



Blueprint for Excellence in Heart Failure Services in North West London



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Foreword

Heart failure affects approximately 900,000 people in the UK. The incidence of heart failure is about one new case per 1,000 population per year. Population prevalence rates have been estimated at 3 per 1,000, increasing to at least 80 cases per 1,000 among people aged 75 and over.

Prognosis for heart failure is poor and at a time when deaths from Coronary Heart Disease (CHD) are declining, morbidity and mortality from heart failure is increasing. Heart failure accounts for about 5% of all medical admissions to hospital with readmission rates among the highest for any common condition in the United Kingdom, approximately half of which may be preventable. Patients with heart failure also experience a poor quality of life, with over a third experiencing depression at some point.

It is estimated that heart failure costs the NHS approximately £625 million per year, with two thirds of this cost associated with hospitalisation. If not managed effectively, particularly in the community, it will continue to place a significant demand on hospital services and expenditure.

The National Service Framework (NSF) for CHD¹, Standard 11 states: *'Doctors should arrange for people with suspected heart failure to be offered appropriate investigations (e.g. electrocardiography, echocardiography) that will confirm or refute the diagnosis. For those in whom heart failure is confirmed, its cause should be identified – the treatments most likely to both relieve symptoms and reduce their risk of death should be offered.'*

The evidence base for redesign and management of heart failure was examined by National Institute for Clinical Excellence (NICE); with production of a clinical guideline for the NHS in England and Wales in July 2003². The guideline provides explicit recommendations on the diagnosis, treatment and care of people with heart failure.

The Healthcare Commission's³ review of the NSF for CHD has indicated that of all the NSF chapters, least progress has been made in implementing the heart failure standards and milestones. This has instigated further investigation and review of heart failure services as a priority for 2005/2006. In line with NICE and the NSF, the Government's new White Paper *'Our health, our care, our say: a new direction for community services'*⁴, is providing the strategic shift towards services being located in primary care and community settings. There is a growing body of evidence that effective medication and input from specialist multidisciplinary teams can have a positive impact on patient outcomes and quality of life, reduce admission events, and improve survival. Such improvements will help support achievement of the public service agreement (PSA) target to reduce emergency bed days by 5% by 2008⁵.

This document has been produced in response to the above and suggests standards of heart failure management and care across North West London. The chosen model for heart failure service delivery will vary across the Network but the principles and standards of this document should form the basis for service provision.

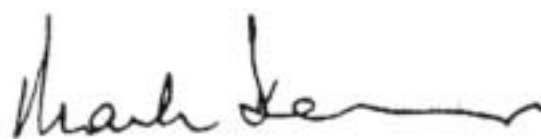
Adoption of the recommendations will result in considerable improvements in the diagnosis and management of patients. Effects on quality of care should be observed almost immediately. By necessity the heart failure services outlined in the document requires the participation of multidisciplinary teams, all elements of which need to be in place to provide a complete pathway of care. It is no longer satisfactory to have only the minority of patients investigated both in primary care and during their hospital admission. Similarly, it is not acceptable to under-treat patients with a confirmed heart failure diagnosis.

The document therefore provides a comprehensive blueprint for the management of patients in the community and in hospital and the importance of developing the services across the whole of the care pathway.



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1. EXECUTIVE SUMMARY

Strategic Context

This document was developed by clinical teams, managers and service users spanning primary, secondary and tertiary care and is aimed at health care professionals, public health leads, Primary Care Trust (PCT) commissioners; practice based commissioning groups and acute trust service leads involved in the development, delivery and procurement of heart failure services.

The document outlines and incorporates key national policy drivers, specifically: '*Commissioning a Patient Led NHS*'⁶, '*Our health, our care, our say: a new direction for community services*'³, the CHD NSF¹, NICE guidelines, and the PSA detailed within The NHS in England: the operating framework for 2006/07 around cardiovascular mortality, inequalities and management of long-term conditions. Many elements of heart failure management are also included as part of the General Medical Services (GMS) contract. The

recommendations also support the criteria for the new assessment of care by the Healthcare Commission due to take place in April, which will contribute to the annual rating of organisations.

Burden and Health Inequalities

Heart failure affects approximately 900,000 people in the UK. Heart failure accounts for about 5% of all medical admissions, 10% of bed days, and has one of the highest emergency admission and readmission rates across all diagnoses.

Specifically across NW London it is estimated that there are up to 22,000 people suffering from heart failure and this is likely to increase year-on-year due to the ageing of the population, and improved survival from heart attack. There are in the region of 2,000 annual admissions for heart failure, accounting for more than 27,000 bed days. Over the past three years, the mean (average) length of stay for NW London for heart failure was 14.7 days, considerably longer than the national or European average.

Across NW London there are significant differences in health inequalities with in-hospital death rates ranging from 0.4% (North West London Hospitals NHS Trust) to 21.4% (West Middlesex University NHS Trust). Wide variations in the mean number of bed-days per patient are also evident, with a range from 11.3 in Harrow to 20.3 in Hammersmith.

Current Provision

Whilst most patients may be effectively managed within primary care for the majority of the time, with a reduction in inappropriate referrals and emergency bed days, there is a requirement to ensure that across each local health economy (defined as a PCT and their main provider Trust), there is adequate provision and access to specific diagnostics and specialist health professionals.

