NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Health and social care directorate

Quality standards and indicators

Briefing paper

Quality standard topic: Chronic Heart Failure (update)

Output: Prioritised quality improvement areas for development.

Date of Quality Standards Advisory Committee meeting: 14 July 2015

Contents

1 Introduction

This briefing paper presents a structured overview of potential quality improvement areas for chronic heart failure (CHF). It provides the Committee with a basis for discussing and prioritising quality improvement areas for development into draft quality statements and measures for public consultation.

1.1 Structure

This briefing paper includes a brief description of the topic, a summary of each of the suggested quality improvement areas and supporting information.

If relevant, recommendations selected from the key development sources below are included to help the Committee in considering potential statements and measures.

1.2 Development sources

The key development source referenced in this briefing paper is:

- Chronic heart failure: Management of chronic heart failure in adults in primary and secondary care (2010) NICE guideline CG108 [Review decision in January 2015 to update the guideline, anticipated publication 2019.

2 Overview

2.1 Focus of quality standard

This quality standard will cover the assessment, diagnosis and management of long-term CHF in adults. It will not address acute heart failure, which will be covered by the acute heart failure quality standard currently in development, which focuses on the immediate inpatient hospital care of someone who is acutely unwell as a result of heart failure.

It will replace the existing quality standard for CHF.

2.2 Definition

Heart failure is a complex clinical syndrome of symptoms and signs that suggest the efficiency of the heart as a pump is impaired. It is caused by structural or functional abnormalities of the heart. Some patients have heart failure due to left ventricular systolic dysfunction (LVSD) which is associated with a reduced left ventricular ejection fraction. Others have heart failure with a preserved ejection fraction (HFPEF). Most of the evidence on treatment is for heart failure due to LVSD. The

most common cause of heart failure in the UK is coronary heart disease, and many patients have had a myocardial infarction in the past.[1]

For both patients and their carers, heart failure can be a financial burden and have adverse effects on their quality of life. Patients with CHF often experience a poor quality of life; symptoms include breathlessness, fatigue and ankle swelling and over one third of patients experience severe and prolonged depressive illness.

2.3 Incidence and prevalence

In 2013, around 550,000 people in the UK were living with heart failure.[2] Both the incidence and prevalence of heart failure increase steeply with age, with the average age at first diagnosis being 76 years.

The prevalence of heart failure is expected to rise in future as a result of an ageing population, improved survival of people with ischaemic heart disease and more effective treatments for heart failure.

On average, a GP will look after 30 patients with heart failure, and suspect a new diagnosis of heart failure in perhaps 10 patients annually. Heart failure accounts for a total of 1 million inpatient bed‑days – 2% of all NHS inpatient bed-days – and 5% of all emergency medical admissions to hospital. Hospital admissions because of heart failure are projected to rise by 50% over the next 25 years largely as a result of the ageing population. This is despite a progressive decline of the age-adjusted hospitalisation rate at 1–1.5% per annum since 1992/93. In 2012/13, there were slightly fewer than 152,000 inpatient episodes of heart failure in NHS hospitals.[1]

2.4 Management

Heart failure has a poor prognosis: 30–40% of patients diagnosed with heart failure die within a year, but thereafter the mortality is less than 10% per year. There is evidence of a trend of improved prognosis in the past 10 years. The 6-month mortality rate decreased from 26% in 1995 to 14% in 2005. Patients on GP heart failure registers, representing prevalent cases of heart failure, have a 5-year survival rate of 58% compared with 93% in the age- and sex-matched general population.

Effective multidisciplinary specialist services for people with CHF can have a positive effect on patients' life expectancy and quality of life and evidence suggests they can help to reduce recurrent hospital stays by 30–50%. There is evidence that both pharmacological and non-pharmacological treatments can improve patient quality of life, both in terms of physical functioning and well-being. There is also a strong evidence base for treatments to improve the prognosis of heart failure. Nevertheless, many patients remain sub-optimally treated.

[1] NICE guideline CG108: Chronic Heart Failure (2010)
[2] Cardiovascular Disease Statistics, British Heart Foundation 2014

See Appendix 1 for the associated care pathway and algorithms from NICE clinical guideline CG108.

2.5 National Outcome Frameworks

Tables 1–3 show the outcomes, overarching indicators and improvement areas from the frameworks that the quality standard could contribute to achieving.

Table 1 NHS Outcomes Framework 2015–16

Domain	Overarching indicators and improvement areas
1 Preventing people from dying prematurely	***Overarching indicators*** 1a Potential Years of Life Lost (PYLL) from causes considered amenable to healthcare i Adults 1b Life expectancy at 75 i Males ii Females ***Improvement areas*** **Reducing premature mortality from the major causes of death** 1.1 Under 75 mortality rate from cardiovascular disease* (PHOF 4.4*)
2 Enhancing quality of life for people with long-term conditions	***Overarching indicator*** 2 Health-related quality of life for people with long-term conditions (ASCOF 1A**) ***Improvement areas*** **Ensuring people feel supported to manage their condition** 2.1 Proportion of people feeling supported to manage their condition **Improving functional ability in people with long-term conditions** 2.2 Employment of people with long-term conditions (ASCOF 1E**, PHOF 1.8*) **Enhancing quality of life for carers** 2.4 Health-related quality of life for carers** **Improving quality of life for people with multiple long-term conditions** *2.7 Health-related quality of life for people with three or more long-term conditions* (ASCOF 1A**)
3 Helping people to recover from episodes of ill health or following injury	***Overarching indicators*** 3b Emergency readmissions within 30 days of discharge from hospital (PHOF 4.11*) ***Improvement areas*** **Improving outcomes from planned treatments** 3.1 Total health gain as assessed by patients for elective procedures *i Physical health-related procedures* **Helping older people to recover their independence after illness or injury** 3.6 i Proportion of older people (65 and over) who were still at home 91 days after discharge from hospital into reablement/rehabilitation service (ASCOF 2B[1]*) ii Proportion offered rehabilitation following discharge from acute or community hospital (ASCOF 2B[2]*)

4 Ensuring that people have a positive experience of care	***Overarching indicators*** 4a Patient experience of primary care i GP services 4b Patient experience of hospital care 4c *Friends and family test* *4d Patient experience characterised as poor or worse* *i Primary care* *ii Hospital care* ***Improvement areas*** **Improving people's experience of outpatient care** 4.1 Patient experience of outpatient services **Improving hospitals' responsiveness to personal needs** 4.2 Responsiveness to inpatients' personal needs **Improving people's experience of accident and emergency services** 4.3 Patient experience of A&E services **Improving people's experience of integrated care** *4.9 People's experience of integrated care (ASCOF 3E**)*
Alignment with Adult Social Care Outcomes Framework and/or Public Health Outcomes Framework * Indicator is shared ** Indicator is complementary Indicators in italics in development	

Table 2 Public health outcomes framework for England, 2013–2016

Domain	Objectives and indicators
1 Improving the wider determinants of health	***Objective*** Improvements against wider factors that affect health and wellbeing and health inequalities ***Indicators*** 1.8 Employment for those with long-term health conditions including adults with a learning disability or who are in contact with secondary mental health services (NHSOF 2.2*, ASCOF 1E**) 1.9 Sickness absence rate
Alignment with Adult Social Care Outcomes Framework and/or NHS Outcomes Framework * Indicator is shared ** Indicator is complementary Indicators in italics in development	

3 Summary of suggestions

3.1 Responses

In total, 10 stakeholders and 6 specialist committee members (SCMs) responded to the 2-week engagement exercise 19 May–03 June 2015.

Stakeholders were asked to suggest up to 5 areas for quality improvement. Specialist committee members were also invited to provide suggestions. The responses have been merged and summarised in Table 3 for further consideration by the Committee.

Full details of all the suggestions provided are given in appendix 4 for information.

Table 3 Summary of suggested quality improvement areas

Suggested area for improvement	Stakeholders
Diagnosis • Timely investigations to confirm diagnosis • Investigation of underlying causes by a specialist	BSHF, SCMs
Pharmacological treatment • Combined use of all 3 key drugs	ABHI, RCP, SCMs
Rehabilitation • Referral to rehabilitation programmes and heart failure nurses	SCMs, PM
Monitoring • Consistent follow-up	Novartis, SCMs
Specialist referral • Patients managed by a multidisciplinary team led by a cardiologist	ABHI, BSHF, Novartis, RCP, SCMs
Additional areas • Invasive procedures • Repeat ECG for device eligibility • Use of heart-rate lowering agents • Patients cared for on a cardiology ward • Inclusion of patients in the HF audit • Developmental use of LCZ696 • Patient experience • Palliative care	ABHI, Boston Scientific, BSHF, Medtronic, NHSE, Novartis, RCP, St Jude Medical, SCMs

ABHI, Association of British Healthcare
Boston Scientific
BSHF, British Society for Heart Failure
Medtronic
Novartis
PM, Pumping Marvellous Foundation
NHSE, NHS England
RCP, Royal College of Physicians
RCN, Royal College of Nursing
SCMs, Specialist Committee Members
St Jude Medical

4 Suggested improvement areas

4.1 Diagnosis

4.1.1 Summary of suggestions

Timely investigations to confirm diagnosis

Stakeholders highlighted that timely diagnosis of CHF was important to enable optimal treatment and care planning. They commented that diagnosis requires measurement of serum B-type natriuretic peptides (BNP) and echocardiography, the results of which should be reviewed by a specialist. A stakeholder raised concerns regarding inequality of access and suggested that all patients with a possible diagnosis with CHF should be seen in a timely manner, not just those with previous myocardial infarction. Stakeholders emphasised that pressure on timescales for tests is still needed, as there was variability in the availability and timeliness of BNP tests, and also in the specialist input into the results of these tests. There were also concerns that removing pressures on timescales may lead to a poorer diagnostic approach and delay in patients receiving therapy.

Investigation of underlying causes by a specialist

Stakeholders emphasised a need for investigation of the cause of CHF, such as genetics or myocarditis, especially in patients under 50 years. Stakeholders commented that identifying the underlying aetiology can be challenging, but is important as the prognosis with myocarditis can be variable and myocarditis is associated with sudden cardiac death in young people.

4.1.2 Selected recommendations from development source

Table 4 below highlights recommendations that have been provisionally selected from the development source that may support potential statement development. These are presented in full after table 4 to help inform the Committee's discussion.

Table 4 Specific areas for quality improvement

Suggested quality improvement area	Suggested source guidance recommendations
Timely investigations to confirm diagnosis	**Diagnosing heart failure** NICE CG108 Recommendations 1.1.1.2 (KPI), 1.1.1.3 (KPI), 1.1.1.4 (KPI), 1.1.1.5, 1.1.1.7, 1.1.1.11,1.1.1.13
Investigation of underlying causes by a specialist	**Diagnosing heart failure** NICE CG108 Recommendation 1.1.1.15

Diagnosing heart failure

NICE CG108 – Recommendation 1.1.1.2 (key priority for implementation)

Refer patients with suspected heart failure and previous myocardial infarction (MI) urgently, to have transthoracic Doppler 2D echocardiography and specialist assessment within 2 weeks. [new 2010]

NICE CG108 – Recommendation 1.1.1.3 (key priority for implementation)

Measure serum natriuretic peptides (B-type natriuretic peptide [BNP] or N-terminal pro-B-type natriuretic peptide [NTproBNP]) in patients with suspected heart failure without previous MI. [new 2010]

NICE CG108 – Recommendation 1.1.1.4 (key priority for implementation)

Because very high levels of serum natriuretic peptides carry a poor prognosis, refer patients with suspected heart failure and a BNP level above 400 pg/ml (116 pmol/litre) or an NTproBNP level above 2000 pg/ml (236 pmol/litre) urgently, to have transthoracic Doppler 2D echocardiography and specialist assessment within 2 weeks. [new 2010]

NICE CG108 – Recommendation 1.1.1.5

Refer patients with suspected heart failure and a BNP level between 100 and 400 pg/ml (29–116 pmol/litre) or an NTproBNP level between 400 and 2000 pg/ml (47–236 pmol/litre) to have transthoracic Doppler 2D echocardiography and specialist assessment within 6 weeks. [new 2010]

NICE CG108 – Recommendation 1.1.1.7

Perform transthoracic Doppler 2D echocardiography to exclude important valve disease, assess the systolic (and diastolic) function of the (left) ventricle, and detect intracardiac shunts. [2003]

NICE CG108 – Recommendation 1.1.1.11

Consider a serum natriuretic peptide test (if not already performed) when heart failure is still suspected after transthoracic Doppler 2D echocardiography has shown a preserved left ventricular ejection fraction. [new 2010]

