottish Patient Safety Program to improve the care of patients with breathlessness and heart failure. The panel felt the use of evidence-based drug therapies for patients with a confirmed diagnosis of heart failure, requires ongoing measurement and review. Patients with a confirmed diagnosis of heart failure are cared for using a multidisciplinary team approach. The use of implantable devices is high and is at least in line with average rates for Scotland as a whole. **The panel commended local developments in palliative care for patients with heart disease.**

4.3 Assessment levels

The assessment levels listed in the NHS board column below illustrate the most appropriate assessment category agreed by the evaluation panel to describe the NHS board's performance against each standard. The assessments listed in the NHSScotland column below indicate the average assessment received for each standard across Scotland.

Heart disease standards	Assessment	
	NHS Dumfries & Galloway	NHSScotland
1: Provision of information to patients	M	I
2: Communication and multidisciplinary management of patients with heart disease	I	I
3: Education and training for staff	I	I
4: Primary prevention of cardiovascular disease	I	I
5: Assessment of chest pain in the non-emergency care setting	I	I
6: Assessment and management of confirmed coronary heart disease in the non-emergency care setting	I	I
7: Assessment and diagnosis of suspected acute coronary syndrome	I	I
8: Initial management and treatment of suspected or confirmed acute coronary syndrome	I	I
9: Ongoing management and treatment of acute coronary syndrome	M	I
10: Cardiac rehabilitation	M	I
11: Assessment, diagnosis and treatment of arrhythmias	D	D
12: Management of atrial fibrillation	D	D
13: Management of ventricular arrhythmias	D	D
14: Diagnosis of heart failure	I	D
15: Medication for heart failure	I	I
16: Multidisciplinary service delivery for heart failure	I	I
17: Implantable devices for heart failure	D	D
18: Supportive and palliative care for patients with heart disease	I	D

Key:

D	Developing
I	Implementing
M	Monitoring
R	Reviewing

5 NHS Fife

5.1 Local service provision

Acute services for patients with heart disease are provided at Victoria Hospital, Kirkcaldy, and Queen Margaret Hospital, Dunfermline.

The nearest specialist (tertiary) centres for complex treatment are the Royal Infirmary of Edinburgh and Ninewells Hospital, Dundee.

Clinics are also held at St Andrews Community Hospital and Dovecot Clinic, Glenrothes.

This NHS board has a managed clinical network which brings together multidisciplinary professionals and patients to deliver heart disease services in a co-ordinated way.

Further information about the local NHS system can be accessed via the website of NHS Fife (www.nhsfife.scot.nhs.uk).

5.2 Summary of findings

General (Standards 1–3)

There is a wide range of heart disease information for patients and their families. Patient information is co-ordinated by a central process. Work has been carried out with one heart failure patient focus group to gain their feedback on the information they received. There are good communication systems across the board area with plans to increase the use of electronic formats. A comprehensive care plan document is being developed for people with heart failure. There is good discharge planning from hospital and patients receive a copy of their immediate discharge letter. There is a programme of education for staff managing patients with heart disease and there are plans to undertake a training needs assessment. A managed clinical network subgroup and the lead clinician are responsible for planning and co-ordinating education for heart disease.

Individuals at risk of developing cardiovascular disease (Standard 4)

Blood pressure and smoking status are well documented in primary care data systems. There is a programme of work focusing on high cardiovascular risk groups in primary care as part of the Keep Well programme. The ASSIGN risk score tool is widely used in primary care. There are plans to develop systems to ensure 5-year review of low risk patients in high priority groups.

Patients with chest pain (Standards 5–10)

There are well-defined pathways and protocols for referral and management of patients with chest pain presenting in the non-emergency setting. **Patients with concerning symptoms are seen at a rapid access chest pain clinic within 5 days.** Ongoing care of patients with confirmed coronary heart disease is carried out according to local protocols and pathways. The managed clinical network is monitoring the number of patients seen at the rapid access chest pain clinic as part of a cycle of improvement.

Patients with chest pain and suspected acute coronary syndrome are transported rapidly to hospital by ambulance. Many patients have an ECG within the recommended time but there is scope for improvement. Patients with suspected acute coronary syndrome are given aspirin and have troponin testing performed.

Patients with confirmed acute coronary syndrome are managed by a multidisciplinary team. Patients with STEMI are treated with primary percutaneous coronary intervention, also known as primary angioplasty, in either Edinburgh or Dundee. This is a new development and thrombolysis is being used less frequently as this new service is being implemented. Local audit of time delays to treatment with thrombolysis suggest a high level of timely treatment. There were insufficient data to assess time delays for primary angioplasty. The NHS board is developing systems to ensure that acute coronary syndrome patients are assessed for risk of future events using GRACE. **The use of secondary prevention medications is high and there is a commendable system for monitoring and using data for feedback and learning. All patients with acute coronary syndrome were referred for cardiac rehabilitation.** There is a well-developed cardiac rehabilitation service delivering a menu-based programme to a range of patients with heart disease conditions.

Patients with heart rhythm problems (Standards 11–13)

The managed clinical network is developing a structured referral and management pathway for patients with arrhythmia or suspected arrhythmia. The panel found no evidence of systems for ensuring clinical monitoring of patients on amiodarone. There are protocols but no systems to ensure expert review and referral of patients with arrhythmias. Data were not available to show if patients with atrial fibrillation are systematically assessed for risk of stroke. There is a relatively low level of use of anticoagulants in patients with moderate to high risk of stroke. The number of patients with atrial fibrillation who are referred to cardiology services is low.

Patients with life-threatening arrhythmias are seen by a consultant cardiologist and are referred for implantable cardioverter defibrillators as required. There are no structured protocols and no data supporting whether this pathway is followed in a systematic way. However, the use of implantable cardioverter defibrillators is relatively high, although slightly below the average for Scotland. The cardiac rehabilitation team provides psychological screening and assessment of memory for patients with cardiac arrest. No data were provided as to how widely this practice has been implemented.

Breathless patients (Standards 14–18)

NHS Fife is implementing a heart failure care bundle as part of the Scottish Patient Safety Programme to support diagnosis and management of patients with a confirmed diagnosis of heart failure. NHS Fife is not able to provide timely access to appropriate diagnostic tests for people with suspected heart failure who present with breathlessness in the community. The NHS board is developing an action plan to address this. Other aspects of improvement for inpatient care are being addressed using the heart failure care bundle. There are clear protocols and guidelines in place to support the use of evidence-based medications in patients with heart failure. The panel noted that the use of some drugs was below the national average. The NHS board has a multidisciplinary team that incorporates a specialist heart failure nurse to care for patients with a diagnosis of heart failure due to left ventricular systolic dysfunction. The use of implantable cardioverter defibrillators and cardioverter resynchronisation therapy are relatively low for heart failure patients. The NHS board is using the care bundle to address this issue. NHS Fife is developing systems to identify and manage patients with heart disease, who are reaching the end of life, using recognised protocols and pathways.

5.3 Assessment levels

The assessment levels listed in the NHS board column below illustrate the most appropriate assessment category agreed by the evaluation panel to describe the NHS board's performance against each standard. The assessments listed in the NHSScotland column below indicate the average assessment received for each standard across Scotland.

Heart disease standards	Assessment	
	NHS Fife	NHSScotland
1: Provision of information to patients	I	I
2: Communication and multidisciplinary management of patients with heart disease	I	I
3: Education and training for staff	I	I
4: Primary prevention of cardiovascular disease	I	I
5: Assessment of chest pain in the non-emergency care setting	I	I
6: Assessment and management of confirmed coronary heart disease in the non-emergency care setting	I	I
7: Assessment and diagnosis of suspected acute coronary syndrome	I	I
8: Initial management and treatment of suspected or confirmed acute coronary syndrome	I	I
9: Ongoing management and treatment of acute coronary syndrome	R	I
10: Cardiac rehabilitation	M	I
11: Assessment, diagnosis and treatment of arrhythmias	D	D
12: Management of atrial fibrillation	I	D
13: Management of ventricular arrhythmias	D	D
14: Diagnosis of heart failure	I	D
15: Medication for heart failure	M	I
16: Multidisciplinary service delivery for heart failure	I	I
17: Implantable devices for heart failure	I	D
18: Supportive and palliative care for patients with heart disease	D	D

Key:

D	Developing
I	Implementing
M	Monitoring
R	Reviewing

6 NHS Forth Valley

6.1 Local service provision

Acute services for patients with heart disease are provided at the following hospitals: Stirling Royal Infirmary and Forth Valley Royal Hospital, Larbert.

The nearest specialist (tertiary centres) for complex care are at Golden Jubilee National Hospital, Clydebank, and the Royal Infirmary of Edinburgh.

Clinics are also held at the Cardiac Rehabilitation Suite/NHS Hub, located within The Peak, Sports and Leisure Centre, Forthside, Stirling.

This NHS board has a heart disease managed clinical network which brings together multidisciplinary professionals and patients to deliver heart disease services in a co-ordinated way.

Further information about the local NHS system can be accessed via the website of NHS Forth Valley (www.nhsforthvalley.com).

6.2 Summary of findings

General (Standards 1–3)

Patients with, and those at risk of, heart disease have a wide range of up-to-date information in a variety of formats provided to them by NHS Forth Valley. There are well-developed systems in place to ensure patients, their families and other healthcare teams receive timely communication about care plans using a combination of printed and electronic formats. **The evaluation panel identified as good practice the SBAR format (Situation, Background, Assessment, Recommendations) used in some care plans and discharge letters.** Heart disease educational needs of staff have not been formally assessed. Educational events are currently provided; however, the heart disease managed clinical network recognises the need to develop a more co-ordinated approach to education.

Individuals at risk of developing cardiovascular disease (Standard 4)

Systems to ensure prevention of cardiovascular disease are driven by the Quality and Outcomes Framework (QOF) used in primary care. NHS Forth Valley recognises the need to increase targeting high risk groups using risk assessment tools as highlighted in the clinical standards.

Patients with chest pain (Standards 5–10)

There is evidence that NHS Forth Valley is working to improve services for patients presenting with chest pain in primary care using measurement and feedback for improvement. There is high level use of secondary prevention medications in primary care, and the **hospital-based post-myocardial infarction clinic was commended by the evaluation panel as good practice.**

In the emergency setting, the Scottish Ambulance Service responds rapidly to emergency calls for chest pain and the majority of patients receive aspirin. The panel noted that the NHS board has been working to improve the process for carrying out an ECG for patients with chest pain within 10 minutes of when they arrive at hospital. However, further work is needed to improve performance.

Reperfusion treatment for patients with STEMI appears variable with timely treatment for those transported to NHS Lothian and less timely treatment for those transported to the Golden Jubilee National Hospital. NHS Forth Valley is currently reviewing this with the Scottish Ambulance Service and the appropriate tertiary centres. **Use of secondary prevention medications after myocardial infarction is strongly implemented and well organised largely due to a nurse-led hospital-based clinic. Cardiac rehabilitation services are well developed with a high standard of care and well-developed systems for measurement, review and feedback.**

Patients with heart rhythm problems (Standards 11–13)

While there are protocols in place for effective referral and management of patients with heart rhythm problems, quality assurance systems for monitoring the effective implementation of these protocols are not well developed. There is a high level of appropriate use of anticoagulants in people with atrial fibrillation in order to prevent stroke. The heart disease managed clinical network is working to improve systems to ensure improved care for these patients. Implantation of defibrillator devices has increased steadily in NHS Forth Valley over the last 3 years and is now very close to the national average for Scotland. Improvements in pathways for managing patients after cardiac arrest are in development.

Breathless patients (Standards 14–18)

NHS Forth Valley is developing new pathways and systems to ensure that patients with breathlessness and suspected heart failure who present in primary care are diagnosed, referred and managed effectively. They are cared for by a skilled multidisciplinary team that includes a specialist heart failure nurse. This work includes the development of bundles of care for heart failure patients, diagnosed in both primary and secondary care settings. The use of effective medications in heart failure patients is well implemented and the rates of use of devices, such as implantable cardioverter defibrillator and cardiac resynchronisation therapy, are relatively high compared to Scotland as a whole. Systems to ensure that end of life care is effective for heart failure patients are being implemented in NHS Forth Valley with the majority of GP practices engaged in this process.

6.3 Assessment levels

The assessment levels listed in the NHS board column below illustrate the most appropriate assessment category agreed by the evaluation panel to describe the NHS board's performance against each standard. The assessments listed in the NHSScotland column below indicate the average assessment received for each standard across Scotland.

