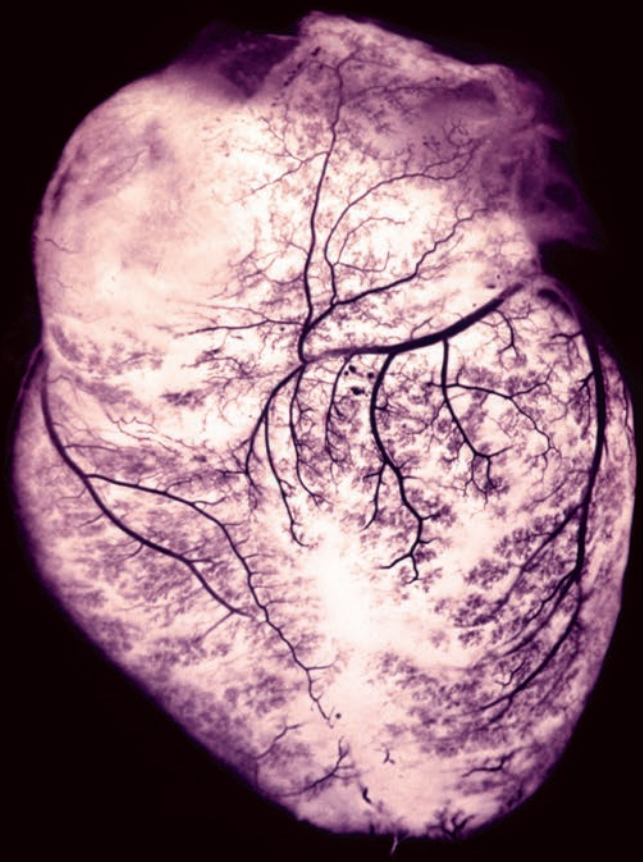
HQIP
Healthcare Quality Improvement Partnership

BRITISH SOCIETY FOR HEART FAILURE

NICOR



NATIONAL HEART FAILURE AUDIT

APRIL 2014 - MARCH 2015

NICOR (National Institute for Cardiovascular Outcomes Research) is a partnership of clinicians, IT experts, statisticians, academics and managers which manages six cardiovascular clinical audits and two clinical registers. NICOR analyses and disseminates information about clinical practice in order to drive up the quality of care and outcomes for patients.

The British Society for Heart Failure (BSH) is a national organisation of healthcare professionals which aims to improve care and outcomes for patients with heart failure by increasing knowledge and promoting research about its diagnosis, causes and management.

The Healthcare Quality Improvement Partnership (HQIP) is led by a consortium of the Academy of Medical Royal Colleges, the Royal College of Nursing and National Voices. Its aim is to promote quality improvement, and in particular to increase the impact of clinical audit in England and Wales. HQIP hosts the contract to manage and develop the National Clinical Audit and Patient Outcomes Programme (NCAPOP). The programme comprises 40 clinical audits that cover care provided to people with a wide range of medical, surgical and mental health conditions.

Founded in 1826, UCL (University College London) was the first English university established after Oxford and Cambridge, the first to admit students regardless of race, class, religion or gender, and the first to provide systematic teaching of law, architecture and medicine. It is among the world's top universities, as reflected by performance in a range of international rankings and tables. UCL currently has 24,000 students from almost 140 countries, and more than 9,500 employees. Its annual income is over £800 million.

Authors

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Data extraction was carried out by Marion Standing. Data linkage, cleaning and analysis was performed by Aminat Shote.

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The National Heart Failure Audit is managed by NICOR, which is part of NCAPOP, based at UCL. The National Heart Failure Audit is commissioned by HQIP as part of the NCAPOP.

Specialist clinical knowledge and leadership is provided by the British Society for Heart Failure (BSH) and the audit's clinical lead, Professor Theresa McDonagh. The strategic direction and development of the audit is determined by the audit Project Board. This includes representatives of major stakeholders in the audit including Cardiologists, the BSH, Heart Failure specialist nurses, Clinical Audit and Effectiveness Managers, patients, NICOR and HQIP. See Appendix A for the 2014/15 Project Board membership.

NICOR would especially like to thank the contribution of all NHS Trusts, Welsh Heath Boards and the individual nurses, clinicians and audit teams who collect data and participate in the audit. Without this input the audit could not continue to produce credible analysis, or to effectively monitor and assess the standard of heart failure care in England and Wales.

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This report is available online at http://www.ucl.ac.uk/nicor/audits/heartfailure/additionalfiles. Hospital level tables will be available on http://data.gov.uk. Participation analysis is published at http://www.hqip.org.uk/parcar/.

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National Heart Failure Audit Annual Report

April 2014 - March 2015

The eighth annual report for the National Heart Failure Audit presents findings and recommendations for patients with an unscheduled admission to hospital, who were discharged or died with a primary diagnosis of heart failure between 1 April 2014 and 31 March 2015. The report covers all NHS Trusts in England and Health Boards in Wales that admit patients with acute heart failure.

The report is aimed at all those interested in improving the standard of heart failure care, including those involved in collecting data for the National Heart Failure Audit, alongside the clinicians involved in delivering that care and the patients receiving it, the hospital chief executives, managers, clinical governance leads and those commissioning heart failure services, patient groups and many others. The report includes clinical findings at national and local levels, and patient outcomes.

Contents

Foreword

Significant progress has been made in the management of patients with cardiovascular disease in the UK with dramatic improvement in outcomes in many areas. Challenges remain, however, particularly for patients with heart failure and improving outcomes here is a national priority. The National Heart Failure Audit Report of 2014/15 continues to draw our attention to the high mortality rates for hospitalized heart failure patients. It also highlights potential solutions. Patients with heart failure have a lower mortality during and after the admission if they are cared for by cardiologists and have access to the specialist multi-professional heart failure team. The British Cardiovascular Society supports all endeavours to implement specialist cardiology care for heart failure patients, throughout the UK, to improve outcomes for this patient group.

Sarah Clarke
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President of the British Cardiovascular Society

Executive Summary

Findings

- This year's Heart Failure (HF) audit is based on 56,915 admissions to hospitals in England and Wales between April 2014 and March 2015. This represents 73% of HF admissions as the patient's primary diagnosis in England and 81% in Wales.
- During hospital admission, more than 91% of patients get an echocardiogram, a key diagnostic test. However, rates are higher for those admitted to Cardiology (96%) rather than General Medical (88%) wards. Specialist input, irrespective of the place of admission is associated with higher rates (95%) of echocardiography.
- The prescription of key disease-modifying medicines for patients with heart failure and a reduced left ventricular ejection fraction (HF-REF) has increased, including beta-blockers (86%) and mineralocorticoid antagonists (52%); treatments that are both life-saving and inexpensive.
- Prescription rates for all three key disease modifying medications for patients with HF-REF has increased from 35% to 50% for those admitted to Cardiology wards over the last five years.
- Irrespective of the place of admission, 45% of patients with HF-REF seen by a member of the specialist HF team as an inpatient, were prescribed all three disease modifying drugs, a key performance indicator (KPI) albeit with considerable room for further improvement.
- The number of patients seen by HF specialists has increased to 80% this year. In particular HF nurses saw more HF patients admitted onto general medical wards (24%) than last year (18%). This is important as specialist care improves mortality.
- The mortality of patients hospitalised with heart failure remains high overall at 9.6%, although lower than in the past few years. However, large variations in mortality amongst hospitals exist.
- Mortality rates in hospital are better for those admitted to Cardiology wards.
- Post discharge mortality rates at one year and out to 6 years are independently associated with admission to a cardiology ward, cardiology follow up and the use of key disease-modifying medicines for HF-REF.
- Had the patients identified within this audit cycle as having HF-REF, who left hospital on none of the three disease modifying drugs, been prescribed all three, then an additional 169 patients would likely have been alive at the time of censor. With more comprehensive prescription and dose optimisation across the audit there is the ability to prevent numerous additional deaths.

Recommendations

For Chief Executives, Medical and Clinical Directors

The HF audit is now comprehensive. Trusts and Health Boards should be aware that there is considerable variation in the quality of care delivered by different hospitals. With this in mind:

- Senior Management must explore and understand these variations in their own institution and compare them to the best performance at a national level, to ensure their services are fit for purpose.
- This audit is a rich resource and should be used to improve the quality of care delivered locally. If this alone is an insufficient incentive to drive better care, Senior Management should be aware that the Care Quality Commission (CQC) may use these data as KPI for acute Trusts.
- These data will be used to validate the application of the best practice tariff (BPT) in heart failure in England, which is higher than the standard tariff. This includes confirmation that the minimum data-entry to the audit is being met (currently set at 70% of the HES/PEDW activity for HF). It is imperative that your staff have sufficient resources for data-entry, as well as the delivery of high quality HF care based on NICE Guidance and Quality Standards.

For Multidisciplinary HF Teams and HF leads and Networks

This audit is a measure of the quality of your service, which however good, can always be improved.

- Ensure the data are accurate and reliably entered in a timely fashion and interrogate the data on a regular basis.
- Share data across networks and work together to find solutions. Your managers and commissioners may appreciate help understanding the data. Use the data to drive improved care.
- Your data can form a powerful central component of business plans for staff and other resources that you need in order to develop an effective HF service. The audit data clearly show that specialist care matters. The audit is a powerful tool to ensure that you have access to Heart Failure cardiologists and nurses.
- Be aware that more hospital specific data will be in the public domain in future years. For this to be a correct representation of local practice, your data-entry needs to be accurate and comprehensive.

For Commissioners

- It is essential that you understand who constitutes your local HF team and how the HF care that team is delivering compares with other Trusts – this report is your means of doing so.
- Discussing this with local providers, and developing local targets for improvement with them, will prove a highly effective tool for improving the HF care for your population.

For Patients and Patient Groups

- This report provides a national picture of care for people with HF in 2014/15 in England & Wales, and also contains important information about your local hospital services, which can be compared against other hospitals and the national averages.
- Please pay close attention to the section on the NICE Key Priorities for Implementation and Quality Standards.
- This information should create opportunities to open local discussions about the quality of care and local services for people with HF. We hope that you find your local health care teams welcome your input into improving services.

1 Introduction

1.1 What is heart failure

HF means a defect in heart function (either emptying or filling) leading to a rise in atrial pressures (congestion) and, eventually, symptoms such as breathlessness and ankle swelling. It is common. Approximately 900,000 people in the United Kingdom have HF, it causes or complicates about 5% of all emergency hospital admissions in adults and consumes up to 2% of total NHS expenditure (6). It is the final common pathway of most forms of cardiovascular disease, usually as a consequence of myocardial (heart muscle) dysfunction. In the UK, the most common type of HF is due to left ventricular systolic dysfunction, where there is impaired contraction of the left ventricle (HF-REF, HF with Reduced Ejection Fraction). HF can also be attributed to impaired filling of the left ventricle when the heart muscle is thickened, often as a result of long standing high blood pressure (HF-PEF, HF with preserved ejection fraction). HF is often described as chronic (CHF) when patients have relatively stable symptoms of breathlessness, fatigue and ankle swelling and acute (AHF), when the symptoms become severe and the patient usually requires admission to hospital. However, in many cases deterioration occurs gradually over several weeks before hospital admission and might be prevented if detected and managed earlier. The typical course of CHF is punctuated by periods of acute or sub-acute decompensation into AHF, although good management and monitoring will make these less frequent.

HF is often associated with marked reductions in quality of life and high levels of debility, morbidity and mortality. This imposes a heavy burden not only on patients but also those who care for them. Repeated hospitalisations are a measure of the adverse effects of HF on quality of life, the failure to control symptoms and disease progression, the high levels of co-morbidity and ultimately of an adverse prognosis; they also make a large contribution to the huge fiscal cost of HF to the NHS. Survival rates for HF patients are variable, dependent on the age and severity of disease of the patient, and the quality of care they receive. Outcomes are consistently poor for patients who receive suboptimal care, but input from the HF specialists and prescription of evidence-based HF therapies have a substantial prognostic benefit.

While there have been huge advances in the treatment of chronic HF with reduced systolic function (HF-REF) over the last twenty years (with 1 year mortality rates of 5-10% for those in clinical trials receiving optimal medical and device therapy), there has been little progress made in therapy for HF-PEF or those admitted with AHF regardless of left ventricular ejection fraction. The in-hospital mortality rate for those admitted with acute HF in the UK is approximately 10%, with more than one third of those discharged dying in the following year. However, age-related mortality rates are beginning to fall, reflecting more consistent implementation of guideline recommendations. This audit has consistently shown that specialist cardiology care during the admission and initiation of optimal medical therapy for those with HF-REF is associated with better outcomes in hospital and at one year.

This audit deals with a specific and crucial phase in the patient journey. It reports on the characteristics of patients admitted with acute or sub-acute HF, the in-hospital investigation and care, the treatment given and the discharge planning and follow up which is offered.

The audit is now well established, reporting key metrics on over 70% of admissions with a primary diagnosis of HF and trends on KPIs and outcomes compared to previous years.

1.2 Management of patients with heart failure

The treatment of HF is determined by the mode of presentation, that is acute or chronic, and the underlying type of cardiac dysfunction (HF-REF or HF-PEF).

There has been little progress in the treatment of AHF over the last forty years. Oxygen and intravenous diuretics rapidly relieve (usually within 30-90 minutes) symptoms of pulmonary congestion (breathlessness). Diuretics are also the mainstay of treatment for peripheral congestion although this may require several days of intensive treatment before it is controlled. Sometimes intravenous vasodilator or inotropic agents are required. Once patients are euvolaemic after intravenous therapy, they are converted to oral diuretics to ensure that they remain free from symptoms and signs of congestion (breathlessness and peripheral oedema). For those who have HF-REF as the underlying cause of their HF, key disease modifying medicines need to be given. These are ACE inhibitors (ACEI), beta-blockers (BB) and mineralocorticoid receptor antagonists (MRA). Data from numerous clinical trials in HF show that these medicines improve or reduce recurrent worsening of symptoms and reduce hospitalisations for HF and mortality. Previous audit reports show that patients discharged on all three medicines have better survival rates from discharge out to 6 years of follow-up compared to those discharged on fewer or none. The prescription of these medicines for HF-REF is a KPI in this audit.

1.3 Guidelines and quality standards

The National HF Audit data-set is evolving to ensure it remains an effective representation of current evidence based guideline recommended HF care, and wherever possible reflects the related Quality Standards. This 8th report reflects practice for the year April 2014-April 2015 and therefore should be assessed in the context of the 2010 NICE CHF Guidelines and related 2011 CHF Quality Standards and the 2012 European Society of Cardiology (ESC) AHF and CHF Guidance[1, 2, 3]. The first NICE Guidelines for AHF were published in late 2014

and the related Acute Quality Standards in December 2015 and therefore will have limited impact on this audit[4, 5]. The guidelines are based on evidence from many randomised controlled trials that enrolled many thousands of patients and economic modelling of the cost-effectiveness of implementing the findings of these trials using data from the National HF Audit. Thus, an ideal cycle is established whereby this audit data from routine practice is used to identify real patient outcomes, and inform emerging HF guidance. However patients will only derive benefit if these guidelines are followed as outlined below.

Considerable emphasis has been placed on the role of the HF Specialist, defined in the 2010 guidance, and the multidisciplinary specialist team which they lead. The term 'specialist' denotes a physician with a special interest in HF (often a consultant cardiologist) who leads a specialist multidisciplinary HF 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. The specialist team is central to the care of patients with AHF, which for the purposes of this audit means any patient admitted to hospital because of HF.

For patients hospitalised with AHF, which will include both those with a new or pre-existing diagnosis, early and continued involvement of the specialist team is emphasised in the guidance and related quality standards. Further important themes include clinical stabilisation and pre-discharge implementation of disease modifying medicines, which are most cost effectively delivered by a specialist cardiac care or HF unit, adequate discharge planning including a specialist follow-up appointment within two weeks of leaving hospital, and rehabilitation. The Key Guidance/Quality Standards applicable to the continuing audit and current best practice appear later in this document.

1.4 National Heart Failure Audit

1.4.1 The role of the audit

The National HF Audit was established in 2007 to understand contemporary practice with the aim of helping clinicians improve the quality of HF services and to achieve better outcomes for patients. The purpose of this audit is to drive up standards of care during the acute admission phase to achieve better patient outcomes. This can be accomplished by capturing data on clinical indicators that have a proven link to improved outcomes, encouraging the increased use of clinically recommended diagnostic tools, implementing use of disease-modifying treatments, and by robust referral pathways.

The National HF Audit aims to collect data on all hospital deaths and discharges primarily due to HF, in England and Wales. Events submitted to the audit are compared with HF episodes coded in the first diagnostic position by Hospital Episode Statistics (HES) in England or Patient Episode Database of Wales (PEDW) in Wales. This report covers all records submitted to the audit where the date of discharge is between 1 April 2014 and 31 March 2015.

1.4.2 Methodology

The National HF Audit collects data on all patients with an unscheduled admission to hospital in England and Wales who have a death or discharge with a coded primary diagnosis of HF. This is designated by the following ICD-10 codes:

- I11.0 Hypertensive heart disease with (congestive) heart failure
- I25.5 Ischaemic cardiomyopathy
- I42.0 Dilated cardiomyopathy
- I42.9 Cardiomyopathy, unspecified
- I50.0 Congestive heart failure
- I50.1 Left ventricular failure
- I50.9 Heart failure, unspecified

Patients admitted for elective procedures, for example elective pacemaker implantation or angiography, are not included. Patients must be over 18 to be eligible for inclusion in the audit.

Participation in the audit is mandated by NHS England's NHS Standard Contracts for 2013/14 and 2014/15[6], and by the NHS Wales National Clinical Audit and Outcome Review Plan 2013/14[7]. Trusts are expected to include all patients with a primary death or discharge diagnosis of HF in the audit; a target of at least 70% of all such episodes (using HES/PEDW as the denominator) is the minimum requirement. Although most patients with HF are managed mostly in the community, this audit currently only covers unscheduled admissions to hospital. Extension of the audit to primary care is under consideration and a pilot project underway.

Data can be input manually or imported from locally developed systems and third party commercial databases such as TOMCAT, PATS and DATACAM. Cardiology units may enter their data into the central audit database in three ways:

- Direct data entry using the online data-entry form using the web portal.
- Direct data entry using the online data-entry form using Lotus Notes.
- Uploading of electronic data (in CSV file format) from existing local IT systems, currently via Lotus Notes only.

User roles vary between hospitals but the personnel involved in collecting and inputting data tend to be HF specialist nurses, clinical audit leads and clinical effectiveness managers. The time taken to manually input the core data fields for an individual patient is upward of 20 minutes depending on the complexity of the case, the quality of the clinical notes and whether the patient is known to the HF team or not.

1.4.3 Data quality, data completeness & case ascertainment

Trusts and Health Boards are expected to include all episodes for all patients in the audit with a primary death or discharge diagnosis of HF subsequent to an unscheduled hospital admission. The minimum requirement for case ascertainment is 70% of HES/PEDW activity. In 2014/155, 213 hospitals from 139 NHS Trusts in England and six Local Health Boards in Wales reported deaths or discharges coded as HF according to HES and PEDW. In England 73% of Hospital Trusts met the above minimum participation requirement and 81% of Welsh Health Boards.

1.4.3.1 Minimum data standard

Increasingly national clinical audit data is used to support quality assurance and quality improvement within the healthcare sector. Examples include CQC regulation and NHS England BPT.

NICOR has introduced and developed a data completeness tool to support hospitals and the NICOR team to monitor the quality of all data fields. The tool will highlight the expected minimum data standard for each audit; hospitals not meeting the minimum data standard will be notified. Failure to meet the minimum data quality standard will affect the accuracy of local analysis of KPI.

As the HF audit is currently developing a risk model, the minimum data standard will focus on the core mandatory fields in the dataset (currently 49 fields) to reduce the number of fields marked 'unknown'. This will maximise the number of records that can be used in the model to enable robust comparisons of expected and actual risk-adjusted outcome at a local level. NICOR will create an online tool to monitor compliance with the minimum data standard, to allow hospitals to keep track of their progress.

1.4.4 How we analysed the data

Data held within the secure storage environment at NICOR were extracted and provided to the information analyst with pseudonymised personal identifiers. Data provided by hospitals does not always adhere to the technical standards of the audit.

The data are first processed to reduce the impact of deviation from the audit's standards which maximises their usability for analyses. On rare occasions, multiple copies of records for the same admission are found in the database. Duplicate records are identified with the combination of patients' pseudonymised NHS number, date of admission and discharge. They are removed prior to analysis. All analyses are performed on valid and cleaned data. All data cleaning processes and analyses described in this report were performed in the R statistical programming language (version 3.2.2).

For almost all of the descriptive statistics presented, percentages were rounded to whole numbers. Thus, there are some analyses where percentage breakdowns add up to more or less than 100%. This is not in error, and is simply a consequence of rounding.

For multiple admissions for the same patient, the index record within the audit reporting period with the pseudonymised NHS number and admission date will be used.

2 The National Heart Failure Audit 2014/15 Results

The results will be presented as they relate to the patient journey for hospitalised people with HF following the scheme below.

Figure 1: The Patient pathway for a typical HF patient entered into the National HF Audit

2.1 Symptomatic Patient — Admission

2.1.1 Patients admitted with heart failure

Data were provided on 56,915 deaths and discharges from April 2014 to March 2015 an increase of approximately 4% when compared to 54,654 such events in the previous annual report.

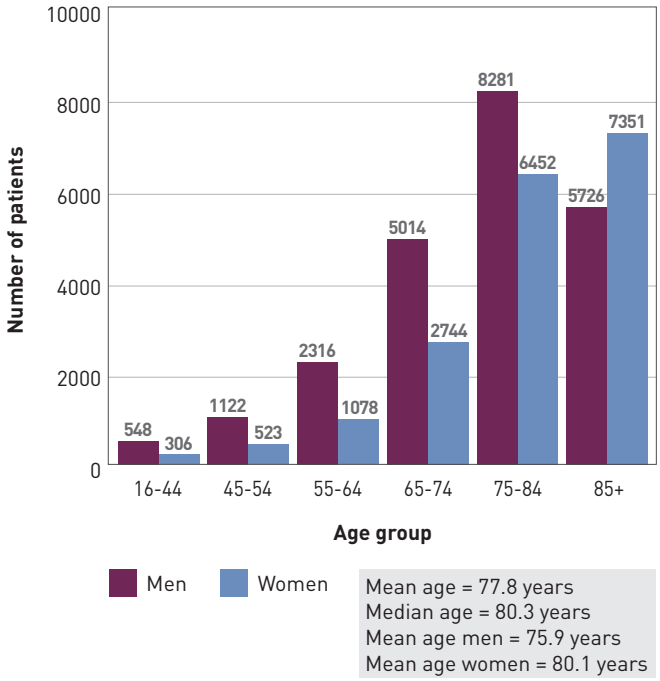
Table 1: Records submitted and case ascertainment in 2014/15

Region	Records submitted	HES/PEDW total HF discharges 2014-15	Case ascertainment (%)
Overall	56915	77129	74
England	53608	73067	73
Wales	3307	4062	81

2.1.2 Demographics

The median age [IQR, interquartile range] of patients was 80 years overall but slightly higher for women and lower for men. There were more men in each age category other than the 85+ age group where women were in the majority (Figure 2).