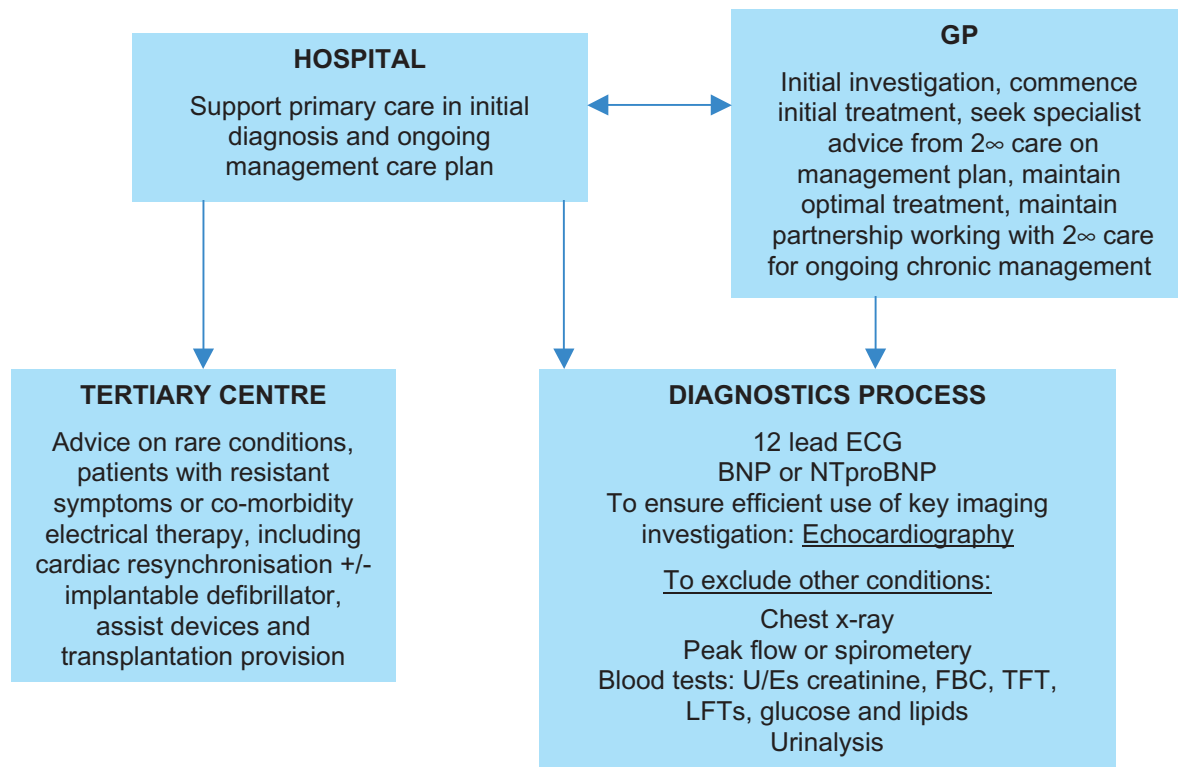
Whilst significant improvements have been made in the development of heart failure services, there

remain gaps in provision resulting in unnecessarily higher-than-average admission rates to secondary care.

The role of primary care should be to investigate patients presenting with the symptoms of heart failure, commence initial treatment, agree an appropriate treatment plan in conjunction with secondary care, maintain optimal treatment and support ongoing care and monitoring in the community. The role of acute services should be to support primary care in the initial diagnosis and management plan for patients presenting with heart failure, intervene where optimal treatment cannot be attained in primary care and to care for patients admitted acutely with heart failure. The role of tertiary care is to provide specialist support and treatment to patients with complex disease or resistant symptoms.

As such, there is a need to provide a seamless provision of service between the community and acute services (Fig 1).

Figure 1 – Service Provision



Service Provision Requirements

For patients to receive the right care at the right time in accordance to their need, appropriate referral strategies, which span the whole of the care pathway to include primary, secondary and tertiary care, need to be provided. Lack of this can lead to a readmission rate as high as 50% by 6 months after discharge from hospital. Across each local health economy (PCT and their main provider acute Trust), the following minimum standards are required.

Diagnosis

- *Routine haematology, biochemistry and electrocardiography (ECG) services should be available in both primary and secondary care*
- *B-type natriuretic peptide (BNP) testing should be made available within either the primary or secondary care setting across every health economy in NW London*

Currently in NW London, BNP testing is available in only 2 out of 8 areas. The benefits of BNP availability are to ensure the most effective use of echocardiography to facilitate early diagnosis and subsequent commencement of therapy, thereby preventing inappropriate hospital admissions.

- *Echocardiography*

A key component in the diagnosis and management of heart failure is the provision of echocardiography services. Across NW London there is significant variation in access to these services with waiting times ranging from 2 weeks up to 20 weeks, this has clear



implications for the delivery of "Choice of scan: Phase 3"⁷, the 18-week wait target⁸ and patient choice. The use of BNP testing can help ensure more effective use of echocardiography services, reducing the number of inappropriate referrals.

Workforce

- *Personnel*

To ensure and maintain high quality service provision with an integrated approach across the healthcare community, services must include appropriate health care professionals. The following multi-disciplinary staff will be vital in delivering an optimised heart failure service provision:

- Tertiary referral centres – there should be at least 1 consultant cardiologist with a specific interest and expertise in heart failure. Centres should be working towards 25% of consultant staff having a heart failure remit and the target to achieve should be 1/100,000 population.
- Secondary referral centres/district general hospitals – 1 out of 3 cardiologists should have a special interest in heart failure. In single-handed practices, acceptable interim alternatives would be a physician (either a geriatrician or general medicine consultant) with a specific interest in heart failure. Care of the elderly services provides important holistic assessment of the problems of old age, which many heart failure patients have.
- Primary care – the development of GPs with a special interest (GPwSI) in cardiology, and to include heart failure, should be encouraged, and would be an important link between secondary care and GPs.
- Specialist heart failure nurse practitioners – 1/100,000 for each acute hospital site with access to a consultant cardiologist with a specific interest in heart failure. The consultant should serve as a link for advice to the heart failure nurse. Heart failure nurses should also be encouraged to take part in Heart Failure Clinics with a remit for "supervised diagnosis" and optimisation of therapy and education for people with heart failure, who are often not currently 'captured' by a hospital admission. The

heart failure nursing service should also function as a link between secondary and primary care.

• *Training*

The provision of optimum heart failure services demands heart failure expertise within the workforce and training will be expected to meet these demands. Accredited expertise for all health care professionals working with heart failure patients will require:

- Involvement of the British Society for Heart Failure (BSH), British Cardiac Society (BCS), and Specialist Advisory Committee (SAC) in Cardiology outlining training requirements for heart failure cardiologists. Heart failure is now a recognised sub-specialisation within a Certificate of Completion of Specialist Training (CCST) for cardiology.
- Educational programmes for heart failure nurse specialists, including courses run by several UK universities.
- Educational programmes within Primary Care for all health care professionals, in particular GPs and practice nurses. This should include the management of chronic heart failure patients, including generic palliative care skills.