Heart disease standards	Assessment	
	NHS Forth Valley	NHSScotland
1: Provision of information to patients	I	I
2: Communication and multidisciplinary management of patients with heart disease	M	I
3: Education and training for staff	D	I
4: Primary prevention of cardiovascular disease	D	I
5: Assessment of chest pain in the non-emergency care setting	I	I
6: Assessment and management of confirmed coronary heart disease in the non-emergency care setting	I	I
7: Assessment and diagnosis of suspected acute coronary syndrome	I	I
8: Initial management and treatment of suspected or confirmed acute coronary syndrome	D	I
9: Ongoing management and treatment of acute coronary syndrome	M	I
10: Cardiac rehabilitation	M	I
11: Assessment, diagnosis and treatment of arrhythmias	D	D
12: Management of atrial fibrillation	I	D
13: Management of ventricular arrhythmias	D	D
14: Diagnosis of heart failure	D	D
15: Medication for heart failure	I	I
16: Multidisciplinary service delivery for heart failure	I	I
17: Implantable devices for heart failure	I	D
18: Supportive and palliative care for patients with heart disease	I	D

Key:

D	Developing
I	Implementing
M	Monitoring
R	Reviewing

7 NHS Grampian

7.1 Local service provision

Acute services for patients with heart disease are provided at Aberdeen Royal Infirmary.

The nearest specialist (tertiary) centre for complex treatment is the Golden Jubilee National Hospital, Clydebank.

Cardiac rehabilitation exercise classes and physiotherapy clinics are held throughout NHS Grampian. A heart failure nursing service is in operation throughout NHS Grampian. However, at the time of the evaluation, there were no heart failure nurses in acute settings across the NHS board.

This NHS board has a managed clinical network which brings together multidisciplinary professionals and patients to deliver heart disease services in a co-ordinated way.

Further information about the local NHS system can be accessed via the website of NHS Grampian (www.nhsgrampian.org).

7.2 Summary of findings

Much of the national audit data, described in Appendix 1, was not provided by NHS Grampian as evidence against the standards. NHS Grampian noted that there were limited data from primary care as the national primary care extraction tool was not compatible with the systems used across the NHS board. In addition, NHS Grampian noted the challenges it faced in providing audit data for all the standards as there are no electronic records in secondary care. This presented challenges to the panel in evaluating the NHS board's performance against the standards. This summary is based on the evidence and information that was provided.

General (Standards 1–3)

NHS Grampian provided evidence of a wide range of patient information for patients with heart disease and their families. There is a central system for ensuring that information is kept up to date. There are good systems to ensure communication between different NHS organisations. NHS Grampian is also developing an electronic immediate discharge letter. Staff are currently offered a range of educational events. The NHS board intends to develop a more strategic approach to education.

Individuals at risk of developing cardiovascular disease (Standard 4)

NHS Grampian provided evidence that it is developing systems to ensure that people at high risk of cardiovascular disease have a formal risk assessment. However, the panel felt there was a lack of evidence to indicate that these systems are being developed using a strategic approach across the NHS board.

Patients with chest pain (Standards 5–10)

NHS Grampian has developed a chest pain referral pathway for patients presenting with chest pain in the non emergency care setting. The pathway focuses on patients at a high risk of acute coronary syndrome. The NHS board did not provide evidence to demonstrate that patients with chest pain are seen within 5 days, or that patients receive the recommended drug therapy prior to referral. **There is a high use of evidence-based drug therapy in primary care in patients with established coronary heart disease.**

The NHS board is developing plans to ensure that all patients are reviewed within 3 months of diagnosis.

The majority of patients presenting with chest pain in the emergency setting were seen by a paramedic ambulance within the national waiting time targets. Most patients received aspirin on presentation but few had an ECG within the recommended timescale. Troponin testing is performed on patients presenting with chest pain suggestive of acute coronary syndrome.

Patients with confirmed acute coronary syndrome are managed by a multidisciplinary team. Patients with STEMI are treated with a combined service delivering primary angioplasty and thrombolysis. Overall, half of patients received these treatments within the recommended timescale. Three quarters of those having primary angioplasty were treated within 90 minutes of their diagnostic ECG. There is no systematic approach to risk assessment of patients with acute coronary syndrome. The majority of patients with acute coronary syndrome had an assessment of heart function, and **the use of secondary prevention drugs is commendably high**. The data available to the panel indicated that the number of patients with acute coronary syndrome referred for cardiac rehabilitation is relatively low. Most patients are offered a menu-based cardiac rehabilitation programme.

Patients with heart rhythm problems (Standards 11–13)

The NHS board did not provide evidence that a structured referral and management pathway is in place for patients with arrhythmias or suspected arrhythmias. Likewise, the NHS board did not provide evidence that systems to ensure more complex patients with heart rhythm disorders are referred to specialist services. A limited protocol has been developed to support the management of patients with atrial fibrillation. However, this has not yet been implemented across the board area. The NHS board did not return data to indicate the level of use of anti-thrombotic therapy for patients with atrial fibrillation in primary care. The NHS board is implementing pathways to ensure that patients with life-threatening arrhythmias are seen by a cardiologist and managed appropriately. There is a high level of use of implantable cardioverter defibrillators. There are no systems to screen for psychological problems or memory problems for patients with cardiac arrest.

Breathless patients (Standards 14–18)

NHS Grampian is in the early stages of introducing the heart failure care bundle as part of the Scottish Patient Safety Programme. This is being piloted within two hospital wards. There are currently no systems to ensure that patients presenting with breathlessness in primary care receive tests to diagnose their problem quickly. There was insufficient evidence for the panel to evaluate whether heart failure patients are treated with evidence-based medications. The panel expressed concerns about the lack of a clear multidisciplinary service incorporating heart failure nurses in the board area. The use of device therapy for patients with heart failure is commendably high but a more structured approach to management was recommended by the panel. The NHS board appears to have no systems to ensure that patients with heart disease are considered for palliative care.

7.3 Assessment levels

The assessment levels listed in the NHS board column below illustrate the most appropriate assessment category agreed by the evaluation panel to describe the NHS board's performance against each standard. The assessments listed in the NHSScotland column below indicate the average assessment received for each standard across Scotland.

Heart disease standards	Assessment	
	NHS Grampian	NHSScotland
1: Provision of information to patients	I	I
2: Communication and multidisciplinary management of patients with heart disease	I	I
3: Education and training for staff	D	I
4: Primary prevention of cardiovascular disease	No evidence	I
5: Assessment of chest pain in the non-emergency care setting	D	I
6: Assessment and management of confirmed coronary heart disease in the non-emergency care setting	D	I
7: Assessment and diagnosis of suspected acute coronary syndrome	I	I
8: Initial management and treatment of suspected or confirmed acute coronary syndrome	D	I
9: Ongoing management and treatment of acute coronary syndrome	I	I
10: Cardiac rehabilitation	D	I
11: Assessment, diagnosis and treatment of arrhythmias	D	D
12: Management of atrial fibrillation	D	D
13: Management of ventricular arrhythmias	I	D
14: Diagnosis of heart failure	D	D
15: Medication for heart failure	D	I
16: Multidisciplinary service delivery for heart failure	No evidence	I
17: Implantable devices for heart failure	No evidence	D
18: Supportive and palliative care for patients with heart disease	No evidence	D

Key:

D	Developing
I	Implementing
M	Monitoring
R	Reviewing

8 NHS Greater Glasgow and Clyde

8.1 Local service provision

Acute services for patients with heart disease are provided at the following hospitals: Glasgow Royal Infirmary; Western Infirmary, Glasgow; Gartnavel General Hospital, Glasgow; Royal Alexandra Hospital, Paisley; Inverclyde Royal Hospital, Greenock; Victoria Infirmary, Glasgow; Stobhill General Hospital, Glasgow; Southern General Hospital, Glasgow; and the Vale of Leven General Hospital, Alexandria.

The nearest specialist (tertiary) centre for complex treatment is the Golden Jubilee National Hospital, Clydebank.

Clinics are also held at the Clydebank Health Centre, Baillieston Health Centre, Shettleston Health Centre, Easterhouse Health Centre, Helensburgh Health Centre, Pollok Health Centre, Rutherglen Health Centre, Renfrew Health Centre, Kirkintilloch Health Centre, and Greenock Health Centre. Cardiac rehabilitation exercise and education classes are held throughout the city in leisure and sports centres, and group patient education sessions in community centres.

This NHS board has a managed clinical network which brings together multidisciplinary professionals and patients to deliver heart disease services in a co-ordinated way.

Further information about the local NHS system can be accessed via the website of NHS Greater Glasgow and Clyde (www.nhsggc.org.uk).

8.2 Summary of findings

General (Standards 1–3)

There is a comprehensive range of information provided to patients and their families about heart disease in a wide range of formats. **The panel highlighted as good practice the well-developed process to ensure feedback and public involvement in the use and development of this information.** There are good communication systems in place and electronic systems are being increasingly developed and used. The NHS board is currently undertaking a series of measurement and assessment projects (audits) in relation to communication between organisations and patients with heart disease. Heart disease education and training for staff is provided for some staff groups, and a more co-ordinated and strategic approach is being developed by the managed clinical network.

Individuals at risk of developing cardiovascular disease (Standard 4)

Blood pressure and smoking status are well documented in primary care data systems. Limited evidence was provided to indicate that cardiovascular risk assessment was being actively provided for high risk individuals in GP practices running the Keep Well project. There appears to be limited systems to identify and review high risk individuals more widely across the NHS board area.

Patients with chest pain (Standards 5–10)

Patients presenting with chest pain in the non-emergency setting are managed using a clear protocol which includes a rapid access chest pain clinic. **Patients with confirmed coronary heart disease are managed well within primary care, including the use of secondary prevention medications, through the development of locally enhanced services.**

Patients presenting with chest pain in the emergency care setting are managed according to a local protocol. The use of aspirin was high and the majority of patients had a troponin blood test. However, low quality data were provided on whether an ECG was recorded routinely in a timely fashion. Limited data were available to assess the use of timely reperfusion therapy. The majority of patients with confirmed acute coronary syndrome are managed by a multidisciplinary team. **The use of secondary prevention medications following acute coronary syndrome was commendably high and referral to cardiac rehabilitation services was documented for the majority of patients. Cardiac rehabilitation services have recently undergone redesign and the panel agreed that this has incorporated a well-developed menu-based approach.**

Patients with heart rhythm problems (Standards 11–13)

While the NHS board provided clear descriptions of services for patients with arrhythmias, there was little evidence of measurement and assessment processes to inform improvement. The majority of patients with atrial fibrillation are treated with anti-thrombotic drugs. The use of implantable cardioverter defibrillators is commendably high and in line with the Scottish average. There was no evidence of systems to ensure that patients who survive cardiac arrest are assessed for cognitive and psychological problems.

Breathless patients (Standards 14–18)

A revised pathway for diagnosis of patients with breathlessness and possible heart failure is being piloted locally. The NHS board is also currently introducing a care bundle for management of patients with heart failure in conjunction with the Scottish Patient Safety Programme. The use of evidence-based drugs for patients with an established diagnosis of heart failure is high. **There is a well-developed multidisciplinary service which includes specialist nurses.** The rate of use of devices in patients with heart failure is in line with national averages. **Services for palliative care for patients with heart disease were highly commended by the panel. These services have been developed as part of a project with the British Heart Foundation through the Caring Together project.**

8.3 Assessment levels

The assessment levels listed in the NHS board column below illustrate the most appropriate assessment category agreed by the evaluation panel to describe the NHS board's performance against each standard. The assessments listed in the NHSScotland column below indicate the average assessment received for each standard across Scotland.

Heart disease standards	Assessment	
	NHS Greater Glasgow and Clyde	NHSScotland
1: Provision of information to patients	M	I
2: Communication and multidisciplinary management of patients with heart disease	I	I
3: Education and training for staff	D	I
4: Primary prevention of cardiovascular disease	D	I
5: Assessment of chest pain in the non-emergency care setting	I	I
6: Assessment and management of confirmed coronary heart disease in the non-emergency care setting	M	I
7: Assessment and diagnosis of suspected acute coronary syndrome	I	I
8: Initial management and treatment of suspected or confirmed acute coronary syndrome	I	I
9: Ongoing management and treatment of acute coronary syndrome	M	I
10: Cardiac rehabilitation	R	I
11: Assessment, diagnosis and treatment of arrhythmias	I	D
12: Management of atrial fibrillation	I	D
13: Management of ventricular arrhythmias	D	D
14: Diagnosis of heart failure	D	D
15: Medication for heart failure	I	I
16: Multidisciplinary service delivery for heart failure	I	I
17: Implantable devices for heart failure	D	D
18: Supportive and palliative care for patients with heart disease	M	D

Key:

D	Developing
I	Implementing
M	Monitoring
R	Reviewing

9 NHS Highland

9.1 Local service provision

Acute services for patients with heart disease are provided at the following hospitals: Raigmore Hospital, Inverness; Belford Hospital, Fort William; Caithness General Hospital, Wick; and Lorn and Islands Hospital, Oban.

The nearest specialist (tertiary) centre where complex care treatment is carried out for patients in Argyll and Bute, is the Golden Jubilee National Hospital, Clydebank. Some patients in Argyll and Bute Community Health Partnership who require access to a rapid access chest pain service are sent to NHS Greater Glasgow and Clyde. Patients in north NHS Highland go for complex care treatment to Aberdeen Royal Infirmary, the Royal Infirmary of Edinburgh, or to NHS Greater Glasgow and Clyde.