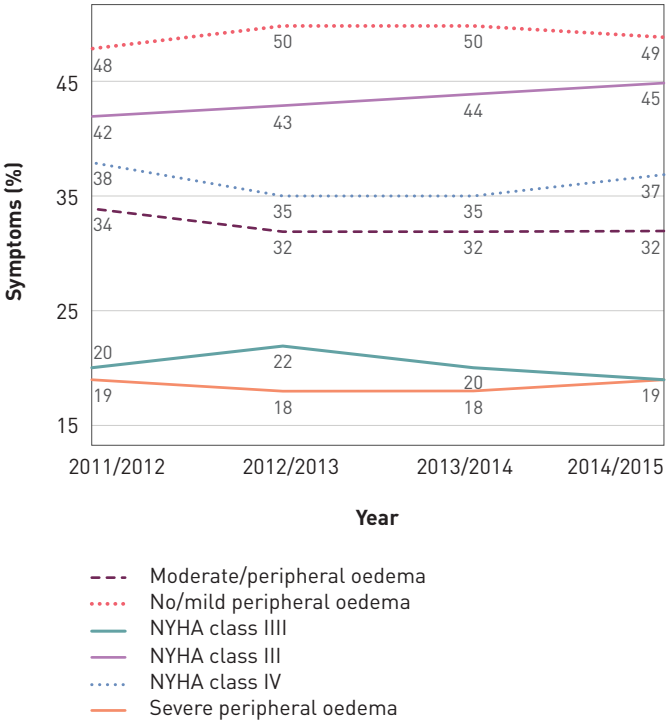
Figure 2: Age and gender demographics at first admission



2.1.3 Trends in Symptoms

The pattern of symptoms and signs of HF has remained fairly consistent over the years. Just over one third of admissions were associated with symptoms at rest or with minimal exertion (NYHA Class IV). This finding requires further investigation to ensure the validity of this observation and to explore alternatives to admission for less symptomatic patients. Approximately half of admissions were associated with moderate or severe oedema. As peripheral oedema usually accumulates over days or weeks there is an opportunity to reduce admissions through better control of congestion in the community. As peripheral oedema is associated with longer stays, better management of congestion might shorten admission.

Figure 3: Trends in symptoms and signs of HF over 4 years



2.1.4 Causes and Co-morbidities of Heart Failure

Just over 70% of patients are reported to have HF-REF. As in previous years ischaemic heart disease (IHD) and prior myocardial infarction are more common in those with HF-REF, whereas hypertension and valve disease are associated with HF-PEF. Of note is the high co-morbidity burden, nearly one third of patients has diabetes and just under 20% has chronic obstructive pulmonary disease (COPD) (Table 2).

Table 2: Aetiology and comorbidity HF-REF/HF-PEF

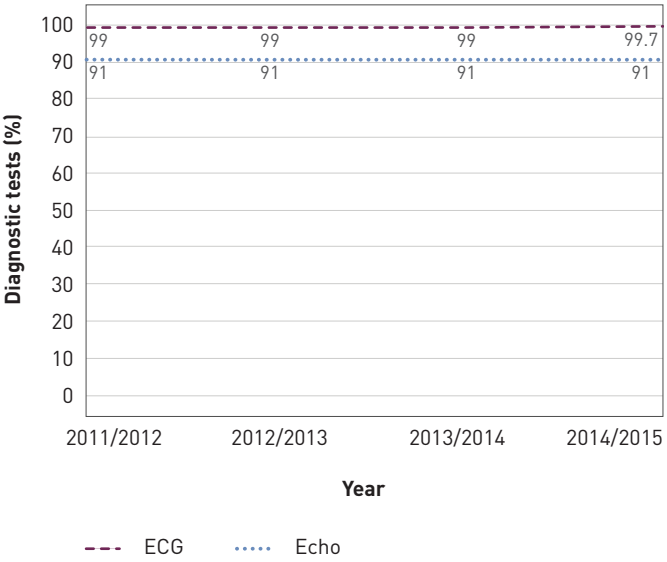
Medical History	HF-REF (%)	HF-PEF (%)	p value
IHD	51	40	<0.001
Atrial fibrillation	21	22	0.886
Myocardial Infarction	30	16	<0.001
Valve disease	23	33	<0.001
Hypertension	52	61	<0.001
Diabetes	33	33	0.923
COPD	17	19	<0.001

2.2 Assessment and Diagnosis

ECGs and echocardiography are done in 99% and 91% of patients respectively, in line with the key performance indicators (KPIs) for accurate diagnosis. These high levels have been maintained over the last four years. This still leaves 9% of patients still not accessing echocardiography in hospital and having no record of a recent echo within the last 6 months (Figure 4).

2.2.1 ECG and echo diagnostic tests

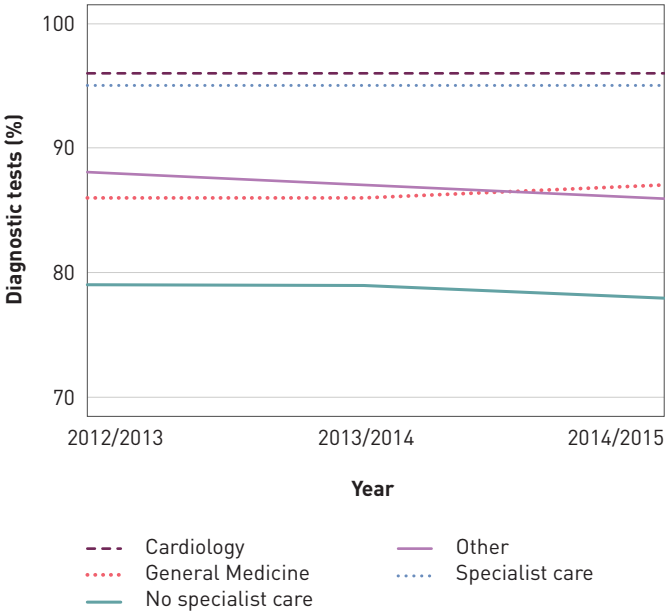
Figure 4: HF patients receiving ECG and echo diagnostics tests over 4 years (2011-2015)



Patients admitted to cardiology wards were more likely to have echocardiography than those admitted to general medical wards. However it should be noted that patients receiving specialist input to their care no matter where they are admitted have similar rates of echocardiography as those on cardiology wards (Figure 4).

2.2.2 Access to diagnostic test based on place of care

Figure 5: Percentage of patients receiving echo by place of care (or with specialist input regardless of the place of care) from 2011-2015



2.2.3 Echo diagnosis

Echocardiography provides important information on the underlying aetiology of HF. In this audit, most patients have HF-REF as in previous years. There has been an increase in reports of left ventricular hypertrophy (LVH), valve disease, diastolic dysfunction and other diagnoses. This may be an early indicator of a rise in the proportion of HF-PEF or could reflect more awareness of echo measures of diastolic dysfunction (Table 3).

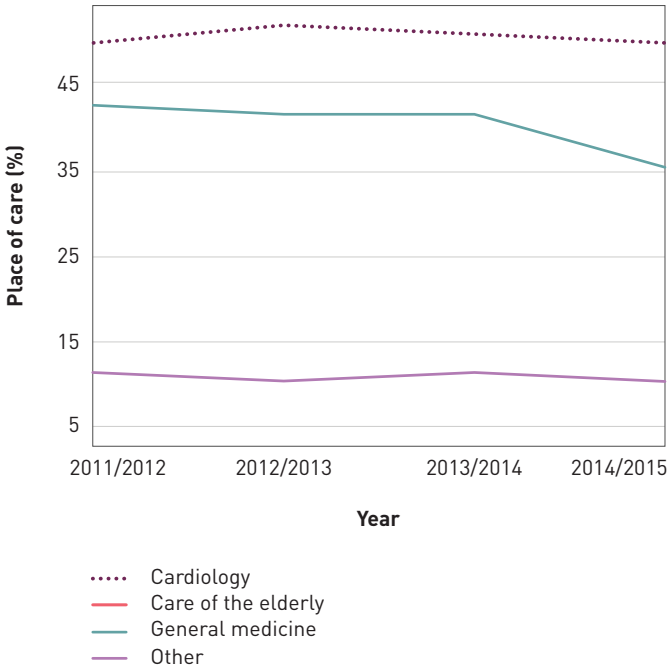
Table 3: Overall echo diagnosis breakdown (2014/15)

	Total (%)
Normal Echo	2.9
Left ventricular systolic dysfunction (LVSD)	70.2
Left ventricular hypertrophy (LVH)	8.0
Valve disease	32.4
Diastolic dysfunction	10.3
Other diagnosis	11.1

2.2.4 Trends in Place of Care

Place of care is a key quality metric for HF. In this audit cycle, as in the preceding three, just under half of patients were admitted to cardiology wards. An apparent fall in patients admitted to general medical wards has been observed this year which is due to the addition of an option to record admissions to Care of the Elderly wards, which applied to 9% of admissions (see Figure 6).

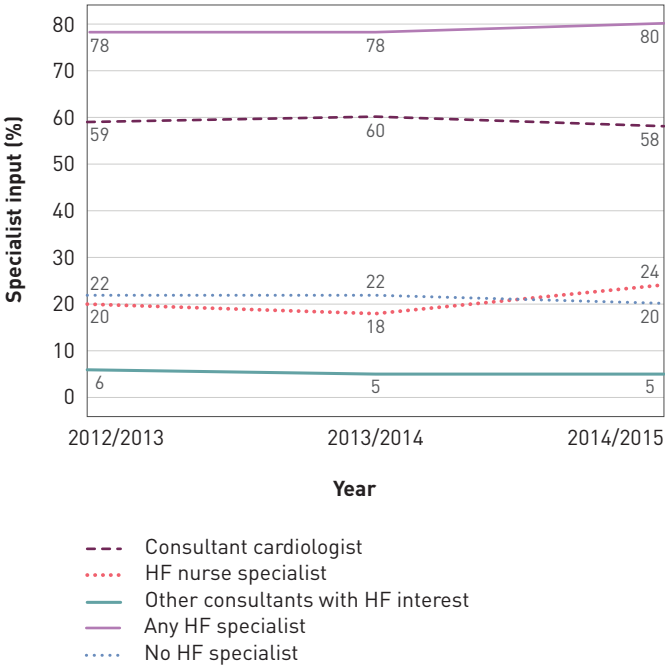
Figure 6: Trends in place of care over 4 years (2011-2015)



2.2.5 Trends in Input by HF Specialists

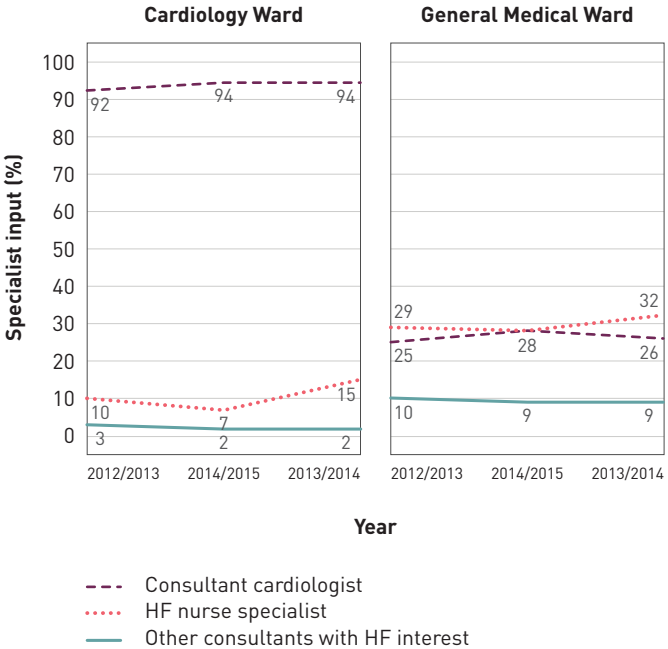
80% of patients are seen by a HF specialist during the admission. This can either be a consultant cardiologist, another consultant with specialist HF interest (usually a geriatrician) or a HF specialist nurse. Almost a quarter of patients now see a HF specialist nurse during their admission (Figure 7).

Figure 7: 3 year trends in HF specialist input (2012-2015)



Access to consultant cardiology input remains highest on the Cardiology wards at over 90%. HF specialist nurse input to patients admitted to general medical wards increased this year to 32% (Figure 8).

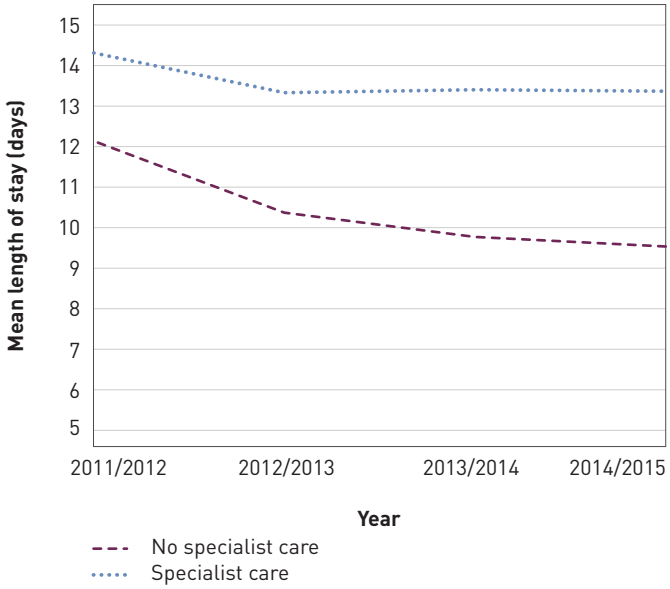
Figure 8: 3 year specialist input trends by Place of Care (2012 -2015)

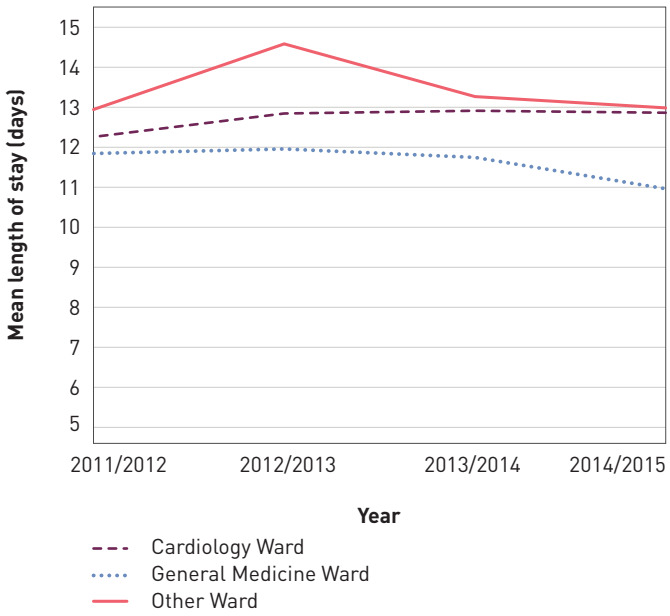


2.2.6 Trends in Length of Stay

The median length of stay (LOS) in 2014/15 was 9 days for those admitted to Cardiology wards and 7 days for those in General Medicine. Those receiving specialist care also have a higher median LOS at 9 days compared to 5 days for patients not seeing specialists. LOS remained static for Cardiology wards and those seeing specialists, but is becoming shorter for those in general medical wards and those not being reviewed by specialists. The longer length of stay for patients receiving specialist care might reflect referral of more severe cases for expert care, higher rates of implementation of disease modifying therapies and greater care to ensure that the patient is stable prior to discharge (Figure 9).

Fig 9: 4 year trend of mean length of stay based on place of care and specialist input 2011-2015





In the past 4 years, the median length of stay also remains unchanged in cardiology ward (9 days), and general medicine ward (7 days) and amongst patients that received specialist input during admission (9 days). However, there has been a decrease in the length of stay of patients not seen by specialist during admission.

2.3 Treatment

Prescription of ACEI, BB and MRAs are key performance indicators for patients with HF-REF. This year high standards were again achieved with 91% being discharged on ACEI or angiotensin receptor blockers (ARBs), 86% on BB and 52% on MRA. However, arguably a more relevant and challenging target are the number discharged on all three medicines which is only 42% (see Table 4).

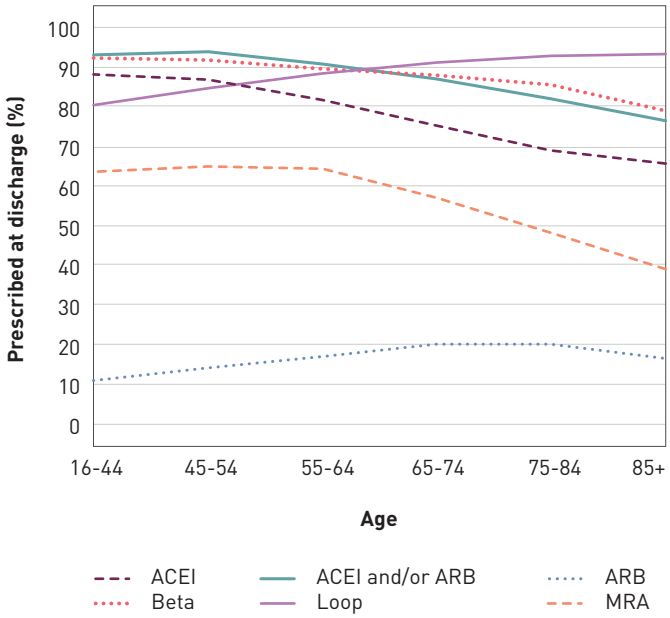
Treatment at discharge for HF-REF

Table 4: Treatment on discharge for LVSD in 2014/15

Medication	Total prescribed (%)
ACE inhibitor	73
ARB	19
ACE or ARB	84
Beta blocker	86
MRA	52
ACEI or ARB, beta blocker and MRA	42
Loop diuretic	92
Thiazide diuretic	6
Digoxin	23

The differential prescribing of disease modifying treatment with ACE/ARB, BB and MRA with age was also seen again this year (Figure 9). The inflexion point for reduction in these drugs is in the 55-64 age group. This is an area for targeting better practice in the next few years.

Figure 10: Treatment on discharge for HF-REF by age in 2014/15

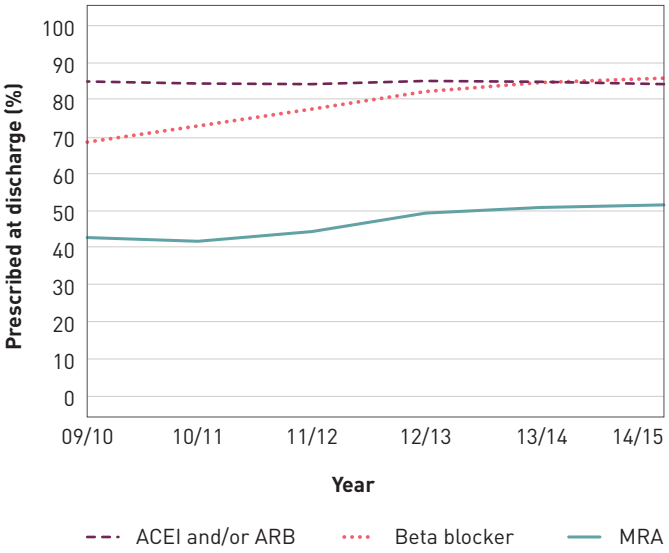


ACEI, angiotensin converting enzyme inhibitor; ARB, angiotensin receptor blocker; MRA, mineralocorticoid (aldosterone) receptor antagonist

2.3.1 Trends in prescribing for HF-REF

The trends in prescribing of the three key medicines over the last 6 years are favourable, in particular the prescription of BB has improved markedly with 86% of patients with HF-REF now being discharged on these. MRA are now prescribed to >50% of patients but should probably be substantially greater (see Figure 11). Achieving higher prescription rates for MRA should be a goal for many Trusts.

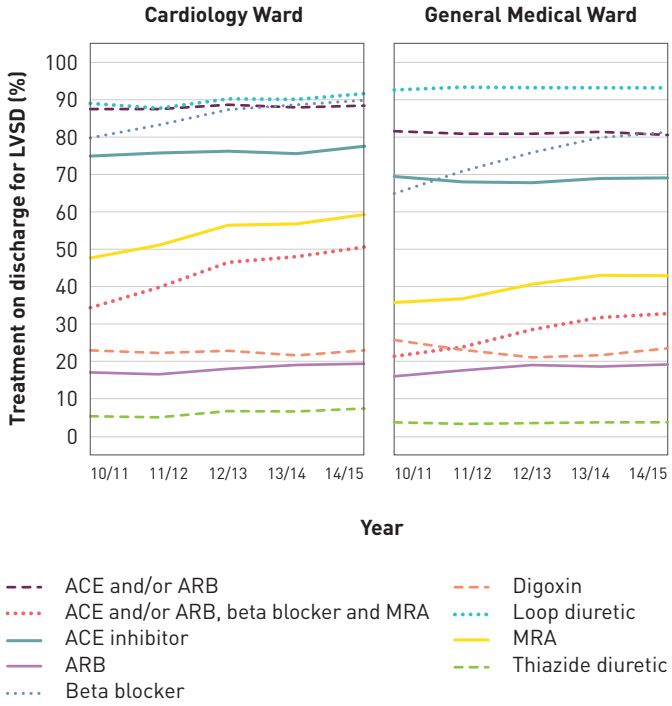
Figure 11: 6 year trends in prescription of disease modifying therapies for HF-REF



2.3.2 Trends in treatment by place of care

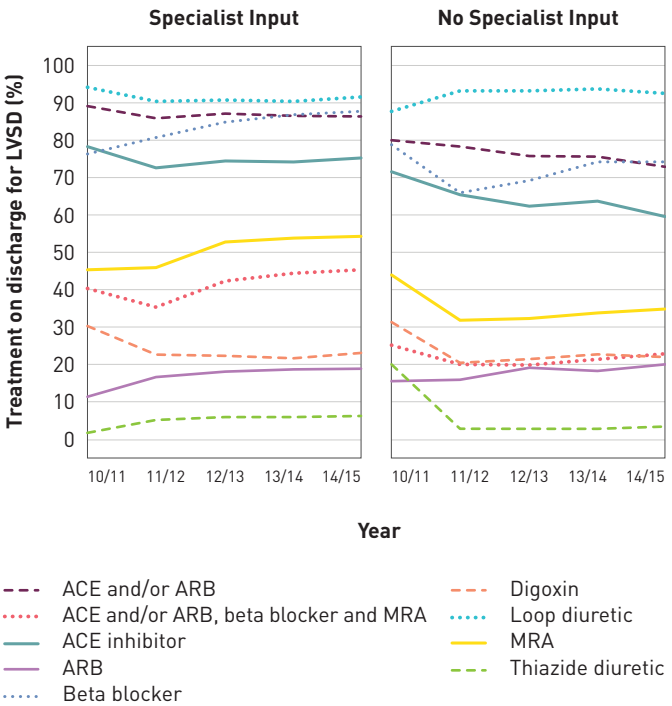
The rate of prescription of all three disease-modifying medicines in combination has increased from 35% to 50% over the last five years on cardiology wards and from 21% to 32% on general medical wards (Figure 12). For those seen by a specialist, 45% were discharged on all 3 medicines, compared to only 20% of those not seen by a specialist (Figure 13), irrespective of their ward allocation. Thus, outreach services to other wards can improve care. The trend seen over the last 5 years is for an increase in the prescription of BB, MRA and their combination in patients who have specialist input. Prescription rates for those who lack specialist input are static or falling.