NICE CG108 – Recommendation 1.1.1.13

1.1.1.13 Perform an ECG and consider the following tests to evaluate possible aggravating factors and/or alternative diagnoses:

• chest X-ray

• blood tests:

    • electrolytes, urea and creatinine

    • eGFR (estimated glomerular filtration rate)

    • thyroid function tests

    • liver function tests

    • fasting lipids

    • fasting glucose

    • full blood count

• urinalysis

• peak flow or spirometry. [2003, amended 2010]

NICE CG108 – Recommendation 1.1.1.15

When a diagnosis of heart failure has been made, assess severity, aetiology, precipitating factors, type of cardiac dysfunction and correctable causes. [new 2010]

4.1.3 Current UK practice

Timely investigations to confirm diagnosis

QOF 2013/14 data for indicator HF002[3] showed 91% of patients on the register had their HF diagnosis confirmed by echocardiogram or specialist assessment within 12 months. Similar high rates of diagnosis using echocardiography were reported in the NICOR National Heart Failure Audit, which provides data on patients with an unscheduled admission to hospital in England and Wales who are discharged with a primary diagnosis of heart failure. The percentage of inpatients receiving an echocardiogram rose from 86% in 2011/12 to 91% in 2012/13. However, the audit showed a difference in the percentage of patients receiving an echo when they were treated by a specialist (95%), compared with those receiving an echo who also received no specialist input into their care (79%). Another recent study showed that rapid access to a specialist clinic increased the chances of a correct early diagnosis and reduced the time to receiving the correct treatment.[4]

[3] HF002: The percentage of patients with a diagnosis of heart failure (diagnosed on or after 1 April 2006) which has been confirmed by an echocardiogram or by specialist assessment 3 months before or 12 months after entering on to the register

[4] James et al, *Int J Cardiology* 2015:268–278. Life expectancy for community-based patients with heart failure from time of diagnosis

Investigation of underlying causes by a specialist

No published studies on current practice for CHF were highlighted for this suggested area for quality improvement; this area is based on stakeholder's knowledge and experience.

4.2 Pharmacological treatment

4.2.1 Summary of suggestions

Combined use of all 3 key drugs

A number of stakeholders highlighted that optimal medical therapy for CHF patients is now the combined use of all 3 of the following key drugs:

- an angiotensin-converting enzyme inhibitor (ACE-I) or an angiotensin receptor blocker (ARB)
- a beta-blocker
- an aldosterone antagonist (also called an MRA: a mineralocorticoid receptor antagonist)

Stakeholders commented that outcomes data from the NICOR National Heart Failure Audit show patients discharged from hospital on all 3 drugs have better outcomes than those discharged on other combinations, improving life expectancy and reducing hospitalisations. Stakeholders also emphasised their own experience of suboptimal medication uptake, with a suggested barrier to uptake being fragmented care pathways and lack of specialist involvement.

4.2.2 Selected recommendations from development source

Table 5 below highlights recommendations that have been provisionally selected from the development source(s) that may support potential statement development. These are presented in full after table 5 to help inform the Committee's discussion.

Table 5 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Patients discharged on combination of all 3 key drugs	**Pharmacological treatment of heart failure** NICE CG108 Recommendation 1.2.2.4 (KPI)

Pharmacological treatment of heart failure

NICE CG108 Recommendation 1.2.2.4 (key priority for implementation)

Seek specialist advice and consider adding one of the following if a patient remains symptomatic despite optimal therapy with an ACE inhibitor and a beta-blocker:

- an aldosterone antagonist licensed for heart failure (especially if the patient has moderate to severe heart failure [NYHA class III–IV] or has had an MI within the past month) or
- an angiotensin II receptor antagonist (ARB) licensed for heart failure (especially if the patient has mild to moderate heart failure [NYHA class II–III]) or
- hydralazine in combination with nitrate (especially if the patient is of African or Caribbean origin and has moderate to severe heart failure [NYHA class III–IV]) [new 2010]

4.2.3 Current UK practice

Combined use of all 3 key drugs

In the 2012/13 NICOR National Heart Failure Audit, 39% of appropriate patients were discharged on the combination of all 3 key drugs. 85% of patients were discharged on an ACE-I or ARB, and 82% on a beta-blocker, however no NICOR data were available on the percentage of patients discharged on both an ACE-I/ARB and a beta-blocker.

QOF 2013/14 data for indicator HF004[5] showed 74% of patients on the register with CHF due to LVSD were currently treated with both an ACE-I/ARB and a beta-blocker, an increase from 63.7% in 2012/13.

[5] HF004: In those patients with a current diagnosis of heart failure due to left ventricular systolic dysfunction who are currently treated with an ACE-I or ARB, the percentage of patients who are additionally currently treated with a beta-blocker licensed for heart failure

4.3 Rehabilitation

4.3.1 Summary of suggestions

Referral to rehabilitation programmes and heart failure nurses

Stakeholders emphasised the importance of access to community-based cardiac rehabilitation and heart failure nurse-led services. People with CHF have high readmission rates and high morbidity. These services can reduce hospital admissions, increase patient and carer quality of life and increase patient engagement for self-management. Stakeholders highlighted that access to these services must be improved, but stated that being prescriptive about the type of rehabilitation that is required should be avoided. It was suggested that the poor rates of uptake were either due to lack of provision or lack of awareness of such services by healthcare professionals.

4.3.2 Selected recommendations from development source

Table 6 below highlights recommendations that have been provisionally selected from the development source(s) that may support potential statement development. These are presented in full after table 6 to help inform the Committee's discussion.

Table 6 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Referral to rehabilitation programmes and heart failure nurses	**Rehabilitation** NICE CG108 Recommendation 1.3.1.1 (KPI)

Rehabilitation

NICE CG108 Recommendation 1.3.1.1 (key priority for implementation)

Offer a supervised group exercise-based rehabilitation programme designed for patients with heart failure.

- Ensure the patient is stable and does not have a condition or device that would preclude an exercise-based rehabilitation programme.
- Include a psychological and educational component in the programme.
- The programme may be incorporated within an existing cardiac rehabilitation programme. [new 2010]

4.3.3 Current UK practice

The 2012/2013 NICOR National Heart Failure Audit showed poor access to cardiac rehabilitation: only 11% of patients discharged from hospital with a primary diagnosis of heart failure were referred to these services. These figures for cardiac rehabilitation referrals exclude those patients for whom referral was not applicable and those who declined treatment. Over half of patients discharged from hospital (59%) were followed up by a heart failure nurse, but the audit did not specify whether the nurses were community-based. Some heart failure nurse clinics are only intended for LVSD patients, and almost 70% of all patients with a diagnosis of LVSD were referred for follow-up with a specialist nurse. Patients who received specialist heart failure care were around three times more likely to be referred to follow-up with a cardiologist or heart failure nurse, and twice as likely to be referred to a cardiac rehabilitation programme on discharge. Stakeholders reported large variation in the availability of community-based heart failure nurses. An evaluation of heart failure specialist nurses showed a significant improvement in the quality of life of their patients and a 35% reduction in hospital admissions, resulting in an estimated £1,826 saving per patient to the NHS.[6]

[6] British Heart Foundation: Specialist Nurses

4.4 Monitoring

4.4.1 Summary of suggestions

Consistent follow-up

Stakeholders identified the need for consistent monitoring and follow-up appointments for people with CHF, which has a beneficial impact on outcomes, even several years after discharge. The follow-up is important for medication optimisation and monitoring for any deterioration, which may indicate the need for device therapy. The follow-up may require the need for specialist involvement and medication reviews. Stakeholders suggested that there was currently uncertain frequency and structure of follow-up. A stakeholder highlighted that patients' care plans should include planned reviews, with timescales indicated by disease and symptom status: from days, to weeks, but at least every 6 months.

4.4.2 Selected recommendations from development source

Table 7 below highlights recommendations that have been provisionally selected from the development source(s) that may support potential statement development. These are presented in full after table 7 to help inform the Committee's discussion.

Table 7 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Consistent follow-up	**Monitoring** NICE CG108 Recommendation 1.4.1.1, 1.4.1.3

Monitoring

NICE CG108 Recommendation 1.4.1.1

All patients with chronic heart failure require monitoring. This monitoring should include:

- a clinical assessment of functional capacity, fluid status, cardiac rhythm (minimum of examining the pulse), cognitive status and nutritional status
- a review of medication, including need for changes and possible side effects
- serum urea, electrolytes, creatinine and eGFR. [2003, amended 2010]

NICE CG108 Recommendation 1.4.1.3

The frequency of monitoring should depend on the clinical status and stability of the patient. The monitoring interval should be short (days to 2 weeks) if the clinical condition or medication has changed, but is required at least 6-monthly for stable patients with proven heart failure. [2003]

4.4.3 Current UK practice

The 2012/2013 NICOR National Heart Failure Audit showed that of patients with HF discharged from hospital, over half were referred to cardiology (54%) or heart failure nurse (59%) follow-up services. Patients were more likely to receive specialist follow-up when treated on cardiology wards and patients who received specialist heart failure care were around three times more likely to be referred to follow-up with a cardiologist or heart failure nurse. 56% patients were referred for a follow-up appointment with a heart failure multidisciplinary team on discharge, and 34% these had their appointment planned for within 2 weeks of leaving hospital. No longer-term data were available on the frequency of further follow-up appointments, such as on a 6-monthly basis.

4.5 Specialist referral

4.5.1 Summary of suggestions

Patients managed by a multidisciplinary team led by a cardiologist

Stakeholders highlighted the importance of specialist involvement for all patients with CHF, not just those admitted to hospital. Access to care from specialist teams is known to improve outcomes, such as reduced admission and mortality rates. Stakeholders emphasised that specialist involvement underpins high quality CHF care.

4.5.2 Selected recommendations from development source

Table 8 below highlights recommendations that have been provisionally selected from the development source(s) that may support potential statement development. These are presented in full after table 8 to help inform the Committee's discussion.

Table 8 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Patients managed by a multidisciplinary team led by a cardiologist	**Monitoring** NICE CG108 Recommendation 1.4.1.5 (KPI) **Referral and approach to care** NICE CG108 Recommendations 1.5.1.1, 1.5.3.1

Monitoring

NICE CG108 Recommendation 1.4.1.5 (key priority for implementation)

When a patient is admitted to hospital because of heart failure, seek advice on their management plan from a specialist in heart failure. [new 2010]

Referral and approach to care

NICE CG108 Recommendation 1.5.1.1

Refer patients to the specialist multidisciplinary heart failure team for:

- the initial diagnosis of heart failure and
- the management of:
    - severe heart failure (NYHA class IV)
    - heart failure that does not respond to treatment

- heart failure that can no longer be managed effectively in the home setting. [new 2010]

NICE CG108 Recommendation 1.5.3.1

Heart failure care should be delivered by a multidisciplinary team with an integrated approach across the healthcare community.

4.5.3 Current UK practice

Patients managed by a multidisciplinary team led by a cardiologist

Data was only available for patients admitted to hospital from the 2012/2013 NICOR National Heart Failure Audit, which showed 56% of patients were referred for a follow-up appointment with the heart failure MDT on discharge, indicating that 44% of heart failure patients were not referred to an MDT. Stakeholders highlighted their own experience that referral to heart failure teams is not available for all appropriate patients, as teams are not staffed or commissioned adequately according to the population needs.

4.6 Additional areas

Summary of suggestions

The improvement areas below were suggested as part of the stakeholder engagement exercise. However they were felt to be either unsuitable for development as quality statements, outside the remit of this particular quality standard referral or require further discussion by the Committee to establish potential for statement development.

There will be an opportunity for the QSAC to discuss these areas at the end of the session on 14 July 2015.

Invasive procedures

A number of stakeholders emphasised the importance of cardiac device therapy in the management of patients with CHF, including implantable cardioverter defibrillators (ICDs) or cardiac resynchronisation therapy (CRT). Stakeholders also highlighted that since CG108 was published, the eligible population indicated for cardiac device therapy has been expanded to people with CHF that is unrelated to ischaemic origin.[7] ICDs, CRT with defibrillator (CRT‑D) or CRT with pacing (CRT‑P) are recommended as treatment options for people with heart failure who have left ventricular dysfunction with a left ventricular ejection fraction of 35% or less.[7] Stakeholders also highlighted the need for specialist referral of patients with CHF so they can be assessed for eligibility for such devices. Concerns were raised that the treatment options of ICD/CRT is not widely acknowledged in primary care and there is inequity of access to these devices. However, as use of ICDs and CRT is already covered by TA314, it is not considered an area for quality improvement.