Chronic Disease Management

The revised GMS contracts' inclusion of the Quality and Outcomes Framework (QOF) palliative care points provides the platform for the inclusion of more non-cancer patients to be registered with a GP and assist in encouraging the use of heart failure registers and their sustainability. The emergent evidence of effective medication and input from specialist multidisciplinary teams and the positive effect this has on patient outcomes, reduced admission events and improved survival, provides important key elements within chronic disease management. Quality of life can be improved by a palliative care-type approach and it will be vital to include the following components:

- Monitoring as recommended by NICE (2003) of symptom control, cardiac rhythm, fluid status, cognition, nutritional status, and blood biochemistry, at least six monthly, but more often for unstable patients.



- Stratifying patients by risk and using validated assessment tools.
- Involving patients in their own care.
- Using multidisciplinary teams providing high-quality, evidence-based care including introduction and titration of drug therapies, such as ACE inhibitors and beta-blockers.
- Using protocols and care pathways – Liverpool Care of the Dying Pathway and the Gold Standards Framework in the Community.
- Integrating care across organisational boundaries, including access to palliative resources already available within other chronic diseases such as Cancer.
- Provision of access to information and education for patients and their carers.

- Linking and developing palliative care needs across the health care interface.
- Use of information systems to access key data on individuals to identify patients with chronic disease.

Clinical Audit and Research

Clinical audit and research will play an important role in building up the framework for evidence-based care. Audit, using the BSH national dataset and GMS QOF, will help identify areas that require improvement and facilitate sharing of best practice. Research, including the assessment of new technologies and ways of working, will help ensure ongoing service improvements and benefit to patients both locally and nationally.

2. INTRODUCTION

As heart failure is a common medical problem (indeed, the only cardiovascular diagnosis which is rising in both prevalence and incidence) which is associated with substantial morbidity and mortality and for which there is evidence based therapy capable of altering its natural history, the establishment of heart failure management programmes is becoming a priority. Chapter's three to six outlines a summary of the key elements, which should be involved, as well as some more desirable features, which can improve the delivery of, such a service provision. Obviously the specifics of how a heart failure service will run may vary from site to site.

It is evident that the management of the patient with suspected or confirmed heart failure is complex and that the numbers of patients involved is large and increasing. It is a condition that involves many different types of expertise across a range of medical, nursing and other professions allied to medicine together with support services in the community. This service provision document envisages a situation whereby all patients have access to the best possible care, including improved access to palliative care services, informed by and responsive to advances in diagnosis management and treatment. The goal should be to provide a "seamless" system of care across the primary/secondary care divide in order that the care of every patient is optimal.

3. COMPONENTS OF A HEART FAILURE PROGRAMME

Each acute site in conjunction with its community services should agree guidelines for the management of heart failure in both primary and secondary care to ensure consistency of approach. These guidelines should also include medical therapy guidelines, which can be used to allow nurse prescribing and optimisation of therapy.

These guidelines should be based around the NICE and Scottish Intercollegiate Guidelines Network (SIGN)⁹ guidelines for the management of Congestive Heart Failure (CHF).

3.1 The Role of Clinics

All patients suspected of having heart failure should have the diagnosis established and then the aetiology defined prior to implementing a management strategy. All acute hospitals have the necessary tools to provide this for patients admitted acutely with new heart failure or decompensated heart failure (see Fig. 2).

For patients being referred as outpatients, ideally, the diagnostic and management strategies for heart failure patients should be centred around a heart failure clinic or with access to a consultant with expertise in heart failure. Participation of specialist GP's would also be desirable.

Indeed heart failure clinics are seen as a key element in the multidisciplinary models of heart failure care in the US, which have led to improvements in health care delivery in CHF as well as a significant reduction in hospitalisations. Such clinics would act as a focus for referral of patients admitted acutely, from primary care (both incident and prevalent cases) and from the hospital's nursing service. They should, if possible, be multidisciplinary involving cardiologists, GPs, care of the elderly (COTE) physicians, specialist nurses and pharmacists. They also provide a supportive milieu for those involved in the care of the heart failure patients and act as a forum for discussion, advice, and appropriate supervision and training of the health care professionals involved. They also facilitate better time management by the nursing service allowing the



nurses to follow up patients who are able to attend a clinic rather than having more time-consuming home visits. As such they allow rapid access to heart failure expertise for primary and secondary care physicians, other specialist health care professionals and patients.

3.2 Diagnostic Services

To diagnose and manage heart failure optimally certain minimum diagnostic services should be available (see Fig. 2).

Routine haematology, biochemistry and ECG services will be widely available. BNP testing should be available. As echocardiography is the most common means by which the presence of cardiac dysfunction is defined and as it would be desirable for heart failure clinics to function in a "one stop manner" diagnostically, an echocardiographic service with capacity to support the clinic should be available on site.

To further establish the aetiology of heart failure, there should be access to exercise testing and coronary angiography. For centres dealing with the management of advanced heart failure and transplantation there must be provision for nuclear cardiology, exercise testing with oxygen uptake measurement, right heart catheter haemodynamics and cardiac biopsy. Diagnostic services, which will be required in the near future, will include access to cardiac magnetic resonance imaging (MRI).