Figure 12: 5 year trends of treatment of LVSD on discharge by place of care trends (2010- 2015)



2.3.3 Trends in treatment and Specialist Input

Figure 13: 5 year trends in treatment and specialist input (2010-2015)



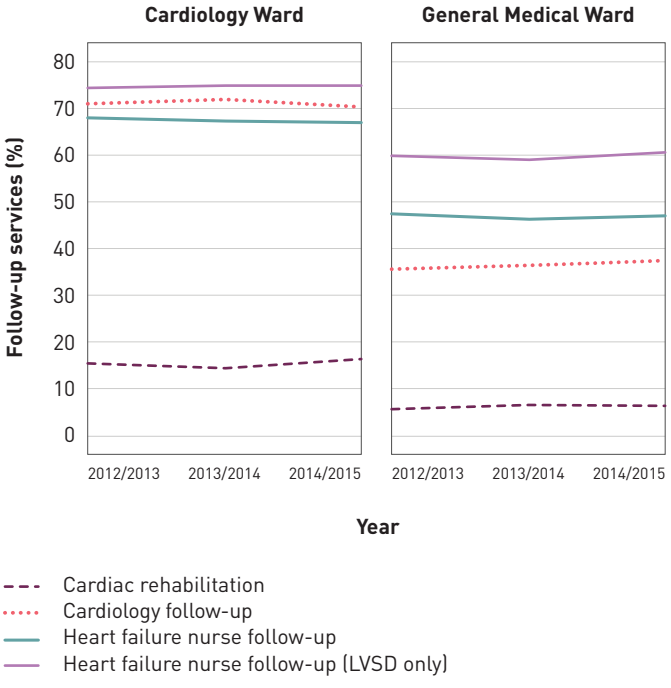
2.4 Discharge Follow up

People admitted to hospital because of HF should be discharged only when stable and should receive a clinical assessment from a member of a multidisciplinary HF team within 2 weeks of discharge[5].

Overall 70% of those discharged have cardiology follow up, and 60% have HF specialist nurse appointments post discharge. These rates are higher for those being admitted to cardiology wards at 75% and 68% respectively. Trends in follow up for both cardiology and HF nurse are static (Figure 14). This is a key area for future improvement as such follow up has been demonstrated repeatedly by this audit to be associated with improved outcomes.

Fewer than 20% of patients are referred for cardiac rehabilitation during hospitalization. Informal feedback suggests more are referred after discharge by community teams, however the audit does not capture this and there is under provision of rehabilitation for heart failure patients across the UK.

Figure 14: Trends in multidisciplinary HF team follow up post discharge



2.5 Patient Outcomes

In-hospital mortality this year was 9.6%. Mortality varies with age, being 4.8% for those <75yrs and 12% for those >=75yrs. As in previous years outcomes are better for patients admitted to cardiology (7.1%) compared to general medical (10.4%) wards and for those accessing specialist care (8.2%) compared to those who do not (14.7%) (Figure15).

Table 5: In-hospital all-cause mortality for patients who survived to discharge (2014/15)

Variable	Records (n)	Deaths (n)	Mortality (%)
In-hospital mortality	40629	3908	9.6
Women	18054	1817	10.1
Men	22546	2088	9.3
Age group 16-74	13453	650	4.8
Age group 75+	27175	3257	12.0
Cardiology Ward	19311	1369	7.1
General medicine Ward	13604	1413	10.4
Care of the elderly Ward	3685	588	16.0
Other Ward	3793	490	12.9
No specialist input	8039	1181	14.7
Specialist input	31620	2591	8.2

Figure 15: In-hospital mortality (2014/15)

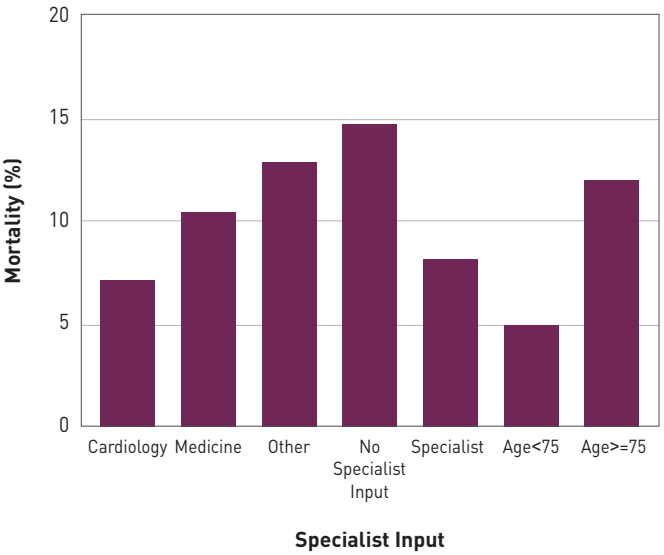
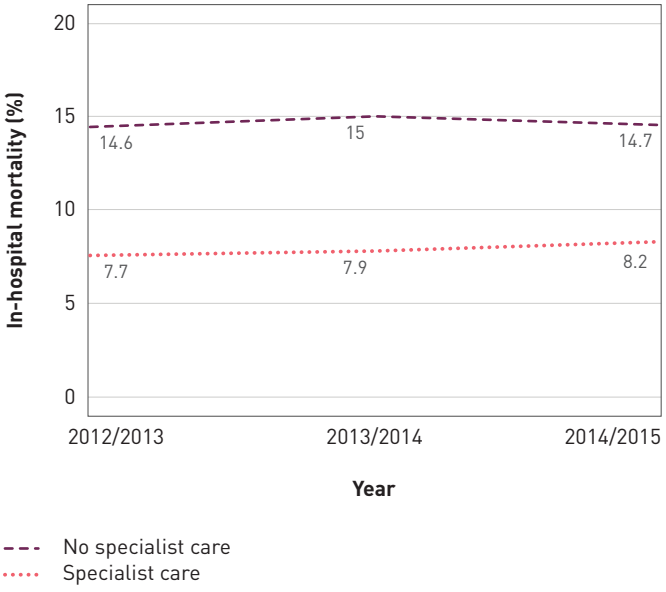


Figure 16: 3 year trends of in-hospital mortality by specialist

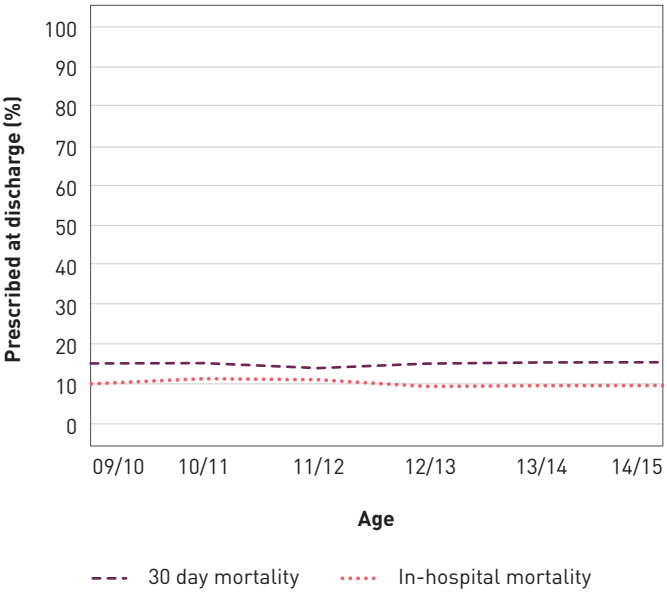


There is great variation between hospital survival/mortality rates. This may be due to differences in patient characteristics or variations in care. In-hospital mortality rate may be a useful indicator of the quality of patient care when adjusted for differences in patient characteristics.

2.5.1 Trends in In-hospital mortality

Inpatient, 30 day and 1 year mortality rates have been unchanged over the last 6 years (Figure 17). Clearly the aim is to drive improvements in this in the years to come. However the audit has become larger and more representative of all patients admitted with HF, so it would have been expected that an increase in mortality would be observed. This has not happened to date suggesting a more comprehensive service delivery is beginning to emerge.

Fig 17: 6 year trends of in-hospital mortality and 30 day mortality from admission (2009 – 2015)



In multivariable analyses adjusted for age, not being admitted to a cardiology ward (HR 1.81, p<0.001) continues to be an independent predictor of worse survival when other common markers of disease severity are included in the model (Appendix 3 and 4).

2.5.2 30 day mortality: Aggregate analysis

Figure 18: Kaplan Meier plot of 30 day all-cause mortality from admission

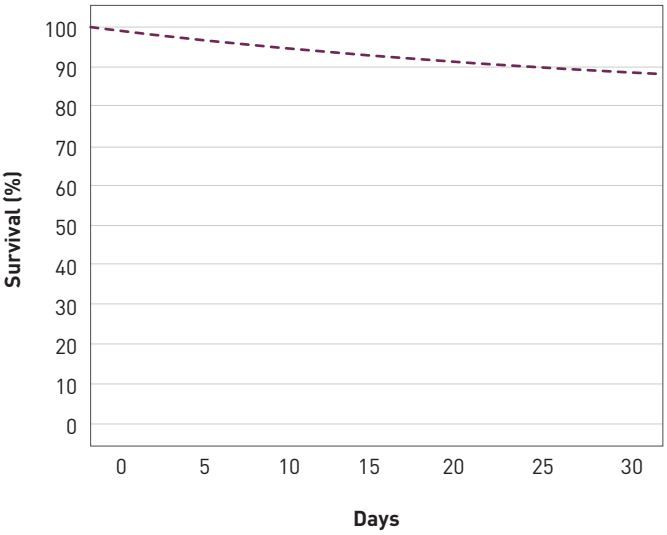


Figure 19: Kaplan Meier plot of all-cause mortality following discharge from hospital (2014-2015)

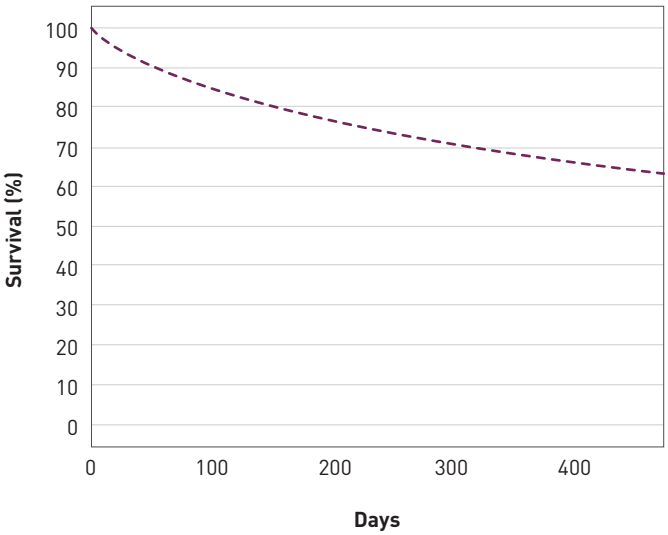
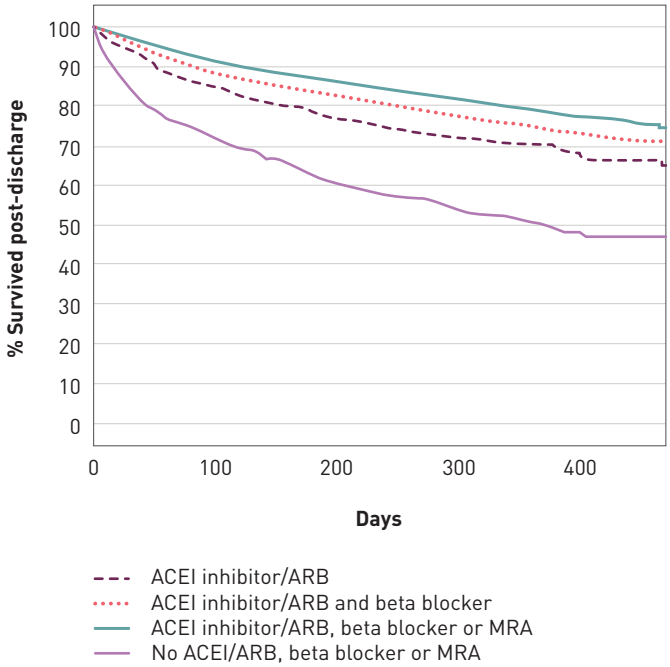


Figure 20: Mortality post-discharge prescribing for patients with LVSD



The mortality rate at one year was 29.6% of people admitted with HF. As in previous years, mortality at 1 year was lower for patients admitted to cardiology wards (25%) compared to those in general medical wards (33%)(Figure 21). Similarly mortality at 1 year of follow-up was lower for those having cardiology follow up (Figure 23) and those seen by HF nurses (Figure 22). Referral to cardiac rehabilitation is also associated with a better outcome at one year (Figure 24).

Mortality post-discharge is highly dependent upon the prescribing of each of three disease modifying drugs, with the greatest cumulative benefit seen in those who leave hospital on all three key modifying drugs (Figure 20).

In a multivariable Cox Proportional Hazards Model (Appendix 3 and 4) the variable which was most strongly associated with a poor outcome at one year was age >75 years (HR1.64, p<0.001). However, KPI's such as not having cardiology follow up (HR 1.55, p<0.001), not being on and ACEI/ARB (HR 1.5, p<0.001), not being admitted to a cardiology ward (HR 1.23, p<0.001) and not being on a BB at discharge (HR 1.17, p<0.001) were all independent predictors of a higher mortality at 1 year along with more traditional markers of HF disease severity.

In the longer term Cox Model (2009-2015) these KPI's are independently associated with poorer survival out to 6 years of follow up (see Appendix 3, Table M).

Figure 21: Kaplan Meier plot of all-cause mortality following hospital discharge by place of care (2014/15)

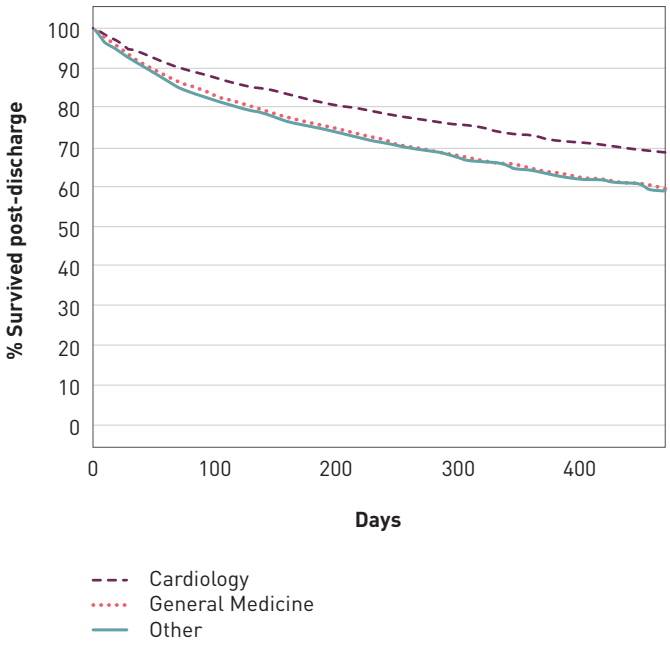


Figure 22: Kaplan Meier plot of all-cause mortality following hospital discharge by referral to HF nurse follow-up (2014/15)

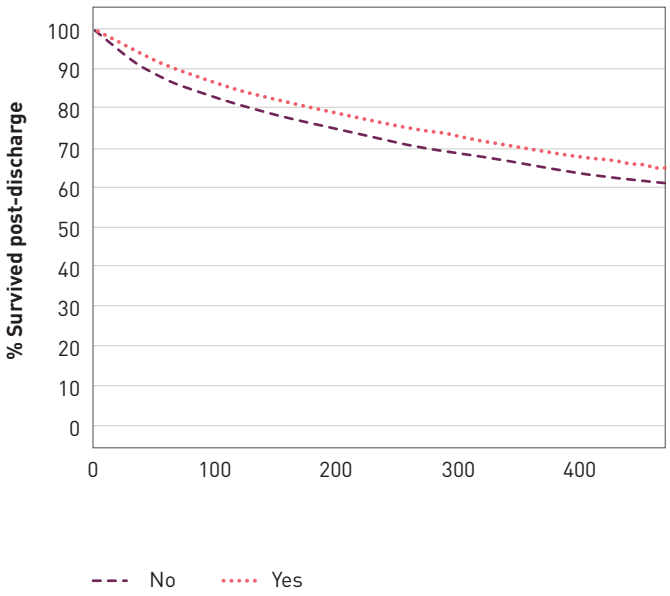


Figure 23: Kaplan Meier plot of all-cause mortality following hospital discharge by referral to cardiology follow-up (2014/15)

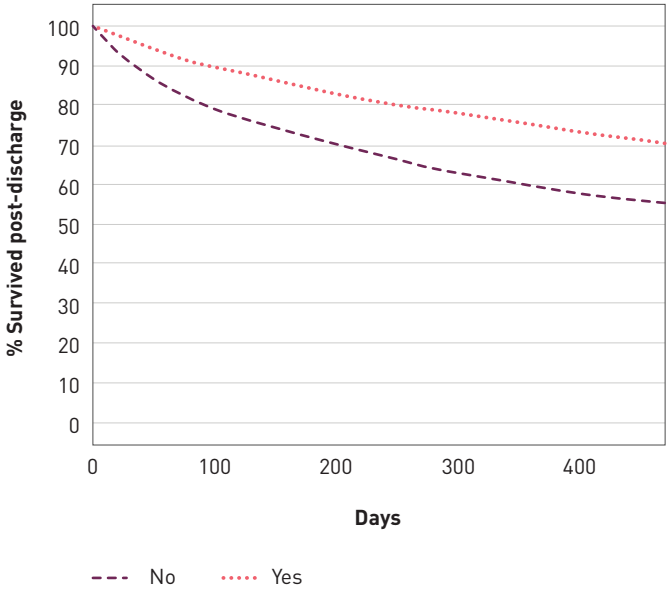
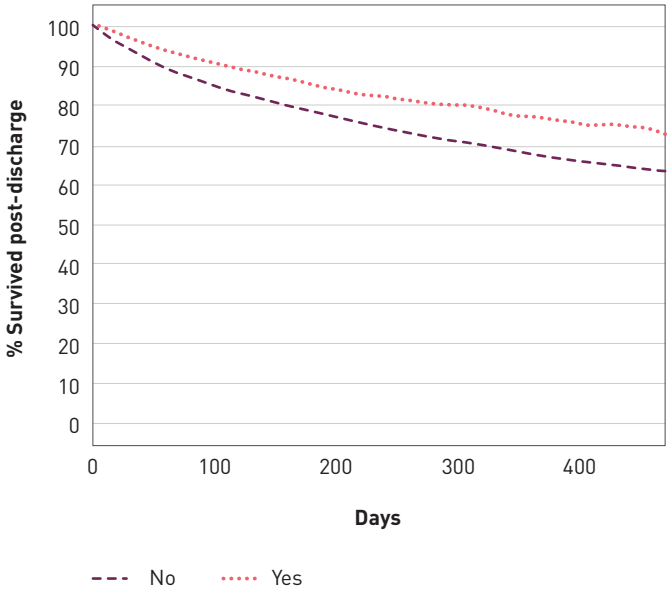


Figure 24: Kaplan Meier plot of all-cause mortality following hospital discharge by referral to cardiac rehab (2014/15)



2.6 Audit achievements – driving patient outcomes

The NICE guidance for AHF was published in late 2014 and the NICE Quality Standards for AHF in 2015 and will not yet have had a substantial impact on the 2014/15 audit. Both are heavily influenced by the NICOR National HF Audit data, which NICE used for modelling purposes along with data from RCTs of evidence based therapy. The audit can now be used to drive the improvements anticipated as a result of the Guidance and Quality Standards which appear under the Future of the Audit below (Table 6). The emphasis is on earlier diagnosis, earlier and more comprehensive specialist input, prescription of disease modifying medicines and early follow up by the specialist team following discharge from hospital.

Interestingly, the NICE modelling analysis found that the most cost-effective method of delivering the care required for HF, for most patients, is by managing them on wards offering specialist care; either a cardiology ward or dedicated HF unit. Although the percentage of patients being looked after on the cardiology wards is static at 50%, given the absolute rise in HF admissions over the duration of the audit, this does represent a modest increase in numbers receiving such care. But it remains an inadequate response to a life threatening condition. Those leading HF services should explore how to extend specialist care to more patients.

2.6.1 Key Performance Indicators (KPIs)

In summary regarding the KPIs in this audit cycle:

- Application of diagnostic tests remains high.
- Prescribing rates of key disease modifying medicines for those with HF-REF have increased.
- The proportion of patients admitted to cardiology wards is static at <50% but the proportion of patients who have input from a HF specialist has increased to >80% and more patients have HF specialist nurse input.
- Despite a trend towards increasing age, mortality remains high and static.

3 Use of Audit Data

3.1 National reporting

Informing clinical guidelines (NICE)	
Transparency of data	Data.gov.uk website
Quality accounts	
NHS England Service Level Markers	
Best Practice Tariff (BPT)	NICOR is currently compiling guidance for NHS England and Monitor to support the reporting for the BPT for HF using NHFA data to demonstrate whether hospitals are employing good practice in the treatment and management of their HF patients. If the HF best practice tariff is chosen for inclusion in the 2015/16 BPT list, **participation in the audit** (i.e. achieving the required case ascertainment target) and meeting a target for **percentage of patients seen by a HF specialist** is likely to be used as a measure of good practice in the first year.
CQC data flow	

3.2 Local reporting and activity

NICOR provides feedback to each participating hospital in the form of online views which are updated daily. These provide comparative information for each hospital about the quality of current activity against the national average. Hospitals can also export the data they submit to the database and can carry out local analysis. Additional reports for data completeness, diagnosis, treatment and follow up care will be introduced over the next reporting period.

4 HF Audit for the Future

The stark message that arises from the 8th National Heart Failure Audit Report is that had current NICE guidance been followed, and all those patients admitted to hospital with acute HF due to HF-REF who left hospital on no disease modifying drugs, been treated with an ACEI, a BB and an MRA prior to discharge, then the NHS would have prevented an additional 169 deaths during this audit cycle. Although these patients had been identified, and had had an echo, appropriate disease modifying medicines were not initiated even though no contraindications had been identified. The costs of the medicines are small. Arguably this is a considerable under-estimate of avoidable deaths, since these figures take no account of whether patients received optimal doses of the key medicines, nor of those receiving only one or two of the three key drugs. Furthermore it does not address the large number of patients who had HF coded as a secondary diagnosis.