Another stakeholder suggested that implantable pulmonary artery pressure monitors may reduce readmissions for patients with CHF by allowing patients to be managed as outpatients. However, such devices were not evaluated in CG108 and further research was recommended on the safety and efficacy of these devices in NICE interventional procedure guidance IPG463.

Repeat ECG for device eligibility

Two stakeholders suggested that patients with CHF should have a repeat echocardiogram after 6–12 months to identify patients who may benefit from cardiac device therapy. Although echocardiography is recommended in the initial diagnosis of CHF in CG108, there are no recommendations covering a repeat ECG at follow-

[7] Implantable cardioverter defibrillators and cardiac resynchronisation therapy for arrhythmias and heart failure. NICE Technology Appraisal 314 (2014).

up appointments and this area is not contained within other NICE accredited guidelines.

Use of heart-rate lowering agents

Two stakeholders considered the use of the heart-rate lowering agent ivabradine to be important in treating some patients with CHF. Ivabradine is indicated in chronic heart failure with systolic dysfunction, in patients in sinus rhythm and whose heart rate is ≥75 bpm, in combination with standard therapy including beta-blocker therapy or when beta-blocker therapy is contraindicated or not tolerated.[8] Another stakeholder suggested that monitoring a patient's heart rate control is a good indicator of the quality of care. Monitoring heart rate or controlling heart rate using heart rate-lowering drugs is not covered by CG108.

Patients cared for on a cardiology ward

Stakeholders reported their concerns regarding the significant differences in in-hospital mortality, outcomes and treatment for patients treated on cardiology wards, compared with general medical wards. Stakeholders felt treating heart failure patients on cardiology wards would improve treatment, patient education whilst in hospital and minimise delays in follow up by heart failure nurse services on discharge, which would improve outcomes and reduce hospital admissions. A stakeholder highlighted that the quality standard for CHF should be in line with the guidance for acute HF, which recommends patients are treated on cardiology wards, to prevent inequity in treatment. However, inpatient admission will be covered in the acute heart failure quality standard currently in development.

Inclusion of patients in the HF audit

A stakeholder highlighted that including all patients with CHF in the HF audit would improve outcomes and drive up standards. Participation in the HF audit is specified in the contract of NHS Trusts: in 2012/2013 97% of NHS Trusts submitted data to the NICOR National Heart Failure Audit, representing 60% of all HF-coded discharges or deaths in England and Wales.

Developmental use of LCZ696

A stakeholder suggested LCZ696, a pharmacological treatment in development, may be beneficial for some patients with CHF in place of ACE inhibitors. However, as this drug does not have a licensed indication or a marketing authorisation as yet, it has not been evaluated by NICE.

[8] Ivabradine for treating chronic heart failure. NICE Technology Appraisal 267(2012).

Patient experience

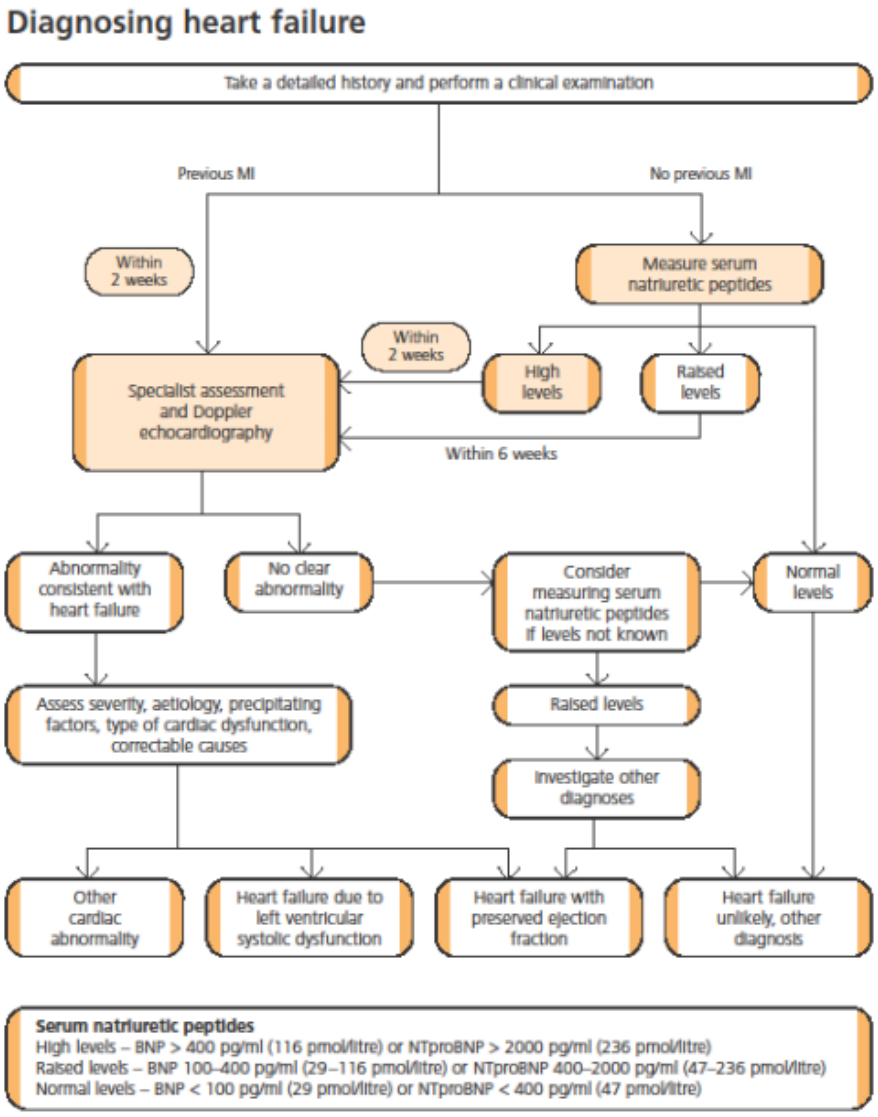
Stakeholders highlighted the importance of a patient-centred approach to care in the treatment of CHF, such as the requirement for patient engagement and shared decision making, good communication and information for patients and carers, and the need for continuity of care. Although there are specific recommendations covering these aspects in CG108, many are covered in the patient experience in adult NHS services quality standard.

Palliative care

Several stakeholders felt that in recognition of the high mortality rates for patients with heart failure, palliative care should be addressed. There is currently a NICE quality standard on end of life care for adults, which was published August 2011 and would need to be considered if this quality improvement area goes beyond this.

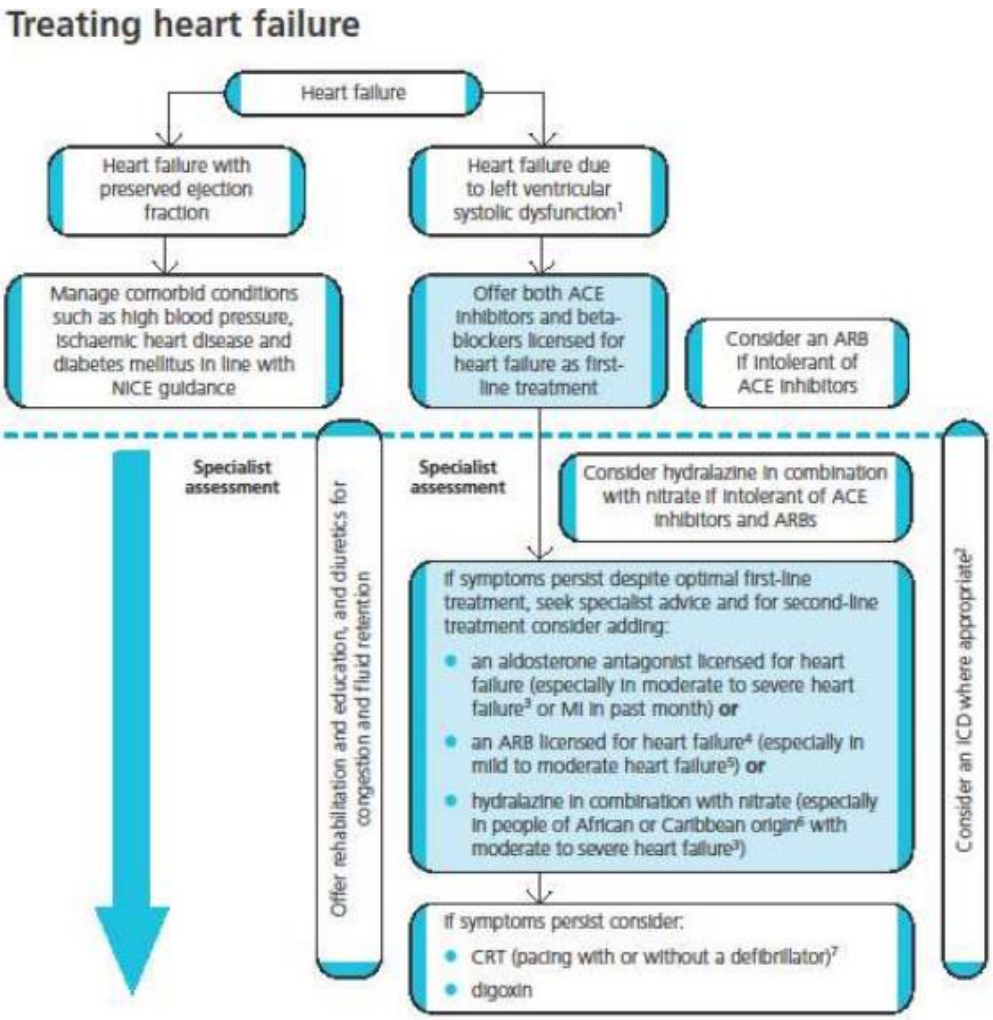
Appendix 1: Additional information

Figure 1. Algorithm summarising recommendations for the diagnosis of heart failure (CG108)



- Perform an ECG in all patients.
- Other recommended tests:
  - chest X-ray
  - blood tests: urea, creatinine, electrolytes, eGFR, full blood count, liver function tests, thyroid function tests, fasting glucose, and fasting lipids
  - urinalysis
  - peak flow or spirometry
- **Non-HF causes of high NP**: LVH, ischaemia, tachycardia, RV overload, hypoxaemia (including pulmonary embolism), renal dysfunction (eGFR<60 ml/min), sepsis, COPD, diabetes, age (>70 years), cirrhosis of the liver.
- **Factors causing low NP**: Obesity and treatment with diuretics, ACEI, BB, ARB and AA.

Figure 2. Algorithm for the treatment of symptomatic heart failure (CG108)



[1] For more information on drug treatment see appendix J and 'Chronic kidney disease' (NICE clinical guideline 73).
[2] Consider an ICD in line with 'Implantable cardiovascular defibrillators for arrhythmias' (NICE technology appraisal guidance 95).
[3] NYHA class III–IV.
[4] Not all ARBs are licensed for use in heart failure in combination with ACE inhibitors.
[5] NYHA class II–III.
[6] This does not include mixed race. For more information see the full guideline at www.nice.org.uk/guidance/CG108
[7] Consider CRT in line with 'Cardiac resynchronisation therapy for the treatment of heart failure' (NICE technology appraisal guidance 120).

Appendix 2: Key priorities for implementation (CG108)

Recommendations that are key priorities for implementation in the source guideline and that have been referred to in the main body of this report are highlighted in grey.