Several outpatient clinics are held in Raigmore Hospital. Outlying medical clinics are also held on Mull and Islay, and in Lochgilphead and Campbeltown. Patients who need to be seen urgently in Caithness General Hospital can be seen on the ward. Acute cardiology clinics are held at Raigmore Hospital and Lorn and Islands Hospital. There is a tele-cardiology clinic held at the Mid Argyll Hospital, Lochgilphead. Several outpatient services are provided in community settings, such as the cardiac rehabilitation service and the heart failure nursing service. These are provided in a number of localities across the NHS board.

This NHS board has a managed clinical network which brings together multidisciplinary professionals and patients to deliver heart disease services in a co-ordinated way.

Further information about the local NHS system can be accessed via the website of NHS Highland (www.nhshighland.scot.nhs.uk).

9.2 Summary of findings

General (Standards 1–3)

NHS Highland provides a wide range of heart disease information for patients and their families. **The evaluation panel commended work in the heart failure and cardiac rehabilitation services in distributing this information.** However, the panel noted that a systematic approach to measurement and feedback was yet to be implemented.

There are clear communication protocols in NHS Highland, with increasing use of electronic formats between organisations. Integrated care pathways are used to create structured care plans for patients for a number of cardiac conditions, including acute coronary syndrome. Audit data suggested that many patients receive a copy of their discharge letter although there is scope for improvement. The NHS board has recently introduced a discharge planning policy. The evaluation panel encouraged NHS Highland to continue to measure the impact of this and use the data for feedback and improvement.

NHS Highland has plans to develop a training programme including a needs assessment for staff who manage people with heart disease. There is a designated lead person for this work and the managed clinical network will play a key role in this strategic plan.

Individuals at risk of developing cardiovascular disease (Standard 4)

Blood pressure and smoking status are well documented in primary care data systems. The majority of patients with high blood pressure have a formal cardiovascular risk assessment using the ASSIGN risk score. There is no other systematic approach to identifying people from high priority groups for cardiovascular screening. There is no system for screening relatives with familial hypercholesterolaemia, which is inherited high cholesterol. There is also no system to review low risk people every 5 years.

NHS Highland has a clinical guideline for referral and management of patients presenting with chest pain in primary care in the non-emergency setting. There is a rapid access chest pain service for patients who have concerning symptoms. Most of these patients are seen at this clinic within 5 working days. Data are collected on the rapid access chest pain clinic; analysis of the outcomes is limited. Patients with a confirmed diagnosis of coronary heart disease receive evidence-based secondary prevention drug therapy and are reviewed for influenza vaccination on a yearly basis in primary care. There was no evidence that patients are reviewed within 3 months of initial diagnosis of coronary heart disease.

Patients with acute coronary syndrome are managed using regionally agreed protocols, particularly for patients with STEMI. Limited data from the Scottish Ambulance Service indicated that most patients with suspected acute coronary syndrome receive aspirin. There was little evidence to indicate, however, that these patients have a timely ECG either in the pre-hospital or hospital setting. Most patients with suspected acute coronary syndrome have troponin testing once they reach hospital. For patients with confirmed acute coronary syndrome, less than half are looked after by a multidisciplinary cardiac team. The majority of patients with STEMI are treated with pre-hospital thrombolysis. Insufficient data were provided to indicate that this was delivered within the standard time delay of less than 60 minutes from call for help or within 30 minutes of diagnostic ECG. There is no system to ensure that acute coronary syndrome patients are assessed for risk using the GRACE risk score and that those at medium to high risk receive invasive investigations within 72 hours. There is a high use of secondary prevention medications following a heart attack. Assessment of left ventricular function within 6 weeks of a heart attack does not appear to be routine current practice in the NHS board. In the acute coronary syndrome audit, only around 50% of patients were formally referred to cardiac rehabilitation at the time of discharge. There is a menu-based cardiac rehabilitation programme available in the NHS board, but the evaluation panel raised concerns about the consistency of provision across the NHS Highland region. The panel noted that a review of cardiac rehabilitation services is currently under way.

Patients with chest pain (Standards 5–10)

NHS Highland has a clinical guideline for referral and management of patients presenting with chest pain in primary care in the non-emergency setting. There is a rapid access chest pain service for patients who have concerning symptoms. Most of these patients are seen at this clinic within 5 working days. Data are collected on the rapid access chest pain clinic; analysis of the outcomes is limited. Patients with a confirmed diagnosis of coronary heart disease receive evidence-based secondary prevention drug therapy and are reviewed for influenza vaccination on a yearly basis in primary care. There was no evidence that patients are reviewed within 3 months of initial diagnosis of coronary heart disease.

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Patients with heart rhythm problems (Standards 11–13)

The NHS board is developing a structured pathway to support referral and management of patients with arrhythmia and those with suspected arrhythmia. This will include monitoring patients on amiodarone, specialist referral of patients with supraventricular tachycardia and referral to the Familial Arrhythmias Network of Scotland. Patients with atrial fibrillation are managed according to a local guideline. There is no evidence that a formal risk assessment is performed in a systematic way for these patients. Primary care data indicated that less than half of patients with atrial fibrillation, who are at moderate or high risk of stroke, receive anticoagulants. However, most receive some form of anti-thrombotic therapy, including aspirin and warfarin.

Patients with life-threatening heart rhythm disorders are seen by a consultant cardiologist. There is no structured care pathway for these patients. Data describing the rates and time delays of implantation of implantable cardioverter defibrillators were not provided by the NHS board. The tertiary centre arranges for NHS Highland's cardiorespiratory department and arrhythmia nurse to follow up patients who have received an implantable cardioverter defibrillator. There is no system in place to ensure screening of cardiac arrest patients for memory or anxiety problems.

Breathless patients (Standards 14–18)

NHS Highland is introducing a heart failure care bundle as part of the Scottish Patient Safety Programme. Data extracted from a sample of GP practices in primary care indicated that few patients with heart failure had an ECG, although the majority had received an echocardiogram. There is a local guideline describing the use of appropriate evidence-based drug therapy for patients with confirmed chronic heart failure. The panel found moderately good evidence that these drugs are being used across the NHS board in both primary and secondary care. However, there is scope for improvement in these data and the evaluation panel encouraged ongoing measurement, review and feedback for learning and improvement. Patients with heart failure because of left ventricular systolic dysfunction, who have previously been hospitalised, have access to a heart failure multidisciplinary team which includes a specialist heart failure nurse. **A heart failure education book, which was commended by the evaluation panel, is available for patients and their families.** The use of cardiac devices for patients residing within NHS Highland is relatively high. The

NHS board is developing systems to ensure that patients with chronic heart failure are routinely reviewed for device therapy. Generic systems are being developed for end of life care and the NHS board is planning to extend these to patients with heart disease.

9.3 Assessment levels

The assessment levels listed in the NHS board column below illustrate the most appropriate assessment category agreed by the evaluation panel to describe the NHS board's performance against each standard. The assessments listed in the NHSScotland column below indicate the average assessment received for each standard across Scotland.

Heart disease standards	Assessment	
	NHS Highland	NHSScotland
1: Provision of information to patients	I	I
2: Communication and multidisciplinary management of patients with heart disease	I	I
3: Education and training for staff	I	I
4: Primary prevention of cardiovascular disease	I	I
5: Assessment of chest pain in the non-emergency care setting	D	I
6: Assessment and management of confirmed coronary heart disease in the non-emergency care setting	I	I
7: Assessment and diagnosis of suspected acute coronary syndrome	I	I
8: Initial management and treatment of suspected or confirmed acute coronary syndrome	D	I
9: Ongoing management and treatment of acute coronary syndrome	I	I
10: Cardiac rehabilitation	D	I
11: Assessment, diagnosis and treatment of arrhythmias	D	D
12: Management of atrial fibrillation	D	D
13: Management of ventricular arrhythmias	D	D
14: Diagnosis of heart failure	D	D
15: Medication for heart failure	I	I
16: Multidisciplinary service delivery for heart failure	I	I
17: Implantable devices for heart failure	D	D
18: Supportive and palliative care for patients with heart disease	D	D

Key:

D	Developing
I	Implementing
M	Monitoring
R	Reviewing

10 NHS Lanarkshire

10.1 Local service provision

Acute services for patients with heart disease are provided at the following hospitals: Hairmyres Hospital, East Kilbride; Monklands Hospital, Airdrie; and Wishaw General Hospital.

The nearest specialist (tertiary) centres where complex care treatment is carried out are Hairmyres Hospital and the Golden Jubilee National Hospital, Clydebank.

Several outpatient services are provided in community settings, such as the coronary heart disease community rehabilitation service, heart failure community clinics and the outreach ECG service. These are provided in a number of localities across the NHS board.

This NHS board has a coronary heart disease managed clinical network which brings together multidisciplinary professionals and patients to deliver heart disease services in a co-ordinated way.

Further information about the local NHS system can be accessed via the website of NHS Lanarkshire (www.nhslanarkshire.org.uk).

10.2 Summary of findings

General (Standards 1–3)

There is a comprehensive package of information in various formats available for patients with heart disease and their families. **The NHS board has a well-developed system for reviewing this information and using feedback for learning.** There is evidence of good communication between organisations across the NHS board area and there are plans to further develop electronic systems. Some patients receive a copy of their discharge summary but there is no clear care plan provided to patients. There is evidence of good discharge planning for patients with acute coronary syndrome. **There is evidence of a strategic approach to heart disease education and staff with some components that are general and some that are specific to heart disease.**

Individuals at risk of developing cardiovascular disease (Standard 4)

The NHS board has a programme for screening people who are at high risk of cardiovascular disease. This has been developed in a significant number of GP practices as part of the Keep Well programme. The ASSIGN risk score is widely used. Protocols for management of high risk patients are in place and are regularly reviewed. **There is a high level of documentation of blood pressure and smoking status in primary care data systems. Systems are in development for screening family members of patients with familial hypercholesterolaemia, which is inherited high cholesterol, and for reviewing patients at low risk every 5 years.**

Patients with chest pain (Standards 5–10)

NHS Lanarkshire has well-developed protocols for the referral and management of patients who present with chest pain in the non-emergency setting. There is evidence of assessment of these processes with local audit and feedback. Patients with concerning symptoms are seen within the recommended standard of 5 days. The ongoing management of patients with confirmed coronary heart disease in primary care are managed according to

protocols and there is a commendably high use of secondary prevention drugs in this setting.

Patients with chest pain suspected to be acute coronary syndrome are seen rapidly by a paramedic ambulance, and the majority are taken to hospital. Most patients receive aspirin. ECG appears to be performed in a timely manner based on local audit data, but less timely according to national audit data. The majority of patients presenting with suspected acute coronary syndrome have troponin testing. Patients with confirmed acute coronary syndrome are managed by a multidisciplinary team. The NHS board has well-developed protocols for treating patients who have STEMI with reperfusion therapy, which includes primary angioplasty. Audit data suggested that this is delivered in a timely way for most patients with some scope for improvement. Patients receive an assessment of heart function following a heart attack and the use of secondary prevention medications in this setting is high. There is a well-developed cardiac rehabilitation service delivering a menu-based programme. There is evidence of measurement of cardiac rehabilitation processes but the panel did not find evidence of this being used for improvement.

Patients with heart rhythm problems (Standards 11–13)

There is a comprehensive protocol in place for referral and management of patients with arrhythmia or suspected arrhythmia. This pathway has recently undergone review and amendment following a consultation process by the managed clinical network. **There is a system to alert GPs when their patients have been prescribed amiodarone so that they can be monitored.** There are processes that ensure that patients with arrhythmias are referred for specialist review. The NHS board is piloting a novel rapid access service for patients with atrial fibrillation and data from this service suggested a high level of use of appropriate drugs and stroke risk assessment. Data from national primary care systems suggested that, more widely, this was not the case with low use of anticoagulants and no data to indicate that stroke risk assessment was being performed in a systematic way across NHS Lanarkshire. The review panel commended the work in developing a rapid access atrial fibrillation clinic. Patients with life-threatening arrhythmias are seen by a specialist and there is a moderately high use of implantable cardioverter defibrillators in the NHS board area, although this is below the crude average level for Scotland. There were no systems to ensure that patients who survive cardiac arrest are assessed for psychological or memory problems in a systematic way.

Breathless patients (Standards 14–18)

NHS Lanarkshire is introducing a heart failure care bundle in conjunction with the Scottish Patient Safety Programme to support diagnosis and management of breathless patients with possible heart failure. The NHS board highlighted that waiting times for echocardiography to assess breathless patients are long. There is a well-developed multidisciplinary service for patients with a confirmed diagnosis of heart failure which includes a specialist nurse. The use of evidence-based drug therapy for heart failure patients is high. Processes for ongoing measurement and review are being developed as part of the care bundle. The use of defibrillator devices is relatively high but below the national average. The use of cardio resynchronisation therapy is low. There are good general systems in place to manage patients at the end of life but there was little evidence of these systems being developed for and targeted at heart disease patients.