3.3 Therapeutic Services

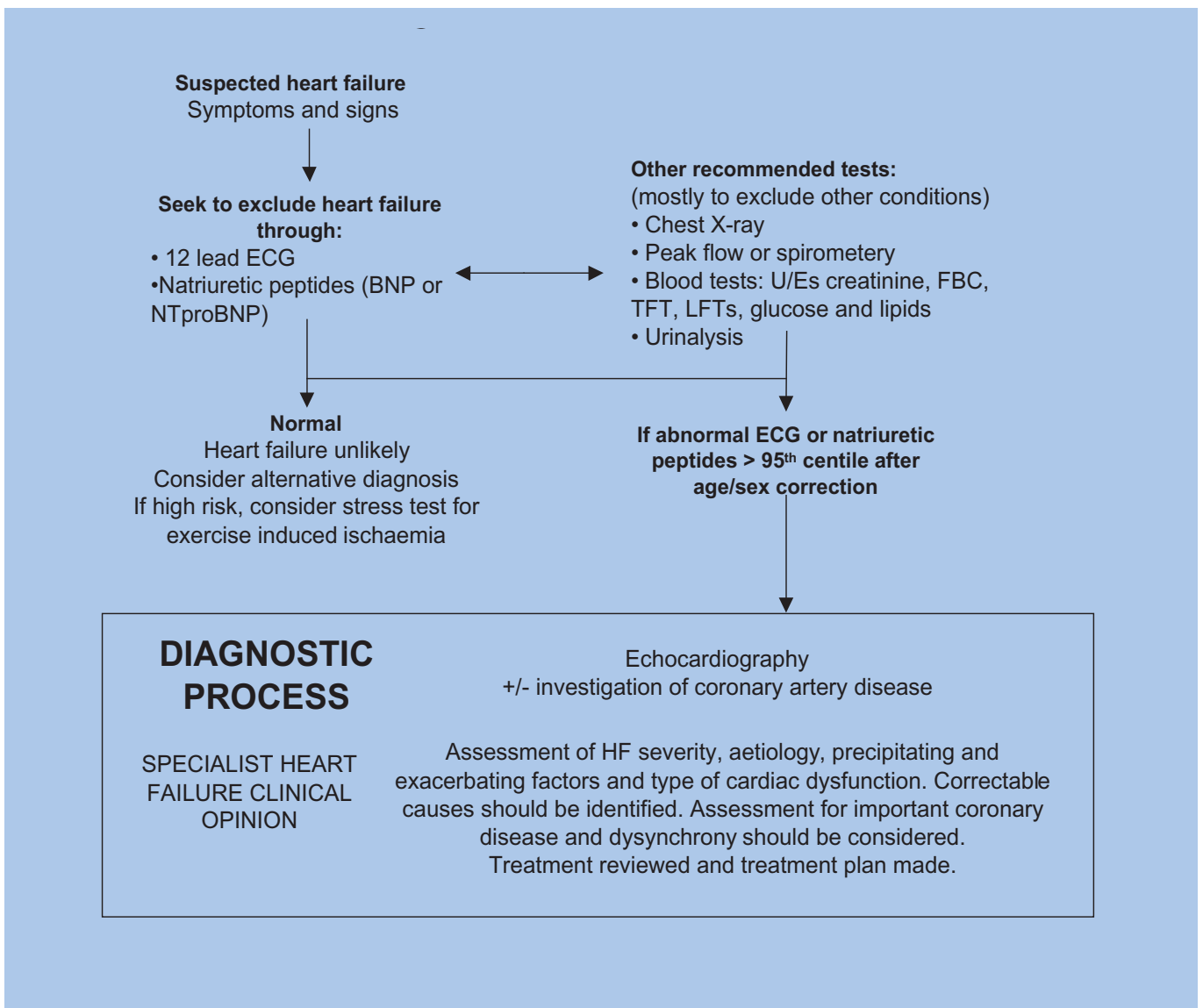
All heart failure services should offer evidence based drug therapy according to National Guidelines (see NICE and SIGN). Physicians should have access to cardiac surgical services for revascularisation surgery in patients with left ventricular dysfunction (LVD), as appropriate.

There should be provision for a referral strategy for patients with heart failure, due to LVD who have ventricular tachycardia (VT) for implantation of implantable cardioverter defibrillator's (ICDs). Specialist centres should be able to offer resynchronisation therapy for relief of symptoms in

suitable patients. If not available on site, there should be a strategy for referral for cardiac resynchronisation therapy (CRT).

A heart failure service should have a referral strategy for patients who require transplantation and/or left ventricular assist device (LVAD) therapy and good links with the appropriate transplant centre. The heart failure service should be able to decide when and in whom palliative care is necessary and a referral strategy should be in place. Patients with heart failure may benefit from cardiac rehabilitation. They should be referred as appropriate.

Figure 2 – Algorithm summarising recommendations for the diagnosis of heart failure



4. PERSONNEL

4.1 Medical Staff

All tertiary referral centres should have among their consultant cardiology staff an individual with a specific interest and expertise in heart failure. Whilst we realise that, it may take some years to attain ideal heart failure provision among medical staff, for a tertiary centre 25% of the consultant staff should have a heart failure remit. The target to achieve should be 1/100,000 population.

In secondary referral centres/district general hospitals over a ten-year period we would expect, in centres with a quota of three cardiologists, that one of these have a specialist interest in heart failure. Where existing practices are single-handed, acceptable interim alternatives would be a physician (who could be either, a geriatrician or general medicine consultant) with a specific remit for provision of heart failure care. This person would be responsible for the setting up and coordination of both in patient and out patient management strategies for heart failure.

In primary care it will be necessary to involve GP's with a special interest (GPwSI) to support and ensure the optimum primary and secondary care interface. We need more educational programmes for this objective to be attained.

4.2 Nursing Staff

The involvement of specialist nurse practitioners in the continuing care of patients admitted to hospital with decompensated heart failure has been shown in a number of studies in mainland Europe, the US, Australia and Scotland to reduce subsequent hospitalisations. It would be desirable for each acute hospital site to achieve the European Society of Cardiology (ESC) target of 1 heart failure nurse per 100,000 population.

The service will vary according to the site and geographical location. We would strongly advise that the nurses' physical location, where possible, should be based in an acute site with access to a consultant cardiologist with a specific interest in heart failure. The designated heart failure consultant (above) should serve as a link person for advice to any heart failure nursing input.

The role of the nurse has a potential to be widespread but could involve home visits, telephone contact and nurse led clinics or a combination of these for patients admitted with decompensated heart failure. The main focus should be on patient education and optimisation of medical therapy. Heart failure nurses should also be encouraged to take part in Heart Failure Clinics with a remit for "supervised diagnosis" and optimisation of therapy and education for incident and prevalent cases of heart failure, not currently captured by a hospital admission. The heart failure nursing service should also function as a link between secondary and primary care.



5. SPECIFIC TRAINING ISSUES

Many consultant appointments, at present and in the future, will specifically demand a remit for heart failure expertise. The BSH should be involved along with the BCS and SAC in Cardiology in outlining the basic training requirements for Heart Failure Cardiologists.

An advanced training module in heart failure has been developed at the request of the SAC in Cardiology of the Joint Committee on Higher Medical Training (JCHMT). It will stand alongside current programmes for Acute CHD, Intervention, Pacing and Electrophysiology. These modules will eventually lead to “sub-speciality accreditation” though this is a bit further away. Implementation will be in 2008.