Diagnosis

- Refer patients with suspected heart failure and previous myocardial infarction (MI) urgently, to have transthoracic Doppler 2D echocardiography and specialist assessment within 2 weeks. [new 2010]

- Measure serum natriuretic peptides (B-type natriuretic peptide [BNP] or N-terminal pro-B-type natriuretic peptide [NTproBNP]) in patients with suspected heart failure without previous MI. [new 2010]

- Because very high levels of serum natriuretic peptides carry a poor prognosis, refer patients with suspected heart failure and a BNP level above 400 pg/ml (116 pmol/litre) or an NTproBNP level above 2000 pg/ml (236 pmol/litre) urgently, to have transthoracic Doppler 2D echocardiography and specialist assessment within 2 weeks. [new 2010]

Treatment

- Offer both angiotensin-converting enzyme (ACE) inhibitors and beta-blockers licensed for heart failure to all patients with heart failure due to left ventricular systolic dysfunction. Use clinical judgement when deciding which drug to start first. [new 2010]

- Offer beta-blockers licensed for heart failure to all patients with heart failure due to left ventricular systolic dysfunction, including:
    - older adults and
    - patients with:
    - peripheral vascular disease
    - erectile dysfunction
    - diabetes mellitus
    - interstitial pulmonary disease and
    - chronic obstructive pulmonary disease (COPD) without reversibility. [new 2010]

- Seek specialist advice and consider adding one of the following if a patient remains symptomatic despite optimal therapy with an ACE inhibitor and a beta-blocker:

  - an aldosterone antagonist licensed for heart failure (especially if the patient has moderate to severe heart failure [NYHA[9] class III–IV] or has had an MI within the past month) or
  - an angiotensin II receptor antagonist (ARB) licensed for heart failure[10] (especially if the patient has mild to moderate heart failure [NYHA class II–III]) or
  - hydralazine in combination with nitrate (especially if the patient is of African or Caribbean origin[11] and has moderate to severe heart failure [NYHA class III–IV]) [new 2010]

Rehabilitation

- Offer a supervised group exercise-based rehabilitation programme designed for patients with heart failure.
- Ensure the patient is stable and does not have a condition or device that would preclude an exercise-based rehabilitation programme[12].
- Include a psychological and educational component in the programme.
- The programme may be incorporated within an existing cardiac rehabilitation programme. [new 2010]

Monitoring

- All patients with chronic heart failure require monitoring. This monitoring should include:
  - a clinical assessment of functional capacity, fluid status, cardiac rhythm (minimum of examining the pulse), cognitive status and nutritional status
  - a review of medication, including need for changes and possible side effects
  - serum urea, electrolytes, creatinine and eGFR[13]. [2003, amended 2010]

- When a patient is admitted to hospital because of heart failure, seek advice on their management plan from a specialist in heart failure. [new 2010]

Discharge planning

- Patients with heart failure should generally be discharged from hospital only when their clinical condition is stable and the management plan is optimised.

[9]The New York Heart Association classification of heart failure.
[10]Not all ARBs are licensed for use in heart failure in combination with ACE inhibitors.
[11]This does not include mixed race. For more information see the full guideline.
[12]The conditions and devices that may preclude an exercise-based rehabilitation programme include: uncontrolled ventricular response to atrial fibrillation, uncontrolled hypertension, and high-energy pacing devices set to be activated at rates likely to be achieved during exercise.
[13]This is a minimum. Patients with comorbidities or co-prescribed medications will require further monitoring. Monitoring serum potassium is particularly important if a patient is taking digoxin or an aldosterone antagonist

Timing of discharge should take into account patient and carer wishes, and the level of care and support that can be provided in the community.

Appendix 3: Glossary

Heart failure due to left ventricular systolic dysfunction (LVSD). This is caused by impaired left ventricular contraction, and is usually characterised by a reduced left ventricular ejection fraction.

Heart failure with preserved ejection fraction (HFPEF). This is usually associated with impaired left ventricular relaxation, rather than left ventricular contraction, and is characterised by a normal or preserved left ventricular ejection fraction.

Specialist. Throughout CG108, the term 'specialist' denotes a physician with subspecialty interest in heart failure (often a consultant cardiologist) who leads a specialist multidisciplinary heart failure team of professionals with appropriate competencies from primary and secondary care. The team will involve, where necessary, other services (such as rehabilitation, tertiary care and palliative care) in the care of individual patients. Unless otherwise specified, within CG108 specialist assessment or management refers to assessment or management by this specialist multidisciplinary heart failure team. The team will decide who is the most appropriate team member to address a particular clinical problem.

Appendix 4: Suggestions from stakeholder engagement exercise: registered stakeholders[14]

Improvement area	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
1	British Society for Heart Failure		Standards 1-4: The BSH is not convinced that a two tier referral protocol is appropriate: either patients need to be assessed or they don't. As with patients with suspected cancer, all patients with the possible diagnosis should be seen and assessed in a timely manner.		
1	SCM1	A greater emphasis on considering the aetiology of chronic heart failure, particularly in those under the age of 50. Rather than treating symptoms, ensuring the cause, e.g. genetic or myocarditis, is identified and appropriate referrals made.	Myocarditis is a challenging diagnosis due to the heterogeneity of clinical presentations. The actual incidence of myocarditis is also difficult to determine as endomyocardial biopsy (EMB), the diagnostic gold standard, is used infrequently. Studies addressing the issue of sudden cardiac death in young people report a highly variable autopsy prevalence of myocarditis, ranging from 2 to 42% of cases. Similarly, biopsy-proven myocarditis is reported in 9–16% of adult patients with unexplained non-ischaemic dilated cardiomyopathy (DCM) and in 46% of children with an identified cause of DCM. In patients presenting with mild symptoms and minimal ventricular dysfunction, myocarditis often resolves spontaneously without specific treatment. However, in up to 30%	In up to 30% of cases, biopsy-proven myocarditis can progress to DCM and is associated with a poor prognosis. Prognosis in myocarditis patients also varies according to the underlying aetiology	European Cardiac Society's position statement on myocarditis, http://eurheartj.oxfordjournals.org/content/early/2013/07/02/eurheartj.eht210

[14]PLEASE NOTE: Comments received in the course of consultations carried out by the Institute are published in the interests of openness and transparency, and to promote understanding of how quality standards are developed. The comments are published as a record of the submissions that the Institute has received, and are not endorsed by the Institute, its officers or advisory committees.

Improvement area	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
			of cases, biopsy-proven myocarditis can progress to DCM and is associated with a poor prognosis. Prognosis in myocarditis patients also varies according to the underlying aetiology. The treatment of many forms of myocarditis is symptomatic, but immunohistochemical and molecular biological analysis of EMB16 as well as autoantibody serum testing is important to identify those patients in whom specific therapy is appropriate		
1	SCM4	Additional developmental areas of emergent practice: diagnosis	Good to continue pressure on time to key investigations (BNP and echo) and synthesis of the information by a specialist	If drops out of the QS then could lead to poorer diagnostic approach and delay to life saving therapies. Although most areas in England provide a good service currently, taking this out of the QS would have potentially harmful consequences.	
1	SCM5	Optimal Diagnostic strategy – timeliness and Specialist input.	HF is a common and potentially lethal condition, optimal treatment is of proven benefit. Timely diagnosis, although not always straightforward, enables optimal treatment strategy and care planning. Diagnosis requires specialist review after natriuretic peptide estimation and echocardiography. The importance of the specialist is not just to establish the diagnosis but to identify those – often younger – patients who may need closer supervision of care for example if device therapy is a consideration.	• Variation in availability and timeliness of natriuretic peptide testing and specialist input is reported. Please check QOF data re variation in practice prevalence of HF and echo uptake for heart failure and (if available), UK data re availability (and timeliness) of natriuretic peptide availability estimation – information may be available – often cited as one third of CCGs.	CG 108 Diagnosis KPIs 1.2.2.18 The diagnosis and treatment of heart failure with preserved ejection fraction should be made by a specialist Section 3.2, Algorthyhm – after natriuretic peptide estimation or referral with a history of MI: Specialist clinical assessment and Doppler Echocardiography QS 9 1.1.2-5 • S. James et al. / International Journal of

Improvement area	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
					Cardiology 178 (2015) 268–274 Expedited diagnosis within the framework of a Rapid Access Clinic improved the chances of correct early diagnosis, reducing the time to application of effective therapies.
2	British Society for Heart Failure		Standard 7: optimum medical therapy can no longer be thought of as consisting only of ACE inhibitor and betablocker. We strongly urge that a mineralocorticoid receptor antagonist (MRA) should be included within this standard.		
2	Royal College of Physicians of Edinburgh		In patients with heart failure with preserved left ventricular ejection fraction (HFPEF) add spironolactone at 12.5 mg once a day to reduce the risk of hospitalisation.	Following the publication of TOPCAT trial in 2013, it was shown in patients with HFPEF that although the primary composite end point (of mortality, aborted cardiac arrest and heart failure hospitalisation) was not reduced by this intervention, there was a statistically significant reduction in the secondary end-point of heart failure hospitalisation.	B. Pitt, M.A. Pfeffer, S.F. Assmann, R. Boineau, I.S. Anand, B. Claggett, *et al*. for the TOPCAT Investigators. Spironolactone for Heart Failure with Preserved Ejection Fraction *N Engl J Med* 2014; 370:1383-1392
2	SCM1	Ensure that stabilised patients are discharged on all three of the recommended therapies for heart failure – ACE inhibitor/ARB, beta blocker and MRA	Outcomes analysis from the HF audit shows patients discharged on a three drugs have better outcomes following discharge than those discharged on other combinations of this triumvirate. See also comments from this column for item 3	Only 41% of patients were discharged on this triumvirate in the most recent audit	The National Heart Failure Audit. The audit is funded and commissioned by the Healthcare Quality Improvement Partnership (HQIP) as part of their National Clinical Audit and Patient Outcomes Programme

Improvement area	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
					(NCAPOP). http://www.ucl.ac.uk/nicor/audits/heartfailure/reports NB: the 2014 audit is pending publication and may be made available to NICE for this Quality Standard exercise.
2	SCM3		Advise the addition of aldosterone antagonists to all patients with chronic heart failure due to left ventricular systolic dysfunction (or Heart Failure with reduced ejection fraction – HFREF) who remain symptomatic despite optimal doses of ACEI and beta blockers licensed for CHF	Aldosterone antagonists were suggested in the CG 108-2010 as one of three second line therapies, and were at that time proposed only for those with severe symptoms (NYHA III-IV). However, following the publication of these guidelines, the EMPHASIS-HF trial was published which showed that the addition of eplerenone to patients over the age of 55 years with HFREF who have mild symptoms and had an admission in the last 6 months for heart failure, or who have a mild rise of the NTproBNP, should be given eplerenone. This resulted in a significant reduction of both morbidity and mortality. Since then the European Society of Cardiology published its most recent guidelines in May 2012 and declared that this beneficial effect is believed to be extended to all patients with HFREF who continue to have mild symptoms (NYHA II) despite optimal doses of ACEI and beta-blockers. Given their impact on both the risk of	- F. Zannad, J.J.V. McMurray, H Krum, D.J. van Veldhuisen, K. Swedberg, H. Shi, *et al*, for the EMPHASIS-HF Study Group. Eplerenone in Patients with Systolic Heart Failure and Mild Symptoms. *N Engl J Med* 2011; 364:11-21. - J.J.V. McMurray, S. Adamopoulos, S.D. Anker, A. Auricchio, M. Bo¨hm, K. Dickstein, *et al*. The Task Force for the Diagnosis and Treatment of Acute and Chronic Heart Failure 2012 of the European Society of Cardiology. Developed in collaboration with the Heart Failure Association (HFA) of the ESC. ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure 2012. *European Heart Journal* 2012;33:1787–1847.

Improvement area	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
				hospitalisation and the risk of death, I would have thought their addition to the quality standards would be of great benefit to the health of the nation.	
2	SCM3		In patients with HFREF who have genuine contra-indication to beta-blockers, or who are on beta blockers at the maximum tolerated doses and who are in sinus rhythm but whose rate remains over 75 beats per minute, consider adding ivabradine at a dose of 2.5 mg bd to be titrated to no more than 7.5 mg bd provided the heart rate is not reduced to below 60 beats per minute	Following the publication of the CG 108-2010, there was a trial called Shift that showed in patients with HFREF and who are in sinus rhythm with a heart rate of over 70 bpm, despite optimal doses of beta-blockers or if they had genuine contra-indications to beta-blockers; that the addition of ivabradine reduced hospitalisation and risk of mortality by 18%. The following HTA by NICE of ivabradine, agreed but proposed raising the threshold heart rate to 75 beats per minute. Since then an angina trial of ivabradine was halted due to safety when larger doses than those proposed in the Shift trial were used resulting in lower heart rates than 55 and thought to be associated with excess mortality. The MHRA gave advice since then not to allow the heart rate to be reduced to below 60 beats per minute.	- K. Swedberg, M. Komajda, M. Böhm, J.S. Borer, I. Ford, A. Dubost-Brama, et al, on behalf of the SHIFT Investigators. Ivabradine and outcomes in chronic heart failure (SHIFT): a randomised placebo-controlled study. *Lancet* 2010;376:875–885. - National Institute for Health and Clinical Excellence (NICE) (2012) NICE technology appraisal: Ivabradine for treating chronic heart failure [Online]. Available at: https://www.nice.org.uk/guidance/ta267 - MHRA. 2014. MHRA Drug Safety Update. Ivabradine: carefully monitor for bradycardia. [ONLINE] Available at: https://www.gov.uk/drug-safety-update/ivabradine-carefully-monitor-for-bradycardia.