10.3 Assessment levels

The assessment levels listed in the NHS board column below illustrate the most appropriate assessment category agreed by the evaluation panel to describe the NHS board's performance against each standard. The assessments listed in the NHSScotland column below indicate the average assessment received for each standard across Scotland.

Heart disease standards	Assessment	
	NHS Lanarkshire	NHSScotland
1: Provision of information to patients	M	I
2: Communication and multidisciplinary management of patients with heart disease	M	I
3: Education and training for staff	M	I
4: Primary prevention of cardiovascular disease	I	I
5: Assessment of chest pain in the non-emergency care setting	M	I
6: Assessment and management of confirmed coronary heart disease in the non-emergency care setting	M	I
7: Assessment and diagnosis of suspected acute coronary syndrome	I	I
8: Initial management and treatment of suspected or confirmed acute coronary syndrome	I	I
9: Ongoing management and treatment of acute coronary syndrome	I	I
10: Cardiac rehabilitation	I	I
11: Assessment, diagnosis and treatment of arrhythmias	M	D
12: Management of atrial fibrillation	I	D
13: Management of ventricular arrhythmias	I	D
14: Diagnosis of heart failure	D	D
15: Medication for heart failure	I	I
16: Multidisciplinary service delivery for heart failure	I	I
17: Implantable devices for heart failure	I	D
18: Supportive and palliative care for patients with heart disease	D	D

Key:

D	Developing
I	Implementing
M	Monitoring
R	Reviewing

11 NHS Lothian

11.1 Local service provision

Acute services for patients with heart disease are provided at the Royal Infirmary of Edinburgh; St John's Hospital, Livingston; and the Western General Hospital, Edinburgh.

The Royal Infirmary of Edinburgh is a specialist (tertiary) centre for complex treatment for NHS Forth Valley, NHS Fife and NHS Borders. It is also a tertiary centre for cardiac surgery and electrophysiology for NHS Tayside.

Clinics are also held at Astley Ainslie Hospital, Edinburgh; Leith Community Treatment Centre, Edinburgh; Midlothian Community Hospital, Bonnyrigg; and Roodlands Hospital, Haddington.

NHS Lothian's coronary heart disease managed clinical network was suspended in 2010; however, the network remains in place and associated action groups continue to plan and deliver service improvements.

Further information about the local NHS system can be accessed via the website of NHS Lothian (www.nhslothian.scot.nhs.uk).

11.2 Summary of findings

General (Standards 1–3)

NHS Lothian provides a wide range of information for patients and their families although there is no system to ensure measurement and review of the effectiveness of this information. There are good arrangements for communication between primary and secondary care. **Referrals from primary care are sent electronically and discharge information is increasingly conveyed electronically.** Patients are routinely provided with a copy of their care plan on discharge from hospital. There is a commendable programme of education for staff involved in managing patients with heart disease.

Individuals at risk of developing cardiovascular disease (Standard 4)

A high proportion of patients have blood pressure and smoking status documented in primary care data systems. There is a Keep Well programme targeting high risk groups for primary prevention of cardiovascular disease in a limited number of GP practices in the NHS board area. There is no system for screening relatives of people with familial hypercholesterolaemia and no systematic approach to recall low risk patients for a 5-year review.

Patients with chest pain (Standards 5–10)

There are clear guidelines for the management of patients presenting with chest pain in the non-emergency setting. **Patients with concerning symptoms are seen at a rapid access chest pain clinic on average within 48 hours.** The evaluation panel was satisfied that patients with coronary heart disease receive secondary prevention medications in the primary care setting. A system to ensure review of all patients with a confirmed diagnosis of coronary heart disease within 3 months of diagnosis was not evident, other than for those attending the cardiac rehabilitation service.

Patients presenting with chest pain in the emergency setting are attended to rapidly by the Scottish Ambulance Service; however, less than three quarters are seen a by a fully

equipped paramedic ambulance. The majority of these patients receive aspirin but there was little evidence to indicate that a timely ECG was performed. Troponin testing is performed on the majority of these patients. There is a comprehensive protocol for the management of patients with acute coronary syndrome and the majority of patients with STEMI are treated with primary angioplasty in a timely way. There is a well-developed monitoring system for this which is used for feedback and learning. There was no evidence that patients were risk stratified for invasive investigations using a systematic approach. Audit data indicated that approximately two thirds of patients with confirmed acute coronary syndrome are referred for cardiac rehabilitation. There is a well-developed cardiac rehabilitation service with a comprehensive menu-based programme and evidence of ongoing measurement used for feedback and learning.

Patients with heart rhythm problems (Standards 11–13)

NHS Lothian has a clear protocol and guidelines in electronic format for management of patients with arrhythmias and for patients with suspected arrhythmias. These were reported to be regularly reviewed by clinicians. **There is a clear process to provide open access to ECG from primary care across the NHS board area.** There is no structured approach to monitoring patients receiving amiodarone. There is no system to ensure that patients with supraventricular tachycardia are appropriately referred to cardiology services. Systems to ensure referral to the Familial Arrhythmias Network of Scotland are in development. There was no evidence provided to indicate how well patients with atrial fibrillation are assessed for risk of stroke. The use of anticoagulant drugs in primary care for patients at medium to high risk of stroke was low relative to Scotland as a whole. Referral of atrial fibrillation patients for further investigations or to cardiology services was also relatively low.

NHS Lothian has protocols to assess patients with life-threatening heart rhythm disorders although no data were provided to support the effectiveness of these systems. There are no systems to ensure that patients are screened for psychological and memory problems following cardiac arrest.

Breathless patients (Standards 14–18)

NHS Lothian has clear protocols in place in electronic format to support primary care in the diagnosis and initial management of patients with a possible diagnosis of heart failure. **An open access ECG service from primary care is provided in five sites across the NHS board area.** Blood testing for brain natriuretic peptide hormone is not part of NHS Lothian's protocol. No evidence was provided to indicate the level of access to echocardiography for diagnosis of heart failure in primary care. The NHS board is developing a care bundle, in conjunction with the Scottish Patient Safety Programme, for heart failure patients in secondary care to support better care.

There are clear guidelines in place to ensure that patients with heart failure receive evidence-based drug therapy. Evidence was provided to indicate a high level use of these drugs for this group of patients. Evidence was also provided that these data are being used for feedback and learning. There is a well-developed multidisciplinary service for patients admitted to hospital with heart failure. **A specialist heart failure nurse service is available across the NHS board area.**

The use of implantable cardioverter defibrillators is high relative to Scotland as a whole. NHS Lothian is developing protocols to ensure a systematic approach to ensuring implantation of cardioverter resynchronisation therapy in appropriate patients.

The NHS board is developing and implementing processes to ensure that patients with heart disease are assessed for palliative care needs.

11.3 Assessment levels

The assessment levels listed in the NHS board column below illustrate the most appropriate assessment category agreed by the evaluation panel to describe the NHS board's performance against each standard. The assessments listed in the NHSScotland column below indicate the average assessment received for each standard across Scotland.

Heart disease standards	Assessment	
	NHS Lothian	NHSScotland
1: Provision of information to patients	I	I
2: Communication and multidisciplinary management of patients with heart disease	I	I
3: Education and training for staff	M	I
4: Primary prevention of cardiovascular disease	I	I
5: Assessment of chest pain in the non-emergency care setting	I	I
6: Assessment and management of confirmed coronary heart disease in the non-emergency care setting	D	I
7: Assessment and diagnosis of suspected acute coronary syndrome	M	I
8: Initial management and treatment of suspected or confirmed acute coronary syndrome	I	I
9: Ongoing management and treatment of acute coronary syndrome	I	I
10: Cardiac rehabilitation	M	I
11: Assessment, diagnosis and treatment of arrhythmias	D	D
12: Management of atrial fibrillation	D	D
13: Management of ventricular arrhythmias	D	D
14: Diagnosis of heart failure	D	D
15: Medication for heart failure	M	I
16: Multidisciplinary service delivery for heart failure	I	I
17: Implantable devices for heart failure	D	D
18: Supportive and palliative care for patients with heart disease	I	D

Key:

D	Developing
I	Implementing
M	Monitoring
R	Reviewing

12 NHS National Waiting Times Centre

12.1 Local service provision

The NHS National Waiting Times Centre is a special health board made up of two distinct parts: the Golden Jubilee National Hospital and the Beardmore Hotel and Conference Centre. Acute services for patients with heart disease are provided at the Golden Jubilee National Hospital. The hospital is home to the West of Scotland Heart and Lung Centre, which provides regional and national services.

Further information about the local NHS system can be accessed via the website of the Golden Jubilee National Hospital (www.nhsgoldenjubilee.co.uk).

12.2 Summary of findings

General comment

The NHS National Waiting Times Centre, of which Golden Jubilee National Hospital is a part, provides specialist heart disease inpatient services to all NHS boards in Scotland. As such, all 18 standards do not strictly apply to routine practice within the NHS board. However, the NHS board was requested to review the standards in detail before submitting its evidence and was asked to submit evidence commensurate with its role as a tertiary cardiac centre.

General (Standards 1–3)

A comprehensive range of nationally and locally produced information leaflets is provided which are relevant to the needs of patients and their carers. There was no evidence to indicate that there were processes to ensure review and feedback of the quality and use of this information. There was evidence of good communication systems between healthcare organisations. Patients are provided with a copy of their discharge letter which incorporates a care plan. The NHS board is developing a strategic plan for assessing and delivering heart disease education for staff.

Individuals at risk of developing cardiovascular disease (Standard 4)

The NHS board is not directly involved in this aspect of patient care and has, therefore, not been assessed against Standard 4.

Patients with chest pain (Standards 5–10)

The Golden Jubilee National Hospital is not directly involved in management of patients with chest pain who present in the non-emergency setting and has, therefore, not been assessed against Standards 5 and 6.

The NHS board interpreted standard 7 as being largely not applicable to the service it provides. The NHS board did not supply the panel with evidence of the effectiveness of care delivered by the Scottish Ambulance Service for patients brought directly to the Golden Jubilee National Hospital from surrounding NHS board areas. The evaluation panel concluded that the NHS board is accountable for monitoring activity and performance, particularly with respect to patients with acute STEMI.

While there are comprehensive protocols in place in the Golden Jubilee National Hospital for managing patients with acute coronary syndromes, very little data were provided by the NHS board to support that management of these patients was being delivered effectively.

While the panel acknowledged that the NHS board does not deliver cardiac rehabilitation, it noted that there were no data submitted on how many acute coronary syndrome and cardiac surgery patients are referred for cardiac rehabilitation at the time of home discharge.

Patients with heart rhythm problems (Standards 11–13)

The Golden Jubilee National Hospital receives complex referrals from a range of clinical settings. The panel noted that there was a lack of a clear structured pathway for referral and management of patients with arrhythmias. Patients with atrial fibrillation are managed by cardiologists and cardiac surgeons with considerable expertise in heart rhythm disorders. There were no data or no written protocols submitted to support and outline the formal pathways for this process.

The Golden Jubilee National Hospital provides expert care for patients presenting to other NHS boards within the region with life-threatening arrhythmias. There are no systems to ensure that such patients who are referred from surrounding NHS boards are assessed for psychological or memory problems.

Breathless patients (Standards 14–18)

The NHS board is in the early stages of introducing a heart failure care bundle as part of the Scottish Patient Safety Programme to support better diagnosis and management of patients with a confirmed diagnosis of heart failure. The NHS board has ready access to diagnostic tests for people with heart failure and those with suspected heart failure. There are good protocols to ensure patients receive evidence-based drug therapy, although the NHS board provided no data to support this. **There is a highly skilled and expert multidisciplinary team for managing heart failure patients within the Golden Jubilee National Hospital.** There are described links to other multidisciplinary teams within NHS board areas that refer patients to the Golden Jubilee National Hospital for tertiary care. However, there are a lack of pathways and protocols describing how these links function, or evidence to support how effectively these links are used. While the NHS board is not in a position to deliver palliative care for patients with heart failure, it is developing approaches to help identify patients who are reaching end of life as part of the Scottish Patient Safety Programme heart failure care bundle.

12.3 Assessment levels

The assessment levels listed in the NHS board column below illustrate the most appropriate assessment category agreed by the evaluation panel to describe the NHS board's performance against each standard. The assessments listed in the NHSScotland column below indicate the average assessment received for each standard across Scotland.