For a cardiologist to claim a specific expertise in Heart Failure they must have a CCST in Cardiology, which covers the core curriculum in cardiology. In addition, in their training, they should have spent one year attached to a cardiologist/s managing a heart failure service. They should have extensive exposure to the inpatient management of acute and decompensated heart failure. They should have experience of Heart Failure Clinics. They should have been involved in advising and supporting a heart failure nursing service. They should have British Society of Echocardiography (BSE) or equivalent European Echocardiography accreditation. They should have access to rotate to a specialist centre to gain adequate exposure to the assessment and management of heart failure patients requiring ICDs, CRT, LVADs and cardiac transplantation.

6. CHRONIC DISEASE MANAGEMENT OF PATIENTS WITH CHRONIC HEART FAILURE

CHF patients should have an individualised management plan based upon evidence-based treatments. This should be explained and discussed with them in the most appropriate setting. The aim should be to improve their quality of life and/or their life expectancy, taking into account their views and beliefs through honest, sensitive and open discussion about their prognosis.

A clinical management plan can be defined as ‘a written prescription of treatment and care recommended by health professionals who are responsible for the well-being of patients with CHF’.

6.1 Service Provision/Care Standards

- Patients with CHF should be risk stratified and given an individually tailored clinical management plan to outline their treatment after each medical consultation.
- Patients with an objective diagnosis of CHF should be given opportunity to discuss and explore their diagnosis, prognosis and potential treatment options.
- Patients with CHF should have their supportive and palliative care needs assessed taking into account all aspects of their life including social, psychological, emotional, and physical factors.^{10,11}
- Patients with CHF should receive education and support with non-pharmacological and lifestyle factors including self-management strategies, risk factor reduction and exercise.
- Patients with CHF should have at least one cognitive assessment using a validated assessment tool to make sure that their care is appropriately tailored to their needs.
- Patients with CHF should be provided with up to date information and advice regarding their pharmacological therapies. This may include current treatments as published in the NICE guidelines, as well as new evidence based treatment likely to impact upon their condition.
- Patients with CHF who remain persistently symptomatic despite optimal treatment should be considered for specialist palliative care services.
- Patients with CHF should have the right to choose where they wish to die with full support from health care services, as mentioned within the Liverpool Care of the Dying Pathway and the Gold standards Framework in the Community.
- Heart failure services should develop links with their local palliative care and community nurse teams in order to help develop assessment tools, referral pathways and facilitate reciprocal education.



- Specialist heart failure clinics should be provided for patients with CHF. The activity of these clinics should be monitored, audited and be accessible across the health care interface.
- GP practices should make sure that patients with heart failure are appropriately recorded onto a heart failure register.
- GP practices should review patients with CHF every 6-months, in accordance with agreed national and local recommendations, except where patients are under review by secondary care or specialist community heart failure teams.
- Health care practitioners involved in the care of CHF patients, should be provided with the contact names and numbers of specialist heart failure teams within their local health economy to enable easy access to advice.

Patients should have a comprehensive assessment of relevant co-morbidities. In particular, attention should be given to the treatment of hypertension, anaemia and chronic lung disease e.g. Chronic Obstructive Pulmonary Disease (COPD) and specialist review should be considered for the management of chronic renal impairment.

- Heart failure services should make provisions for running efficient interdisciplinary discussions/meetings designed to implement evidence-based treatment.
- Unified protocols and guidelines for the assessment and management of patients with acute and chronic heart failure should be developed across the patient pathway.
- Hospitals should make sure that systems are in place to identify patients diagnosed with CHF so that they are referred onto appropriate specialist services.
- Health care providers involved with the management of CHF patients should have access to appropriate and up to date education on heart failure which encompasses generic palliative care, for continued professional development.

All members of the multidisciplinary team managing or supporting patients with heart failure including, voluntary services should have access to:

- Relevant information regarding local services, support and resources.
- Up to date contact details for HF teams/services available within the NW London Network.
- Copies of local heart failure information, guidelines and support materials.
- Information regarding services for heart failure patients.

6.2 Clinical Audit & Research

Clinical Audit is part of ongoing quality improvement in every area of health care including, diagnosis, treatment and patient care. As such, all health care professionals should be undertaking or participating in clinical audit as an

integral part of their everyday practice. It can be a powerful tool for assessment of current practice and the implementation of evidence based changes aimed at improving practice and outcomes (for more information on audit in CHF see www.nice.org.uk & www.rdforum.nhs.uk).

Research into heart failure is essential for the development of CHF patient care. It should be facilitated and supported by everyone in accordance with ethics, good clinical practice guidelines and Trust/PCT policies.



7. HEART FAILURE IN NORTH WEST LONDON

This chapter provides statistical data of heart failure evidence within NW London between the years 2001 and 2004. The data categorises key areas where heart failure is most prominent, such as hospital admissions, in-hospital deaths and length of stay, LVD prevalence and primary care management.

The prevalence of heart failure increases with age, doubling with each decade of life. This is evident within the data for hospital admissions where the rate increased for patients aged 60+ (105.6 per 100,000 or 611.3 per 100,000 among those aged 60+). Similarly with in-hospital deaths the rate rose with age with 25% of male patients aged 85+ dying in hospital.

In NW London, heart failure patients occupied 27,362 bed-days per year (2001/2-2003/4) with an above average length of stay of 14.7 days in comparison to the national average of 11 days. This reflects the fact that heart failure is known to be the largest source of emergency admissions and occupied bed days for any chronic condition. 1% of NHS expenditure is currently spent on heart failure with the in-patient stay being the highest element of cost.

It is estimated that up to 21,413 people live with heart failure in NW London. However, only approximately 5,153 patients are registered on either a CHD or LVD disease register. This equates to a prevalence of 0.25%, suggesting a significant under recording of patients. It is acknowledged that not every practice has an LVD disease registers although where LVD registers are in place; some practices are recording fewer than 5 LVD patients. The data, however, does indicate that some GP practices are managing patients effectively. Specifically, that 88.7% of LVD registered patients have a confirmed diagnosis and 85.6% of LVD registered patients are treated with an ACE inhibitor or A2 antagonist.

The improved diagnosis and management in general practice would reduce rates of hospital admissions.