Improvement area	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
2	SCM3		In patients with heart failure with preserved left ventricular ejection fraction (HFPEF) add spironolactone at 12.5 mg once a day to reduce the risk of hospitalisation.	Following the publication of TOPCAT trial in 2013, it was shown in patients with HFPEF, that although the primary composite end point (of mortality, aborted cardiac arrest and heart failure hospitalisation) was not reduced by this intervention, there was a statistically significant reduction in the secondary end-point of heart failure hospitalisation	B. Pitt, M.A. Pfeffer, S.F. Assmann, R. Boineau, I.S. Anand, B. Claggett, *et al*. for the TOPCAT Investigators. Spironolactone for Heart Failure with Preserved Ejection Fraction *N Engl J Med* 2014; 370:1383-1392
2	SCM4	Key area for quality improvement 2: use of life saving drug therapies	Vital to continue to include use of ACEi/BB and aldo antagonists for systolic heart failure, as these are interventions known to improve life expectancy and reduce hospitalisation	If not included, this will lead to message that current situation (pretty good usage on an international scale) will continue without it being part of the QS – with risk of reduction in usage.	
2	SCM4		Advise the addition of aldosterone antagnosits to all patients with chronic heart failure due to left ventricular systolic dysfunction (or Heart Failure with reduced ejection fraction – HFREF) who remain symptomatic despite optimal doses of ACEI and beta blockers licensed for CHF	Aldosterone antagnosists were suggested in the CG 108-2010 as one of three second line therapies, and were at that time proposed only for those with severe symptoms (NYHA III-IV). However, following the publication of these guidelines, the EMPHASIS-HF trial was published which showed that the addition of eplerenone to patients over the age of 55 years with HFREF who have mild symptoms and had an admission in the last 6 months for heart failure, or who have a mild rise of the NTproBNP, should be given eplerenone. This resulted in a significant reduction of both morbidity and mortality. Since then the European Society of Cardiology published its most recent guidelines	- F. Zannad, J.J.V. McMurray, H Krum, D.J. van Veldhuisen, K. Swedberg, H. Shi, *et al*, for the EMPHASIS-HF Study Group. Eplerenone in Patients with Systolic Heart Failure and Mild Symptoms. *N Engl J Med* 2011; 364:11-21. - J.J.V. McMurray, S. Adamopoulos, S.D. Anker, A. Auricchio, M. Bo¨hm, K. Dickstein, *et al*. The Task Force for the Diagnosis and Treatment of Acute and Chronic Heart Failure 2012 of the European Society of Cardiology. Developed in collaboration with the Heart Failure Association (HFA) of

Improvement area	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
				in May 2012 and declared that this beneficial effect is believed to be extended to all patients with HFREF who continue to have mild symptoms (NYHA II) despite optimal doses of ACEI and beta-blockers. Given their impact on both the risk of hospitalisation and the risk of death, their addition to the quality standards is likely to significantly benefit patients.	the ESC. ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure 2012. *European Heart Journal* 2012;33:1787–1847.
2	SCM5	Optimal treatment strategy – medication uptake and dosing and structured care	For HFrEF optimal treatment (type and dosing) has proven impact on clinical outcomes in RCTs. Optimal use of diuretic improvers symptom status.	Medication uptake is suboptimal - barriers to uptake include fragmented care and underuse of specific medication (eg beta blockers). Structured care delivered by a multi-disciplinary team improves medication usage for all types of heart failure.	• CG 108 KPI: Offer both angiotensin-converting enzyme (ACE) inhibitors and beta-blockers licensed for heart failure to all patients with heart failure due to left ventricular systolic dysfunction. 1.5.3.1 Heart failure care should be delivered by a multidisciplinary team with an integrated approach across the healthcare community. Seek specialist advice and consider adding one of the following if a patient remains symptomatic despite optimal therapy with an ACE inhibitor and a beta-blocker: • Please check QOF

Improvement area	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
					data re variation in medication uptake. International evidence (structured care) The IMPROVE HF intervention (US Registry to Improve the Use of Evidence-Based Heart Failure Therapies in the Outpatient Setting - the effect of a practice-based performance improvement intervention on treatment of outpatients with LVEF ≤35%) was associated with significantly increased treatment of eligible patients with target doses of β-blockers but not ACE inhibitors/ARBs. Gheorghiade et al. Medication dosing in outpatients with heart failure after implementation of a practice-based performance improvement intervention: findings from IMPROVE HF. Congest Heart Fail. 2012 Jan-Feb;18(1):9-17. Granger BB et al Am Heart J. 2015 Apr;169(4):539-48 Results of the Chronic Heart Failure Intervention to Improve Medication Adherence study: A randomized intervention in

Improvement area	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
					high-risk patients. Nurse-delivered, self-care intervention improved medication adherence in patients with advanced HF.
3	SCM1	A greater emphasis on referral to HF follow-up and rehabilitation services on discharge	Patients treated on cardiology wards and those seen by heart failure specialists are more than twice as likely to receive referrals to heart failure follow-up services, which are shown to have a beneficial impact on outcomes.	Over half of the patients in the most recent audit were referred for cardiology follow-up, and almost 60% were referred for follow-up with a heart failure nurse specialist, although only 10% of patients were referred to cardiac rehabilitation services. In the most recent HF audit 10% of patients were referred to a cardiac rehabilitation programme on discharge. The Cardiovascular Disease Outcomes Strategy, published in March 2013, sets an aim for hospitals to refer a third of heart failure patients to cardiac rehabilitation programmes.	The National Heart Failure Audit. The audit is funded and commissioned by the Healthcare Quality Improvement Partnership (HQIP) as part of their National Clinical Audit and Patient Outcomes Programme (NCAPOP). http://www.ucl.ac.uk/nicor/audits/heartfailure/reports NB: the 2014 audit is pending publication and may be made available to NICE for this Quality Standard exercise.
3	SCM4	Key area for quality improvement 4: rehabilitation	Very poor access to this for HF patients across England	Must be strengthened – although being prescriptive about form of rehab should be avoided.	
3	The Pumping Marvellous Foundation	Accessibility to community based heart failure nurses	With the burden of heart failure increasing and becoming a priority for cardiac care providers due to high readmission rates it is important and essential to deliver a high quality of care for such a complex condition with such a high morbidity (Jaarsma and	Reducing hospital admissions and increasing the QOL of life for patients can increase their engagement around the adoption of certain self-management techniques. HFN's are crucial to helping patients adopt a	Admissions Strömberg et al (2003) Thompson et al (2005) Sisk et al (2006) Blue et al (2001)

Improvement area	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
			Dracup, 2001). Despite the effectiveness of this type of service there is only an estimated 47% referral rate to such services (NICOR 2012) This suggests either a lack of provision or lack of awareness by HCP's as to HFN led services in the community. HFN's are the key conduit for improved QOL in patients with HF. They are the eyes and ears of the cardiologist. They are a key touch points for the patient where access to acute cardiology services would not be possible with the potential level of intervention a chronic heart failure patient would or may need. Reducing admissions and increasing the QOL for patients indicators a priority importance status.	new lifestyle, coping mechanisms and as part of the patients MDT have a crucial distribution role to specialist services as well as medicine management, NYHA level and lifestyle / self-management.	Quality of Life Thompson et al (2005) Kim et al (2000) Sisk et al (2006) National Heart Failure Audit 2012 Blue L et al (2001) Randomised controlled trial of specialist nurse intervention in heart failure. *British Medical Journal*; 323: 715-718. National Institute for Cardiovascular Outcomes Research(2012) *National Heart Failure Audit. April 2010-March 2011*. London: NICOR National Institute for Health and Clinical Excellence(2010) *Chronic Heart Failure: Management of Chronic Heart Failure in Adults in Primary and Secondary Care*. London: NICE Sisk J et al (2006) Effects of nurse management on the quality of heart failure care in minority communities: a randomised trial. *Annals of*

Improvement area	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
					Internal Medicine; 145: 4, 273-283 Strömberg A et al (2003) Nurse-led heart failure clinics improve survival and self-care behaviour in patients with heart failure: results from a prospective, randomised trial. *European Journal of Heart Failure*; 24: 11, 1014-23. Thompson D et al (2005) Effects of a nurse-led, clinic and home-based intervention on recurrent hospital use in chronic heart failure European *Journal of Heart Failure*; 7: 3, 377-384
4	Novartis Pharmaceuticals	People with chronic heart failure receive a clinical assessment at least every 6 months, including a review of medication	Heart failure is a progressive condition and there is significant potential for deterioration of the disease if left unmanaged.[1] Regular clinical assessment for heart failure patients should incorporate medication adherence, as evidence suggests that this is a key predictor for hospitalisation and death in patients with heart failure.[2] In addition, the National Heart Failure Audit found that that just under half of all patients admitted with heart failure had a history of ischaemic heart disease (IHD) and just over half had hypertension. Other common	Access to regular clinical assessments, including medicines reviews, are important in ensuring patients have access to evidence-based treatments. The National Heart Failure Audit states that *"Outcomes are consistently poor for patients who receive suboptimal care, but input from heart failure specialists and prescription of evidence-based heart failure therapies have a significant impact on prognosis and life expectancy."*[3] Furthermore, the NICE Chronic Heart	1 – Workman L, LaCharity L, Kruchklo S, Understanding Pharmacology: Essentials for Medication Safety, p253. 2013. Available online at: https://books.google.co.uk/books?id=1c9OBAAAQBAJ&pg=PA253&lpg=PA253&dq=unmanaged+heart+failure&source=bl&ots=nzUcs7SgcQ&sig=ITgYUpEPd3Q-ceervgn5iipRjzo&hl=en&sa=X&ei=w0hsVf3LH4O3Ue_Xg4gL&ved=0CC0Q6AEwAjgK#v=onepage&q=unmanaged%20h

Improvement area	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
			conditions included arrhythmia, myocardial infarction, diabetes, valve disease, and asthma or COPD. [3]	Failure guideline makes clear recommendations for the use of pharmacological treatments for heart failure.[4] However, research demonstrates that heart failure patients have variable access to monitoring and follow-up appointments. Whilst over half of patients, who survived at discharge, were referred to cardiology and heart failure nurse follow-up services, this suggests that a significant proportion of patients do not have access to appropriate follow-up or monitoring. Furthermore, heart failure constitutes a significant burden on the NHS - it is 1 of 5 long term conditions responsible for 75% of unplanned hospital admissions[5] and accounts for 2 per cent of all annual in-patient bed days and 5 per cent of all emergency medical admissions to hospital.[4] Ensuring heart failure patients are well managed can improve survival and reduce hospital admissions.[2]	eart%20failure&f=false 2 - Wu JR, DeWalt DA, Baker DW et al. A single-item self-report medication adherence question predicts hospitalisation and death in patients with heart failure. J Clin Nurs 2014;23:2554–64 3 – NICOR & British Society for Heart Failure. National Heart Failure Audit, 2012-13. November 2013. Available online at: https://www.ucl.ac.uk/nicor/audits/heartfailure/documents/annualreports/hfannual12-13.pdf 4 - National Institute for Health and Care Excellence (2010), CG108 Chronic heart failure: Management of chronic heart failure in adults in primary and secondary care. Available online at: http://publications.nice.org.uk/chronic-heart-failurecg108 5 – NHS England. Emergency admissions for ambulatory care sensitive conditions – characteristics and trends at a national level. March 2010. Available online at: www.england.nhs.uk/wp-

Improvement area	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
					content/uploads/2014/03/red-acsc-em-admissions-2.pdf
4	SCM5	Monitoring	Heart failure is an unpredictable condition. On the one hand optimal medication may improve stability and thus allow further medication optimization, however in some cases disease progression occurs. For all types of heart failure use of optimal medication requires surveillance – notably of kidney function and fluid status. Additionally for those with reduced ejection fraction symptoms persistence or deterioration may indicate the need for device therapy. Care planning should thus include planned review, the timeliness of which is indicated by the underlying disease and symptom status. Such review may require clinical specialist input.	Uncertain structure and frequency of review	CG108: 1.2.2.6 Measure serum urea, creatinine, electrolytes and eGFR at initiation of an ACE inhibitor and after each dose increment[1.2.2.10 In patients with heart failure due to left ventricular systolic dysfunction who are taking aldosterone antagonists, closely monitor potassium and creatinine levels, and eGFR. Seek specialist advice if the patient develops hyperkalaemia or renal function deteriorates[1.4.1.1 All patients with chronic heart failure require monitoring. 1.4.1.3 The frequency of monitoring should depend on the clinical status and stability of the patient. The monitoring interval should be short (days to 2 weeks) if the clinical condition or medication has changed, but is required at least 6-monthly for stable patients with proven heart failure.