Heart disease standards	Assessment	
	NHS National Waiting Times Centre	NHSScotland
1: Provision of information to patients	I	I
2: Communication and multidisciplinary management of patients with heart disease	I	I
3: Education and training for staff	D	I
4: Primary prevention of cardiovascular disease	Not applicable	I
5: Assessment of chest pain in the non-emergency care setting	Not applicable	I
6: Assessment and management of confirmed coronary heart disease in the non-emergency care setting	Not applicable	I
7: Assessment and diagnosis of suspected acute coronary syndrome	No evidence	I
8: Initial management and treatment of suspected or confirmed acute coronary syndrome	D	I
9: Ongoing management and treatment of acute coronary syndrome	I	I
10: Cardiac rehabilitation	No evidence	I
11: Assessment, diagnosis and treatment of arrhythmias	D	D
12: Management of atrial fibrillation	I	D
13: Management of ventricular arrhythmias	D	D
14: Diagnosis of heart failure	I	D
15: Medication for heart failure	D	I
16: Multidisciplinary service delivery for heart failure	D	I
17: Implantable devices for heart failure	I	D
18: Supportive and palliative care for patients with heart disease	No evidence	D

Key:

D	Developing
I	Implementing
M	Monitoring
R	Reviewing

13 NHS Orkney

13.1 Local service provision

Acute services for patients with heart disease are provided at Balfour Hospital, Kirkwall.

The nearest specialist (tertiary) centre for complex treatment is Aberdeen Royal Infirmary.

In addition to hospital services, home visits are also carried out by the cardiac rehabilitation nurse.

This NHS board has a managed clinical network which brings together multidisciplinary professionals and patients to deliver heart disease services in a co-ordinated way.

Further information about the local NHS system can be accessed via the website of NHS Orkney (www.ohb.scot.nhs.uk).

13.2 Summary of findings

Much of the national audit data, described in Appendix 1, was not provided by NHS Orkney as evidence against the standards. This presented challenges to the panel in evaluating the NHS board's performance against the standards. This summary is based on the evidence and information that was provided.

General (Standards 1–3)

NHS Orkney presented limited evidence to indicate that information about heart disease was provided to patients and their families. There are no systems to ensure appropriate distribution, uptake and feedback about this information. Communication systems between different healthcare organisations are in place but the evaluation panel was not provided with evidence to assess how effectively these are functioning. Heart disease patients are not provided with a copy of their care plan. There is no structured system of heart disease education for staff. At the time of the submission of evidence for the evaluation process, the NHS board did not have a designated clinical lead for heart disease services.

Individuals at risk of developing cardiovascular disease (Standard 4)

Blood pressure and smoking status are well documented in primary care data systems. The Framingham risk score is used to assess cardiovascular risk. Systems to ensure appropriate management and follow-up of these people are not well developed.

Patients with chest pain (Standards 5–10)

Patients presenting with chest pain within primary care are managed according to national guidelines. There is a mechanism for ensuring that patients with concerning symptoms are referred rapidly for assessment. No data were provided to assess whether protocols were followed or referral was achieved within 5 days. No evidence was provided to indicate whether coronary heart disease patients were followed up in primary care within 3 months of initial diagnosis and at regular yearly intervals thereafter.

For patients presenting with chest pain in the emergency setting, there is limited access to fully equipped ambulance services, particularly in the outer isles where access by air or ferry is dependent on the weather. In the outer isles, risks are mitigated by having suitably trained GP and/or nurse practitioner staff available 24 hours a day, who have access to portable immediate care equipment (Sandpiper bags). There are also a number of different

types of first responder, including GPs, ambulances and lay people trained by the Scottish Ambulance Service. No data were provided to allow the panel to assess the effectiveness of this approach. There is a protocol in place for the management of patients with STEMI. All urgent reperfusion therapies appear to be provided by NHS Grampian. There are limited systems to ensure that patients with non STEMI are risk assessed and referred in a timely manner for coronary angiography. The panel was not provided with evidence to assess how well secondary prevention medications were used for patients with confirmed acute coronary syndrome/coronary heart disease. The NHS board provides a menu-based programme of cardiac rehabilitation for patients with a range of cardiac conditions. No data were provided to support the effectiveness of this service.

Patients with heart rhythm problems (Standards 11–13)

NHS Orkney has plans to develop pathways and protocols for patients presenting with arrhythmias and those at risk of arrhythmia although these are not currently operational. A number of local GPs and nurse practitioners are trained in interpretation of ECGs. Members of the acute medical team are trained in arrhythmia interpretation and management and expert advice on arrhythmias can also be obtained from consultant cardiologists in NHS Grampian. The NHS board has a limited number of systems to ensure appropriate care of patients with atrial fibrillation. No data were provided to assess whether patients with atrial fibrillation were appropriately treated with anti-thrombotic therapy according to their risk of stroke. There are arrangements with NHS Grampian to ensure appropriate management of patients who have cardiac arrest or life-threatening cardiac dysrhythmias. The rate of implantation of implantable cardioverter defibrillators is relatively high compared with Scotland. **Cardiac rehabilitation services provide arrangements for screening patients following cardiac arrest for anxiety and memory problems.**

Breathless patients (Standards 14–18)

As part of the Scottish Patient Safety Programme, NHS Orkney is in the early stages of introducing a heart failure care bundle for patients presenting to hospital with breathlessness due to heart failure. Members of the acute medical team provide local expertise in heart failure management and, if required, may seek clinical advice from the cardiology service at Aberdeen Royal Infirmary. Patients with suspected heart failure are assessed by ECG. Access to echocardiography services is available 2 days each month. No data were provided to allow the panel to assess whether patients with a confirmed diagnosis of heart failure are receiving evidence-based drug therapies. Heart failure advice and support is provided by a generic cardiac nurse specialist who is based at Balfour Hospital. This nurse acts as a resource within a multidisciplinary team. Implantable cardioverter defibrillators are implanted in patients from Orkney but no data were available to indicate the use of cardioverter resynchronisation therapy. No protocols or pathways were provided to assess whether there were processes in place to systematically identify people who might benefit from these treatments. NHS Orkney is developing arrangements to ensure that people with heart disease are assessed for palliative care needs.

13.3 Assessment levels

The assessment levels listed in the NHS board column below illustrate the most appropriate assessment category agreed by the evaluation panel to describe the NHS board's performance against each standard. The assessments listed in the NHSScotland column below indicate the average assessment received for each standard across Scotland.

Heart disease standards	Assessment	
	NHS Orkney	NHSScotland
1: Provision of information to patients	D	I
2: Communication and multidisciplinary management of patients with heart disease	D	I
3: Education and training for staff	No evidence	I
4: Primary prevention of cardiovascular disease	D	I
5: Assessment of chest pain in the non-emergency care setting	D	I
6: Assessment and management of confirmed coronary heart disease in the non-emergency care setting	D	I
7: Assessment and diagnosis of suspected acute coronary syndrome	D	I
8: Initial management and treatment of suspected or confirmed acute coronary syndrome	D	I
9: Ongoing management and treatment of acute coronary syndrome	D	I
10: Cardiac rehabilitation	I	I
11: Assessment, diagnosis and treatment of arrhythmias	D	D
12: Management of atrial fibrillation	No evidence	D
13: Management of ventricular arrhythmias	No evidence	D
14: Diagnosis of heart failure	D	D
15: Medication for heart failure	D	I
16: Multidisciplinary service delivery for heart failure	D	I
17: Implantable devices for heart failure	D	D
18: Supportive and palliative care for patients with heart disease	D	D

Key:

D	Developing
I	Implementing
M	Monitoring
R	Reviewing

14 NHS Shetland

14.1 Local service provision

Acute services for patients with heart disease are provided at Gilbert Bain Hospital, Lerwick. NHS Shetland does not have a specialist cardiac team; patients who require specialist care are referred to Aberdeen Royal Infirmary in NHS Grampian.

The nearest specialist (tertiary) centre for complex treatment is the Golden Jubilee National Hospital, Clydebank.

Cardiac rehabilitation exercise classes and physiotherapy clinics are held throughout NHS Shetland. A heart failure nursing service is in operation throughout NHS Shetland.

This NHS board has a managed clinical network which brings together multidisciplinary professionals and patients to deliver heart disease services in a co-ordinated way.

Further information about the local NHS system can be accessed via the website of NHS Shetland (www.shb.scot.nhs.uk).

14.2 Summary of findings

General (Standards 1–3)

NHS Shetland has a suite of national and local patient, family and carer information available in a variety of languages and formats. **The NHS board has a well-developed system in place to ensure that patients, family and carers receive information appropriate to their needs. Patients, family and carers are involved in the development and review of information.**

The NHS board has developed good communication systems between primary and secondary care and has a comprehensive suite of patient discharge protocols.

A comprehensive programme of heart disease education is offered to staff across the NHS board.

Individuals at risk of developing cardiovascular disease (Standard 4)

Blood pressure and smoking status are well documented in primary care data systems.

NHS Shetland has developed systems for identifying patients in the priority groups at risk of cardiovascular disease using the ASSIGN risk assessment tool.

The evaluation panel could not find evidence that clear systems have been implemented to identify relatives of people with familial hypercholesterolaemia, or to ensure that high priority groups are reviewed every 5 years.

Patients with chest pain (Standards 5–10)

NHS Shetland has developed clear protocols to refer and manage people with chest pain who present in primary care. Patients have an ECG. If required they are referred to the rapid access clinic where they are seen within 2 weeks from their referral.

Patients with a confirmed diagnosis of coronary heart disease receive appropriate secondary prevention medication, advice and information regarding their condition. They

are also reviewed within 3 months of diagnosis. Limited evidence was provided that these processes are subject to ongoing audit and measurement.

Patients presenting with acute chest pain are rapidly transported to hospital in a paramedic ambulance. These ambulances are equipped with the necessary equipment and drugs to treat individuals suspected of having acute coronary syndrome. Most of these patients receive aspirin and have troponin testing performed. Patients with STEMI are treated with thrombolysis. However, due to geographical issues, delays in administering treatment to individuals can occur.

NHS Shetland does not have a specialist cardiac team. Patients who require specialist care are referred to Aberdeen Royal Infirmary in NHS Grampian. The NHS board does not carry out a formal risk assessment of these patients. **The evaluation panel commended the high use of evidence-based drug therapy for patients with acute coronary syndrome.** NHS Shetland has a comprehensive cardiac rehabilitation service in line with national guidelines.

Patients with heart rhythm problems (Standards 11–13)

NHS Shetland is developing pathways and protocols for patients with, and those at risk of, heart rhythm disorders. The NHS board has a system in place to monitor the side effects of amiodarone.

The NHS board does not have a formal protocol to refer patients with, or who are at risk of, familial arrhythmias to the Familial Arrhythmia Network.

Patients with atrial fibrillation are managed according to national guidelines. However, the panel found limited evidence that formal processes are in place for stroke risk assessment and onward referral for specialist management.

Patients with life-threatening heart rhythm disorders are assessed locally by a consultant physician and referred to NHS Grampian as required.

Breathless patients (Standards 14–18)

NHS Shetland is introducing a heart failure care bundle as part of the Scottish Patient Safety Programme to support improvements in care for patients diagnosed with heart failure in the hospital setting.

The NHS board has a clear pathway in place for referring and managing patients presenting in primary care with breathlessness suggestive of acute coronary syndrome. Protocols are in place for carrying out blood tests for brain natriuretic peptide hormone and ECG testing. There are sometimes delays in referring patients with abnormal results from these tests for an echocardiogram.

Patients diagnosed with heart failure are assessed by a consultant physician. There is no designated local expert in heart failure. A protocol is in place to ensure that patients with confirmed heart failure are treated with evidence-based therapies. However the panel could not determine how well this is being completed from evidence provided. Patients with confirmed coronary heart failure are managed within a multidisciplinary team including a specialist heart failure nurse. There are systems in place to ensure that patients with coronary heart failure are referred for implantable device therapy. However, the NHS board did not provide any data to demonstrate the effectiveness of these systems. Palliative

and supportive care pathways are being developed for patients with coronary heart failure in line with national recommendations.

14.3 Assessment levels

The assessment levels listed in the NHS board column below illustrate the most appropriate assessment category agreed by the evaluation panel to describe the NHS board's performance against each standard. The assessments listed in the NHSScotland column below indicate the average assessment received for each standard across Scotland.

Heart disease standards	Assessment	
	NHS Shetland	NHSScotland
1: Provision of information to patients	I	I
2: Communication and multidisciplinary management of patients with heart disease	I	I
3: Education and training for staff	M	I
4: Primary prevention of cardiovascular disease	I	I
5: Assessment of chest pain in the non-emergency care setting	I	I
6: Assessment and management of confirmed coronary heart disease in the non-emergency care setting	I	I
7: Assessment and diagnosis of suspected acute coronary syndrome	I	I
8: Initial management and treatment of suspected or confirmed acute coronary syndrome	I	I
9: Ongoing management and treatment of acute coronary syndrome	M	I
10: Cardiac rehabilitation	I	I
11: Assessment, diagnosis and treatment of arrhythmias	D	D
12: Management of atrial fibrillation	D	D
13: Management of ventricular arrhythmias	D	D
14: Diagnosis of heart failure	I	D
15: Medication for heart failure	I	I
16: Multidisciplinary service delivery for heart failure	I	I
17: Implantable devices for heart failure	D	D
18: Supportive and palliative care for patients with heart disease	I	D

Key:

D	Developing
I	Implementing
M	Monitoring
R	Reviewing

15 NHS Tayside

15.1 Local service provision

Acute services for patients with heart disease are provided at the following hospitals: Ninewells Hospital, Dundee; Perth Royal Infirmary; and, for outpatients, Arbroath Infirmary and Stracathro Hospital, Brechin.