Table 6: The key priorities for implementation of the recently published NICE Acute HF Guidance or the related Quality Standards where they have already been incorporated

Quality	Detail
Acute HF Guideline Key priority for implementation (KPI)	All hospitals admitting people with suspected acute HF should provide a specialist HF team that is based on a cardiology ward and provides outreach services.
Acute HF Quality Standard 1	Adults presenting to hospital with new suspected acute HF have a single measurement of natriuretic peptide.
Acute HF Quality Standard 2	Adults admitted to hospital with new suspected acute HF and raised natriuretic peptide levels have a transthoracic doppler 2D echocardiogram within 48 hours of admission.
Acute HF Quality Standard 3	Adults admitted to hospital with acute HF have input within 24 hours of admission from a dedicated specialist HF team.
Acute HF Quality Standard 4	Adults with acute HF due to left ventricular systolic dysfunction are started on, or continue with, beta-blocker treatment during their hospital admission.
Acute HF Quality Standard 5	Adults admitted to hospital with acute HF and reduced left ventricular ejection fraction are offered an angiotensin-converting enzyme (ACE) inhibitor and an aldosterone antagonist.
Acute HF Quality Standard 6	Adults with acute HF have a follow-up clinical assessment by a member of the community- or hospital-based specialist HF team within 2 weeks of hospital discharge.

The audit data fields are currently being modified to ensure they reflect the data-capture now needed to monitor the above standards.

In 2015/16 the plan is to:

Update the existing online views on Lotus Notes to make them also available for web portal users

Finalise the risk adjustment model for mortality. This will then enable hospitals to benchmark their risk adjusted mortality and compare it to other hospitals to further improve best practice

Continue to encourage compliance with the minimum data standard set out by NICOR in collaboration with BSH. More detail on the data standard can be found on the NICOR website: http://www.ucl.ac.uk/nicor

Make available an import function to allow participating hospitals to import their data via a web portal

Improve data quality by encouraging the use of consistent definitions and support hospitals' internal audits to assess accuracy. This data cannot be validated by NICOR but NICOR can support the process

Focus on which key quality indicators track best with risk adjusted mortality and provide feedback to sites to concentrate their efforts on the most important process indicators

5 Appendices

Appendix 1: Hospital level analysis

Case ascertainment is measured against the number of emergency HF admissions with a primary death or discharge diagnosis of HF, as recorded by Hospital Episode Statistics (HES) in England and the Patient Episode Database of Wales (PEDW).

Case ascertainment is reported by Trust and Health Board. Trusts and Health Boards are counted as fully participating if they submitted at least 70% of their HES figures to the audit. See appendix for full hospital analysis (see Appendix 4).

Table A: Participation and case ascertainment in England

Trust name	NHS Trust code	Trust records submitted	HES primary HF discharges	HES % HES submitted	Participation status	NICOR hospital code	Hospital name	Hospital records submitted
England and Wales		**56915**	**77129**	**74%**				
England		**53608**	**73067**	**73%**				
Aintree University Hospital NHS Foundation Trust	REM	750	486	154%	Yes	FAZ	University Hospital Aintree	750
Airedale NHS Foundation Trust	RCF	276	345	80%	Yes	AIR	Airedale General Hospital	276
Ashford and St Peter's Hospitals NHS Trust	RTK	462	431	107%	Yes	SPH	St Peter's Hospital	462
Barking, Havering and Redbridge University Hospitals NHS Trust	RF4	305	884	35%	No	KGG	King George Hospital	97
						OLD	Queen's Hospital Romford	208
Barnet and Chase Farm Hospitals NHS Trust	RVL	402	499	81%	Yes	BNT	Barnet General Hospital	402
Barnsley Hospital NHS Foundation Trust	RFF	190	433	44%	No	BAR	Barnsley Hospital NHS Foundation Trust	190
Barts Health NHS Trust	R1H	422	1192	35%	No	NWG	Newham University Hospital	244
						LCH	The London Chest Hospital	35
						LON	The Royal Hospital London	102
						WHC	Whipps Cross University Hospital	41
Basildon and Thurrock University Hospitals NHS Foundation Trust	RDD	203	559	36%	No	BAS	Basildon University Hospital	203
Bedford Hospital NHS Trust	RC1	225	387	58%	No	BED	Bedford Hospital	225
Blackpool Teaching Hospitals NHS Foundation Trust	RXL	528	556	95%	Yes	VIC	Blackpool Victoria Hospital	528
Bolton NHS Foundation Trust	RMC	211	513	41%	No	BOL	Royal Bolton Hospital	211
Bradford Teaching Hospitals NHS Foundation Trust	RAE	292	483	60%	No	BRD	Bradford Royal Infirmary	292

Brighton and Sussex University Hospitals NHS Trust	RXH	667	659	101%	Yes	PRH	Princess Royal Hospital (Haywards Heath)	219
						RSC	Royal Sussex County Hospital	448
Buckinghamshire Healthcare NHS Trust	RXQ	248	279	89%	Yes	SMV	Stoke Mandeville Hospital	108
						AMG	Wycombe Hospital	140
Burton Hospitals NHS Foundation Trust	RJF	340	402	85%	Yes	BRT	Queen's Hospital (Burton)	340
Calderdale and Huddersfield NHS Foundation Trust	RWY	395	648	61%	No	RHI	Calderdale Royal Hospital	217
						HUD	Huddersfield Royal Infirmary	178
Cambridge University Hospitals NHS Foundation Trust	RGT	377	431	87%	Yes	ADD	Addenbrooke's Hospital	377
Central Manchester University Hospitals NHS Foundation Trust	RW3-X	333	499	67%	No	MRI	Manchester Royal Infirmary	289
						TRA	Trafford General Hospital	44
Chelsea and Westminster Hospital NHS Foundation Trust	RQM	123	167	74%	Yes	WES	Chelsea and Westminster Hospital	123
Chesterfield Royal Hospital NHS Foundation Trust	RFS	251	521	48%	No	CHE	Chesterfield Royal Hospital	251
City Hospitals Sunderland NHS Foundation Trust	RLN	570	522	109%	Yes	SUN	Sunderland Royal Hospital	570
Colchester Hospital University NHS Foundation Trust	RDE	634	457	139%	Yes	COL	Colchester General Hospital	634
Countess of Chester Hospital NHS Foundation Trust	RJR	422	490	86%	Yes	COC	Countess of Chester Hospital	422
County Durham and Darlington NHS Foundation Trust	RXP	648	740	88%	Yes	DAR	Darlington Memorial Hospital	268
						DRY	University Hospital of North Durham	380
Croydon Health Services NHS Trust	RJ6	437	523	84%	Yes	MAY	Croydon University Hospital	437
Dartford and Gravesham NHS Trust	RN7-X	366	326	112%	Yes	DVH	Darent Valley Hospital	366
Derby Hospitals NHS Foundation Trust	RTG	221	972	23%	No	DER	Royal Derby Hospital	221
Doncaster and Bassetlaw Hospitals NHS Foundation Trust	RP5	293	674	43%	No	BSL	Bassetlaw Hospital	77
						DID	Doncaster Royal Infirmary	216
Dorset County Hospital NHS Foundation Trust	RBD	189	291	65%	No	WDH	Dorset County Hospital	189
East and North Hertfordshire NHS Trust	RWH	318	462	69%	No	LIS	Lister Hospital	292
						QEW	Queen Elizabeth II Hospital	26
East Cheshire NHS Trust	RJN	171	246	70%	Yes	MAC	Macclesfield District General Hospital	171
East Kent Hospitals University NHS Foundation Trust	RVV	554	806	69%	No	KCC	Kent and Canterbury Hospital	197
						QEQ	Queen Elizabeth the Queen Mother Hospital	159
						WHH	William Harvey Hospital	198

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England and Wales		**56915**	**77129**	**74%**				
England		**53608**	**73067**	**73%**				
East Lancashire Hospitals NHS Trust	RXR	538	658	82%	Yes	BLA	Royal Blackburn Hospital	538
East Sussex Healthcare NHS Trust	RXC	475	633	75%	Yes	CGH	Conquest Hospital	239
						DGE	Eastbourne District General Hospital	236
Epsom and St Helier University Hospitals NHS Trust	RVR-X	398	493	81%	Yes	EPS	Epsom Hospital	193
						SHC	St Helier Hospital	205
Frimley Park Hospital NHS Foundation Trust	RDU	585	479	122%	Yes	FRM	Frimley Park Hospital	585
Gateshead Health NHS Foundation Trust	RR7-X	316	324	98%	Yes	QEG	Queen Elizabeth Hospital (Gateshead)	316
George Eliot Hospital NHS Trust	RLT	183	252	73%	Yes	NUN	George Eliot Hospital	183
Gloucestershire Hospitals NHS Foundation Trust	RTE	310	626	50%	No	CHG	Cheltenham General Hospital	123
						GLO	Gloucestershire Royal Hospital	187
Great Western Hospitals NHS Foundation Trust	RN3	410	478	86%	Yes	PMS	Great Western Hospital	410
Guy's and St Thomas' NHS Foundation Trust	RJ1-X	633	373	170%	Yes	STH	St Thomas' Hospital	633
Hampshire Hospitals NHS Foundation Trust	RN5-X	396	450	88%	Yes	NHH	Basingstoke and North Hampshire Hospital	152
						RHC	Royal Hampshire County Hospital	244
Harrogate and District NHS Foundation Trust	RCD	204	203	100%	Yes	HAR	Harrogate District Hospital	204
Heart of England NHS Foundation Trust	RR1-X	491	1378	36%	No	EBH	Birmingham Heartlands Hospital	270
						SOL	Solihull Hospital	221
Heatherwood and Wexham Park Hospitals NHS Foundation Trust	RD7	290	606	48%	No	WEX	Wexham Park Hospital	290
Hinchingbrooke Health Care NHS Trust	RQQ-X	105	243	43%	No	HIN	Hinchingbrooke Hospital	105
Homerton University Hospital NHS Foundation Trust	RQX	251	286	88%	Yes	HOM	Homerton University Hospital	251
Hull and East Yorkshire Hospitals NHS Trust	RWA	734	805	91%	Yes	CHH	Castle Hill Hospital	497
						HRI	Hull Royal Infirmary	237

Imperial College Healthcare NHS Trust	RYJ	444	770	58%	No	CCH	Charing Cross Hospital	103
						HAM	Hammersmith Hospital	247
						STM	St Mary's Hospital Paddington	94
Isle of Wight NHS PCT	R1F-X	184	196	94%	Yes	IOW	St Mary's Hospital, Newport	184
James Paget University Hospitals NHS Foundation Trust	RGP	205	384	53%	No	JPH	James Paget University Hospital	205
Kettering General Hospital NHS Foundation Trust	RNQ	420	552	76%	Yes	KGH	Kettering General Hospital	420
King's College Hospital NHS Foundation Trust	RJZ	631	1071	59%	No	KCH	King's College Hospital	364
						BRO	Princess Royal University Hospital (Bromley)	267
Kingston Hospital NHS Trust	RAX	224	373	60%	No	KTH	Kingston Hospital	224
Lancashire Teaching Hospitals NHS Foundation Trust	RXN	493	590	84%	Yes	CHO	Chorley and South Ribble Hospital	236
						RPH	Royal Preston Hospital	257
Leeds Teaching Hospitals NHS Trust		729	996	73%	Yes	LGI	Leeds General Infirmary	729
Lewisham and Greenwich NHS Trust	RJ2	443	720	62%	No	GWH	Queen Elizabeth Hospital (Woolwich)	258
						LEW	University Hospital Lewisham	185
Liverpool Heart and Chest Hospital NHS Foundation Trust	RBQ	59	48	123%	Yes	BHL	Liverpool Heart and Chest Hospital	59
London North West Healthcare Trust†	R1K	460	955	48%	No	CMH	Central Middlesex Hospital	14
						EAL	Ealing Hospital	283
						NPH	Northwick Park Hospital	163
Luton and Dunstable Hospital NHS Foundation Trust	RC9	357	463	77%	Yes	LDH	Luton and Dunstable Hospital	357
Maidstone and Tunbridge Wells NHS Trust	RWF	419	493	85%	Yes	MAI	Maidstone Hospital	206
						KSX	Tunbridge Wells Hospital	213
Medway NHS Foundation Trust	RPA	650	452	144%	Yes	MDW	Medway Maritime Hospital	650
Mid Cheshire Hospitals NHS Foundation Trust	RBT	192	457	42%	No	LGH	Leighton Hospital	192
Mid Essex Hospital Services NHS Trust	RQ8	264	405	65%	No	BFH	Broomfield Hospital	264
Mid Yorkshire Hospitals NHS Trust	RXF-X	798	856	93%	Yes	DEW	Dewsbury and District Hospital	273
						PIN	Pinderfields Hospital	525
Milton Keynes Hospital NHS Foundation Trust	RD8	314	352	89%	Yes	MKH	Milton Keynes General Hospital	314

† Ealing Hospital NHS Trust and The North West London Hospitals NHS Trust merged on 1st October 2014 to form London North West Healthcare NHS Trust (R1K)

Trust name	NHS Trust code	Trust records submitted	HES primary HF discharges	HES % HES submitted	Participation status	NICOR hospital code	Hospital name	Hospital records submitted
England and Wales		**56915**	**77129**	**74%**				
England		**53608**	**73067**	**73%**				
Norfolk and Norwich University Hospitals NHS Foundation Trust	RM1	266	955	28%	No	NOR	Norfolk and Norwich University Hospital	266
North Bristol NHS Trust	RVJ-X	450	507	89%	Yes	FRY	Frenchay Hospital	27
						BSM	Southmead Hospital	423
North Middlesex University Hospital NHS Trust	RAP	126	514	25%	No	NMH	North Middlesex University Hospital	126
North Tees and Hartlepool NHS Foundation Trust	RVW	389	405	96%	Yes	NTG	University Hospital of North Tees	389
Northampton General Hospital NHS Trust	RNS	170	464	37%	No	NTH	Northampton General Hospital	170
Northern Devon Healthcare NHS Trust	RBZ	267	307	87%	Yes	NDD	North Devon District Hospital	267
Northern Lincolnshire and Goole Hospitals NHS Foundation Trust	RJL-X	436	510	85%	Yes	GGH	Diana Princess of Wales Hospital	253
						SCU	Scunthorpe General Hospital	183
Northumbria Healthcare NHS Foundation Trust	RTF	609	797	76%	Yes	HEX	Hexham General Hospital	44
						NTY	North Tyneside Hospital	300
						ASH	Wansbeck General Hospital	265
Oxford Radcliffe Hospitals NHS Trust	RTH	647	599	108%	Yes	HOR	Horton General Hospital	101
						RAD	John Radcliffe Hospital	546
Pennine Acute Hospitals NHS Trust	RW6	862	1016	85%	Yes	BRY	Fairfield General Hospital	256
						NMG	North Manchester General Hospital	236
						BHH	Rochdale Infirmary	55
						OHM	Royal Oldham Hospital	315
Peterborough and Stamford Hospitals NHS Foundation Trust	RGN	377	453	83%	Yes	PET	Peterborough City Hospital	377
Plymouth Hospitals NHS Trust	RK9	730	667	109%	Yes	PLY	Derriford Hospital	730
Poole Hospital NHS Foundation Trust	RD3	307	322	95%	Yes	PGH	Poole General Hospital	307
Portsmouth Hospitals NHS Trust	RHU	383	683	56%	No	QAP	Queen Alexandra Hospital	383
Rotherham NHS Foundation Trust	RFR	238	313	76%	Yes	ROT	Rotherham Hospital	238

Royal Berkshire NHS Foundation Trust	RHW	449	509	88%	Yes	BHR	Royal Berkshire Hospital	449
Royal Brompton and Harefield NHS Foundation Trust	RT3	395	252	157%	Yes	HH	Harefield Hospital	185
						NHB	Royal Brompton Hospital	210
Royal Cornwall Hospitals NHS Trust	REF-X	553	603	92%	Yes	RCH	Royal Cornwall Hospital	553
Royal Devon and Exeter NHS Foundation Trust	RH8	1025	457	224%	Yes	RDE	Royal Devon & Exeter Hospital	391
Royal Free London NHS Trust	RAL	260	342	76%	Yes	RFH	Royal Free Hospital	260
Royal Liverpool and Broadgreen University Hospitals NHS Trust	RQ6	407	392	104%	Yes	RLU	Royal Liverpool University Hospital	407
Royal Surrey County Hospital NHS Foundation Trust	RA2	220	310	71%	Yes	RSU	Royal Surrey County Hospital	220
Royal United Hospital Bath NHS Trust	RD1	328	552	59%	No	BAT	Royal United Hospital Bath	328
Salford Royal NHS Foundation Trust	RM3	375	333	113%	Yes	SLF	Salford Royal	375
Salisbury NHS Foundation Trust	RNZ	210	229	92%	Yes	SAL	Salisbury District Hospital	210
Sandwell and West Birmingham Hospitals NHS Trust	RXK-X	438	910	48%	No	DUD	Birmingham City Hospital	190
						SAN	Sandwell General Hospital	248
Sheffield Teaching Hospitals NHS Foundation Trust	RHQ	341	946	36%	No	NGS	Northern General Hospital	341
Sherwood Forest Hospitals NHS Foundation Trust	RK5	462	548	84%	Yes	KMH	King's Mill Hospital	462
Shrewsbury and Telford Hospitals NHS Trust	RXW	99	678	15%	No	TLF	Princess Royal Hospital (Telford)	38
						RSS	Royal Shrewsbury Hospital	61
South Devon Healthcare NHS Foundation Trust	RA9	520	472	110%	Yes	TOR	Torbay Hospital	520
South Tees Hospitals NHS Foundation Trust	RTR	413	669	62%	No	FRH	Friarage Hospital	44
						SCM	James Cook University Hospital	369
South Tyneside NHS Foundation Trust	RE9	247	242	102%	Yes	STD	South Tyneside District Hospital	247
South Warwickshire NHS Foundation Trust	RJC	259	350	74%	Yes	WAR	Warwick Hospital	259
Southend University Hospital NHS Foundation Trust	RAJ	552	639	86%	Yes	SEH	Southend Hospital	552
Southport and Ormskirk Hospital NHS Trust	RVY	292	275	106%	Yes	SOU	Southport and Formby District General Hospital	292
St George's Healthcare NHS Trust	RJ7	488	672	73%	Yes	GEO	St George's Hospital	488
St Helens and Knowsley Teaching Hospitals NHS Trust	RBN	289	383	75%	Yes	WHI	Whiston Hospital	289
Stockport NHS Foundation Trust	RWJ	432	487	89%	Yes	SHH	Stepping Hill Hospital	432
Surrey and Sussex Healthcare NHS Trust	RTP	233	506	46%	No	ESU	East Surrey Hospital	233

Trust name	NHS Trust code	Trust records submitted	HES primary HF discharges	HES % HES submitted	Participation status	NICOR hospital code	Hospital name	Hospital records submitted
England and Wales		**56915**	**77129**	**74%**				
England		**53608**	**73067**	**73%**				
Tameside Hospital NHS Foundation Trust	RMP	245	366	67%	No	TGA	Tameside General Hospital	245
Taunton and Somerset NHS Foundation Trust	RBA	288	462	62%	No	MPH	Musgrove Park Hospital	288
The Dudley Group NHS Foundation Trust	RNA	583	574	102%	Yes	RUS	Russells Hall Hospital	583
The Hillingdon Hospitals NHS Foundation Trust	RAS	227	327	69%	Yes	HIL	Hillingdon Hospital	227
The Ipswich Hospital NHS Trust	RGQ	237	636	37%	No	IPS	Ipswich Hospital	237
The Newcastle Upon Tyne Hospitals NHS Foundation Trust	RTD	655	553	118%	Yes	FRE	Freeman Hospital and Royal Victoria Infirmary	655
The Princess Alexandra Hospital NHS Trust	RQW	101	370	27%	No	PAH	Princess Alexandra Hospital	101
The Queen Elizabeth Hospital King's Lynn NHS Foundation Trust	RCX	494	581	85%	Yes	QKL	Queen Elizabeth Hospital (King's Lynn)	494
The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	RDZ	522	649	80%	Yes	BOU	Royal Bournemouth General Hospital	522
The Royal Wolverhampton Hospitals NHS Trust	RL4	239	678	35%	No	NCR	New Cross Hospital	239
The Whittington Hospital NHS Trust	RKE	161	248	65%	No	WHT	Whittington Hospital	161
United Lincolnshire Hospitals NHS Trust	RWD	561	938	60%	No	GRA	Grantham and District Hospital	84
						LIN	Lincoln County Hospital	258
						PIL	Pilgrim Hospital	219
University College London Hospitals NHS Foundation Trust	RRV	273	251	109%	Yes	UCL	University College Hospital	273
University Hospital of South Manchester NHS Foundation Trust	RM2	236	477	49%	No	WYT	Wythenshawe Hospital	236
University Hospital Southampton NHS Trust	RHM	594	531	112%	Yes	SGH	Southampton General Hospital	594
University Hospitals Birmingham NHS Foundation Trust	RRK-X	552	747	74%	Yes	QEB	Queen Elizabeth Hospital (Edgbaston)	552
University Hospitals Bristol NHS Foundation Trust	RA7	314	385	82%	Yes	BRI	Bristol Royal Infirmary	314
University Hospitals Coventry and Warwickshire NHS Trust	RKB	279	740	38%	No	WAL	University Hospital Coventry	279

University Hospitals of Leicester NHS Trust	RWE	1278	316	404%	Yes	GRL	Glenfield Hospital	1084
						LER	Leicester Royal Infirmary	194
University Hospitals of Morecambe Bay NHS Foundation Trust	RTX	397	416	95%	Yes	FGH	Furness General Hospital	189
						RLI	Royal Lancaster Infirmary	208
University Hospital North Midlands NHS trust¥	STO	696	1252	56%	No	STO	Royal Stoke University Hospital	669
						SDG	County Hospital	27
Walsall Healthcare NHS Trust	RBK	240	496	48%	No	WMH	Manor Hospital	240
Warrington and Halton Hospitals NHS Foundation Trust	RWW	104	384	27%	No	WDG	Warrington Hospital	104
West Hertfordshire Hospitals NHS Trust	RWG	584	618	94%	Yes	WAT	Watford General Hospital	584
West Middlesex University Hospital NHS Trust	RFW	360	354	102%	Yes	WMU	West Middlesex University Hospital	360
West Suffolk NHS Foundation Trust	RGR	298	343	87%	Yes	WSH	West Suffolk Hospital	298
Western Sussex Hospitals NHS Trust	RYR-X	649	781	83%	Yes	STR	St Richard's Hospital	302
						WRG	Worthing Hospital	347
Weston Area Health NHS Trust	RA3	11	273	4%	No	WGH	Weston General Hospital	11
Wirral University Teaching Hospital NHS Foundation Trust	RBL	468	796	59%	No	WIR	Arrowe Park Hospital	468
Worcestershire Acute Hospitals NHS Trust	RWP-X	319	709	45%	No	RED	Alexandra Hospital	130
						WRC	Worcestershire Royal Hospital	189
Wrightington, Wigan and Leigh NHS Foundation Trust	RRF	536	408	131%	Yes	AEI	Royal Albert Edward Infirmary	536
Wye Valley NHS Trust	RLQ	198	232	85%	Yes	HCH	County Hospital Hereford	198
Yeovil District Hospital NHS Foundation Trust	RA4	216	240	90%	Yes	YEO	Yeovil District Hospital	216
York Teaching Hospital NHS Foundation Trust	RCB	355	792	45%	No	SCA	Scarborough General Hospital	28
						YDH	The York Hospital	327

¥ STO (formerly University Hospital of North Staffordshire combined with SDG (formerly Stafford Hospital) to form University Hospital North Midlands NHS Trust from 1st November 2014. During this merger, STO has been renamed Royal Stoke University Hospital and SDG has been renamed County Hospital.