Improvement area	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
5	Association of British Healthcare Industries	The current statement 6 should be raised up the hierarchy	It underpins the statements that come before it and would logically be placed first.	Specialist HF team care is well known to improve outcomes	
5	British Society for Heart Failure		Standard 10: The personalised management plan should be extended to all patients, not simply those recently admitted.		
5	British Society for Heart Failure		Standard 13: we view access to a heart failure specialist and palliative care specialist as central to the management of *all* patients with heart failure. We think this statement should appear at position 5 in the list of statement.		
5	Novartis Pharmaceuticals	Ensuring every heart failure patient has access to multidisciplinary heart failure teams led by a specialist	Whilst the outcomes for people diagnosed with heart failure have often been compared to those of the worst cancers, the National Heart Failure Audit suggests that patients receiving specialist input through a multidisciplinary team set-up "can do much better".[1] Evidence suggests that ensuring that every heart failure patient has access to a multidisciplinary heart failure team led by a specialist can be an important means of improving clinical management, patient outcomes and reducing the burden of hospital readmission rates.[2] The most recent National Heart Failure Audit also indicates that patients who received specialist input into their management were more likely to receive	Provision of care by a multidisciplinary team (MDT) led by a heart failure specialist is recommended within the existing NICE Quality Standard for Chronic Heart Failure[3] and NICE clinical guidelines on chronic heart failure[4]. Despite this, the National Heart Failure Audit shows that delivery of this in practice has been uneven.[1] The variations in access to specialist heart failure MDTs should be a key area for quality improvement. The most recently available data from the National Heart Failure Audit shows that: - Over half of patients (56%) were referred for a follow-up	1 – NICOR & British Society for Heart Failure. National Heart Failure Audit, 2012-13. November 2013. Available online at: https://www.ucl.ac.uk/nicor/audits/heartfailure/documents/annualreports/hfannual12-13.pdf 2- Piepoli MF, Villani GQ, Aschieri D et al. Multidisciplinary and multisetting team management programme in heart failure patients affects hospitalisation and costing. 2006. 3 – NICE. Chronic Heart

Improvement area	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
			optimal care and be more stable prior to discharge, which translates into better outcomes including fewer early readmissions to hospital and lower mortality rates.[1]	- appointment with the heart failure multidisciplinary team (MDT) on discharge, indicating that 44% of heart failure patients were not referred to an MDT. - Over a third of patients (34%) did not have input from a specialist heart failure multidisciplinary team in their first hospital admission for heart failure whilst the equivalent figure for patients readmitted to hospital was 30%.[1] - Significant variation remains in mortality rates dependent on the quality of treatment received – heart failure patients not treated on a cardiology ward were 54% more likely to die in hospital.[1] In addition, heart failure specialist nurses are often integral in heart failure MDTs. An evaluation of heart failure specialist nurses demonstrated that they were associated with a significant improvement in the quality of life of their patients, as well as a 35 per cent drop in admissions, resulting in an estimated £1,826 saving per patient to the NHS.[5]	Failure Quality Standard. June 2011. Available online at: https://www.nice.org.uk/guidance/qs9/resources/guidance-chronic-heart-failure-quality-standard-pdf 4 – NICE. Chronic heart failure: Management of chronic heart failure in adults in primary and secondary care. August 2010. Available online at: https://www.nice.org.uk/guidance/cg108 5 - British Heart Foundation. Specialist Nurses. Available online at: https://www.bhf.org.uk/about-us/our-policies/treatment-and-care-policies/specialist-nurses
5	Royal College of Physicians		Patients admitted to hospital with heart failure should receive input from the heart failure specialist multi-disciplinary team	This was advised in the CG 108-2010 by NICE. Repeatedly, the National Heart Failure Audit has shown	- National Institute for Health and Clinical Excellence. Chronic heart failure: the

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	of Edinburgh			significantly different outcomes of patients with heart failure receiving care in the cardiology versus non-cardiology environment. It is recognised that the presence of co-morbidities and general advanced age of patients with heart failure means that not all patients could necessarily be directly cared for by the cardiology team. Therefore obtaining the input of the specialist team into the care provided to these patients may well deliver the desired positive impact on outcomes.	management of adults with chronic heart failure in primary and secondary care (partial update). (Clinical guideline 108). 2010. www.nice.org.uk/CG108. - National Heart Failure Audit April 2012- March 2013 (http://www.ucl.ac.uk/nicor/audits/heartfailure/documents/annualreports/hfannual12-13.pdf)
5	SCM1	That all cases of Chronic HF are under the care of a cardiologist	There is significant variation in mortality rates dependent on the quality of treatment received by patients. For mortality, there is marked improvement associated with treatment in a cardiology ward and prescription of evidence-based therapies, seen not only in single-variable analysis, but also in multivariate analysis, when other confounding factors are taken into account.	Heart failure specialists appear more rigorous in ensuring patients receive optimal care and are stable prior to discharge, which is expected to translate into better outcomes including fewer early readmissions to hospital and a lower mortality. In-hospital mortality varies by the main place of care of the patient. Only 7% of patients treated in cardiology wards died in hospital compared with 11.4% of patients treated on general medical wards and 14.4% of patients treated on other wards.	The National Heart Failure Audit. The audit is funded and commissioned by the Healthcare Quality Improvement Partnership (HQIP) as part of their National Clinical Audit and Patient Outcomes Programme (NCAPOP). http://www.ucl.ac.uk/nicor/audits/heartfailure/reports NB: the 2014 audit is pending publication and may be made available to NICE for this Quality Standard exercise.
5	SCM1	That all cases of Chronic HF are	Patients who had specialist input have noticeably longer mean and median lengths	Heart failure specialists appear more rigorous in ensuring patients receive	The National Heart Failure Audit.

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		under the care of an MDT (Multi-disciplinary Team, comprising, as a minimum, a cardiologist, HF Nurse) lead by a cardiologist	of stay compared to those without specialist input into their care. This provides support to the claim that specialist cardiology clinicians spend more time up-titrating therapies and ensuring stability prior to discharge, resulting in longer hospital admissions.	optimal care and are stable prior to discharge, which is expected to translate into better outcomes including fewer early readmissions to hospital and a lower mortality. In-hospital mortality varies by the main place of care of the patient. Only 7% of patients treated in cardiology wards died in hospital compared with 11.4% of patients treated on general medical wards and 14.4% of patients treated on other wards.	The audit is funded and commissioned by the Healthcare Quality Improvement Partnership (HQIP) as part of their National Clinical Audit and Patient Outcomes Programme (NCAPOP). http://www.ucl.ac.uk/nicor/audits/heartfailure/reports NB: the 2014 audit is pending publication and may be made available to NICE for this Quality Standard exercise.
5	SCM2	Focussing on Statement 6 People with heart failure should be cared for by a multidisciplinary team led by a specialist as recommended by NICE. There is good evidence that referral to specialist teams is associated with better outcomes, with the benefits showing even several years		In many areas, such as my own area of work although there is a heart failure team as such, the referral to this service is not available to all appropriate patients. The service is very busy and effective for the patients who are within our care. Realistically however although there is a 'team', the team is not matched to the population it serves. Not all heart failure patients therefore derive benefit from a service we know improves out comes. The availability particularly of community services depends on the postcode of your GP. The standard therefore needs to include a statement around Heart Failure teams being appropriately	Please see National heart failure audit data. NICE support for commissioners NICE Guideline CG108-2010

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		down the line. Unfortunately not all patients have access to these services which improve both quality and length of life as well as reducing hospital admissions.		staffed and commissioned to meet the needs of the population they serve. This is a key area for quality improvement as if heart failure teams are commissioned adequately according to population ensuring appropriate health professionals are caring for all patients, the other quality standards will fall into place	
5	SCM2	Focussing on Statement 11 Ideal place of care People admitted to hospital because of heart failure should receive input to their management plan from a multidisciplinary heart failure team. Improving this statement is essential in order to also include ideal place of care. Patients who are treated on a cardiology wards receive higher amounts of disease modifying medications and do		Patients on Cardiology wards will be seen by a Cardiologist and more likely to leave hospital on the disease modifying medications. They are however less likely to see a heart failure nurse as an inpatient however. Making this statement strong so that all heart failure patients are treated on cardiology wards will improve treatment, patient education whilst in hospital and minimise delay in follow up by heart failure nurse services on discharge. This will improve outcomes and reduce hospital admissions.	Please see National heart failure audit data. NICE support for commissioners NICE Guideline CG108-2010

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		better than those on other wards.			
5	SCM3		Patients admitted to hospital with heart failure should receive input from heart failure specialist multi-disciplinary team	This was already advised in the CG 108-2010 by NICE. Repeatedly, the National Heart Failure Audit has shown significantly different outcomes of patients with heart failure receiving care in the cardiology versus non-cardiology environment. It is recognised that with co-morbidity and advanced age of the patients with heart failure, that not all patients could necessarily be directly cared for by the cardiology team, and thus obtaining the input of the specialist team into the care provided to these patients may well deliver the desired good impact on the outcomes.	- National Institute for Health and Clinical Excellence. Chronic heart failure: the management of adults with chronic heart failure in primary and secondary care (partial update). (Clinical guideline 108). 2010. www.nice.org.uk/CG108. - - National Heart Failure Audit April 2012- March 2013 (http://www.ucl.ac.uk/nicor/audits/heartfailure/documents/annualreports/hfannual12-13.pdf) - A. Al-Mohammad. Shared Learning Databases on the NICE.org Website: Sheffield's Heart Failure MDT (Outreach service into non-cardiology wards). NICE 2014. (http://www.nice.org.uk/savingsandproductivityandlocalpracticeresource?ci=http%3A%2F%2Fsearch.nice.org.uk%2Fsl_808)
5	SCM5	Care planning – specialist-led multidisciplinary care and patient	Continuity of care (see Area 2; treatment strategy - area 4; transition of care and 5; monitoring) is a fundamental component of optimal heart failure care through which	There is reportedly large variation in the availability of community-based nurses with specialist knowledge of heart failure. Access to medical	CG 108 1.5.3.1 Heart failure care should be delivered by a multidisciplinary team with an

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		experience	admission can be avoided and experience of care improved. Multiple sources reference the need for multidisciplinary care based in the community. Such care needs the support of *accountable* specialist led teams. The patient perspective of heart failure remains poorly documented however optimal therapy may improve exercise tolerance and patient experience. The average age of patients admitted with heart failure is around 80 and comorbidity is common. Several factors may need to be considered including social, mental as well as physical well-being. Care planning including treatment trajectory and end of life wishes should be included	specialist support may also vary. A named lead with accountability for the MDT may help service delivery.	integrated approach across the healthcare community. BHF: Living with heart failure https://www.google.co.uk/search?client=safari&rls=en&q=availability+of+heart+failure+nurses+in+UK&ie=UTF-8&oe=UTF-8&gfe_rd=cr&ei=tBBrVZyoDsiY-AbGmoDACQ NHS Choices: Heart failure - Living with http://www.nhs.uk/Conditions/Heart-failure/Pages/living-with.aspx REVIEW OF SPECIALIST HEART FAILURE NURSE SERVICES – SCOTLAND 2013 http://www.chss.org.uk/documents/2013/10/shfn_review.pdf Kings fund: Managing ambulatory care sensitive conditions http://www.kingsfund.org.uk/projects/gp-commissioning/ten-priorities-for-commissioners/acs-conditions

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					Ekman I et al Effects of person-centred care in patients with chronic heart failure: the PCC-HF study. Eur Heart J. 2012 May;33(9):1112-9. CG 108: 1.5.5.6 Management of heart failure should be seen as a shared responsibility. 1.5.5.7 Unless specifically excluded by the patient, carers and relatives should be involved in the management of the patient, particularly where the patient cannot look after him- or herself. How to deliver high-quality, patient-centred, cost-effective care: Consensus solutions from the voluntary sector http://www.richmondgroupofcharities.org.uk/PDFs/RichmondGroup2010.pdf Definition of the specialist is given in CG108. Definition of the MDT is given