The nearest specialist (tertiary) centres for complex treatments are: Ninewells Hospital, the Royal Infirmary of Edinburgh or Aberdeen Royal Infirmary; and NHS Greater Glasgow and Clyde, depending on the treatment required.

Outpatient clinics are held in Perth Royal Infirmary and Ninewells Hospital, including rapid access chest pain clinics and heart failure clinics. Clinics are also held at Arbroath Infirmary (outpatients and rapid access chest pain service and outpatient diagnostic services), and Stracathro Hospital (outpatient diagnostic services).

The NHS board has a managed clinical network which brings together multidisciplinary professionals and patients to deliver heart disease services in a co-ordinated way.

Further information about the local NHS system can be accessed via the website of NHS Tayside (www.nhstayside.scot.nhs.uk).

15.2 Summary of findings

General (Standards 1–3)

NHS Tayside provides a range of information for patients with heart disease and their families. There is no process to assess the uptake and the value of this to patients. There are good communication systems between different healthcare organisations with electronic systems increasingly used for communication. Most patients are provided with a copy of their immediate discharge summary when they are discharged from hospital. There was no evidence of care plans being formally agreed with patients. The educational needs of staff in the NHS board have been assessed on an individual basis and there is a programme of education, although this lacks a strategic approach. The chair of the managed clinical network education subgroup takes the lead for heart disease education.

Individuals at risk of developing cardiovascular disease (Standard 4)

The evaluation panel commended the various initiatives in NHS Tayside to target primary prevention measures at high risk, difficult-to-reach groups of people. There is a high rate of documentation of blood pressure and smoking status in primary care information systems. The ASSIGN risk assessment score is being used increasingly across the NHS board. Systems to ensure screening of relatives with familial hypercholesterolemia, or inherited high cholesterol, are not well developed. Individuals deemed to be at low risk of cardiovascular disease are not routinely recalled for 5-year review.

Patients with chest pain (Standards 5–10)

There is a local protocol and information pack, dated 2006, to guide practitioners in the management of patients presenting with chest pain in the non-emergency care setting. Patients with concerning symptoms can be seen at a rapid access chest pain clinic, and the majority are seen within 7 days. The NHS board did not describe plans or an intention to reduce this further to the recommended standard of 5 days. **Ongoing care of patients**

with coronary heart disease in the community setting includes a commendably high level of use of secondary prevention drugs.

For patients presenting with chest pain in the emergency setting, a limited audit of data from the Scottish Ambulance Service suggested that the majority of patients are seen quickly by a well-equipped paramedic ambulance, given aspirin and transported to hospital. Troponin testing is readily available for these types of patients in secondary care. There is a recently developed comprehensive protocol for management of patients with STEMI. The majority of these patients are treated by primary angioplasty within 90 minutes of diagnosis. There is a high use of secondary prevention drugs and the majority of patients with a confirmed acute coronary syndrome are referred for cardiac rehabilitation. There is a well-developed cardiac rehabilitation programme which incorporates a menu-based approach. The evaluation panel did not find evidence that local measurement of cardiac rehabilitation processes was being used for feedback and learning.

Patients with heart rhythm problems (Standards 11–13)

There is no formal protocol for referral and management of patients with arrhythmias or suspected arrhythmias. There is no systematic approach to assessing stroke risk of patients with atrial fibrillation. Anticoagulation is used in only around half of patients with moderate to high risk of stroke in primary care. A small number of patients with atrial fibrillation are referred for cardiology review. The use of implantable cardioverter defibrillators in NHS Tayside is relatively high and in line with the national average for Scotland. There was little evidence of a structured care pathway for patients presenting with life-threatening arrhythmias. There were also no systems for screening for psychological and memory problems following cardiac arrest.

Breathless patients (Standards 14–18)

NHS Tayside is developing a clinical heart failure care bundle to support diagnosis and management of patients admitted to hospital with breathlessness due to heart failure. The review panel had some concerns about the timely use of ECG and echocardiography in the diagnosis of the breathless patient. There are systems to ensure that patients with a confirmed diagnosis of heart failure are seen by a doctor with expertise in heart failure. The majority of patients with heart failure receive evidence-based medications. There was limited evidence that data related to this was being used for feedback and learning. There is a well-developed multidisciplinary heart failure service which includes a specialist nurse. The use of implantable cardioverter defibrillator devices is relatively high, but the use of cardio resynchronisation therapy appears low. The NHS board is developing palliative care services using care pathways and anticipatory care plans but these are not yet well developed for heart disease services.

15.3 Assessment levels

The assessment levels listed in the NHS board column below illustrate the most appropriate assessment category agreed by the evaluation panel to describe the NHS board's performance against each standard. The assessments listed in the NHSScotland column below indicate the average assessment received for each standard across Scotland.

Heart disease standards	Assessment	
	NHS Tayside	NHSScotland
1: Provision of information to patients	I	I
2: Communication and multidisciplinary management of patients with heart disease	I	I
3: Education and training for staff	I	I
4: Primary prevention of cardiovascular disease	I	I
5: Assessment of chest pain in the non-emergency care setting	I	I
6: Assessment and management of confirmed coronary heart disease in the non-emergency care setting	I	I
7: Assessment and diagnosis of suspected acute coronary syndrome	I	I
8: Initial management and treatment of suspected or confirmed acute coronary syndrome	I	I
9: Ongoing management and treatment of acute coronary syndrome	I	I
10: Cardiac rehabilitation	I	I
11: Assessment, diagnosis and treatment of arrhythmias	D	D
12: Management of atrial fibrillation	D	D
13: Management of ventricular arrhythmias	D	D
14: Diagnosis of heart failure	I	D
15: Medication for heart failure	I	I
16: Multidisciplinary service delivery for heart failure	I	I
17: Implantable devices for heart failure	I	D
18: Supportive and palliative care for patients with heart disease	D	D

Key:

D	Developing
I	Implementing
M	Monitoring
R	Reviewing

16 NHS Western Isles

16.1 Local service provision

Acute services for patients with heart disease are provided at the following hospitals: Western Isles Hospital, Stornoway; and Uist and Barra Hospital, Benbecula.

The nearest specialist (tertiary) centre for complex treatment is Golden Jubilee National Hospital, Clydebank.

Several outpatient services are provided in community settings. The cardiac rehabilitation service covers Lewis and Harris, with a home-based service on Uist. The Western Isles heart failure nursing service covers the islands of Lewis, Harris, Uist and Barra. Medical clinics are held in Uist and Barra Hospital, as are GP and hospital exercise tolerance tests. Physiotherapy is also available in Uist and Barra.

This NHS board has a managed clinical network which brings together multidisciplinary professionals and patients to deliver heart disease services in a co-ordinated way.

Further information about the local NHS system can be accessed via the website of NHS Western Isles (www.wihb.scot.nhs.uk).

16.2 Summary of findings

General (Standards 1–3)

NHS Western Isles has a centralised and well co-ordinated approach to the production and provision of heart disease patient information. There are systems to monitor the use of the information by patients and the wider public. The panel commended these systems as good practice.

There are good communication systems between primary and secondary care. There are care pathways for acute coronary syndrome and heart failure. Patients do not receive copies of their care plan. Discharge planning policies are well developed; however, the evaluation panel concluded that these were not focused enough on heart disease conditions. The NHS board is developing arrangements for an educational programme for staff involved in caring for people with heart disease.

Individuals at risk of developing cardiovascular disease (Standard 4)

The evaluation panel commended the Well North Outer Hebrides programme and associated systems that ensure that high priority groups receive the formal cardiovascular risk assessment. Blood pressure and smoking status are well documented within primary care data systems. There are systems to screen relatives of people with familial hypercholesterolaemia, which is inherited high cholesterol. People with hypertension receive formal cardiovascular risk assessment. The ASSIGN risk assessment score is not widely used.

Patients with chest pain (Standards 5–10)

NHS Western Isles has a clinical guideline to support referral and management of patients presenting with chest pain in the non-emergency setting. There is access to electrocardiography in GP practices throughout the NHS board. No data were provided on the time delays for patients receiving this test. Patients with concerning chest pain symptoms are seen at a rapid access chest pain clinic. The NHS board is redesigning this

service to improve waiting times to meet the 5-day standard. For patients with a confirmed diagnosis of coronary heart disease, there is a high level of use of secondary prevention medications in primary care. There are no systems to ensure that patients with coronary heart disease receive follow-up within 3 months of their initial diagnosis.

Local audit data indicated that more than half of people presenting with chest pain in the emergency setting are seen and assessed by a paramedic ambulance crew. A low number of these patients have an ECG performed within 30 minutes of call for help. A low number of patients presenting directly to hospital had a timely ECG. New systems are being developed with NHS Highland to help support the NHS board in the diagnosis of acute myocardial infarction. Compared with Scotland as a whole, a relatively low number of patients with suspected acute coronary syndrome receive aspirin and have a troponin test performed. Patients are not routinely managed by a cardiac multidisciplinary team. NHS Western Isles has recently implemented an optimal reperfusion pathway with its tertiary cardiac intervention centre. While the pathways and protocols for this are well described, the data presented reflected small numbers of patients. No data were provided on the rates of use of invasive investigations and intervention for patients who live within the NHS board area. There is high level use of secondary prevention medications in acute coronary syndrome patients discharged from hospital. These patients do not routinely have assessment of left ventricular function and few appear to be referred for cardiac rehabilitation. Once referred to cardiac rehabilitation most patients receive a menu-based programme.

Patients with heart rhythm problems (Standards 11–13)

NHS Western Isles has a detailed care pathway in place for patients with arrhythmias or suspected arrhythmia. There is good access to electrocardiography for these patients in primary care, although there are no systems to check how quickly and consistently this is being done. There is a local protocol for the management of patients on amiodarone. Local protocols describe referral pathways for ongoing specialist cardiology care if needed. The local protocol recommends that patients with atrial fibrillation should have a stroke risk assessment; however, no data or evidence were provided on how often this was being carried out. Only around half of atrial fibrillation patients at medium to high risk of stroke were prescribed anticoagulants. The NHS board is developing local pathways and protocols to support the management of patients presenting with life-threatening rhythm disorders.

Breathless patients (Standards 14–18)

The NHS board is in the early stages of introducing a heart failure care bundle as part of the Scottish Patient Safety Programme to help support the diagnosis and management of patients admitted to hospital with heart failure. In primary care, the majority of patients with heart failure have had an echocardiogram performed. No data were available on how quickly this was done at the time of diagnosis. NHS Western Isles has a designated doctor with expertise in heart failure. **There is a well-developed multidisciplinary care team which includes a specialist heart failure nurse. There is a high use of evidence-based medication with a local data collection system to support review and feedback for improvement.** There are local guidelines to support the use of devices for people with heart failure. The crude rate of implantation of implantable cardioverter defibrillators is high compared with Scotland as a whole. The NHS board is in the process of implementing palliative care services for people with heart disease, initially focusing on patients with heart failure.

16.3 Assessment levels

The assessment levels listed in the NHS board column below illustrate the most appropriate assessment category agreed by the evaluation panel to describe the NHS board's performance against each standard. The assessments listed in the NHSScotland column below indicate the average assessment received for each standard across Scotland.

Heart disease standards	Assessment	
	NHS Western Isles	NHSScotland
1: Provision of information to patients	M	I
2: Communication and multidisciplinary management of patients with heart disease	D	I
3: Education and training for staff	D	I
4: Primary prevention of cardiovascular disease	I	I
5: Assessment of chest pain in the non-emergency care setting	I	I
6: Assessment and management of confirmed coronary heart disease in the non-emergency care setting	I	I
7: Assessment and diagnosis of suspected acute coronary syndrome	I	I
8: Initial management and treatment of suspected or confirmed acute coronary syndrome	I	I
9: Ongoing management and treatment of acute coronary syndrome	I	I
10: Cardiac rehabilitation	I	I
11: Assessment, diagnosis and treatment of arrhythmias	I	D
12: Management of atrial fibrillation	I	D
13: Management of ventricular arrhythmias	D	D
14: Diagnosis of heart failure	D	D
15: Medication for heart failure	M	I
16: Multidisciplinary service delivery for heart failure	I	I
17: Implantable devices for heart failure	D	D
18: Supportive and palliative care for patients with heart disease	I	D

Key:

D	Developing
I	Implementing
M	Monitoring
R	Reviewing

17 The State Hospitals Board for Scotland

17.1 Local service provision

The State Hospital is the only secure psychiatric hospital covering Scotland and Northern Ireland. It is part of NHSScotland and is located on a single site in Lanarkshire, between the cities of Edinburgh and Glasgow. Due to the nature of the State Hospital and its patients, the hospital does not have its own coronary heart disease managed clinical network. Instead, the hospital has established formal links with NHS Lanarkshire's managed clinical network which brings together multidisciplinary professionals and patients to deliver heart disease services in a co-ordinated way. This ensures that the small number of State Hospital patients who need access to specialist acute services are referred to NHS Lanarkshire for diagnosis and treatment. The on-site health centre provides primary care services for patients within the State Hospital, with GP input from NHS Lanarkshire.