Table B: Participation and case ascertainment in Wales

Health Board name	Health Board Code	Health Board records submitted	PEDW primary HF discharges	% PEDW submitted	Participation status	NICOR hospital code	Hospital name	Hospital records submitted
England and Wales		**56915**	**77129**	**74%**				
Wales		**3307**	**4062**	**81%**				
Abertawe Bro Morgannwg University Health Board	7A3	782	758	103%	Yes	MOR	Morriston Hospital	342
						POW	Princess Of Wales Hospital	242
						SIN	Singleton Hospital	198
Aneurin Bevan Health Board	7A6	392	953	41%	No	NEV	Nevill Hall Hospital	266
						GWE	Royal Gwent Hospital	126
Betsi Cadwaladr University Health Board	7A1	694	600	116%	Yes	CLW	Glan Clwyd Hospital	94
						WRX	Wrexham Maelor Hospital	464
						GWY	Ysbyty Gwynedd Hospital	136
Cardiff & Vale University Health Board	7A4	416	552	75%	Yes	LLD	University Hospital Llandough	176
						UHW	University Hospital of Wales	240
Cwm Taf Health Board	7A5	433	510	85%	Yes	PCH	Prince Charles Hospital	257
						RGH	Royal Glamorgan Hospital	176
Hywel Dda Health Board	7A2	590	689	86%	Yes	BRG	Bronglais General Hospital	219
						WWG	Glangwili General Hospital	44
						PPH	Prince Philip Hospital	153
						WYB	Withybush General Hospital	174

Table C: In-hospital care in England

Trust name	NICOR hospital code	Hospital name	Heart failure admissions	Received echo	Cardiology inpatient (%)	Input from consultant cardiologist	Input from specialist (%)
England and Wales			**52584**	**91.7%**	**48.1%**	**58.6%**	**79.9%**
Cambridge University Hospitals NHS Foundation Trust	ADD	Addenbrooke's Hospital	356	77.7	25.3	20.1	73.7
Airedale NHS Foundation Trust	AIR	Airedale General Hospital	232	76.8	23.7	34.7	39.4
Worcestershire Acute Hospitals NHS Trust	RED	Alexandra Hospital	129	94.4	32.6	61.4	74.8
Wirral University Teaching Hospital NHS Foundation Trust	WIR	Arrowe Park Hospital	453	88.7	48.6	55.8	88.7
Barnet and Chase Farm Hospitals NHS Trust	BNT	Barnet General Hospital	398	96.2	66.3	73.8	83.5
Barnsley Hospital NHS Foundation Trust	BAR	Barnsley Hospital	153	100	26.1	30.3	50.7
Basildon and Thurrock University Hospitals NHS Foundation Trust	BAS	Basildon University Hospital	202	100	97	70.3	100
Hampshire Hospitals NHS Foundation Trust	NHH	Basingstoke and North Hampshire Hospital	132	99.2	56.1	72	88.6
Doncaster and Bassetlaw Hospitals NHS Foundation Trust	BSL	Bassetlaw Hospital	56	90.7	33.9	47.2	60.4
Bedford Hospital NHS Trust	BED	Bedford Hospital	223	96.8	59.6	65	78
Sandwell and West Birmingham Hospitals NHS Trust	DUD	Birmingham City Hospital	181	100	81.8	92.6	98.9
Heart of England NHS Foundation Trust	EBH	Birmingham Heartlands Hospital	262	98	40.8	39.5	62.5
Blackpool Teaching Hospitals NHS Foundation Trust	VIC	Blackpool Victoria Hospital	493	98.5	43.5	31.7	97.6
Bradford Teaching Hospitals NHS Foundation Trust	BRD	Bradford Royal Infirmary	292	84.9	36.6	36.6	50.3
University Hospitals Bristol NHS Foundation Trust	BRI	Bristol Royal Infirmary	296	96.5	61.2	62.7	98.6
Mid Essex Hospital Services NHS Trust	BFH	Broomfield Hospital	256	99.2	39.8	53.3	69.4
Calderdale and Huddersfield NHS Foundation Trust	RHI	Calderdale Royal Hospital	187	98.9	59.9	64.7	69.5
Hull and East Yorkshire Hospitals NHS Trust	CHH	Castle Hill Hospital	406	99.5	72.2	73.1	89.3
London North West Healthcare NHS Trust	CMH	Central Middlesex Hospital	14	92.9	7.1	7.1	7.1
Imperial College Healthcare NHS Trust	CCH	Charing Cross Hospital	103	89.7	19.6	95.8	100
Chelsea and Westminster Hospital NHS Foundation Trust	WES	Chelsea and Westminster Hospital	103	94.2	11	60	98.8

Trust name	NICOR hospital code	Hospital name	Heart failure admissions	Received echo	Cardiology inpatient (%)	Input from consultant cardiologist	Input from specialist (%)
England and Wales			**52584**	**91.7%**	**48.1%**	**58.6%**	**79.9%**
Gloucestershire Hospitals NHS Foundation Trust	CHG	Cheltenham General Hospital	77	89.5	37.7	40.3	55.8
Chesterfield Royal Hospital NHS Foundation Trust	CHE	Chesterfield Royal Hospital	249	71.5	33.7	35.3	61.4
Lancashire Teaching Hospitals NHS Foundation Trust	CHO	Chorley and South Ribble Hospital	235	100	35.7	35.9	100
Colchester Hospital University NHS Foundation Trust	COL	Colchester General Hospital	632	99.7	44.6	56.5	94.1
East Sussex Healthcare NHS Trust	CGH	Conquest Hospital	238	100	24.8	27.7	88.2
Countess of Chester Hospital NHS Foundation Trust	COC	Countess of Chester Hospital	416	99	58.5	70.5	99
University Hospital North Midlands NHS trust	SDG	County Hospital	26	84.6	11.5	46.2	69.2
Wye Valley NHS Trust	HCH	County Hospital Hereford	149	100	48.3	54.7	58.3
Croydon Health Services NHS Trust	MAY	Croydon University Hospital	368	97.5	56.2	60.2	77.4
Dartford and Gravesham NHS Trust	DVH	Darent Valley Hospital	319	96.4	50.5	71.2	96.2
County Durham and Darlington NHS Foundation Trust	DAR	Darlington Memorial Hospital	224	84.2	49.1	65.2	79
Plymouth Hospitals NHS Trust	PLY	Derriford Hospital	685	99	32.9	44.5	95.8
Mid Yorkshire Hospitals NHS Trust	DEW	Dewsbury and District Hospital	269	93.3	17.1	22.7	69.1
Northern Lincolnshire and Goole Hospitals NHS Foundation Trust	GGH	Diana Princess of Wales Hospital	190	97.3	51.6	63.8	70.7
Doncaster and Bassetlaw Hospitals NHS Foundation Trust	DID	Doncaster Royal Infirmary	148	97.9	30.4	54.3	58.6
Dorset County Hospital NHS Foundation Trust	WDH	Dorset County Hospital	181	92.7	36.5	51.4	53.6
London North West Healthcare NHS Trust	EAL	Ealing Hospital	280	96.5	50.2	63.5	76.2
Surrey and Sussex Healthcare NHS Trust	ESU	East Surrey Hospital	233	79	67.2	76.8	77.3
East Sussex Healthcare NHS Trust	DGE	Eastbourne District General Hospital	216	99.5	75	75.9	81.9
Epsom and St Helier University Hospitals NHS Trust	EPS	Epsom Hospital	188	81.6	37.4	51.4	64.6
Pennine Acute Hospitals NHS Trust	BRY	Fairfield General Hospital	239	70.3	33.8	44.2	62.9
The Newcastle Upon Tyne Hospitals NHS Foundation Trust	FRE	Freeman Hospital and Royal Victoria Infirmary	621	78.9	62	72	78.7
North Bristol NHS Trust	FRY	Frenchay Hospital	25	72	28	28	28
South Tees Hospitals NHS Foundation Trust	FRH	Friarage Hospital	44	100	0	100	100

Frimley Park Hospital NHS Foundation Trust	FRM	Frimley Park Hospital	421	92.6	55.1	65.4	82.7
University Hospitals of Morecambe Bay NHS Foundation Trust	FGH	Furness General Hospital	189	100	36.2	64	95.8
George Eliot Hospital NHS Trust	NUN	George Eliot Hospital	128	100	45.7	65.6	81.1
University Hospitals of Leicester NHS Trust	GRL	Glenfield Hospital	1074	97.2	88.8	89.6	96.8
Gloucestershire Hospitals NHS Foundation Trust	GLO	Gloucestershire Royal Hospital	130	86.2	50	50.8	58.5
United Lincolnshire Hospitals NHS Trust	GRA	Grantham and District Hospital	84	83.5	40.5	56	69
Great Western Hospitals NHS Foundation Trust	PMS	Great Western Hospital	405	91.3	35.8	42.6	67
Imperial College Healthcare NHS Trust	HAM	Hammersmith Hospital	246	71.9	32.2	53.1	98.9
Royal Brompton and Harefield NHS Foundation Trust	HH	Harefield Hospital	185	99.5	93.5	97.8	99.5
Harrogate and District NHS Foundation Trust	HAR	Harrogate District Hospital	198	75.5	26.3	29.8	47.5
Northumbria Healthcare NHS Foundation Trust	HEX	Hexham General Hospital	19	100	10.5	16.7	27.8
The Hillingdon Hospitals NHS Foundation Trust	HIL	Hillingdon Hospital	204	100	52.7	62.1	97
Hinchingbrooke Health Care NHS Trust	HIN	Hinchingbrooke Hospital	93	95.7	14	87.1	94.6
Homerton University Hospital NHS Foundation Trust	HOM	Homerton University Hospital	251	98.8	29.1	38.6	43.4
Oxford Radcliffe Hospitals NHS Trust	HOR	Horton General Hospital	95	89.5	26.3	45.3	75.8
Calderdale and Huddersfield NHS Foundation Trust	HUD	Huddersfield Royal Infirmary	145	97.9	47.6	57.2	67.6
Hull and East Yorkshire Hospitals NHS Trust	HRI	Hull Royal Infirmary	138	99.3	7.2	5.1	90.5
The Ipswich Hospital NHS Trust	IPS	Ipswich Hospital	236	64.7	16.9	22.1	33.2
South Tees Hospitals NHS Foundation Trust	SCM	James Cook University Hospital	365	100	82.5	85.1	95.9
James Paget University Hospitals NHS Foundation Trust	JPH	James Paget University Hospital	197	99.5	83.8	89.2	98.5
Oxford Radcliffe Hospitals NHS Trust	RAD	John Radcliffe Hospital	471	88.5	24.5	63	85.2
East Kent Hospitals University NHS Foundation Trust	KCC	Kent and Canterbury Hospital	149	96.6	28.2	38.6	89
Kettering General Hospital NHS Foundation Trust	KGH	Kettering General Hospital	394	96.3	76.9	77.3	97.9
Barking, Havering and Redbridge University Hospitals NHS Trust	KGG	King George Hospital	79	100	55.1	83.5	100
King's College Hospital NHS Foundation Trust	KCH	King's College Hospital	364	99.5	37.4	80.5	86.3
Sherwood Forest Hospitals NHS Foundation Trust	KMH	King's Mill Hospital	455	78.6	45.3	59.1	68.4
Kingston Hospital NHS Trust	KTH	Kingston Hospital	223	80.6	42.3	51.8	59.5

Trust name	NICOR hospital code	Hospital name	Heart failure admissions	Received echo	Cardiology inpatient (%)	Input from consultant cardiologist	Input from specialist (%)
England and Wales			**52584**	**91.7%**	**48.1%**	**58.6%**	**79.9%**
Leeds Teaching Hospitals NHS Trust	LGI	Leeds General Infirmary	630	93.2	58.4	60.2	67.6
University Hospitals of Leicester NHS Trust	LER	Leicester Royal Infirmary	188	85.3	1.6	3.8	28.6
Mid Cheshire Hospitals NHS Foundation Trust	LGH	Leighton Hospital	191	100	93.2	94.7	100
United Lincolnshire Hospitals NHS Trust	LIN	Lincoln County Hospital	258	72.6	48.1	54.5	70.8
East and North Hertfordshire NHS Trust	LIS	Lister Hospital	234	99.1	46.2	68.5	97
Liverpool Heart and Chest Hospital NHS Foundation Trust	BHL	Liverpool Heart and Chest Hospital	56	100	100	92.9	98.2
Luton and Dunstable Hospital NHS Foundation Trust	LDH	Luton and Dunstable Hospital	288	97	17.4	41.1	62.4
East Cheshire NHS Trust	MAC	Macclesfield District General Hospital	145	99.3	65.5	73.2	89.4
Maidstone and Tunbridge Wells NHS Trust	MAI	Maidstone Hospital	187	99.5	42.8	59.8	92.4
Central Manchester University Hospitals NHS Foundation Trust	MRI	Manchester Royal Infirmary	286	90.3	36.4	43.2	61.8
Walsall Healthcare NHS Trust	WMH	Manor Hospital	240	99.6	51.9	76.5	100
Medway NHS Foundation Trust	MDW	Medway Maritime Hospital	638	98.9	33.2	50.9	98.7
Milton Keynes Hospital NHS Foundation Trust	MKH	Milton Keynes General Hospital	264	98.9	47.1	54.7	81.9
Taunton and Somerset NHS Foundation Trust	MPH	Musgrove Park Hospital	288	85.8	58	61.5	72.2
The Royal Wolverhampton Hospitals NHS Trust	NCR	New Cross Hospital	140	93.4	21.4	18.6	97.1
Barts Health NHS Trust	NWG	Newham University Hospital	244	95.5	86.1	93.4	93.4
Norfolk and Norwich University Hospitals NHS Foundation Trust	NOR	Norfolk and Norwich University Hospital	266	74.2	100	100	100
Northern Devon Healthcare NHS Trust	NDD	North Devon District Hospital	266	92.8	61.7	67.3	69.2
Pennine Acute Hospitals NHS Trust	NMG	North Manchester General Hospital	229	66.5	30.6	45.1	59.7
North Middlesex University Hospital NHS Trust	NMH	North Middlesex University Hospital	112	88.2	19.6	67.9	82.1
Northumbria Healthcare NHS Foundation Trust	NTY	North Tyneside Hospital	164	100	54.6	56	57.9
Northampton General Hospital NHS Trust	NTH	Northampton General Hospital	170	98.7	47.6	53.8	84
Sheffield Teaching Hospitals NHS Foundation Trust	NGS	Northern General Hospital	326	99	19	56.1	94.8
London North West Healthcare NHS Trust	NPH	Northwick Park Hospital	162	84.7	45.7	46	51.6

Peterborough and Stamford Hospitals NHS Foundation Trust	PET	Peterborough City Hospital	374	91.7	60.5	57	93.3
United Lincolnshire Hospitals NHS Trust	PIL	Pilgrim Hospital	218	80.2	34.6	51.4	63.3
Mid Yorkshire Hospitals NHS Trust	PIN	Pinderfields Hospital	381	99.2	42.8	48.8	67.5
Poole Hospital NHS Foundation Trust	PGH	Poole General Hospital	269	86	20.4	40.3	74.5
The Princess Alexandra Hospital NHS Trust	PAH	Princess Alexandra Hospital	94	87.1	28.7	31.9	60.6
Brighton and Sussex University Hospitals NHS Trust	PRH	Princess Royal Hospital (Haywards Heath)	219	65.1	3.7	27.9	62.6
Shrewsbury and Telford Hospitals NHS Trust	TLF	Princess Royal Hospital (Telford)	37	97.3	83.8	86.5	100
King's College Hospital NHS Foundation Trust	BRO	Princess Royal University Hospital (Bromley)	258	97.3	38.9	81.3	93.5
Portsmouth Hospitals NHS Trust	QAP	Queen Alexandra Hospital	383	99.2	80.7	83.8	86.7
University Hospitals Birmingham NHS Foundation Trust	QEB	Queen Elizabeth Hospital (Edgbaston)	410	95.8	32.8	61.4	76.1
Gateshead Health NHS Foundation Trust	QEG	Queen Elizabeth Hospital (Gateshead)	285	100	66.3	93.4	99.3
The Queen Elizabeth Hospital King's Lynn NHS Foundation Trust	QKL	Queen Elizabeth Hospital (King's Lynn)	364	92	32.7	33	33
Lewisham and Greenwich NHS Trust	GWH	Queen Elizabeth Hospital (Woolwich)	222	96.7	41.9	60.4	73.9
East and North Hertfordshire NHS Trust	QEW	Queen Elizabeth II Hospital	24	100	0	16.7	20.8
East Kent Hospitals University NHS Foundation Trust	QEQ	Queen Elizabeth the Queen Mother Hospital	94	97.9	38.3	40.4	95.7
Burton Hospitals NHS Foundation Trust	BRT	Queen's Hospital (Burton)	278	89.7	67.5	76.8	88.6
Barking, Havering and Redbridge University Hospitals NHS Trust	OLD	Queen's Hospital Romford	180	100	26.7	38.9	82.8
Pennine Acute Hospitals NHS Trust	BHH	Rochdale Infirmary	51	39.5	84.3	7.8	17.6
Rotherham NHS Foundation Trust	ROT	Rotherham Hospital	228	80.1	39.6	48.2	70.1
Wrightington, Wigan and Leigh NHS Foundation Trust	AEI	Royal Albert Edward Infirmary	530	98.3	77.5	90.4	99.6
Royal Berkshire NHS Foundation Trust	BHR	Royal Berkshire Hospital	390	97.4	56.4	76.2	81.3
East Lancashire Hospitals NHS Trust	BLA	Royal Blackburn Hospital	527	90.6	25.7	42.3	96.8
Bolton NHS Foundation Trust	BOL	Royal Bolton Hospital	193	96.7	77.2	88.6	91.2
The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	BOU	Royal Bournemouth General Hospital	522	87.7	48.9	65.1	94.2
Royal Brompton and Harefield NHS Foundation Trust	NHB	Royal Brompton Hospital	208	100	94.7	84.5	99
Royal Cornwall Hospitals NHS Trust	RCH	Royal Cornwall Hospital	384	90.1	47.1	56.8	68.2

Trust name	NICOR hospital code	Hospital name	Heart failure admissions	Received echo	Cardiology inpatient (%)	Input from consultant cardiologist	Input from specialist (%)
England and Wales			**52584**	**91.7%**	**48.1%**	**58.6%**	**79.9%**
Derby Hospitals NHS Foundation Trust	DER	Royal Derby Hospital	221	100	96.8	96.8	100
Royal Devon and Exeter NHS Foundation Trust	RDE	Royal Devon & Exeter Hospital	391	64.5	32.2	37.9	41.5
Royal Free London NHS Trust	RFH	Royal Free Hospital	224	98.1	51.3	56.1	85.7
Hampshire Hospitals NHS Foundation Trust	RHC	Royal Hampshire County Hospital	213	98.6	41.8	76.5	80.8
University Hospitals of Morecambe Bay NHS Foundation Trust	RLI	Royal Lancaster Infirmary	208	99.5	12	79.3	99.5
Royal Liverpool and Broadgreen University Hospitals NHS Trust	RLU	Royal Liverpool University Hospital	388	98.2	65.3	70.5	89.1
Pennine Acute Hospitals NHS Trust	OHM	Royal Oldham Hospital	299	55.6	28.1	39.5	65.9
Lancashire Teaching Hospitals NHS Foundation Trust	RPH	Royal Preston Hospital	255	100	39.8	38.4	99.6
Shrewsbury and Telford Hospitals NHS Trust	RSS	Royal Shrewsbury Hospital	60	100	50	53.4	100
University Hospital North Midlands NHS trust	STO	Royal Stoke University Hospital	611	69.9	27.1	26.7	71.5
Royal Surrey County Hospital NHS Foundation Trust	RSU	Royal Surrey County Hospital	217	82.7	49.3	61.7	76.2
Brighton and Sussex University Hospitals NHS Trust	RSC	Royal Sussex County Hospital	448	70.6	48.4	59.8	66.1
Royal United Hospital Bath NHS Trust	BAT	Royal United Hospital Bath	327	98.5	67.2	72.2	99.1
The Dudley Group NHS Foundation Trust	RUS	Russells Hall Hospital	513	99.6	52.8	52.3	77.9
Salford Royal NHS Foundation Trust	SLF	Salford Royal	365	71	44.7	46.6	84.9
Salisbury NHS Foundation Trust	SAL	Salisbury District Hospital	207	74.8	47.8	53.1	76.8
Sandwell and West Birmingham Hospitals NHS Trust	SAN	Sandwell General Hospital	237	99.6	58.6	82.6	100
York Teaching Hospital NHS Foundation Trust	SCA	Scarborough General Hospital	23	76.5	26.1	39.1	60.9
Northern Lincolnshire and Goole Hospitals NHS Foundation Trust	SCU	Scunthorpe General Hospital	170	91	41.8	43.2	51.5
Heart of England NHS Foundation Trust	SOL	Solihull Hospital	213	100	57.7	55.7	66.5
South Tyneside NHS Foundation Trust	STD	South Tyneside District Hospital	228	97.8	63.7	64	92.1
University Hospital Southampton NHS Trust	SGH	Southampton General Hospital	588	97.4	33.5	42.1	82.8
Southend University Hospital NHS Foundation Trust	SEH	Southend Hospital	479	84.7	53.4	56.4	66

North Bristol NHS Trust	BSM	Southmead Hospital	414	74.1	40.6	52.5	54.2
Southport and Ormskirk Hospital NHS Trust	SOU	Southport and Formby District General Hospital	291	94.1	29.2	50.9	80.4
St George's Healthcare NHS Trust	GEO	St George's Hospital	421	99.5	33.7	47.5	76.5
Epsom and St Helier University Hospitals NHS Trust	SHC	St Helier Hospital	204	75.5	29.2	33.7	64.3
Imperial College Healthcare NHS Trust	STM	St Mary's Hospital Paddington	93	100	4.3	69.9	98.9
Isle of Wight NHS PCT	IOW	St Mary's Hospital, Newport	139	76.8	39.7	75.3	87
Ashford and St Peter's Hospitals NHS Trust	SPH	St Peter's Hospital	448	95.9	51.3	54.7	71.7
Western Sussex Hospitals NHS Trust	STR	St Richard's Hospital	295	95.8	56.3	66.3	82.3
Guy's and St Thomas' NHS Foundation Trust	STH	St Thomas' Hospital	616	99.3	52.9	80.1	94.2
Mid Staffordshire NHS Foundation Trust	SDG	Stafford Hospital	26	84.6	11.5	46.2	69.2
Stockport NHS Foundation Trust	SHH	Stepping Hill Hospital	429	92.4	34.9	55.8	96.2
Buckinghamshire Healthcare NHS Trust	SMV	Stoke Mandeville Hospital	72	100	4.4	13.4	70.1
City Hospitals Sunderland NHS Foundation Trust	SUN	Sunderland Royal Hospital	513	100	40.2	48.2	92.7
Tameside Hospital NHS Foundation Trust	TGA	Tameside General Hospital	245	88.7	51	55.6	76.8
Barts Health NHS Trust	LCH	The London Chest Hospital	35	100	97.1	100	100
Barts Health NHS Trust	LON	The Royal Hospital London	89	97.7	62.3	62.9	66.3
York Teaching Hospital NHS Foundation Trust	YDH	The York Hospital	304	92.3	23	38.2	50.8
South Devon Healthcare NHS Foundation Trust	TOR	Torbay Hospital	520	80.5	48.2	52.3	90
Central Manchester University Hospitals NHS Foundation Trust	TRA	Trafford General Hospital	40	78.4	0	28.9	36.8
Maidstone and Tunbridge Wells NHS Trust	KSX	Tunbridge Wells Hospital	193	100	67.4	82.1	99.4
University College London Hospitals NHS Foundation Trust	UCL	University College Hospital	264	97.3	37.1	88.1	97.6
Aintree University Hospital NHS Foundation Trust	FAZ	University Hospital Aintree	710	99.3	55.1	61.4	90.7
University Hospitals Coventry and Warwickshire NHS Trust	WAL	University Hospital Coventry	273	99.3	87	84	97.8
Lewisham and Greenwich NHS Trust	LEW	University Hospital Lewisham	146	98.6	23.7	60.9	66.9
County Durham and Darlington NHS Foundation Trust	DRY	University Hospital of North Durham	373	86	49.3	47.2	48
University Hospital of North Staffordshire NHS Trust	STO	University Hospital of North Staffordshire	611	69.9	27.1	26.7	71.5
North Tees and Hartlepool NHS Foundation Trust	NTG	University Hospital of North Tees	299	98.9	31.1	42.8	49.2