7.1 Heart failure admissions

The following criteria were used when extracting admissions from the Admitted Patient Care (APC) database:

- 2001–2002, 2002–2003, 2003–2004
- Heart failure as primary diagnosis (ICD10 = I50)
- London Borough residence code
- Only those admitted as an emergency (admission method code 20–29)
- Spells, rather than Finished Consultant Episodes (spells are equivalent to admissions)

Admissions by age and sex

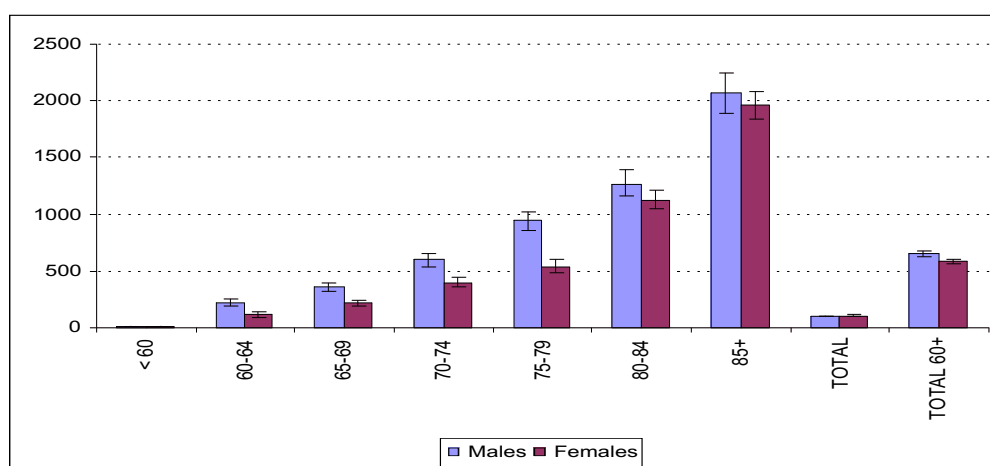
There were 5,749 admissions over the 3 years. The number of admissions was higher among males than females at all ages, except among those aged 80+. Among those aged 85+; the number of admissions among males was approximately half the number among females. Over 90% of admissions were among those aged 60+.

There was no consistent direction of change in the number of admissions per year over the 3 years.

Number of heart failure admissions per year, and admission rate (per 100,000), by age & sex: 2001/2 – 2003/4

Age group	Number		Admission rate	
	Males	Females	Males	Females
< 60	101	61	13.0	8.1
60-64	74	42	219.6	114.8
65-69	110	70	359.6	215.8
70-74	147	112	595.1	395.8
75-79	167	132	938.2	541.8
80-84	161	222	1267.7	1128.6
85+	171	347	2064.3	1958.6
TOTAL	931	986	103.1	108.1
TOTAL 60+	830	925	650.0	581.0

Heart failure admission rates (per 100,000), by age & sex: 2001/2 – 2002/3



The heart failure admission rate increased substantially with age, and was higher among males than females in every age group, although the rates were relatively similar in the older age groups.

Admissions by borough of residence

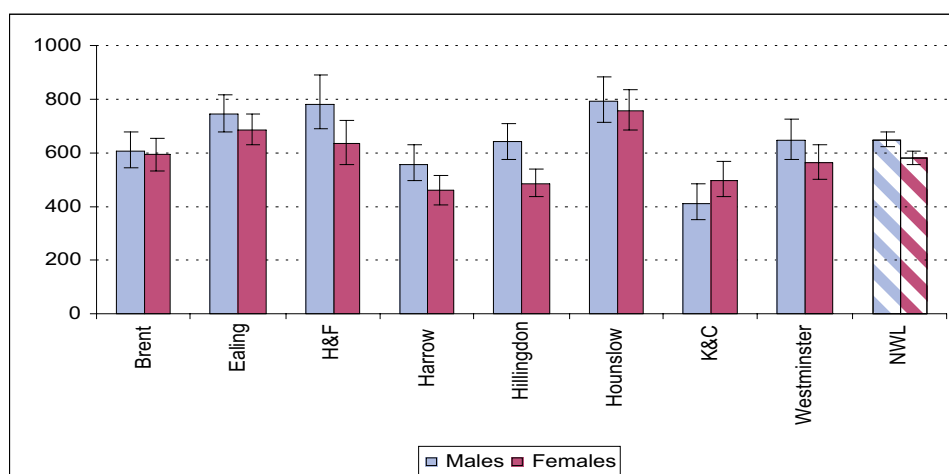
Number of heart failure admissions per year, and admission rate (per 100,000), by borough of residence: 2001/2 – 2003/4

Borough	Number of admissions per year	Admission rate	Admission rate: Age 60+	Age-standardised admission rate
Brent	274	102.3	598.6	96.0
Ealing	361	118.6	711.5	106.8
H&F	179	102.6	704.0	104.5
Harrow	218	103.3	500.8	71.3
Hillingdon	264	106.8	551.0	79.3
Hounslow	269	126.5	775.0	116.5
K&C	135	77.4	461.6	63.0
Westminster	215	97.2	601.8	87.9
NWL SHA	1916	105.6	611.3	90.6

Admission rates were highest in Hounslow (126.5 per 100,000) and lowest in Kensington and Chelsea (77.4 per 100,000).

Admission rates among those aged 60+ were highest in Hounslow (775.0 per 100,000) and lowest in Kensington and Chelsea (461.6 per 100,000).

Heart failure admission rates (per 100,000) among those aged 60+, by borough of residence and sex: 2001/2 – 2003/4



Among those aged 60+, rates were higher among males than females in most boroughs. In Kensington and Chelsea, rates were higher among females than males and, in Brent and Hounslow, rates were similar among males and females.