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					in the Commissioning guide (Section 4.4: Quality statement 6: Multidisciplinary heart failure team People with chronic heart failure are cared for by a multidisciplinary heart failure team led by a specialist and consisting of professionals with appropriate competencies from primary and secondary care, and are given a single point of contact for the team. http://www.nice.org.uk/guidance/qs9/resources/qs9-chronic-heart-failure-nice-support-for-commissioners-and-others2
6	Association of British Healthcare Industries	The 2011 QS did not introduce the important role that Cardiac Device Therapy plays in the management of the Heart Failure patient. In light of the overwhelming evidence (TA314) The intervention merits a specific quality statement, with the area of quality improvement directed to : Specialist device	The established role of pharmaceutical interventions, often prevents timely and or appropriate referral to the specialist for consideration of additionally or alternative therapies NICE published its updated TAG 314 in June 2014 on Implantable cardioverter defibrillators and cardiac resynchronisation therapy for arrhythmias and heart failure (review of TA95 and TA120) It states on page 7: *Treatment of heart failure aims to improve life expectancy and quality of life.* *Chronic heart failure: management of chronic heart failure in adults in primary*	The NICOR audit for cardiac rhythm devices has consistently reported that the UK implant rates for this cost effective intervention (ICD and CRT implants) are lower than our European neighbours and – perhaps more significantly – there is a wide variation of implant rates across the UK. This means that patients do not have access to the same quality of care across the country. For this NICE guidance to be implemented, all healthcare professionals – (GPs, to HF specialists to cardiologists and	NICE TAG 314: http://www.nice.org.uk/guidance/ta314 The NICOR device survey for 2013/14 (published in December 2014): https://nicor5.nicor.org.uk/__802571400070B77E.nsf?OpenDatabase

Improvement area	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
		implantation (Cardiac resynchronisation therapy device – CRT) for heart failure patients when as per CG 108 and TAG 314	*and secondary care (NICE clinical guideline 108) recommends pharmacological treatment initially. However, as the condition becomes more severe, cardiac function and symptoms may no longer be controlled by pharmacological treatment alone, and can be improved by the implantation of a cardiac rhythm device which can sense and stimulate the atria and right and left ventricles independently. These devices are known as cardiac resynchronisation therapy pacing (CRT-P) devices or cardiac resynchronisation therapy defibrillator (CRT-D) devices.* The guidance in 2014 clearly defined the patient groups and indications who should have access to a CRT device these stratification criteria should be part of the formal audit process (see below). The 2010 Clinical Guidelines on heart failure includes the provision of CRT therapy to heart failure patients. However the recommendations have been significantly updated and refreshed. More patients are now indicated for CRT therapy and should have access to the best quality option available – the implantation of a device.	electrophysiologists) who implant devices – have a significant role to play and the QS should reflect the need to more access and to this therapy specifically rather than under the heading of 'specialist referral and assessment'	
6	Association of British Healthcare Industries	Eligibility criteria for device therapy	NICE TA 314 June 2014 expands the eligible population indicated for device therapy to manage this chronic condition, unrelated to ischemic origin	Stratification of the eligible population cannot be undertaken from the current recorded primary care dataset that is collected. Equally the treatment option of CRT/ICD is not	NICE TAG 314: http://www.nice.org.uk/guidance/ta314

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				widely acknowledged as an option within the primary care setting where a significant proportion of the eligible population will reside : Along with the definitive diagnosis of chronic heart failure contained within the existing QS document. The following eligibility markers should be captured to ensure onward referral, should symptoms persist after optimal medical management. • NYHA classification, • QRS width • LVEF Additionally this information should be report by specialist centres on discharge/OP documents when communicating back to primary care and these key measures should be captured on the primary data set to ensure ongoing vigilance of the Heart Failure patient.	
6	Association of British Healthcare Industries	CRT optimisation	There may be variation in the quality of CRT optimisation across the country.	Consistent optimisation across the country will raise standards and improve outcomes.	
6	Association of British Healthcare Industries	All patients should be registered with the national heart failure audit	The audit is an important means of documenting the number of patients with HF and aspects of their care.	Entry into the audit also a requirement of best practice tariff.	
6	Boston Scientific	Specialist device implantation (Cardiac resynchronisation therapy device –	NICE published its updated TAG 314 in June 2014 on Implantable cardioverter defibrillators and cardiac resynchronisation therapy for arrhythmias and heart failure (review of TA95 and TA120)	The NICOR audit for cardiac rhythm devices has consistently reported that the UK implant rates for ICD and CRT implants are lower than our European neighbours and – perhaps more	NICE TAG 314: http://www.nice.org.uk/guidance/ta314 The NICOR device survey for

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		CRT) for heart failure patients when as per CG 108 and TAG 314	It states on page 7: *Treatment of heart failure aims to improve life expectancy and quality of life.* *Chronic heart failure: management of chronic heart failure in adults in primary and secondary care (NICE clinical guideline 108) recommends pharmacological treatment initially. However, as the condition becomes more severe, cardiac function and symptoms may no longer be controlled by pharmacological treatment alone, and can be improved by the implantation of a cardiac rhythm device which can sense and stimulate the atria and right and left ventricles independently. These devices are known as cardiac resynchronisation therapy pacing (CRT-P) devices or cardiac resynchronisation therapy defibrillator (CRT-D) devices.* The guidance in 2014 clearly defined the patient groups and indications who should have access to a CRT device. The 2010 Clinical Guidelines on heart failure includes the provision of CRT therapy to heart failure patients. However the recommendations have been significantly updated and refreshed. More patients are now indicated for CRT therapy and should have access to the best quality option available – the implantation of a device.	significantly – there is a wide variation of implant rates across the UK. This means that patients do not have access to the same quality of care across the country. It is worth noting that implant rates have increased steadily over the years but the latest NICE TAG 314 indicates that more patients are indicated for the implant of a CRT. For this NICE guidance to be implemented, all healthcare professionals – from GPs, to HF specialists to cardiologists and electrophysiologists who implant devices – need to be involved in its implementation.	2013/14 (published in December 2014): https://nicor5.nicor.org.uk/__802571400070B77E.nsf?OpenDatabase

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6	British Society for Heart Failure		With also think there is an opportunity to include two new standards: • All patients with chronic heart failure should be assessed for appropriate device therapy at each review. • There should be an established referral pathway by which patients with chronic heart failure can be referred for assessment for advanced heart failure therapies (ventricular assist devices and transplantation).		
6	British Society for Heart Failure		Standard 9: should include an ECG (to detect new onset atrial fibrillation and incident left bundle branch).		
6	Medtronic Limited	Treatment of Heart Failure Patients with implantable cardiac device therapy in line with NICE TAG TA314[1]	The NICE Clinical Guideline CG108 for Chronic Heart Failure[2] recognises the importance of implantable cardiac device therapy for patients with Chronic Heart Failure: "*Cardiac Resynchronisation Therapy (CRT) is one of the major new advances in the management of heart failure resulting in reduced morbidity and increase survival of heart failure patients with dys-synchrony*" NICE Technology Appraisal 314[1]enables increased access for patients with less symptomatic heart failure resulting in improved patient outcomes, reduction in	Inequity of access to implantable cardiac device therapy continues to be a challenge in the NHS. The NICOR report 'National Audit of Cardiac Rhythm Devices' from 2012'[3] highlights huge geographical variation around the country from 20 CRT implants per million of population to 160 CRT implants per million of population. While the NICOR report for 2013-2014[3] demonstrates an increase in implant rates in the NHS they are still lower than our European neighbours. Many Heart Failure Patients remain in	[1]NICE TA 314 http://www.nice.org.uk/guidance/ta314 [2]NICE CG 108 Chronic Heart Failure https://www.nice.org.uk/guidance/cg108 [3]http://www.ucl.ac.uk/nicor/audits/cardiacrhythm/reports [4]http://www.england.nhs.uk/wp-content/uploads/2013/06/a09-

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			morbidity, increases quality of life and is proven to be Cost Effective.	primary care and are not appropriately referred back to specialist care for assessment for their suitability for implantable cardiac device therapy. This is recognised in NHS England's Service Specification A09/S/a[4] "*Some (patients) will be under general review in cardiology and heart failure clinics where as many will be under general medical follow up or in primary care where they are less likely to be identified"* *Primary care data for Heart Failure Patients are often inaccurate*[5] Key stratification measures which include NYHA classification, QRS width and LVEF while available in secondary care are not reconciled in primary care data therefore further ongoing management in line with the complimentary guidance NICE TAG 314[1] cannot be achieved. Additionally *"The QOF register currently does not incorporate all of the necessary evidenced based interventions for patients with Heart Failure"*[5]*.* Accurate recording of data in primary care will enable appropriate monitoring of the patient condition, referral to specialist care and help deliver quality evidence based management for people living with Heart Failure. Medtronic suggests that a QOF indicator in Primary Care for referral to specialist care when *"more severe, cardiac*	cardi-implant-cardi-defib.pdf [5]http://clahrc-gm.nihr.ac.uk/cms/wp-content/uploads/MRI-RI-Poster-Dec-2012.pdf

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				function and symptoms may no longer be controlled by pharmacological treatment alone and can be improved by the implantation of a cardiac rhythm device".[1] *and* to capture LVEF, QRS width and NYHA classification on an annual basis. This quality standard would support the following Quality Measures: Domain 1: Preventing people from dying prematurely Domain 2: Enhancing quality of life for people living with long term conditions	
6	NHS England	Palliative care for patients with severe chronic heart failure	Patients with severe chronic heart failure (e.g. admission to hospital required, readmitted within one year of a previous admission for CHF) should be referred to specialist palliative care services or receive care from specialist heart failure nurses who have had formal training and updates in palliative care.	Dyspnoea, pain and fatigue are common symptoms in patients with advanced chronic heart failure. The lack of recognition and acknowledgement of poor prognosis leaves patients feeling abandoned and unaware of choices that they can make about their end of life care and management (Selman et al, 2007; O'Leary et al, 2009; Barclay et al, 2011).	Over a third of patients diagnosed with chronic heart failure die within the first year of diagnosis. Patients readmitted within one year of a previous admission for chronic heart failure are known to have significantly increased mortality rates, yet only 4% were referred to palliative care following first admission (NICOR, National Heart Failure Audit 2012-13).
6	NHS England	The documents refer to the 'NHSIC Heart Failure Audit 2010' whereas it should read the 'National Heart Failure Audit run by the National Institute	This is not hosted by the HSCIC.		

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		for Cardiovascular Outcomes Research (NICOR)			
6	Novartis Pharmaceuticals	Information for patients and carers	Heart failure is a distressing and debilitating chronic condition and it is important that both patients and their carers feel well-informed about the condition. In regards to improving outcomes, one of the most positive actions a patient can make is around identifying how they can manage their symptoms and keep their condition under control.[1] Evidence indicates that patients who do not adhere to recommended clinical guidelines in terms of their symptoms and wider lifestyle risk factors are associated with decreased time to readmission.[2] This need to empower heart failure patients also aligns with a key ambition set out in the NHS Five Year Forward View, that of helping patients to make informed choices of treatment, managing long-term conditions and staying healthy.[3]	The current Quality Standard on Chronic Heart Failure includes a Quality Statement on the provision of personalised information, education, support and discussion opportunities for chronic heart failure patients. The Quality Statement does not make specific reference to the role of carers. It is important that healthcare professionals and relevant services acknowledge the carers within any heart failure management plans that are developed. The British Heart Foundation's 'Caring for someone with a heart condition' resource states that there are a number of challenging emotional and physical issues that a carer may need to manage when someone close to them is diagnosed with heart failure.[4] We would therefore suggest that the word 'carers' is incorporated within Quality Statement 5, in light of the often crucial role they play in a patient's management and overall sense of wellbeing.	1 – British Heart Foundation, Living with heart failure. Available online at: https://www.bhf.org.uk/heart-health/living-with-a-heart-condition/living-with-heart-failure.aspx 2 – Lee, D, Mansi I, Bhushan S et al. Non-Adherence in At-Risk Heart Failure Patients: Characteristics and Outcomes. Journal of Nature and Science, Vol.1, No.5, e95, 2015. Available online at: http://www.jnsci.org/files/article/e95.pdf 3 – NHS England. Five Year Forward View. October 2014. Available online at: http://www.england.nhs.uk/wp-content/uploads/2014/10/5yfv-web.pdf 4 – British Heart Foundation. Caring for someone with a heart condition. January 2013. Available online at: https://www.bhf.org.uk/~/media/files/publications/heart-conditions/his20_caring-for-

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					someone-with-a-heart-condition_0113.pdf
6	Royal College of Nursing	This is to inform you that the Royal College of Nursing have no comments to submit to inform on the above quality standard consultation.			
6	Royal College of Physicians of Edinburgh		In patients with HFREF who have genuine contra-indication to beta-blockers, or who are on beta blockers at the maximum tolerated doses and who are in sinus rhythm but whose rate remains over 75 beats per minute, consider adding ivabradine at a dose of 2.5 mg bd to be titrated to no more than 7.5 mg bd provided the heart rate is not reduced to below 60 beats per minute	Following the publication of the CG 108-2010, the "Shift" trial took place, which showed that in patients with HFREF and who are in sinus rhythm with a heart rate of over 70 bpm, despite optimal doses of beta-blockers or if they had genuine contra-indications to beta-blockers; that the addition of ivabradine reduced hospitalisation and risk of mortality by 18%. The following HTA by NICE of ivabradine, agreed, however it also proposed raising the threshold heart rate to 75 beats per minute. Since then an angina trial of ivabradine was halted due to safety concerns when larger doses than those proposed in the Shift trial were used, resulting in lower heart rates than 55 and thought to be associated with excess mortality. The MHRA has since issued advice not to allow the heart rate to be reduced to below 60 beats per minute.	- K. Swedberg, M. Komajda, M. Böhm, J.S. Borer, I. Ford, A. Dubost-Brama, et al, on behalf of the SHIFT Investigators. Ivabradine and outcomes in chronic heart failure (SHIFT): a randomised placebo-controlled study. *Lancet* 2010;376:875–885. - National Institute for Health and Clinical Excellence (NICE) (2012) NICE technology appraisal: Ivabradine for treating chronic heart failure [Online]. Available at: https://www.nice.org.uk/guidance/ta267 - MHRA. 2014. MHRA Drug Safety Update. Ivabradine: carefully monitor for bradycardia. [ONLINE] Available at: https://www.gov.uk/drug-safety-update/ivabradine-carefully-monitor-for-bradycardia.