The nearest specialist (tertiary) centre for complex treatment is Hairmyres Hospital, East Kilbride.

Further information about the local NHS system can be accessed via the website of the State Hospital (www.tsh.scot.nhs.uk).

17.2 Summary of findings

General (Standards 1–3)

The State Hospital provides patients with information on a case by case basis, usually during a direct interview with the patient. Specialist forms of information are provided by NHS Lanarkshire. There are good communication systems available between healthcare organisations with increasing use of electronic formats. Each patient has a detailed care plan which includes aspects of heart disease if appropriate. There are generic systems in place for staff training which incorporate some aspects of heart disease. These are being further developed with the NHS Lanarkshire heart disease managed clinical network.

Individuals at risk of developing cardiovascular disease (Standard 4)

There is a well-developed and commendable system in place for screening all patients in the hospital for cardiovascular disease. The ASSIGN risk score is used, as is a version that has been adapted for patients with learning disabilities. Patients who are at high risk are managed according to national guidelines. **Smoking status is documented frequently and a commendable programme for smoking cessation is available to all patients in the State Hospital.**

Patients with chest pain (Standards 5–10)

Patients presenting with chest pain are reviewed quickly by on-site medical staff and referred for ongoing care as appropriate. There are facilities for ECG within the hospital and there is training available for staff. Patients with chest pain receive treatment with glycerol trinitrate spray and aspirin before referral to NHS Lanarkshire. The State Hospital described local policy by any which patients diagnosed with confirmed coronary heart disease would receive appropriate treatment with evidence-based drug therapy, appropriate follow-up and ongoing management of their condition. However, at the time of the evaluation, there were no patients with this diagnosis.

The evaluation panel concluded that Standards 6–10 are not applicable to the State Hospital.

Patients with heart rhythm problems (Standards 11–13)

The evaluation panel concluded that these standards are not applicable to the State Hospital.

Breathless patients (Standards 14–18)

The evaluation panel concluded that these standards are not applicable to the State Hospital.

17.3 Assessment levels

The assessment levels listed in the NHS board column below illustrate the most appropriate assessment category agreed by the evaluation panel to describe the NHS board's performance against each standard. The assessments listed in the NHSScotland column below indicate the average assessment received for each standard across Scotland.

Heart disease standards	Assessment	
	The State Hospital	NHSScotland
1: Provision of information to patients	I	I
2: Communication and multidisciplinary management of patients with heart disease	M	I
3: Education and training for staff	D	I
4: Primary prevention of cardiovascular disease	M	I
5: Assessment of chest pain in the non-emergency care setting	I	I
6: Assessment and management of confirmed coronary heart disease in the non-emergency care setting	Not applicable	I
7: Assessment and diagnosis of suspected acute coronary syndrome	Not applicable	I
8: Initial management and treatment of suspected or confirmed acute coronary syndrome	Not applicable	I
9: Ongoing management and treatment of acute coronary syndrome	Not applicable	I
10: Cardiac rehabilitation	Not applicable	I
11: Assessment, diagnosis and treatment of arrhythmias	Not applicable	D
12: Management of atrial fibrillation	Not applicable	D
13: Management of ventricular arrhythmias	Not applicable	D
14: Diagnosis of heart failure	Not applicable	D
15: Medication for heart failure	Not applicable	I
16: Multidisciplinary service delivery for heart failure	Not applicable	I
17: Implantable devices for heart failure	Not applicable	D
18: Supportive and palliative care for patients with heart disease	Not applicable	D

Key:

D	Developing
I	Implementing
M	Monitoring
R	Reviewing

18 Scottish Ambulance Service

The following text and data have been provided by the Scottish Ambulance Service and give useful information about the role of the ambulance service in treating heart disease patients in Scotland. This information has not been reviewed by the evaluation panels.

18.1 Introduction

At the frontline of NHSScotland, the Scottish Ambulance Service currently provides an emergency, unscheduled and planned service to more than 5.1 million people across mainland Scotland and its island communities. The service employs 4,300 highly skilled staff and responds to around 650,000 accident and emergency calls a year, around 450,000 of which are 999 emergency calls.

Almost 1.4 million patients are taken to and from hospital by the Scottish Ambulance Service's patient transport service each year. There are around 30 area service offices planning and co-ordinating these requests. The air ambulance service deals with nearly 4,000 incidents each year and the Scottish Ambulance Service transports over 95,000 patients between hospitals in Scotland annually, by road and air.

There are three emergency medical dispatch centres based in Glasgow, Edinburgh and Inverness. They handle in excess of 800,000 calls for help each year ranging from life-threatening heart attacks requiring an immediate response to requests from NHS partners to transfer patients between hospitals.

The Scottish Ambulance Service responds directly to around 30,000 chest pain 999 calls each year and another 30,000 which are routed via GPs and NHS 24. These data are collected through the dispatch system in the emergency medical dispatch centres.

The Scottish Ambulance Service currently uses a cab-based terminal system in every accident and emergency vehicle, which has an electronic patient report form application called ePacer. This means that, with the exception of any system failures where crews resort to paper, data gathered on possible acute coronary syndrome are electronic. The Service does not gather data on the time of conducting ECG after the call for help.

The Scottish Ambulance Service has completed roll-out of new defibrillators across Scotland, which have improved the transition of ECGs to primary angioplasty centres. This assists with the identification of patients for either pre-hospital thrombolysis or primary angioplasty intervention. The Service has worked across the three regional planning bodies to jointly deliver an optimal reperfusion service for Scotland.

18.2 Acute coronary syndrome data (Scotland): 14 March–13 June 2010

The data presented here relate to areas of Standard 7 concerning the assessment and diagnosis of individuals suspected of having acute coronary syndrome.

On the basis of incidents responded to, the activity for the audit period is as follows:

Table 1: Incidents responded to as acute coronary syndrome

Data extracted using dispatch codes	Number of incidents responded to as acute coronary syndrome	9,060
	% Category A performance	71
	Mean response time (minutes)	8.3
	Number of incidents paramedic attended	7,624
	% incidents paramedic attended	84
	Number incidents community first responder attended	160
	% incidents community first responder attended	2

Table 1a: Explanation of each field in Table 1

Number of incidents responded to as acute coronary syndrome	This is the number of incidents with a dispatch code indicating acute coronary syndrome as set out in criteria above that a response is sent to. These can be category A or category B calls (999 emergencies).
Category A performance	% of these incidents which were category A calls only (ie immediately life threatening) responded to within 8 minutes.
Mean response time (minutes)	Mean response time (in minutes) to these incidents for Category A and Category B. Category A calls have an 8 minute response time and Category B calls have a response time of 14, 19 or 21 minutes depending on population density across Scotland.
Number of incidents paramedic attended	Number of these incidents where a paramedic was in attendance.
% incidents paramedic attended	% of these incidents where a paramedic was in attendance.
Number incidents community first responder attended	Number of these incidents where a community first responder was in attendance.
% incidents community first responder attended	% of these incidents where a community first responder was in attendance.

The Category A performance standard is based upon the need to attend patients in ventricular fibrillation cardiac arrest within 8 minutes. During the audit period, the Service reached 71% of cardiac arrest patients within 8 minutes. However, the standard does apply to all Category A incidents which are telephone triaged as immediately life-threatening. In the majority of calls, the information is received from a third party caller. As such, it is often difficult to gain a complete and accurate picture of the clinical need of the patient. It is recognised that telephone triage is inherently risk averse. The performance in responding

to Category A calls covers all of mainland Scotland and performance can be impacted by the geographical challenges faced by the Service.

Approximately 84% of acute coronary syndrome incidents in the audit period were attended by a paramedic who can give the full range of drug treatments for acute coronary syndrome. In a number of calls, the patient will also have been attended by a GP who is able to administer the appropriate drug therapies. In these circumstances, the transport needs of the patient can be dealt with by non-paramedic crews.

The Scottish Ambulance Service is dispatched to around 60,000 chest pain incidents each year (9,060 in the audit period). The vast majority are not, in fact, cardiac related chest pain, as diagnosed by the crew when they arrive on scene (276 patients were diagnosed as acute coronary syndrome by the crew in the audit period). It is not always possible for ambulance crews to make a diagnosis before arrival at hospital where a range of tests are available. The total number of patients diagnosed with acute coronary syndrome during this period was approximately 1,800.

On the basis of the final diagnosis by the crew attending, the activity for the period is as follows:

Table 2: Incidents diagnosed as acute coronary syndrome

Data extracted using diagnostic codes	Number of incidents diagnosed as acute coronary syndrome	276
	Number of incidents given aspirin	186
	% incidents given aspirin	67
	Number of incidents contraindicated/other administered	40
	Number transported to hospital	250
	% transported to hospital	91
	Number of other NHS attended/not required	1
	Number of refusal of treatment or transport	3
	Number taken to hospital with no ST-elevation	172
	% taken to hospital with no ST-elevation	69
	Number of pre-hospital thrombolysis	10
	% call to needle under 60 minutes	50
	Average call to at hospital time (minutes)	61.7

Table 2a: Explanation of each field in Table 2

Data extracted using diagnostic codes	Incidents diagnosed as acute coronary syndrome	Number of incidents where the crew have indicated a diagnosis of acute coronary syndrome.
	Number incidents given aspirin	Number of these incidents where aspirin was given.
	% incidents given aspirin	% of these incidents where aspirin was given.
	Number incidents contraindication/other administered	Number of these incidents where aspirin was not given due to allergy/GP administered/Self administered/Other healthcare professional administered / Otherwise contra indicated.
	Number transported to hospital	Number of these patients who were transported to hospital.
	% transported to hospital	% of these patients who were transported to hospital.
	Number other NHS attended/not required	Number of incidents where the call stopped reason entered by the crew is other NHS attended not required.
	Number refusal of treatment or transport	Number of incidents where the call stopped reason entered by the crew is refusal of treatment or transport.
	Number taken to hospital with no ST elevation	Number of diagnosed acute coronary syndrome patients transported to hospital where no ST elevation recorded.
	% taken to hospital with no ST elevation	% of these patients taken to hospital where no ST elevation recorded (as a % of patients transported to hospital).
	Number pre-hospital thrombolysis	Number of these incidents where pre-hospital thrombolysis was recorded.
	% call to needle under 60 minutes	% of the patients where pre-hospital thrombolysis was recorded call to needle time within 60 minutes.
	Average call to at hospital time(minutes)	Average time - call started to at hospital.

In the audit period, 67% of patients received aspirin. This could be for a variety of reasons, for example:

- administration of aspirin is contraindicated in line with national guidelines, eg previous gastric ulcer or stroke
- the patient has already self-administered aspirin ahead of arrival of crew on scene, and
- the patient is being attended by another healthcare professional, eg a GP or nurse, and treatment may have been given ahead of the arrival of the ambulance crew.

The Scottish Ambulance Service participates in a national benchmarking exercise annually across all UK ambulance services. In the most recent exercise, Scottish Ambulance Service performance for the administration of aspirin to patients with diagnosed STEMI was 93% against a UK benchmark average of 87%.

A small number of patients may not be transported to hospital (around 10%). This can be for a variety of reasons, for example:

- where the patient refuses transport to hospital, and
- where an alternative pathway has been agreed with a healthcare professional.