Male and female age-specific admission rates differed in very different ways between boroughs:

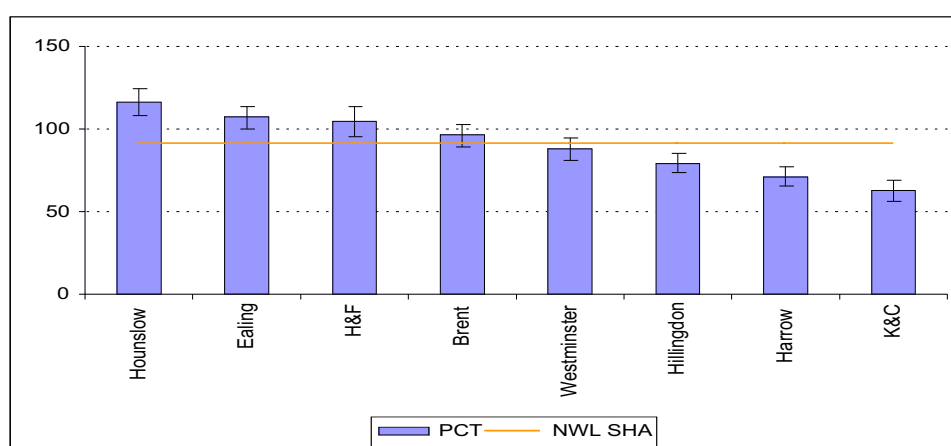
- Hounslow and Westminster had similar age & sex distributions
- In Hillingdon, rates were much higher among males than females at all ages above 60, especially at age 85+
- In Ealing and Harrow, rates were much higher among males than females aged 75–79, with rates for males increasing substantially from age 75, and rates for females increasing substantially from age 80
- In Kensington and Chelsea, the rate among males aged 85+ was similar to those aged 80–84, but the rate among females aged 85+ was substantially higher than at age 80–84
- In Brent in particular, the rate among those aged 85+ was substantially higher than among younger age groups

Within age groups, rates varied quite widely between boroughs. Among those aged 85+, for example:

Rates among males ranged from 967 per 100,000 in Kensington and Chelsea (29 admissions), to 2,611 per 100,000 in Hammersmith and Fulham (47 admissions);

Rates among females ranged from around 1,500 per 100,000 in Hillingdon and Harrow (127 and 135 admissions), to 2444 per 100,000 in Hounslow (132 admissions).

Age-standardised heart failure admission rates (per 100,000), by borough of residence: 2001/2 – 2003/4



Using age-standardisation, heart failure admission rates were reduced in all boroughs except in Hammersmith & Fulham, where there was little change. The reduction in rates was largest in Harrow and Hillingdon.

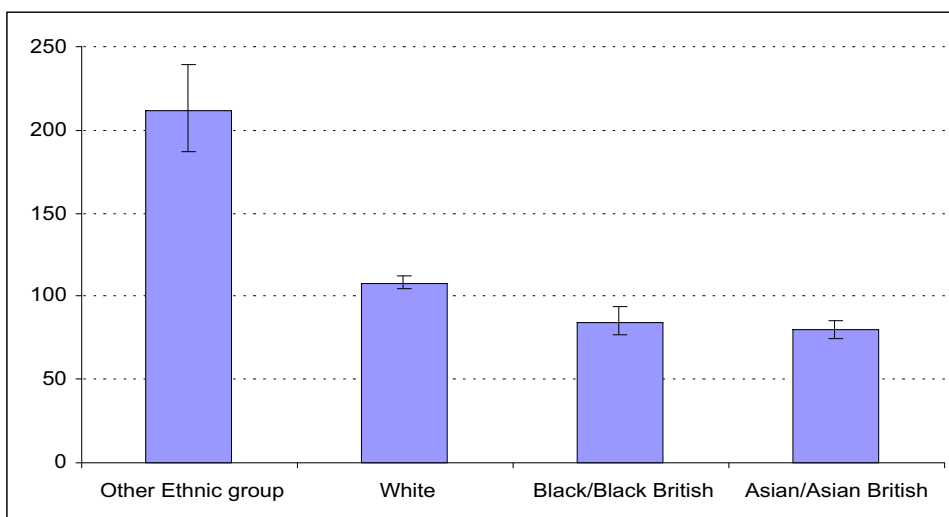
Age-standardised admissions rates were highest in Hounslow (116.5 per 100,000) and lowest in Kensington and Chelsea (63 per 100,000).

Admissions by ethnic group

Number of heart failure admissions per year, and admission rate (per 100,000), by ethnic group: 2001/2 – 2003/4

Ethnic group	Number	Admission rate
White	1226	108.1
Mixed	< 10	11.9
Asian/Asian British	259	79.8
Black/Black British	129	84.8
Chinese	< 5	16.1
Other ethnic group	89	211.8
Not stated/Blank	203	---
TOTAL	1916	100.6

Heart failure admission rates (per 100,000), by ethnic group: 2001/2 – 2003/4



The ethnicity status of 10.6% of patients was either not stated or blank. Patients from mixed or Chinese ethnic groups have been excluded, due to low numbers of admissions.

The high rate of heart failure admissions among patients from ‘other’ ethnic groups is likely to have been influenced by both low population numbers among older age groups and, in particular, by miscoding of patients. Although the rate among white patients was slightly higher than among Black/Black British or Asian/Asian British patients, the difference was not substantial.

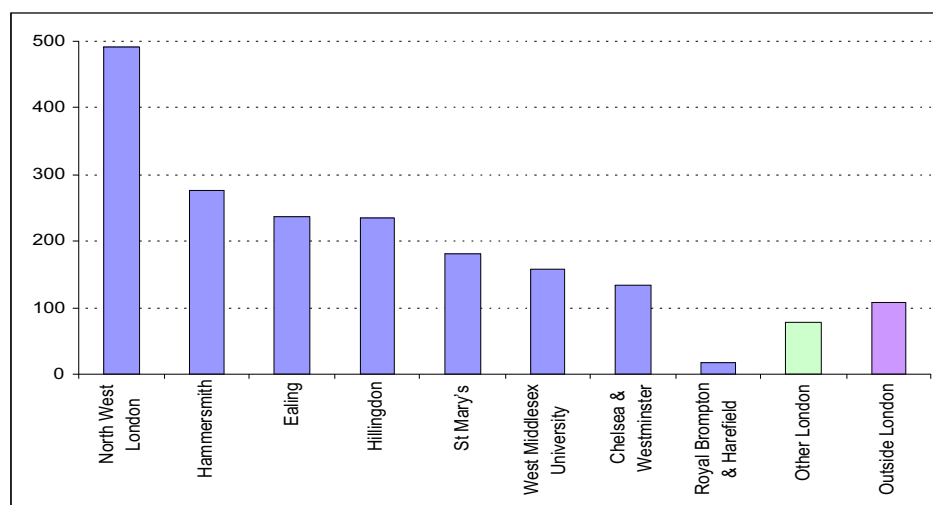
For Black/Black British residents, Westminster and Hammersmith and Fulham had particularly high admission rates and Harrow had a particularly low admission rate. For residents coded as being from ‘other’ ethnic groups, Harrow, Hillingdon and Hounslow had very high admission rates, and Kensington and Chelsea had a low rate. Among males aged 75+, the highest rate was among Asian/Asian British patients, particularly at ages 85+. Among females aged 65+, the rate among white patients was much lower than among Asian/Asian British and Black/Black British patients.