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6	Royal College of Physicians of Edinburgh		Patients with HFREF should have their ECG repeated every 12 months to detect the development of left bundle branch block, which could identify the patients who may benefit from cardiac re-synchronisation therapy (CRT).	The role of CRT in patients with HFREF is well established in reducing both morbidity and mortality. This has been extended beyond what was known in 2010, since the publication of both the RAFT study and the update of the NICE guidelines with regards to device therapy in heart failure in 2014. Thus, patients even with milder forms of heart failure with reduced ejection fraction (NYHA II) may qualify for this intervention if they have on their ECG left bundle branch block with wider QRS complexes, ideally beyond 130 m sec.	- J.G. Cleland, J.C. Daubert, E. Erdmann, N. Freemantle, D. Gras, L. Kappenberger, *et al*: Cardiac Resynchronisation-Heart Failure (CARE-HF) Study Investigators. The effect of cardiac resynchronization on morbidity and mortality in heart failure. *N Engl J Med* 2005;352:1539-49. - A.S.L. Tang, G.A. Wells, M. Talajic, M.O. Arnold, R. Sheldon, S. Connolly, *et al*, for the Resynchronization–Defibrillation for Ambulatory Heart Failure Trial (RAFT) Investigators. Cardiac-Resynchronization Therapy for Mild-to-Moderate Heart Failure. *N Engl J Med* 2010;363:2385-95 - NICE technology appraisals [TA314]. (http://www.nice.org.uk/guidance/ta314)
6	Royal College of Physicians of Edinburgh	Additional comment	This is a specialist view as the timescale leaves insufficient time to canvass the opinions of general physicians, particularly Medicine of the Elderly, who would be likely to see patients with chronic heart failure. The College notes that such a view would be important to the development of a fully rounded guideline.		

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6	SCM1	That all cases of Chronic HF (Heart Failure) are managed on a cardiology ward	There is significant variation in mortality rates dependent on the quality of treatment received by patients. For mortality, there is marked improvement associated with treatment in a cardiology ward and prescription of evidence-based therapies, seen not only in single-variable analysis, but also in multivariate analysis, when other confounding factors are taken into account. Notably, in-hospital mortality stood at 7% for patients treated on cardiology wards, compared to 11% for those treated on general medical wards and 14% for patients treated on other wards. Additionally, patients treated on cardiology wards and those seen by heart failure specialists are more likely to receive referrals to heart failure follow-up services, which are shown in the Audit to have a beneficial impact on outcomes.	In-hospital mortality varies by the main place of care of the patient. Only 7% of patients treated in cardiology wards died in hospital compared with 11.4% of patients treated on general medical wards and 14.4% of patients treated on other wards.	The National Heart Failure Audit. The audit is funded and commissioned by the Healthcare Quality Improvement Partnership (HQIP) as part of their National Clinical Audit and Patient Outcomes Programme (NCAPOP). http://www.ucl.ac.uk/nicor/audits/heartfailure/reports NB: the 2014 audit is pending publication and may be made available to NICE for this Quality Standard exercise.
6	SCM3		Patients with HFREF should have their ECG repeated every 12 months to detect the development of left bundle branch block which could identify the patients who may benefit from cardiac re-synchronisation therapy (CRT).	The role of CRT in patients with HFREF is well established in reducing both the morbidity and mortality. This has been extended beyond what was known in 2010, since the publication of both the RAFT study and the update of the NICE guidelines with regards to device therapy in heart failure in 2014. Thus, patients even with milder forms of heart failure with reduced ejection fraction (NYHA II) may qualify for this intervention if they have on their ECG left bundle branch	- J.G. Cleland, J.C. Daubert, E. Erdmann, N. Freemantle, D. Gras, L. Kappenberger, *et al*: Cardiac Resynchronisation-Heart Failure (CARE-HF) Study Investigators. The effect of cardiac resynchronization on morbidity and mortality in heart failure. *N Engl J Med* 2005;352:1539-49. - A.S.L. Tang, G.A. Wells, M.

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				block with wider QRS complexes, ideally beyond 130 m sec.	Talajic, M.O. Arnold, R. Sheldon, S. Connolly, *et al*, for the Resynchronization–Defibrillation for Ambulatory Heart Failure Trial (RAFT) Investigators. Cardiac-Resynchronization Therapy for Mild-to-Moderate Heart Failure. *N Engl J Med* 2010;363:2385-95 - NICE technology appraisals [TA314]. (http://www.nice.org.uk/guidance/ta314)
6	SCM3	Additional developmental areas of emergent practice	There is strong evidence that LCZ696 is superior to ACEI in the treatment of HFREF. With a significant reduction of mortality over and above what would have been expected of ACEI.	PARADIGM is a study of LCZ696 compared to Enalapril in the treatment of HFREF. It was published in August 2014 and produced for the first time evidence that a new agent is superior to ACEI in the treatment of HFREF, which had been the cornerstone of the treatment of HFREF since 1987. NICE will be considering that in an HTA due to commence soon. Further evidence of the use of LCZ696 instead of ACEI in cases of hospitalised patients with HFREF is awaited.	J.J.V. McMurray, M. Packer, A.S. Desai, J. Gong, M.P. Lefkowitz, A.R. Rizkala, *et al*; for the PARADIGM-HF Investigators and Committees. Angiotensin–Neprilysin Inhibition versus Enalapril in Heart Failure. *N Engl J Med* 2014; 371:993-1004.
6	SCM4	Key area for quality improvement 3: use of device therapies (CRT and ICD)	Must be link the other NICE guidance – use of such devices improves mortality for a subgroup of patients with low EF heart failure.	Mortality benefit from use of these technologies, and wide variation in implant rates across the country.	
6	SCM4	Key area for quality	Vital to send same signal on the	Need consistency on CHF QS	

Improvement area	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
		improvement 1: Link with AHF QS	hospitalisation aspects of the management of chronic heart failure	hospitalisation metrics as will be developed for the AHF QS. Clinically a rather artificial situation to have 2 different sets of QSs, so needs to be considered carefully.	
6	SCM4	Key area for quality improvement 5: patient engagement	Shared decision making is now a key topic for NICE, and HF is a good example of where this can (but often does not) work well.	Variable practice across the country and only good where HF MDT type approach.	
6	SCM5	Care transition planning	Admission to hospital is one of the signal events and opportunities in heart failure. Not only is inpatient mortality high but, regardless of the aetiology of heart failure, the chance of death or readmission to hospital in the 6 months after discharge may be as high as 50%. Coordination between primary and secondary care in the immediate post discharge period is of fundamental importance to allow optimization of medication and coordinate personal and social as well clinical needs.	Widespread variation in the optimal management of the transition between secondary and primary care is frequently reported leading to proposal for structured transitional care planning. Optimal transitional care may lead to reduced readmission (National HF audit).	CG 108 1.5.2.3 Clear instructions should be given as to how the patient/carer can access advice, particularly in the high-risk period immediately following discharge. 1.5.2.2 The primary care team, patient and carer must be aware of the management plan. Influence of Nonfatal Hospitalization for Heart Failure on Subsequent Mortality in Patients With Chronic Heart Failure Scott D. Solomon *Circulation*. 2007;116:1482-1487. Feltner C et al . Transitional care interventions to prevent readmissions for persons with heart failure: a systematic

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					review and meta-analysis. Ann Intern Med. 2014 Jun 3;160(11):774-84 Transitions of Care in Heart Failure: A Scientific Statement From the American Heart Association http://circheartfailure.ahajournals.org/content/early/2015/01/20/HHF.0000000000000006.full.pdf+html
6	SCM5	End of Life care	Heart failure is predominantly an accompaniment of aging and is thus increasingly prevalent. Comorbidity is common with high mortality in those with higher levels of comorbidity. Whilst unpredictable, the trajectory of heart failure in older people is often characterised by frequent hospitalisation before death. Although more common in younger patients, sudden death may also occur. Care planning should engage patients (and carers) and embrace the individual's possible outcomes and needs.	Persistently reported to be very variable. Uncertain access to necessary community support services	CG 108 1.5.9.1 Issues of sudden death and living with uncertainty are pertinent to all patients with heart failure. The opportunity to discuss these issues should be available at all stages of care. 1.5.9.2 The palliative needs of patients and carers should be identified, assessed and managed at the earliest opportunity. NHS Improving Quality: End of life care in heart failure: A framework for implementation http://www.nhsiq.nhs.uk/media/2574509/end-of-life-care-in-

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					heart-failure- framework-for-implementation.pdf
6	SCM5	Additional evidence sources for consideration	QOF, Atlas of Variation, National Heart Failure Audit (Acute care and discharge medication and post discharge follow up), CVD Outcome Stratgey. The NICE commissioning guide 2011 (http://www.nice.org.uk/guidance/cmg39#commissioning-for-outcomes) identified the following: Key clinical and quality issues in providing effective services for people with chronic heart failure include: • early identification and referral for specialist assessment, making use of echocardiography or measurement of natriuretic peptides in accordance with NICE clinical guideline 108 • ensuring that appropriate referral pathways are in place and that a multidisciplinary specialist chronic heart failure care pathway is integrated with other services including primary, secondary and social care, and that the care pathway is seamless across services • providing information, education and support for people with chronic heart failure and encouraging self-management • providing effective pharmacological treatment as recommended in NICE clinical guideline 108 • offering supervised cardiac rehabilitation based on group exercises for people with chronic heart failure that includes education and psychological support • monitoring all people with chronic heart failure, the frequency of which should be dependent on the clinical status and stability of the patient as recommended in NICE clinical guideline 108 • ensuring that people admitted to hospital due to chronic heart failure receive input to their management plan from a multidisciplinary heart failure team and that this management plan is shared with the person, their carers and their GP • early identification and partnership working to meet the supportive and palliative care needs of people with moderate to severe chronic heart failure and offering advance care planning • providing the best possible outcomes for individuals, their carers and local communities providing a quality assured service (see section 6 within this guide).		
6	SCM6	I think pulse rate is an important quality measure		Evidence is reduced admissions from low pulse rate	
6	St Jude Medical UK	Use of quadriploar CRT-D	Quadripolar CRT-D has been shown to reduce mortality and complications, compared with bipolar CRT-D, in a recent UK evaluation (13.2% vs 22.5% at 879	Reducing cardiovascular death is an NHS priority.	Behar JM et al (2015). Cardiac Resynchronization Therapy Delivered Via a Multipolar Left Ventricular

Improvement area	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
			days mean follow up)		Lead is Associated with Reduced Mortality and Elimination of Phrenic Nerve Stimulation: Long-Term Follow-Up from a Multicenter Registry. J Cardiovasc Electrophysiol, Vol. pp. 1-7.
6	St Jude Medical UK	Consideration of new technology for reducing heart failure admissions in patients who have had a previous admission.	HF admissions are growing and are largely non-elective, placing pressure on NHS services.	Admissions are costly. A key objective for the NHS is to manage patients out of hospital where possible.	Insertion and use of implantable pulmonary artery pressure monitors in chronic heart failure. NICE interventional procedure guidance 463. August 2013.

SCM1: R Mindham; SCM2: J Gilmour; SCM3: A Al-Mohammed; SCM4: M Cowie; SCM5: H McIntyre; SCM6: I Benett; ABHI, Association of British Healthcare Industries; BSHF, British Society for Heart Failure; PM, Pumping Marvellous Foundation; RCP, Royal College of Physicians of Edinburgh.