18.3 Optimal Reperfusion Therapy

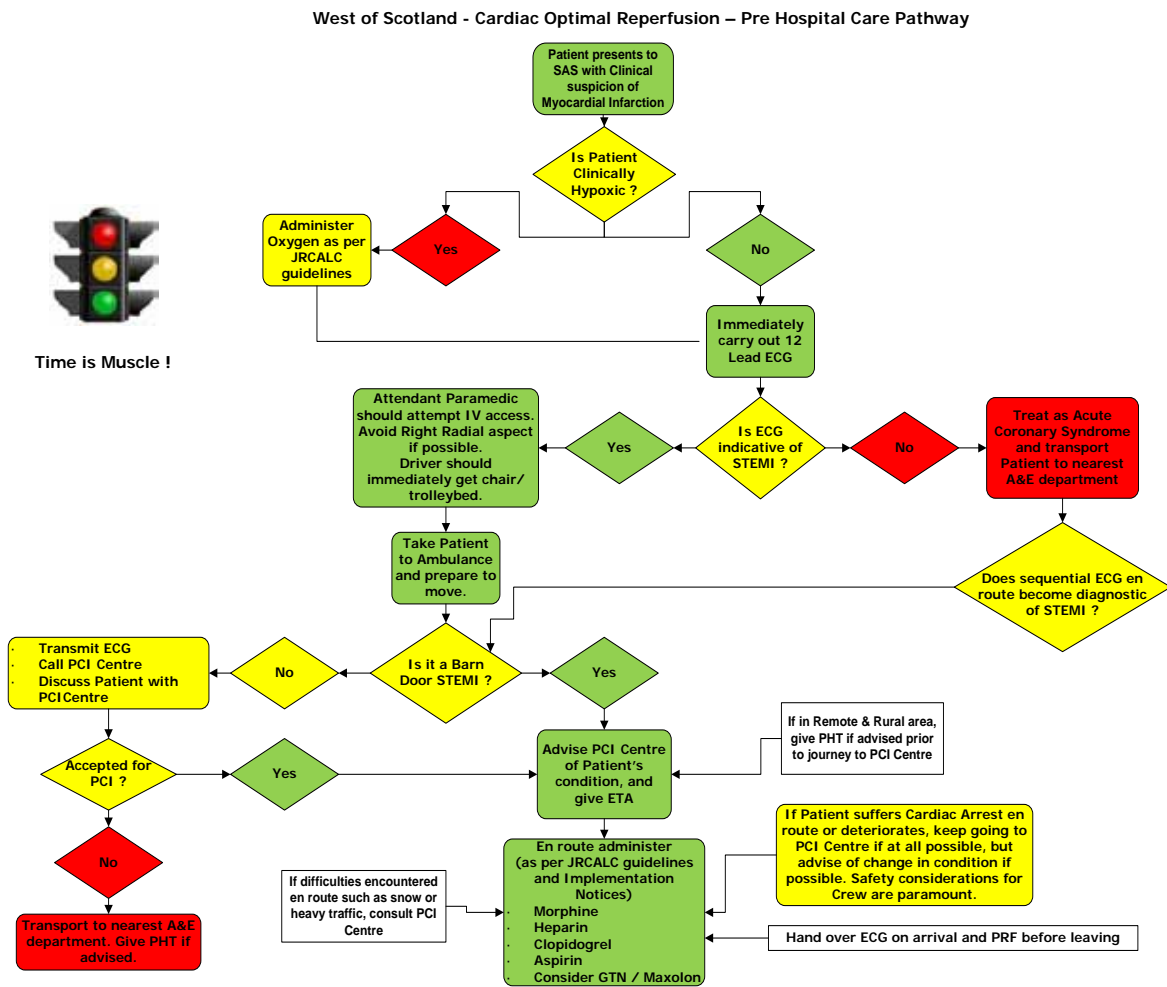
The Scottish Ambulance Service has been involved in the roll out of optimal reperfusion therapy services across Scotland over recent years. The original involvement was in a pilot with NHS Lothian. Now, primary angioplasty intervention has been rolled out to all areas of Scotland, with the exception of the north of Scotland.

The Service engaged with NHS boards through the regional planning framework, firstly in the west of Scotland, then with Tayside and then with the rest of the south east and Tayside regional planning group. Currently, the Service is finalising the pathways with NHS boards in the north of Scotland. While the fundamental protocols are the same throughout Scotland, there are slight variances in practice between different regions and hospitals.

The optimal reperfusion flow chart is set out below (Figure 1). In the north of Scotland region where the geography is more challenging and where 24/7 primary angioplasty is not available, the priority is to transport a confirmed STEMI patient to Raigmore Hospital or Aberdeen Royal Infirmary as soon as practicable. This is dependent upon the hour of day as both sites only currently operate in hours with on-call out-of-hours services at Aberdeen Royal Infirmary and only elective primary coronary intervention currently available at Raigmore Hospital.

Following the successful roll-out of optimal reperfusion across Scotland, the Scottish Ambulance Service will only thrombolyse STEMI patients where the journey time to one of six primary angioplasty intervention centres across Scotland is greater than 40 minutes from confirmation of STEMI ECG. This 40-minute drive time covers around 65% of Scotland's population and, as such, the average call to needle time reported for the period reflects the fact that patients receiving pre-hospital thrombolysis are now predominantly in remote and rural areas of Scotland.

Figure 1: Optimal reperfusion care pathway (west of Scotland)



18.4 Pre-hospital thrombolysis

One of the ways in which the Scottish Ambulance Service has improved its care for patients with acute coronary syndrome is through joint training and decision support for pre-hospital thrombolysis, particularly in NHS Highland. Of the patients presenting with STEMI at Raigmore Hospital, there has been a significant increase in the number of patients who received pre-hospital thrombolysis, either from the Scottish Ambulance Service or from a GP.

The Scottish Ambulance Service is seeing continuous improvement in its treatment of these patients in a challenging rural area as a result of improved processes and joint working with NHS Highland.

Appendix 1 – Heart disease improvement programme data sources

To assess performance against the heart disease standards, a number of heart disease improvement programme data sources were used that supported the collection of data in three different ways:

- 1 **A self-evaluation tool** which NHS boards completed to provide their own assessment of their performance against the heart disease standards
- 2 **National audits** on three key elements of treatment for heart disease:
 - Acute Coronary Syndrome: undertaken between 14 April–13 June 2010
 - Cardiac Rehabilitation: undertaken between 1 April–24 September 2010
 - Treatment in Primary Care: undertaken by GP practices between 31 May–13 August 2010
- 3 **Other sources** including:
 - National statistics prepared routinely by Information Systems Division, NHS National Services Scotland
 - The Quality and Outcomes Framework (QOF) - Information on general practice activity by NHS board; and
 - Local measurement systems.

Appendix 2 – Membership of evaluation panels

Evaluation panel 1

Nick Boon (Panel Chair)	Consultant Cardiologist, NHS Lothian
Mohammad Al-Khafaji	Consultant Cardiologist, NHS Ayrshire & Arran
Laurence Bell	GP & Lead Clinician, NHS Lanarkshire
Andrew Call	Chest Pain Nurse Specialist, NHS Highland
Dominic Dale	Patient Representative, NHS Lanarkshire
Francis Divers	Cardiology Nurse Consultant, NHS Lothian
Mark Francis	Consultant Cardiologist, NHS Fife
Chim Lang	Professor of Cardiology, NHS Tayside
Helen Miller	Cardiac Rehabilitation Specialist Nurse, NHS Tayside
Alison Moss	Clinical Governance Facilitator, NHS Tayside
Lesley O'Brien	Senior Physiotherapist, NHS Lanarkshire
Dennis Sandeman	Chest Pain Nurse, NHS Fife
George Sime	Patient Representative, NHS Fife
Alan Struthers	Professor of Cardiovascular Medicine, NHS Tayside
Emma-Jayne Trayner	Resuscitation & Clinical Skills Facilitator, NHS Western Isles
Barry Vallance	Consultant Cardiologist, NHS Lanarkshire
Debra Vickers	Lead Nurse Community Cardiac Services, NHS Western Isles
Elma Whyte	Charge Nurse/CHD Audit Nurse, NHS Lanarkshire
Information Services Division Staff	
David Murphy	Data Analyst

Evaluation panel 2

Frank Dunn (Panel Chair)	Consultant Cardiologist, NHS Greater Glasgow and Clyde
Brenda Anderson	Cardiac Rehabilitation Manager, NHS Grampian
John Braynion	Patient Representative, NHS Highland
Carolyn Brown	Heart Failure Nurse Specialist, NHS Dumfries & Galloway
Maureen Carroll	Coronary Heart Disease MCN Manager, NHS Lanarkshire
John Carson	Lead Nurse (Heart Failure), NHS Greater Glasgow and Clyde
Stuart Hood	Consultant Cardiologist, NHS Greater Glasgow and Clyde
Jane Johnston	Patient Representative, NHS Lanarkshire
Mitchell Lindsay	Consultant Cardiologist, NHS Greater Glasgow and Clyde
Pamela Milliken	Head of Clinical Governance, NHS Lanarkshire
Catherine Mondoia	Consultant Nurse – Cardiology, NHS Forth Valley
Robert Paton	Patient Representative (Grampian Cardiac Rehabilitation Association), NHS Grampian
Amanda Smith	Lead Heart Failure Nurse, NHS Highland
Karen Smith	Nurse Consultant Cardiology, NHS Tayside
Graeme Tait	Consultant Cardiologist, NHS Dumfries & Galloway
Information Services Division Staff	
David Clark	Principal Information Analyst

Evaluation panel 3

Kevin Jennings (Panel Chair)	Consultant Cardiologist, NHS Grampian
Denise Brown	MCN Manager Heart & Stroke, NHS Ayrshire & Arran
Andy Carver	Prevention & Care Adviser, British Heart Foundation
Gillian Donaldson	Lead Cardiac Specialist Nurse, NHS Borders
Morag Gardner	Clinical Nurse Manager, NHS Lothian
Sue Gibbs	Quality Assurance & Accreditation Manager, NHS Lothian
Fiona Hall	Cardiac Specialist Nurse, NHS Borders
Allister Hargreaves	Consultant Cardiologist, NHS Forth Valley
Jaroslav Kajzr	Consultant Cardiologist, NHS Dumfries & Galloway
Catherine Labinjoh	Consultant Cardiologist, NHS Forth Valley
John Locke	GP and Primary Care Lead, NHS Dumfries & Galloway
Linda Lockhart	Cardiology Nurse Manager, NHS Dumfries & Galloway
Andrew McCulloch	Consultant Cardiologist, NHS Greater Glasgow and Clyde
Janet McKay	Consultant Nurse, NHS Ayrshire & Arran
David Rosier	Patient Representative, British Heart Foundation Scotland
Lynne Scott	Cardiac Rehabilitation Manager, NHS Greater Glasgow and Clyde
Peter Thomson	Patient Representative, Heartbeat
Joanna Toohey	Cardiology Nurse Specialist, NHS Dumfries & Galloway
Jemima Traill	Lead Nurse (Cardiac Rehabilitation Service), NHS Fife
Gilbert Trusdale	Patient Representative, Ticker Talk
Information Services Division Staff	
Adam Redpath	Programme Principal

Appendix 3 – Heart failure care bundle

What is a care bundle?

A bundle is a structured way of improving the processes of care and patient outcomes: a small, straightforward set of evidence-based practices – generally three to five – that, when performed collectively and reliably, have been proven to improve patient outcomes¹.

The Scottish Patient Safety Programme, part of Healthcare Improvement Scotland, is working with NHS boards to improve the safety and reliability of hospital care across Scotland. Within the Scottish Patient Safety Programme, frontline staff are applying evidence-based interventions to every patient, every time. By introducing reliable evidence-based changes to practice, it aims to reduce adverse events by 30% and mortality by 15%.

Heart failure care bundle – Aims, outcomes and key elements

Implementation of the heart failure care bundle will ensure that all patients consistently receive care guided by up-to-date evidence. The aim, outcomes and elements of the heart failure care bundle are as follows.

Aim

By 2012, to reduce length of stay in hospital and readmission rate of patients admitted to hospital with a primary diagnosis of heart failure, secondary to left ventricular systolic dysfunction confirmed by echocardiogram.

Outcomes

- 30% decrease in the median length of stay in hospital
- 15% reduction in readmission rate (%) to hospital within 30 days
- 30% increase in the median time to readmission, and
- 15% decrease in the mortality rate (%) at 1 month, 6 months, and 1 year.

Key elements

To deliver reliable, evidence-based care for patients with heart failure secondary to left ventricular systolic dysfunction by:

- expert review of patients during admission
- prescription of evidence-based drugs during inpatient stays, and
- referral of patients to a specialist heart failure nurse service before or at the time of discharge.

In the early stages of development, implementation of the heart failure care bundle will be confined to coronary care units.

¹ Haraden C. What is a bundle? [online]. 2006 [cited 2011 Apr 5]; Available from: <http://www.ihl.org/IHI/Topics/CriticalCare/IntensiveCare/ImprovementStories/WhatIsaBundle>

Appendix 4 – List of abbreviations

Abbreviation

ECG	electrocardiogram
GP	general practitioner
GRACE	Global Registry of Acute Coronary Events
QOF	Quality and Outcomes Framework
SBAR	Situation, Background, Assessment, Recommendations
SIGN	Scottish Intercollegiate Guidelines Network
STEMI	ST-elevation myocardial infarction

You can read and download this document from our website. We are happy to consider requests for other languages or formats. Please contact our Equality and Diversity Officer on 0141 225 6999 or email contactpublicinvolvement.his@nhs.net



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The Healthcare Environment Inspectorate, the Scottish Health Council, the Scottish Health Technologies Group, the Scottish Intercollegiate Guidelines Network (SIGN) and the Scottish Medicines Consortium are key components of our organisation.