Trust name	NICOR hospital code	Hospital name	Heart failure admissions	Received echo	Cardiology inpatient (%)	Input from consultant cardiologist	Input from specialist (%)
England and Wales			**52584**	**91.7%**	**48.1%**	**58.6%**	**79.9%**
Northumbria Healthcare NHS Foundation Trust	ASH	Wansbeck General Hospital	148	97.3	60.1	63.6	67.8
Warrington and Halton Hospitals NHS Foundation Trust	WDG	Warrington Hospital	94	100	47.9	46.8	95.7
South Warwickshire NHS Foundation Trust	WAR	Warwick Hospital	219	95.5	65.1	82	89.6
West Hertfordshire Hospitals NHS Trust	WAT	Watford General Hospital	576	96.2	43.6	60.3	97.7
West Middlesex University Hospital NHS Trust	WMU	West Middlesex University Hospital	268	99.6	27.6	32.8	88.1
West Suffolk NHS Foundation Trust	WSH	West Suffolk Hospital	278	84	52.3	52.4	60.9
Weston Area Health NHS Trust	WGH	Weston General Hospital	9	77.8	11.1	11.1	22.2
Heatherwood and Wexham Park Hospitals NHS Foundation Trust	WEX	Wexham Park Hospital	290	93.2	51.9	61.8	74.4
Barts Health NHS Trust	WHC	Whipps Cross University Hospital	38	83.8	29.7	47.4	50
St Helens and Knowsley Teaching Hospitals NHS Trust	WHI	Whiston Hospital	289	96.8	70.8	87.7	94.4
The Whittington Hospital NHS Trust	WHT	Whittington Hospital	155	96.7	64.5	82.6	97.9
East Kent Hospitals University NHS Foundation Trust	WHH	William Harvey Hospital	152	97.3	42.1	49	88.7
Worcestershire Acute Hospitals NHS Trust	WRC	Worcestershire Royal Hospital	189	88.8	54.5	64.2	82.4
Western Sussex Hospitals NHS Trust	WRG	Worthing Hospital	282	90.5	54.4	43.6	93.6
Buckinghamshire Healthcare NHS Trust	AMG	Wycombe Hospital	123	100	96.7	95.1	98.4
University Hospital of South Manchester NHS Foundation Trust	WYT	Wythenshawe Hospital	229	92	39	54.1	84.3
Yeovil District Hospital NHS Foundation Trust	YEO	Yeovil District Hospital	207	96	67.6	75.4	93.1

Table D: Treatment and management on discharge in England

NHS_Trust	NICOR Hospital code	Hospital name	Heart Failure admissions (n)	ACEI on discharge (%)	ACEI/ ARB on discharge (%)	Beta blocker on discharge (%)	MRA on discharge (%)	Received discharge planning (%)	Referral to HF nurse follow up (%)	Referral to HF nurse follow up (LVSD only) (%)	Referral to cardiology follow-up	Referral to cardiac rehabilitation (%)
England and Wales			**52584**	**72.2%**	**83.6%**	**85.7%**	**52.6%**	**87%**	**57.9%**	**69.6%**	**52.2%**	**11.5%**
Cambridge University Hospitals NHS Foundation Trust	ADD	Addenbrooke's Hospital	356	96.4	98.5	100	100	85.8	67.4	83	26	8.5
Airedale NHS Foundation Trust	AIR	Airedale General Hospital	232	84.4	90.3	75	50	56.3	19.7	26.7	17.3	4.3
Worcestershire Acute Hospitals NHS Trust	RED	Alexandra Hospital	129	65.2	78.6	79.2	36.7	97.4	51.5	64.3	67	29.4
Wirral University Teaching Hospital NHS Foundation Trust	WIR	Arrowe Park Hospital	453	88.5	97.2	95	74.2	100	90.5	95.4	48.4	53.2
Barnet and Chase Farm Hospitals NHS Trust	BNT	Barnet General Hospital	398	68.8	84.1	91.7	59.8	92.5	39	44.5	74.6	8.9
Barnsley Hospital NHS Foundation Trust	BAR	Barnsley Hospital	153	50	60	76	36.4	58.7	45.5	62.7	78.3	1.2
Basildon and Thurrock University Hospitals NHS Foundation Trust	BAS	Basildon University Hospital	202	76.2	86.7	89.6	42.1	99	98.4	98.4	82.7	54.5
Hampshire Hospitals NHS Foundation Trust	NHH	Basingstoke and North Hampshire Hospital	132	80	83.1	83.6	50.7	87.9	59.2	66.2	22.5	3.1
Doncaster and Bassetlaw Hospitals NHS Foundation Trust	BSL	Bassetlaw Hospital	56	73.3	80.6	65.8	42.5	83.7	47.4	54.5	68.2	2.4
Bedford Hospital NHS Trust	BED	Bedford Hospital	223	79.6	88.9	89.2	61.9	92	24.2	27.1	70.7	10.4
Sandwell and West Birmingham Hospitals NHS Trust	DUD	Birmingham City Hospital	181	100	100	87.5	60	96.9	82.6	84	81.8	6.3
Heart of England NHS Foundation Trust	EBH	Birmingham Heartlands Hospital	262	73.8	84	77.3	45.4	100	72.1	89	48.4	2.1

NHS_Trust	NICOR Hospital code	Hospital name	Heart Failure admissions (n)	ACEI on discharge (%)	ACEI/ ARB on discharge (%)	Beta blocker on discharge (%)	MRA on discharge (%)	Received discharge planning (%)	Referral to HF nurse follow up (%)	Referral to HF nurse follow up (LVSD only) (%)	Referral to cardiology follow-up	Referral to cardiac rehabilitation (%)
England and Wales			**52584**	**72.2%**	**83.6%**	**85.7%**	**52.6%**	**87%**	**57.9%**	**69.6%**	**52.2%**	**11.5%**
Blackpool Teaching Hospitals NHS Foundation Trust	VIC	Blackpool Victoria Hospital	493	86.4	96.2	98.7	48.8	100	95.2	95.3	95.6	3
Bradford Teaching Hospitals NHS Foundation Trust	BRD	Bradford Royal Infirmary	292	94.7	96.1	96.4	92.2	89.5	43.3	55.6	31.2	0.8
University Hospitals Bristol NHS Foundation Trust	BRI	Bristol Royal Infirmary	296	72.1	83.5	85.2	35.8	88.1	48.4	50.8	48.4	20.3
Mid Essex Hospital Services NHS Trust	BFH	Broomfield Hospital	256	76	97.1	98.9	52.2	99.2	95.6	98.9	61.4	26.7
Calderdale and Huddersfield NHS Foundation Trust	RHI	Calderdale Royal Hospital	187	79.7	92.4	91.4	67.2	90.8	31.4	32.3	61.6	38.1
Hull and East Yorkshire Hospitals NHS Trust	CHH	Castle Hill Hospital	406	69.8	76.4	84.1	57.1	92.7	51.2	62.5	89.1	35.4
London North West Healthcare Trust†	CMH	Central Middlesex Hospital	14	62.5	62.5	100	37.5	100	42.9	62.5	35.7	0
Imperial College Healthcare NHS Trust	CCH	Charing Cross Hospital	103	83.8	85	77.3	47.5	100	35.8	53.2	62.6	5.6
Chelsea and Westminster Hospital NHS Foundation Trust	WES	Chelsea and Westminster Hospital	103	76.2	90.7	76.6	52.1	84.2	50	62.5	59.4	17
Gloucestershire Hospitals NHS Foundation Trust	CHG	Cheltenham General Hospital	77	100	100	100	100	84.7	39.7	51.3	43.1	33.3
Chesterfield Royal Hospital NHS Foundation Trust	CHE	Chesterfield Royal Hospital	249	75.3	79.7	83.7	39.2	99.6	46.2	68.3	17.5	2.3
Lancashire Teaching Hospitals NHS Foundation Trust	CHO	Chorley and South Ribble Hospital	235	81.4	98	97.2	52.2	100	84.3	90.6	65.3	28.2

Colchester Hospital University NHS Foundation Trust	COL	Colchester General Hospital	632	51.9	62.4	72.4	28.8	98.6	94.9	94.8	25.8	83.7
East Sussex Healthcare NHS Trust	CGH	Conquest Hospital	238	52	66.1	58.6	34.3	86	94.9	95	27.3	35
Countess of Chester Hospital NHS Foundation Trust	COC	Countess of Chester Hospital	416	88.4	94.2	92.6	49.8	99.7	56.2	78.5	50.7	22.9
University Hospital North Midlands NHS trust	SDG	County Hospital	26	50	71.4	100	12.5	82.6	34.8	77.8	17.4	0
Wye Valley NHS Trust	HCH	County Hospital Hereford	149	51.2	63.4	58.5	22	94.6	40.8	68.9	30.7	45.8
Croydon Health Services NHS Trust	MAY	Croydon University Hospital	368	60.8	72.9	79.8	41	93.8	73.4	82.5	51.2	11.5
Dartford and Gravesham NHS Trust	DVH	Darent Valley Hospital	319	68.1	86.2	89.1	37.5	88.4	55.7	83	69.6	4.5
County Durham and Darlington NHS Foundation Trust	DAR	Darlington Memorial Hospital	224	68.5	73.9	83.6	73.8	86.6	82.9	88.5	72.1	64.6
Plymouth Hospitals NHS Trust	PLY	Derriford Hospital	685	58.9	65.8	80.3	58.7	100	100	100	NA	NA
Mid Yorkshire Hospitals NHS Trust	DEW	Dewsbury and District Hospital	269	58.6	67.8	73.7	44.3	96.9	59.6	74	33.3	46.7
Northern Lincolnshire and Goole Hospitals NHS Foundation Trust	GGH	Diana Princess of Wales Hospital	190	86.6	98.9	93.5	71.2	76.3	50.6	68.9	76	4.8
Doncaster and Bassetlaw Hospitals NHS Foundation Trust	DID	Doncaster Royal Infirmary	148	73.6	88.6	86.1	41.1	93.9	73.2	77.4	73.4	10.6
Dorset County Hospital NHS Foundation Trust	WDH	Dorset County Hospital	181	66.7	79.3	81.6	53.5	98.8	41.1	49.1	50	3
London North West Healthcare Trust†	EAL	Ealing Hospital	280	56	69.6	78.4	50.4	92.1	10.6	12	72.5	8.3
Surrey and Sussex Healthcare NHS Trust	ESU	East Surrey Hospital	233	100	100	98.2	100	8.3	93.5	94.8	65.3	0
East Sussex Healthcare NHS Trust	DGE	Eastbourne District General Hospital	216	60.8	76.7	74.4	47.5	86.9	58.9	73.4	71.1	50

NHS_Trust	NICOR Hospital code	Hospital name	Heart Failure admissions (n)	ACEI on discharge (%)	ACEI/ ARB on discharge (%)	Beta blocker on discharge (%)	MRA on discharge (%)	Received discharge planning (%)	Referral to HF nurse follow up (%)	Referral to HF nurse follow up (LVSD only) (%)	Referral to cardiology follow-up	Referral to cardiac rehabilitation (%)
England and Wales			**52584**	**72.2%**	**83.6%**	**85.7%**	**52.6%**	**87%**	**57.9%**	**69.6%**	**52.2%**	**11.5%**
Epsom and St Helier University Hospitals NHS Trust	EPS	Epsom Hospital	188	71.7	80.4	82.1	58.9	97.4	46.4	96.4	58.6	8.2
Pennine Acute Hospitals NHS Trust	BRY	Fairfield General Hospital	239	55.8	68.6	70.7	50.7	97.7	19.4	31.9	18	0
The Newcastle Upon Tyne Hospitals NHS Foundation Trust	FRE	Freeman Hospital and Royal Victoria Infirmary	621	70.4	82.9	86.8	50.2	89.5	49	57.6	62.2	2.7
North Bristol NHS Trust	FRY	Frenchay Hospital	25	80	100	100	66.7	100	22.7	50	13.6	0
South Tees Hospitals NHS Foundation Trust	FRH	Friarage Hospital	44	85	90	87.5	20	90.7	71.4	70.7	68.3	33.3
Frimley Park Hospital NHS Foundation Trust	FRM	Frimley Park Hospital	421	50	60.1	75.8	52	NA	52.7	64.7	36.8	0.8
University Hospitals of Morecambe Bay NHS Foundation Trust	FGH	Furness General Hospital	189	76.7	94.3	95.9	40.4	100	83.6	90.7	46	36.4
George Eliot Hospital NHS Trust	NUN	George Eliot Hospital	128	72.3	81.8	91.4	49.3	6.5	1	0	45.6	0
University Hospitals of Leicester NHS Trust	GRL	Glenfield Hospital	1074	56.9	72.3	80.1	45.3	94.3	54	64.3	90	40.2
Gloucestershire Hospitals NHS Foundation Trust	GLO	Gloucestershire Royal Hospital	130	97.4	98	98.1	100	80.5	36.6	52.4	48.1	0
United Lincolnshire Hospitals NHS Trust	GRA	Grantham and District Hospital	84	100	100	100	100	100	23.3	32.4	74.3	0
Great Western Hospitals NHS Foundation Trust	PMS	Great Western Hospital	405	75.9	86.9	76.4	60.6	95	29.6	47.4	31.1	1.8
Imperial College Healthcare NHS Trust	HAM	Hammersmith Hospital	246	87.7	94.3	82.3	66.7	100	41.5	57.5	61.9	9.4
Royal Brompton and Harefield NHS Foundation Trust	HH	Harefield Hospital	185	66.4	78.5	86	79.5	89.4	77.3	79.5	91.8	32.3

Harrogate and District NHS Foundation Trust	HAR	Harrogate District Hospital	198	95.8	98.2	100	73.3	90.9	31.4	48.7	20.7	36.4
Northumbria Healthcare NHS Foundation Trust	HEX	Hexham General Hospital	19	80	90	75	22.2	42.9	37.5	50	41.2	0
The Hillingdon Hospitals NHS Foundation Trust	HIL	Hillingdon Hospital	204	82.1	92.4	94.7	50.6	97.2	58.9	72.8	71.8	0
Hinchingbrooke Health Care NHS Trust	HIN	Hinchingbrooke Hospital	93	96.4	96.8	85.5	38.5	98.8	63.2	71	69	0
Homerton University Hospital NHS Foundation Trust	HOM	Homerton University Hospital	251	73.7	88.8	81.7	38.1	97.2	26.9	31.1	59.3	66.7
Oxford Radcliffe Hospitals NHS Trust	HOR	Horton General Hospital	95	81.2	94.7	85.4	58.1	82.8	84	92.3	22	35.3
Calderdale and Huddersfield NHS Foundation Trust	HUD	Huddersfield Royal Infirmary	145	86.2	96.7	84.5	62.3	88.4	50.9	56.9	46.7	18.2
Hull and East Yorkshire Hospitals NHS Trust	HRI	Hull Royal Infirmary	138	61.3	77	78.4	40.8	85.7	33.9	52.1	69.6	8.4
The Ipswich Hospital NHS Trust	IPS	Ipswich Hospital	236	68.9	81.5	81.8	40.6	86.8	27.3	42.5	26.3	1
South Tees Hospitals NHS Foundation Trust	SCM	James Cook University Hospital	365	72.8	86.7	83.7	26.5	80.4	81.2	81	82	7.4
James Paget University Hospitals NHS Foundation Trust	JPH	James Paget University Hospital	197	78.5	89.9	91.2	47.9	86	83.3	90.7	68.2	0
Oxford Radcliffe Hospitals NHS Trust	RAD	John Radcliffe Hospital	471	78.2	89.6	81	70.2	85	78.4	85.5	40.9	45.1
East Kent Hospitals University NHS Foundation Trust	KCC	Kent and Canterbury Hospital	149	81.5	90.9	83.6	27.6	85.9	72.7	85.2	45.2	51.9
Kettering General Hospital NHS Foundation Trust	KGH	Kettering General Hospital	394	80.2	85.3	95.2	84	87.5	68.5	85.5	69.3	1.8
Barking, Havering and Redbridge University Hospitals NHS Trust	KGG	King George Hospital	79	65.2	77.9	83.8	41.8	91.8	37.3	39.1	90.1	24

NHS_Trust	NICOR Hospital code	Hospital name	Heart Failure admissions (n)	ACEI on discharge (%)	ACEI/ ARB on discharge (%)	Beta blocker on discharge (%)	MRA on discharge (%)	Received discharge planning (%)	Referral to HF nurse follow up (%)	Referral to HF nurse follow up (LVSD only) (%)	Referral to cardiology follow-up	Referral to cardiac rehabilitation (%)
England and Wales			**52584**	**72.2%**	**83.6%**	**85.7%**	**52.6%**	**87%**	**57.9%**	**69.6%**	**52.2%**	**11.5%**
King's College Hospital NHS Foundation Trust	KCH	King's College Hospital	364	71.8	91.1	93.5	51	92	57.1	72.7	76.4	16.9
Sherwood Forest Hospitals NHS Foundation Trust	KMH	King's Mill Hospital	455	72.7	79.3	79.6	38.1	87.4	63.8	80.6	50	10
Kingston Hospital NHS Trust	KTH	Kingston Hospital	223	77.6	80.4	79.6	46.8	81.5	8	13.6	41.3	0
Leeds Teaching Hospitals NHS Trust	LGI	Leeds General Infirmary	630	57.5	70	81.9	55.9	83.5	75.7	83.3	57.6	6.6
University Hospitals of Leicester NHS Trust	LER	Leicester Royal Infirmary	188	37.9	53.3	80	19.4	72.5	11	25.8	35.8	5.4
Mid Cheshire Hospitals NHS Foundation Trust	LGH	Leighton Hospital	191	78.8	95.5	92	75.6	95.2	53	62.3	12.6	0.6
United Lincolnshire Hospitals NHS Trust	LIN	Lincoln County Hospital	258	56.3	63.6	70.5	35.2	98.7	33.5	45.2	52.7	0.4
East and North Hertfordshire NHS Trust	LIS	Lister Hospital	234	67.1	79.1	84.4	41.2	100	43.7	50	69.6	4.5
Liverpool Heart and Chest Hospital NHS Foundation Trust	BHL	Liverpool Heart and Chest Hospital	56	100	100	100	69.7	96.4	77.6	85	89.8	73.3
Luton and Dunstable Hospital NHS Foundation Trust	LDH	Luton and Dunstable Hospital	288	84.3	93.2	85.8	57.4	93.7	49.8	67.5	58.3	20.6
East Cheshire NHS Trust	MAC	Macclesfield District General Hospital	145	69.8	83.3	92.2	40.3	70.1	57.3	59.7	62.6	5.2
Maidstone and Tunbridge Wells NHS Trust	MAI	Maidstone Hospital	187	91.2	98.6	92.9	60.8	95.5	72.3	86.5	81.1	4.5
Central Manchester University Hospitals NHS Foundation Trust	MRI	Manchester Royal Infirmary	286	79.6	89.6	94.4	57.1	58.7	57.1	78.1	41	6

Walsall Healthcare NHS Trust	WMH	Manor Hospital	240	100	100	100	97.3	96.2	95.1	95	51.1	8
Medway NHS Foundation Trust	MDW	Medway Maritime Hospital	638	92.4	97.2	93.2	80.9	98.6	54.9	80.4	43.3	13
Milton Keynes Hospital NHS Foundation Trust	MKH	Milton Keynes General Hospital	264	87.3	92.4	92.4	50	100	20.9	31.9	68.8	0.4
Taunton and Somerset NHS Foundation Trust	MPH	Musgrove Park Hospital	288	77.7	90.8	86.3	37	63.1	69	82	39.5	0.6
The Royal Wolverhampton Hospitals NHS Trust	NCR	New Cross Hospital	140	48.4	61.7	60.6	28.6	85.9	89.6	87.3	73.1	0
Barts Health NHS Trust	NWG	Newham University Hospital	244	59.7	80.2	79.3	41.5	96.4	59.5	69.7	61.5	4.9
Norfolk and Norwich University Hospitals NHS Foundation Trust	NOR	Norfolk and Norwich University Hospital	266	81.1	100	100	100	100	67.7	73.3	0	0
Northern Devon Healthcare NHS Trust	NDD	North Devon District Hospital	266	89.4	95.1	84.1	82.1	98.7	38.3	60.8	43.6	3.5
Pennine Acute Hospitals NHS Trust	NMG	North Manchester General Hospital	229	68.3	73.8	77.6	40.7	96.1	27.3	40.7	23.2	0.5
North Middlesex University Hospital NHS Trust	NMH	North Middlesex University Hospital	112	79.4	92.2	92.6	47.8	99.1	85.4	95.7	80.2	25
Northumbria Healthcare NHS Foundation Trust	NTY	North Tyneside Hospital	164	74.2	91.3	96.7	30.5	58.6	66.7	75.8	67.6	0.9
Northampton General Hospital NHS Trust	NTH	Northampton General Hospital	170	81.1	92.9	86.9	54.6	97.5	88.9	92.9	40.3	2.1
Sheffield Teaching Hospitals NHS Foundation Trust	NGS	Northern General Hospital	326	57.7	64.2	77.1	54.1	99.6	68.2	72.1	16.3	3.3
London North West Healthcare Trust†	NPH	Northwick Park Hospital	162	55.1	70.5	74	35.1	85.2	27.6	33.8	36.4	0.7
Peterborough and Stamford Hospitals NHS Foundation Trust	PET	Peterborough City Hospital	374	92.7	96.2	96.8	90.9	72.9	47.9	60.5	31.6	2.3
United Lincolnshire Hospitals NHS Trust	PIL	Pilgrim Hospital	218	52.9	60.9	75	45.1	95.2	31.6	42.3	43.7	0.6

NHS_Trust	NICOR Hospital code	Hospital name	Heart Failure admissions (n)	ACEI on discharge (%)	ACEI/ ARB on discharge (%)	Beta blocker on discharge (%)	MRA on discharge (%)	Received discharge planning (%)	Referral to HF nurse follow up (%)	Referral to HF nurse follow up (LVSD only) (%)	Referral to cardiology follow-up	Referral to cardiac rehabilitation (%)
England and Wales			**52584**	**72.2%**	**83.6%**	**85.7%**	**52.6%**	**87%**	**57.9%**	**69.6%**	**52.2%**	**11.5%**
Mid Yorkshire Hospitals NHS Trust	PIN	Pinderfields Hospital	381	62.2	77.8	90.2	58.5	98	58.1	67.7	55.8	52.4
Poole Hospital NHS Foundation Trust	PGH	Poole General Hospital	269	44.6	71.1	84.4	34.7	99.1	63.8	62.1	45	19.9
The Princess Alexandra Hospital NHS Trust	PAH	Princess Alexandra Hospital	94	71.4	85.4	95.2	45.2	96.6	23	40	65.1	1.1
Brighton and Sussex University Hospitals NHS Trust	PRH	Princess Royal Hospital (Haywards Heath)	219	71.7	87	81	52.2	93.2	35.1	69.4	38.6	2
Shrewsbury and Telford Hospitals NHS Trust	TLF	Princess Royal Hospital (Telford)	37	64.5	71	86.7	28.1	91.9	90.9	93.8	84.8	3
King's College Hospital NHS Foundation Trust	BRO	Princess Royal University Hospital (Bromley)	258	69.7	77.9	83.6	54.2	84.4	18.8	22.7	43	1
Portsmouth Hospitals NHS Trust	QAP	Queen Alexandra Hospital	383	74.4	85.9	86.5	78	99.7	94.7	98.1	46	5.4
University Hospitals Birmingham NHS Foundation Trust	QEB	Queen Elizabeth Hospital (Edgbaston)	410	64.7	74	74.6	31	79.9	64	83.6	49.5	0.8
Gateshead Health NHS Foundation Trust	QEG	Queen Elizabeth Hospital (Gateshead)	285	97.2	98.4	100	60.7	100	95.5	98.2	11.6	78
The Queen Elizabeth Hospital King's Lynn NHS Foundation Trust	QKL	Queen Elizabeth Hospital (King's Lynn)	364	54.1	64.5	65.1	43.4	97.7	2.7	2.2	34.5	38.5
Lewisham and Greenwich NHS Trust	GWH	Queen Elizabeth Hospital (Woolwich)	222	80	85	89.9	48.2	77.8	78.3	86.6	35	0.9
East and North Hertfordshire NHS Trust	QEW	Queen Elizabeth II Hospital	24	45.5	63.6	58.3	25	88.9	33.3	38.5	27.8	5.6
East Kent Hospitals University NHS Foundation Trust	QEQ	Queen Elizabeth the Queen Mother Hospital	94	91.4	95.3	81	56.5	91.5	71.1	82.3	27	0

Burton Hospitals NHS Foundation Trust	BRT	Queen's Hospital (Burton)	278	82.8	86.1	84.6	83.7	62.4	56.6	67.2	59.3	2.9
Barking, Havering and Redbridge University Hospitals NHS Trust	QLD	Queen's Hospital Romford	180	67.1	80.1	77.8	61.2	86.4	81.1	83.7	63.3	14.6
Pennine Acute Hospitals NHS Trust	BHH	Rochdale Infirmary	51	70	70	50	41.7	100	48	58.3	36	0
Rotherham NHS Foundation Trust	ROT	Rotherham Hospital	228	61.3	71	80.4	46.8	89.8	43.5	54.5	28.8	1.2
Wrightington, Wigan and Leigh NHS Foundation Trust	AEI	Royal Albert Edward Infirmary	530	83.6	96.7	98.2	39.3	91.7	72.8	80.9	66.8	11.8
Royal Berkshire NHS Foundation Trust	BHR	Royal Berkshire Hospital	390	79.6	91.6	86.1	58.9	100	76.8	84.8	41.7	5.2
East Lancashire Hospitals NHS Trust	BLA	Royal Blackburn Hospital	527	76.6	91.7	93.4	36.5	53.8	43.8	55.3	68	0.8
Bolton NHS Foundation Trust	BOL	Royal Bolton Hospital	193	98	98.7	100	84.4	96.3	22	25	81.6	4.7
The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	BOU	Royal Bournemouth General Hospital	522	99.2	100	84.7	52	100	25.8	30.3	50.5	14
Royal Brompton and Harefield NHS Foundation Trust	NHB	Royal Brompton Hospital	208	73.6	95.8	90.4	77.5	84.8	48.1	67.4	96.3	3.6
Royal Cornwall Hospitals NHS Trust	RCH	Royal Cornwall Hospital	384	51.6	61.7	79.9	36.8	59.1	50.4	58.2	51.9	47
Derby Hospitals NHS Foundation Trust	DER	Royal Derby Hospital	221	43.7	57.6	70.5	26.4	100	99.5	99.2	100	12
Royal Devon and Exeter NHS Foundation Trust	RDE	Royal Devon & Exeter Hospital	391	86.6	88.6	81.2	43.4	47.1	16.1	20.8	36	1.1
Royal Free London NHS Trust	RFH	Royal Free Hospital	224	65.2	82.4	91.1	69.7	69.6	25	36.8	62.5	2
Hampshire Hospitals NHS Foundation Trust	RHC	Royal Hampshire County Hospital	213	73.8	83	83.3	31.6	89.7	56	73.6	17.1	4.3

NHS_Trust	NICOR Hospital code	Hospital name	Heart Failure admissions (n)	ACEI on discharge (%)	ACEI/ ARB on discharge (%)	Beta blocker on discharge (%)	MRA on discharge (%)	Received discharge planning (%)	Referral to HF nurse follow up (%)	Referral to HF nurse follow up (LVSD only) (%)	Referral to cardiology follow-up	Referral to cardiac rehabilitation (%)
England and Wales			**52584**	**72.2%**	**83.6%**	**85.7%**	**52.6%**	**87%**	**57.9%**	**69.6%**	**52.2%**	**11.5%**
University Hospitals of Morecambe Bay NHS Foundation Trust	RLI	Royal Lancaster Infirmary	208	74.8	93.3	98.2	47.4	90.8	79.1	83.8	35.9	1.5
Royal Liverpool and Broadgreen University Hospitals NHS Trust	RLU	Royal Liverpool University Hospital	388	88.9	100	97.6	64.4	80.4	80.5	87.4	67	8.3
Pennine Acute Hospitals NHS Trust	OHM	Royal Oldham Hospital	299	95.3	96.1	91.7	46.7	93.6	62.8	82.1	34.1	0.4
Lancashire Teaching Hospitals NHS Foundation Trust	RPH	Royal Preston Hospital	255	75.7	92.9	90.6	40.9	97.1	98.6	98.8	78.9	11.4
Shrewsbury and Telford Hospitals NHS Trust	RSS	Royal Shrewsbury Hospital	60	76.9	88.2	83.6	29.8	96.6	92.9	92.9	54.2	2.8
University Hospital North Midlands NHS trust	STO	Royal Stoke University Hospital	611	49.7	61	62.3	22.2	72.4	52.4	71.1	44.2	7
Royal Surrey County Hospital NHS Foundation Trust	RSU	Royal Surrey County Hospital	217	66.7	88.5	76.3	46.1	77.2	56.2	73.3	59.4	9.7
Brighton and Sussex University Hospitals NHS Trust	RSC	Royal Sussex County Hospital	448	83.6	95.3	82.8	57.1	89.7	48.2	71.3	53.6	2.9
Royal United Hospital Bath NHS Trust	BAT	Royal United Hospital Bath	327	99.2	99.3	96.7	96.6	100	34.5	34.8	44.6	5.9
The Dudley Group NHS Foundation Trust	RUS	Russells Hall Hospital	513	56.4	68.5	71.5	32.7	80.8	67.6	74	56.2	3.8
Salford Royal NHS Foundation Trust	SLF	Salford Royal	365	85.3	92.9	95.7	62.7	81.4	76.8	87	46.4	5.3
Salisbury NHS Foundation Trust	SAL	Salisbury District Hospital	207	60	84.5	74.1	41.2	99.4	69.1	75.6	37.6	3.6
Sandwell and West Birmingham Hospitals NHS Trust	SAN	Sandwell General Hospital	237	82.1	98.4	95.1	80	95.3	96.6	97.4	84.2	74.1

York Teaching Hospital NHS Foundation Trust	SCA	Scarborough General Hospital	23	66.7	100	66.7	0	50	26.7	66.7	46.7	0
Northern Lincolnshire and Goole Hospitals NHS Foundation Trust	SCU	Scunthorpe General Hospital	170	77.4	86.2	86.6	67.3	34.2	27.9	42	31.6	0
Heart of England NHS Foundation Trust	SOL	Solihull Hospital	213	58.9	73.8	68.6	37.2	100	70.5	84.1	45.2	1.1
South Tyneside NHS Foundation Trust	STD	South Tyneside District Hospital	228	80.9	92.5	95.7	25.8	94.6	78.9	93	66.7	0.7
University Hospital Southampton NHS Trust	SGH	Southampton General Hospital	588	61.7	78.4	75.9	62.8	74.4	6.7	5	39.4	12.5
Southend University Hospital NHS Foundation Trust	SEH	Southend Hospital	479	62.4	69	73.6	49.8	87.2	54.8	87.2	37	5.4
North Bristol NHS Trust	BSM	Southmead Hospital	414	59.5	72.7	81.8	57.4	98.8	31.6	36.4	22	1
Southport and Ormskirk Hospital NHS Trust	SOU	Southport and Formby District General Hospital	291	91.4	93.3	95.6	63.2	99.3	85.3	93.4	43.7	81
St George's Healthcare NHS Trust	GEO	St George's Hospital	421	57.2	79.7	92.4	57.4	69.6	60	72.4	35.5	1.2
Epsom and St Helier University Hospitals NHS Trust	SHC	St Helier Hospital	204	70.9	80.4	88.3	65.5	93.7	57.1	96.3	51.4	7.5
Imperial College Healthcare NHS Trust	STM	St Mary's Hospital Paddington	93	71.7	83	84.9	62.3	100	63.3	76.9	60.3	0
Isle of Wight NHS PCT	IOW	St Mary's Hospital, Newport	139	95.9	96.4	92.9	87.1	28.2	31.1	36.7	34	3.1
Ashford and St Peter's Hospitals NHS Trust	SPH	St Peter's Hospital	448	100	100	100	97.9	92.9	40.6	48.8	60.7	19.6
Western Sussex Hospitals NHS Trust	STR	St Richard's Hospital	295	90.1	97.7	87.6	33.3	92.5	51.2	60.2	33.6	6.3
Guy's and St Thomas' NHS Foundation Trust	STH	St Thomas' Hospital	616	66.9	81.5	86.7	49.9	98.1	68.5	77.5	77.6	7.5
Stockport NHS Foundation Trust	SHH	Stepping Hill Hospital	429	74.6	92.7	96.9	48.2	90.7	43.9	70.4	47.4	5.3

NHS_Trust	NICOR Hospital code	Hospital name	Heart Failure admissions (n)	ACEI on discharge (%)	ACEI/ ARB on discharge (%)	Beta blocker on discharge (%)	MRA on discharge (%)	Received discharge planning (%)	Referral to HF nurse follow up (%)	Referral to HF nurse follow up (LVSD only) (%)	Referral to cardiology follow-up	Referral to cardiac rehabilitation (%)
England and Wales			**52584**	**72.2%**	**83.6%**	**85.7%**	**52.6%**	**87%**	**57.9%**	**69.6%**	**52.2%**	**11.5%**
Buckinghamshire Healthcare NHS Trust	SMV	Stoke Mandeville Hospital	72	51.5	66.7	68.6	31.4	73.3	42.6	58.8	25	0
City Hospitals Sunderland NHS Foundation Trust	SUN	Sunderland Royal Hospital	513	78.2	97.4	96.4	44.4	81.3	67.8	70.5	60	44.3
Tameside Hospital NHS Foundation Trust	TGA	Tameside General Hospital	245	73.6	91.4	92.2	69.2	73.1	75.2	87.9	73.2	16.1
Barts Health NHS Trust	LCH	The London Chest Hospital	35	80	86.7	86.7	54.8	100	80.6	86.2	90.9	68.8
Barts Health NHS Trust	LON	The Royal Hospital London	89	77.4	96.2	95.5	47.3	91.4	66.7	75.8	65.1	9.4
York Teaching Hospital NHS Foundation Trust	YDH	The York Hospital	304	62.1	73.6	70.3	47.3	84.5	34.2	46.5	50	2.2
South Devon Healthcare NHS Foundation Trust	TOR	Torbay Hospital	520	99.2	99.3	94	74.3	90.8	48.6	66.8	53.1	2.8
Central Manchester University Hospitals NHS Foundation Trust	TRA	Trafford General Hospital	40	64.3	84.6	78.6	46.7	50	29.2	50	73.1	5.9
Maidstone and Tunbridge Wells NHS Trust	KSX	Tunbridge Wells Hospital	193	82.5	100	92.7	72.2	90.6	75.3	87.6	69.4	3.6
University College London Hospitals NHS Foundation Trust	UCL	University College Hospital	264	80	94.3	96.1	61.4	99.2	88	96.4	85.9	57.3
Aintree University Hospital NHS Foundation Trust	FAZ	University Hospital Aintree	710	92.2	98.6	98.7	37.7	79.6	80.5	89.9	50.5	4.8
University Hospitals Coventry and Warwickshire NHS Trust	WAL	University Hospital Coventry	273	60.9	72.3	81.5	51.1	98.5	66.7	76.9	31.9	0.9
Lewisham and Greenwich NHS Trust	LEW	University Hospital Lewisham	146	49.3	78.9	90	49.3	75	47.6	75.7	73.8	4.5

County Durham and Darlington NHS Foundation Trust	DRY	University Hospital of North Durham	373	60	72.6	83.8	38.4	46.1	54.8	68.4	66.6	23.1
University Hospital of North Staffordshire NHS Trust	STO	University Hospital of North Staffordshire	611	49.7	61	62.3	22.2	72.4	52.4	71.1	44.2	7
North Tees and Hartlepool NHS Foundation Trust	NTG	University Hospital of North Tees	299	96.8	97.5	97.7	100	83.9	45.5	51.8	45.7	37.5
Northumbria Healthcare NHS Foundation Trust	ASH	Wansbeck General Hospital	148	92.3	97.6	95.6	36.2	71.5	74.3	81.6	73	1.2
Warrington and Halton Hospitals NHS Foundation Trust	WDG	Warrington Hospital	94	94.1	100	95.3	67.6	91.7	77.8	78.2	61.2	12.5
South Warwickshire NHS Foundation Trust	WAR	Warwick Hospital	219	60	78	80	44	79.7	51.9	60	67.1	10.3
West Hertfordshire Hospitals NHS Trust	WAT	Watford General Hospital	576	69	76.5	84.8	63.3	97.6	67.3	74.7	57.6	6.6
West Middlesex University Hospital NHS Trust	WMU	West Middlesex University Hospital	268	71.9	80	84.1	73.7	95.1	45	53.8	23.2	2.5
West Suffolk NHS Foundation Trust	WSH	West Suffolk Hospital	278	75.3	84.9	86.7	41.6	95.6	36.9	52	38.9	7.4
Weston Area Health NHS Trust	WGH	Weston General Hospital	9	0	50	66.7	100	85.7	0	0	16.7	0
Heatherwood and Wexham Park Hospitals NHS Foundation Trust	WEX	Wexham Park Hospital	290	57	70.1	77.8	53.8	88.4	71.2	78.4	75.9	0.8
Barts Health NHS Trust	WHC	Whipps Cross University Hospital	38	76.5	100	100	87.5	100	39.4	56.5	62.5	3.2
St Helens and Knowsley Teaching Hospitals NHS Trust	WHI	Whiston Hospital	289	98.6	100	97.5	88.4	100	89.3	95	50.9	0
The Whittington Hospital NHS Trust	WHT	Whittington Hospital	155	90.9	96.3	96.4	90.1	90.3	69.8	81.8	70.5	14.4
East Kent Hospitals University NHS Foundation Trust	WHH	William Harvey Hospital	152	72.7	83.6	74.2	52.4	88	84.5	92.2	66.1	55.3

NHS_Trust	NICOR Hospital code	Hospital name	Heart Failure admissions (n)	ACEI on discharge (%)	ACEI/ ARB on discharge (%)	Beta blocker on discharge (%)	MRA on discharge (%)	Received discharge planning (%)	Referral to HF nurse follow up (%)	Referral to HF nurse follow up (LVSD only) (%)	Referral to cardiology follow-up	Referral to cardiac rehabilitation (%)
England and Wales			**52584**	**72.2%**	**83.6%**	**85.7%**	**52.6%**	**87%**	**57.9%**	**69.6%**	**52.2%**	**11.5%**
Worcestershire Acute Hospitals NHS Trust	WRC	Worcestershire Royal Hospital	189	77.9	85.7	81.1	48.4	98.2	81.5	90.2	59.9	3.8
Western Sussex Hospitals NHS Trust	WRG	Worthing Hospital	282	96.4	100	90.1	100	78.4	82.1	83.6	58.1	7
Buckinghamshire Healthcare NHS Trust	AMG	Wycombe Hospital	123	76.5	93.4	98.6	75	87.9	77.8	88.5	62.8	35.8
University Hospital of South Manchester NHS Foundation Trust	WYT	Wythenshawe Hospital	229	90.4	95.5	89.5	60.6	90.7	41.9	48.9	35	3.7
Yeovil District Hospital NHS Foundation Trust	YEO	Yeovil District Hospital	207	76.6	83.3	76.7	30.6	93.5	88.7	93.8	48.8	77
Mid Staffordshire NHS Foundation Trust	SDG	Stafford Hospital	26	50	71.4	100	12.5	82.6	34.8	77.8	17.4	0
University Hospital of North Staffordshire NHS Trust	STO	University Hospital of North Staffordshire	611	49.7	61	62.3	22.2	72.4	52.4	71.1	44.2	7

Table E: In-hospital care in Wales

Health Board name	NICOR hospital code	Hospital name	Heart Failure admissions (n)	Received echo (%)	Cardiology Inpatient (%)	Input from consultant cardiologist (%)	Input from specialist (%)
England and Wales			**52584**	**91.7%**	**48.1%**	**58.6%**	**79.9%**
Abertawe Bro Morgannwg University Health Board	MOR	Morriston Hospital	284	93.5	53.9	62	71.8
Abertawe Bro Morgannwg University Health Board	POW	Princess Of Wales Hospital	197	92.8	68.5	72.1	78.2
Abertawe Bro Morgannwg University Health Board	SIN	Singleton Hospital	149	87.2	50.3	44.3	49
Aneurin Bevan Health Board	GWE	Royal Gwent Hospital	109	99	39.4	45	52.3
Aneurin Bevan Health Board	NEV	Nevill Hall Hospital	238	74.2	34	41.2	48.7
Betsi Cadwaladr University Health Board	CLW	Glan Clwyd Hospital	83	95.2	56.6	59	66.3
Betsi Cadwaladr University Health Board	GWY	Ysbyty Gwynedd Hospital	112	96.2	62.7	84.6	86.5
Betsi Cadwaladr University Health Board	WRX	Wrexham Maelor Hospital	426	98.8	50.2	54.7	89.7
Cardiff & Vale University Health Board	LLD	University Hospital Llandough	150	77.4	0.7	6	40
Cardiff & Vale University Health Board	UHW	University Hospital of Wales	214	79.1	48.6	55.1	67.8
Cwm Taf Health Board	PCH	Prince Charles Hospital	226	98.2	61.9	69.5	73
Cwm Taf Health Board	RGH	Royal Glamorgan Hospital	137	100	33.6	46.7	77.4
Hywel Dda Health Board	BRG	Bronglais General Hospital	196	91.1	77.7	88.7	89.2
Hywel Dda Health Board	PPH	Prince Philip Hospital	148	90.1	27.7	43.8	46.9
Hywel Dda Health Board	WWG	Glangwili General Hospital	35	94.1	57.6	70	70
Hywel Dda Health Board	WYB	Withybush General Hospital	174	61.2	28.7	28.2	28.2

Table F: Treatment and management on discharge in Wales

Health Board	NICOR Hospital code	Hospital name	Heart Failure admissions (n)	ACEI on discharge (%)	ACEI/ ARB on discharge (%)	Beta blocker on discharge (%)	MRA on discharge (%)	Received discharge planning (%)	Referral to HF nurse follow up (%)	Referral to HF nurse follow up (LVSD only)(%)	Referral to cardiology follow-up (%)	Referral to cardiac rehabilitation (%)
England and Wales			**52584**	**72.2%**	**83.6%**	**85.7%**	**52.6%**	**87%**	**57.9%**	**69.6%**	**52.2%**	**11.5%**
Abertawe Bro Morgannwg University Health Board	MOR	Morriston Hospital	284	98.6	99.4	98.8	88.1	83.8	56.8	70	66.8	30.3
Abertawe Bro Morgannwg University Health Board	POW	Princess Of Wales Hospital	197	84.8	98.5	94.4	56.7	93.6	24.7	30.6	37.2	3.4
Abertawe Bro Morgannwg University Health Board	SIN	Singleton Hospital	149	97.7	100	84.3	54.5	85.8	30.8	48.4	48.8	5.1
Aneurin Bevan Health Board	NEV	Nevill Hall Hospital	238	96.1	96.6	91.4	86	78.3	45.5	61	34.5	51.5
Aneurin Bevan Health Board	GWE	Royal Gwent Hospital	109	100	100	95.7	62.5	65.1	32.9	44.6	50	12.5
Betsi Cadwaladr University Health Board	CLW	Glan Clwyd Hospital	83	85.1	88.2	92.7	50.8	45.9	56.9	67.2	42.9	0
Betsi Cadwaladr University Health Board	WRX	Wrexham Maelor Hospital	426	70.8	82.6	87.5	66.5	78.8	56.3	65.1	31.8	25
Betsi Cadwaladr University Health Board	GWY	Ysbyty Gwynedd Hospital	112	57.6	67.7	77.1	44.3	34.2	26.1	31.4	49.4	2.6
Cardiff & Vale University Health Board	LLD	University Hospital Llandough	150	90.7	96.4	94.6	67.3	47.9	8.9	9.1	24	0
Cardiff & Vale University Health Board	UHW	University Hospital of Wales	214	97.6	99	95.9	75.9	53.8	24.8	30.8	45.5	3.6
Cwm Taf Health Board	PCH	Prince Charles Hospital	226	60	67.7	63.6	32.8	90.3	24.6	31.1	64.2	2.8
Cwm Taf Health Board	RGH	Royal Glamorgan Hospital	137	61.2	78.5	73.1	40.3	63.9	41.2	55.1	24.7	2.1
Hywel Dda Health Board	BRG	Bronglais General Hospital	196	95.5	98.2	96.7	84.1	1.2	86.7	89.5	40.1	38
Hywel Dda Health Board	WWG	Glangwili General Hospital	35	72.7	81.8	85.7	25	58.1	41.4	42.9	37.9	4
Hywel Dda Health Board	PPH	Prince Philip Hospital	148	67.8	83.3	84.7	28.3	76.4	25	39.3	28.9	0.8
Hywel Dda Health Board	WYB	Withybush General Hospital	174	95	96	89.6	68	0.6	0.7	0	15.6	3.4

Appendix 2: In-hospital mortality analysis

Table G: In-hospital mortality random-effects Cox proportional hazards model (2014/2015)

Variable (n=19798)	Hazard ratio	Lower 95% CI	Upper 95% CI	p-value
Age ≥ 75	1.94	1.67	2.26	<0.001
Not cardiology in-patient	1.81	1.61	2.05	<0.001
Systolic blood pressure (10 mm Hg decrease)	1.19	1.15	1.23	<0.001
Heart rate (5 bpm increase)	1.17	1.15	1.19	<0.001
Ischaemic Heart Disease	1.17	1.04	1.30	0.007
Valvular Disease	1.12	0.99	1.26	0.067
Urea (5 mEq/dL increase)	1.11	1.09	1.14	<0.001
Women	1.05	0.94	1.17	0.4
COPD	1.03	0.90	1.18	0.65
Creatinine (10 umol/L increase)	1.03	1.03	1.04	<0.001
NYHA III/IV	1.01	0.87	1.17	0.88
Haemoglobin (g/dL)	1.01	0.98	1.03	0.7
Serum Potassium ≤3.5	1.46	1.22	1.75	<0.001
3.5-4.5	1			
4.5-5.5	1.45	1.28	1.64	<0.001
>5.5	2.60	2.12	3.19	<0.001

Table H: In-hospital mortality random-effects Cox proportional hazards model (2009-2015) (fewer variables available)

Variable (n=143111)	Hazard ratio	Lower 95% CI	Upper 95% CI	p-value
Age ≥ 75	1.74	1.66	1.82	<0.001
Not cardiology in-patient	1.57	1.51	1.63	<0.001
NYHA III/IV	1.25	1.19	1.31	<0.001
Valvular Disease	1.14	1.09	1.18	<0.001
Ischaemic Heart Disease	1.12	1.08	1.16	<0.001
Men	1.09	1.05	1.13	<0.001

Appendix 3: 30 day post discharge mortality

Table I: 30-day all-cause mortality for survivors to discharge (2014/15)

Analysis	Variable	Records (n)	Deaths (n)	Mortality (%)
Overall mortality	Overall mortality	36721	2352	6.4
Main place of care	Cardiology	17942	944	5.3
Main place of care	General medicine	12191	835	6.8
Main place of care	Other	3303	256	7.8
Main place of care	Care of the elderly	3097	305	9.8
Specialist input	No specialist input	6858	483	7.0
Specialist input	Specialist input	29029	1807	6.2
Age	16-74	12803	452	3.5
Age	75+	23918	1900	7.9
Gender	Women	16237	1027	6.3
Gender	Men	20458	1323	6.5
Diagnosis	No LVSD	12582	810	6.4
Diagnosis	LVSD	22930	1471	6.4
ACE inhibitor (all)	No ACE inhibitor	9415	711	7.6
ACE inhibitor (all)	ACE inhibitor	18498	680	3.7
ACE inhibitor (LVSD only)	No ACE inhibitor	4941	405	8.2
ACE inhibitor (LVSD only)	ACE inhibitor	13350	508	3.8
ACEI/ARB (all)	No ACEI or ARB	6348	596	9.4
ACEI/ARB (all)	ACEI and/or ARB	23103	849	3.7
ACEI/ARB (LVSD only)	No ACEI or ARB	3030	326	10.8
ACEI/ARB (LVSD only)	ACEI and/or ARB	16222	617	3.8
Beta Blockers (all)	No beta blocker	6114	486	7.9
Beta Blockers (all)	Beta blocker	25731	1318	5.1
Beta Blockers (LVSD)	No beta blocker	2947	265	9.0
Beta Blockers (LVSD)	Beta blocker	17568	892	5.1
Loop diuretic (all)	No loop diuretics	2622	201	7.7
Loop diuretic (all)	Loop diuretics	32337	1828	5.7
Loop diuretic (LVSD)	No loop diuretics	1844	130	7.0
Loop diuretic (LVSD)	Loop diuretics	19946	1139	5.7
Additive medicines	No ACEI/ARB, beta blocker or MRA	1835	218	11.9
Additive medicines	ACEI/ARB only	1890	91	4.8
Additive medicines	ACEI/ARB and beta blocker	7386	272	3.7
Additive medicines	ACEI/ARB, beta blocker and MRA	8375	252	3.0

Additive medicines (LVSD only)	No ACEI inhibitor/ARB/ beta blocker or MRA	726	112	15.4
Additive medicines (LVSD only)	Discharged on ACEI inhibitor or ARB	931	52	5.6
Additive medicines (LVSD only)	Discharged on ACEI inhibitor or ARB and beta blocker	5098	196	3.8
Additive medicines (LVSD only)	Discharged on ACEI inhibitor or ARB or beta blocker and MRA	6950	216	3.1
HF nurse follow-up	No HF nurse follow-up	15135	1212	8.0
HF nurse follow-up	HF nurse follow-up	19994	998	5.0
Cardiology follow-up	No Cardiology follow-up	16524	1505	9.1
Cardiology follow-up	Cardiology follow-up	18215	663	3.6
Discharge planning	No discharge planning	2981	286	9.6
Discharge planning	Discharge planning	31249	1868	6.0

Table J: 30-day post-discharge all-cause mortality random-effects Cox proportional hazards model (2014/2015)

Variable (n=13355)	Hazard ratio	Lower 95% CI	Upper 95% CI	p-value
No cardiology follow-up	2.17	1.80	2.62	<0.001
No ACE inhibitor and/or ARB	1.89	1.58	2.26	<0.001
Age ≥ 75	1.43	1.17	1.74	<0.001
NYHA III/IV	1.42	1.13	1.78	<0.001
No diuretic loop	1.32	0.99	1.75	0.055
Serum Sodium (5 mEq/L decrease)	1.21	1.13	1.31	<0.001
Not cardiology in-patient	1.20	1.00	1.44	0.05
Male	1.18	1.00	1.40	0.056
No beta blocker	1.16	0.96	1.41	0.11
Systolic blood pressure (10 mm Hg decrease)	1.16	1.11	1.21	<0.001
COPD	1.16	0.95	1.42	0.14
Ischaemic Heart Disease	1.13	0.96	1.33	0.14
Serum Urea (5 mEq/dL increase)	1.11	1.07	1.14	<0.001
Haemoglobin (g/dL decrease)	1.04	0.99	1.08	0.097
Serum Creatinine (10 umol/L increase)	1.01	1.00	1.03	0.008
Length of stay 1-4 days	1			
5-8 days	1.07	0.81	1.41	0.63
9-15 days	1.84	1.44	2.35	<0.001
≥16	2.38	1.88	3.00	<0.001

Appendix 4: 1 Year post-discharge mortality

Table K: 1 year all-cause mortality for survivors to discharge (2014/15)

Analysis	Variable	Records (n)	Deaths (n)	Mortality (%)	Median follow-up (days)
Overall mortality	Overall mortality	36721	10858	29.6	249
Main place of care	Cardiology	17942	4491	25.0	267
Main place of care	General medicine	12191	3973	32.6	241
Main place of care	Other	3303	1090	33.0	239
Main place of care	Care of the elderly	3097	1250	40.4	204
Specialist input	No specialist input	6858	2276	33.2	246
Specialist input	Specialist input	29029	8293	28.6	250
Age	16-74	12803	2314	18.1	284
Age	75+	23918	8544	35.7	234
Gender	Women	16237	4809	29.6	250
Gender	Men	20458	6039	29.5	249
Diagnosis	No LVSD	12582	3930	31.2	244
Diagnosis	LVSD	22930	6567	28.6	253
ACE inhibitor (all)	No ACE inhibitor	9415	3149	33.4	242
ACE inhibitor (all)	ACE inhibitor	18498	4212	22.8	270
ACE inhibitor (LVSD only)	No ACE inhibitor	4941	1708	34.6	239
ACE inhibitor (LVSD only)	ACE inhibitor	13350	2934	22.0	272
ACEI/ARB (all)	No ACEI or ARB	6348	2451	38.6	225
ACEI/ARB (all)	ACEI and/or ARB	23103	5243	22.7	270
ACEI/ARB (LVSD only)	No ACEI or ARB	3030	1266	41.8	213
ACEI/ARB (LVSD only)	ACEI and/or ARB	16222	3607	22.2	271
Beta Blockers (all)	No beta blocker	6114	2174	35.6	236
Beta Blockers (all)	Beta blocker	25731	6828	26.5	257
Beta Blockers (LVSD)	No beta blocker	2947	1129	38.3	231
Beta Blockers (LVSD)	Beta blocker	17568	4490	25.6	261
Loop diuretic (all)	No loop diuretics	2622	630	24.0	267
Loop diuretic (all)	Loop diuretics	32337	9595	29.7	250
Loop diuretic (LVSD)	No loop diuretics	1844	409	22.2	264
Loop diuretic (LVSD)	Loop diuretics	19946	5771	28.9	253
Additive medicines	No ACEI/ARB, beta blocker or MRA	1835	745	40.6	217
Additive medicines	ACEI/ARB only	1890	496	26.2	261
Additive medicines	ACEI/ARB and beta blocker	7386	1684	22.8	272

Additive medicines	ACEI/ARB, beta blocker and MRA	8375	1643	19.6	276
Additive medicines (LVSD only)	No ACEI inhibitor/ARB/ beta blocker or MRA	726	334	46.0	202
Additive medicines (LVSD only)	Discharged on ACEI inhibitor or ARB	931	261	28.0	254
Additive medicines (LVSD only)	Discharged on ACEI inhibitor or ARB and beta blocker	5098	1166	22.9	270
Additive medicines (LVSD only)	Discharged on ACEI inhibitor or ARB or beta blocker and MRA	6950	1306	18.8	279
HF nurse follow-up	No HF nurse follow-up	15135	4836	32.0	243
HF nurse follow-up	HF nurse follow-up	19994	5531	27.7	253
Cardiology follow-up	No Cardiology follow-up	16524	6062	36.7	227
Cardiology follow-up	Cardiology follow-up	18215	4141	22.7	275
Discharge planning	No discharge planning	2981	1028	34.5	248
Discharge planning	Discharge planning	31249	9047	29.0	249
Cardiac rehabilitation	No cardiac rehabilitation	22865	6799	29.7	250
Cardiac rehabilitation	Cardiac rehabilitation	2984	626	21.0	274

Table L: Post-discharge all-cause mortality random-effects Cox proportional hazards model (2014/2015)

Variable (n=13227)	Hazard ratio	Lower 95% CI	Upper 95% CI	p-value
Age ≥ 75	1.64	1.50	1.78	<0.001
No cardiology follow-up	1.55	1.44	1.68	<0.001
No ACE inhibitor and/or ARB	1.50	1.38	1.63	<0.001
COPD	1.36	1.25	1.48	<0.001
Ischaemic Heart Disease	1.24	1.15	1.33	<0.001
Not cardiology in-patient	1.23	1.13	1.33	<0.001
NYHA III/IV	1.18	1.07	1.30	<0.001
No beta blocker	1.17	1.08	1.27	<0.001
Serum Sodium (5 mEq/L decrease)	1.16	1.12	1.20	<0.001
Vascular Disease	1.14	1.05	1.23	0.001
Men	1.12	1.04	1.20	<0.001
Serum Urea (5 mEq/dL increase)	1.09	1.08	1.11	<0.001
Systolic blood pressure (10 mm Hg decrease)	1.08	1.06	1.10	<0.001
Haemoglobin (g/dL decrease)	1.08	1.06	1.10	<0.001
Serum Creatinine (10 umol/L increase)	1.01	1.01	1.02	<0.001
Serum Potassium ≤3.5	1.44	1.28	1.63	<0.001
3.5-4.5	1			
4.5-5.5	1.08	1	1.17	0.049
>5.5	1.08	0.84	1.38	0.55
Length of stay 1-4 days	1			
5-8 days	1.17	1.06	1.3	<0.001
9-15 days	1.44	1.3	1.59	<0.001
≥16	1.85	1.68	2.05	<0.001

Table M: Post-discharge all-cause mortality random effects Cox proportional hazards model (2009-2015) (fewer variables available)

Variable (n=99575)	Hazard ratio	Lower 95% CI	Upper 95% CI	p-value
Age ≥ 75	1.92	1.88	1.96	<0.001
No ACE inhibitor and/or ARB	1.42	1.39	1.45	<0.001
No cardiology follow-up	1.36	1.33	1.39	<0.001
No beta blocker	1.27	1.24	1.29	<0.001
Ischaemic Heart Disease	1.25	1.23	1.27	<0.001
Vascular Disease	1.25	1.23	1.28	<0.001
Loop diuretics	1.23	1.19	1.27	<0.001
Not cardiology in-patient	1.17	1.15	1.20	<0.001
Men	1.13	1.11	1.15	<0.001
NYHA III/IV	1.12	1.09	1.14	<0.001
Length of stay 1-4 days	1			
5-8 days	1.22	1.19	1.25	<0.001
9-15 days	1.46	1.42	1.50	<0.001
≥16	1.87	1.83	1.92	<0.001

Appendix 5: Project Governance

The audit is managed by the National Institute for Cardiovascular Outcomes Research (based at University College London) and is clinically led by the British Society for Heart Failure.

The Steering Group meets four times a year and its membership is made up of a variety of stakeholders in the audit including cardiologists, HF specialist nurses, clinical audit and effectiveness managers and patient representatives.

The remit of the Steering Group is to:

- Provide leadership on the aims and delivery of the project, dependent on allocation of resources, in collaboration with the BSH, and to ensure the agreed reports are published.
- Ensure that the project is aligned with the evolving needs of the clinical specialty.
- Review the England and Wales audit data to assess whether hospitals are meeting the evidence based standards.
- Review applications to use the audit data for research or other quality improvement programmes outside of NICOR.
- Review the dataset for potential changes to ensure it remains up to date in the context of an evolving evidence base.

The National HF audit is commissioned by the Healthcare Quality Improvement Partnership (HQIP). HQIP holds commissioning and funding responsibility and several other national clinical audits.

National HF Audit Steering Group Membership 2014/15

Name	Job title and Organisation	Stakeholder Representation
Jackie Austin	Nurse Consultant (Aneurin Bevan Health Board) and Lead Nurse South Wales Cardiac Network	Cardiac network/HF Nurse Specialist (Wales)
Gemma Baldock-Apps	Cardiology Audit and Data Manager (East Sussex Healthcare NHS Trust)	Audit and clinical effectiveness, database user
Janine Beezer	HF Specialist Clinical Pharmacist (City Hospitals Sunderland)	HF Specialist Clinical Pharmacist, database user
John Cleland	Chair in Clinical Cardiology (Imperial College London)	Consultant cardiologist (England), HALO
Akosua Donkor	National HF Audit Project Manager	NICOR
Gethin Ellis	Consultant cardiologist (Cwm Taf University Local Health Board) and Network Lead Cardiologist (South East Wales, South Wales Cardiac Network)	Consultant cardiologist (Wales)
Suzanna Hardman	Consultant Cardiologist and HF lead (Whittington Hospital) and past Chair of British Society for HF (BSH)	BSH
Dawn Lambert	HF Nurse Specialist (Portsmouth Hospitals NHS Trust)	HF Nurse Specialist, database user
Theresa McDonagh	Consultant Cardiologist (KCH) and Professor of HF (KCL) and National HF Audit Clinical Lead	Clinical lead, Chair
Richard Mindham	HF patient	Patient representative
Jim Moore	General Practitioner and GP with Special Interest, Gloucestershire HF Service	Primary care physician
Aminat Shote	Information Analyst	NICOR
Kathy Simmonds	HF Nurse Specialist (Kettering General Hospital NHS Foundation Trust)	HF Nurse Specialist, database user
Marion Standing	Senior Developer	NICOR

6 Glossary

Word	Acronym or abbreviation	Definition
	AHF	Acute heart failure
(Acute) Myocardial Infarction	(A)MI	Commonly known as a heart attack, a myocardial infarction results from the interruption of blood supply to part of the heart, which causes heart muscle cells to die. The damage to the heart muscle carries a risk of sudden death, but those who survive often go on to suffer from heart failure.
Angiotensin II receptor antagonist/ angiotensin receptor blocker	ARB	A group of medicines usually prescribed for those patients who are intolerant of ACE inhibitors. Rather than lowering levels of angiotensin II, they instead prevent the chemical from having any effect on blood vessels.
Angiotensin-converting enzyme inhibitor	ACE inhibitor/ ACEI	A group of medicines used primarily for the treatment of high blood pressure and heart failure. They stop the body's ability to produce angiotensin II, a hormone which causes blood vessels to contract, thus dilating blood vessels and increasing the supply of blood and oxygen to the heart.
	BPT	The best practice is defined as care that is both clinical and cost effective. The Department of Health introduced the Best Practice Tariff (BPT) was to create incentives to deliver best clinical practice through adequate reimbursement of high quality care.
Beta blocker	BB	A group of medicines which slow the heart rate, decrease cardiac output and lessen the force of heart muscle and blood vessel contractions. Used to treat abnormal or irregular heart rhythms, and abnormally fast heart rates.
British Society of Heart Failure	BSH	The professional society for healthcare professionals involved in the care of heart failure patients. The BSH aims to improve care and outcomes for heart failure patients by increasing knowledge and promoting research about the diagnosis, causes and management of heart failure.
Cardiac resynchronisation therapy	CRT	CRT, also known as biventricular pacing, aims to improve the heart's pumping efficiency by making the chambers of the heart pump together. 25-50% of all heart failure patients have hearts whose walls do not contract simultaneously. CRT involves implanting a CRT pacemaker or ICD (implantable cardioverter-defibrillator) that has a lead positioned in each ventricle. Most devices also include a third lead which is positioned in the right atrium to ensure that the atria and ventricles contract together.
Care Quality Commission	CQC	Care Quality Commission are an independent regulator of health and adult social care in England.
Chronic heart failure	CHF	
Chronic obstructive pulmonary disease	COPD	The co-occurrence of chronic bronchitis and emphysema, a pair of commonly co-existing lung diseases in which the airways become narrowed. This leads to a limitation of the flow of air to and from the lungs, causing shortness of breath (dyspnoea). In contrast to asthma, this limitation is poorly reversible and usually gets progressively worse over time.
Contraindication		A factor serving as a reason to withhold medical treatment, due to its unsuitability.
Diuretic		A group of medicines which help to remove extra fluid from the body by increasing the amount of water passed through the kidneys. Loop diuretics are often used in heart failure patients to ease symptoms of oedema and breathlessness.
Echocardiography	Echo	A diagnostic test which uses ultrasound to create two dimensional images of the heart. This allows clinicians to examine the size of the chambers of the heart and its pumping function in detail, as well as examine valves and the myocardium (heart muscle).

Electrocardiography	ECG/EKG	A diagnostic test which records the rhythm and electrical activity of the heart. Electrodes (sticky patches, connected to wires which lead to a recording machine) are attached to the arms, legs and chest, and pick up electrical signals produced by each heartbeat. ECGs are sometimes taken whilst a patient is exercising on a treadmill or exercise bike. Information from exercise tests can help doctors to plan treatment, understand the severity of heart disease in the patient, and determine an optimal cardiac rehabilitation programme.
European Society of Cardiology	ESC	The ESC is a professional association for cardiologists across Europe, which aims to facilitate improved diagnosis and treatment of cardiovascular disease in Europe. It runs numerous education and training events, and edits and publishes nine journals on cardiology. The ESC has produced a Clinical Practice Guideline for acute and chronic heart failure, and a set of standards for delivering heart failure care, which the audit uses, along with NICE guidance, as a benchmark for good practice.
Heart failure	HF	A syndrome characterised by the reduced ability of the heart to pump blood around the body, caused by structural or functional cardiac abnormalities. The condition is characterised by symptoms such as shortness of breath and fatigue, and signs such as fluid retention. Acute heart failure refers to the rapid onset of the symptoms and signs of heart failure, often resulting in a hospitalisation, whereas in chronic heart failure the symptoms develop more slowly.
Heart failure with preserved ejection fraction	HF-PEF	Heart failure with preserved ejection fraction. Impaired filling of the left ventricle when the heart muscle is thickened, often as a result of long standing high blood pressure.
Heart failure with reduced ejection fraction	HF-REF	Heart failure with reduced ejection fraction. The most common type of HF due to left ventricular systolic dysfunction, where there is impaired contraction of the left ventricle.
Hospital Episode Statistics	HES	The national statistical data warehouse for England of the care provided by NHS hospitals and for NHS hospital patients treated elsewhere. HES is the data source for a wide range of healthcare analysis for the NHS, government and many other organisations. The National Heart Failure Audit uses HES data to calculate case ascertainment.
Interquartile range	IQR	Interquartile range is the value at 25% and 75% of an ordered set of values.
Key performance indicator	KPI	A measure of performance to evaluate the success of the audit.
Left ventricular dysfunction	LVD	Any functional impairment of the left ventricle of the heart.
Left ventricular ejection fraction	LVEF	A measurement of how much blood is pumped out of the left ventricle with each heartbeat. An ejection fraction of below 40% may be an indication of heart failure.
Left ventricular systolic dysfunction	LVSD	A failure of the pumping function of the heart, characterized by a decreased ejection fraction and inadequate ventricular contraction. It is often caused by damage to the heart muscle, for example following a myocardial infarction (heart attack).
Length of stay	LOS	Length of stay is the length of an inpatient episode of care, calculated from the day of admission to day of discharge, based on the number of nights spent in hospital.
Medical Research Information Service	MRIS	A Health and Social Care Information Centre service which links datasets at the level of individual patient records for medical research projects. NICOR uses MRIS to determine the life status of patients included in the audit, so as to calculate mortality rates. MRIS also provides the audit with HES data for this report.
Mineralocorticoid receptor antagonist	MRA	A group of diuretic medicines, whose main action is to block the response to the hormone aldosterone, which promotes the retention of salt and the loss of potassium and magnesium. MRAs increase urination, reduce water and salt, and retain potassium. They help to lower blood pressure and increase the pumping ability of the heart.

National Clinical Audit and Patient Outcomes Programme	NCAPOP	A group of 40 national clinical audits, funded by the Department of Health and overseen by HQIP that collect data on the implementation of evidence based clinical standard in UK Trusts, and report on patient outcomes.
National Institute for Cardiovascular Outcomes Research	NICOR	Part of the National Centre for Cardiovascular Prevention and Outcomes, based in the Institute of Cardiovascular Science at University College London. NICOR manages six national clinical audits, including the National Heart Failure Audit, and three new technology registries.
New York Heart Association class	NYHA class	NYHA classification is used to describe degrees of heart failure by placing patients in one of four categories based on how much they are limited during physical activity: Class I (Mild): No limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation, or dyspnoea (shortness of breath). Class II (Mild): Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in fatigue, palpitation, or dyspnoea. Class III (Moderate): Marked limitation of physical activity. Comfortable at rest, but less than ordinary activity causes fatigue, palpitation, or dyspnoea. Class IV (Severe): Unable to carry out any physical activity without discomfort. Symptoms of cardiac insufficiency at rest. If any physical activity is undertaken, discomfort is increased.
Oedema		An excess build-up of fluid in the body, causing tissue to become swollen. Heart failure patients often suffer from peripheral oedema, affecting the feet and ankles, and pulmonary oedema, in which fluid collects around the lungs.
Patient Episode Database of Wales	PEDW	The national statistics database for Wales, collecting data on all inpatient and outpatient activity undertaken in NHS hospitals in Wales, and on Welsh patients treated in English NHS Trusts.

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