Admissions by NHS Trust

Number of heart failure admissions per year, by NHS Trust: 2001/2 – 2003/4

NHS Trust	Number
Chelsea & Westminster	133
Ealing	238
Hammersmith	276
Hillingdon	234
North West London	492
Royal Brompton & Harefield	18
St Mary's	180
West Middlesex University	157
Other London	78
Outside London	107
TOTAL	1916

The number of heart failure admissions per year, by NHS Trust: 2001/2 – 2003/4



7.2 In-hospital deaths of heart failure patients

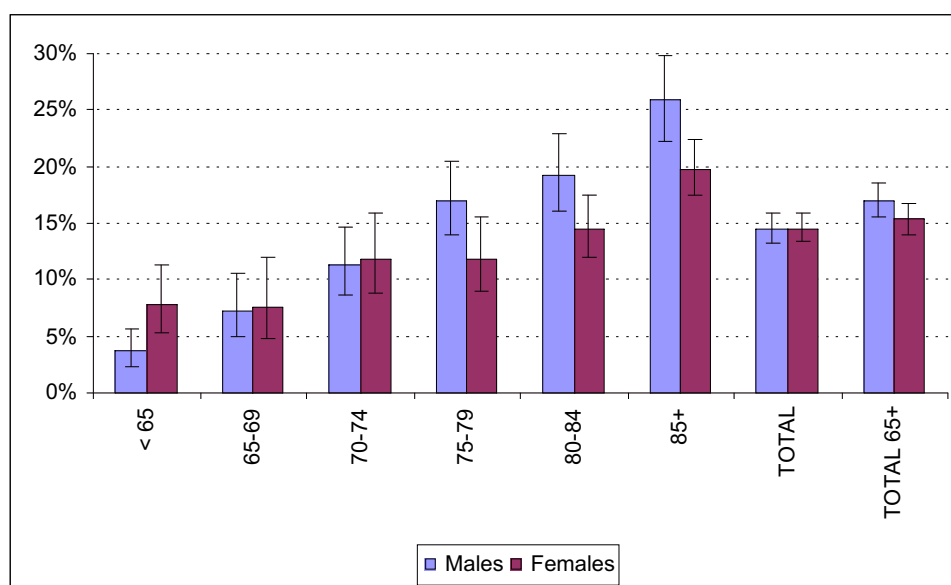
In the APC database, patients that died in hospital can be identified. However, it cannot be assumed that this death was caused by the primary diagnosis. A total of 834 patients died in hospital during 2001/2 – 2003/4, following admission with heart failure as the primary diagnosis. Overall, the percentage of patients that died was 14.5%.

In-hospital deaths by age & sex

Number and percentage of heart failure patients that died in hospital per year, by age & sex: 2001/2 – 2003/4

Age group	Number of patients that died in hospital		Total Number of patients		% of patients that died	
	Males	Females	Males	Females	Males	Females
< 65	6	8	174	103	3.6%	7.8%
65-69	8	5	109	70	7.3%	7.6%
70-74	17	13	147	112	11.3%	11.9%
75-79	28	16	167	132	17.0%	11.9%
80-84	31	32	161	222	19.3%	14.5%
85+	44	69	171	346	25.9%	19.8%
TOTAL	135	143	930	985	14.5%	14.6%
TOTAL 65+	128	135	756	882	17.0%	15.3%

The percentage of heart failure patients that died in hospital, by age and sex: 2001/2 – 2003/4



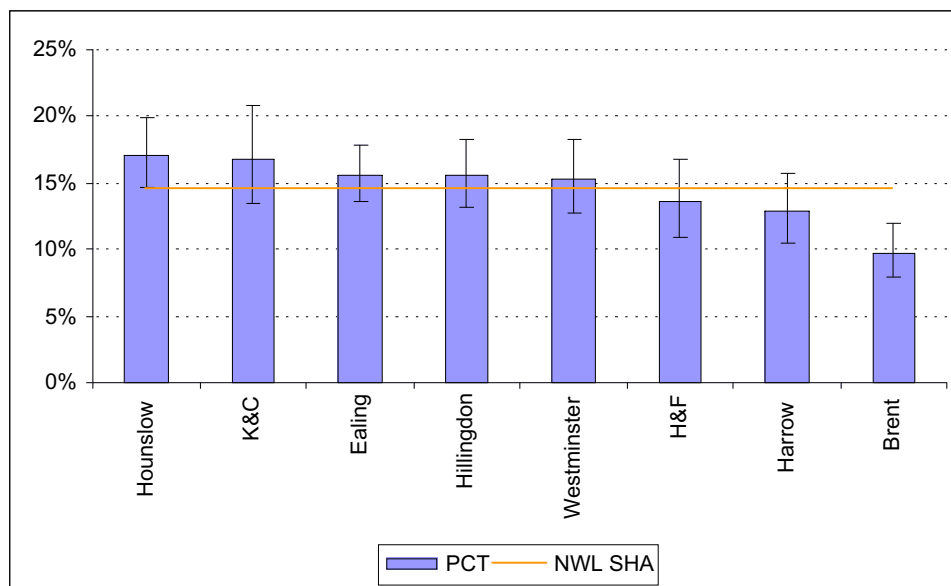
The percentage of patients that died in hospital increased with age. At age 75+ the percentage was higher among males. 25% of male patients aged 85+ died in hospital.

In-hospital deaths by borough of residence

Number and percentage of heart failure patients that died in hospital per year, by borough of residence: 2001/2 – 2003/4

Borough	Number of patients that died in hospital	Total number of patients	% of patients that died
Brent	27	274	9.7%
Ealing	56	361	15.6%
H&F	24	179	13.6%
Harrow	28	218	12.9%
Hillingdon	41	264	15.5%
Hounslow	46	269	17.1%
K&C	23	135	16.8%
Westminster	33	215	15.3%
NWL SHA	278	1915	14.5%

The percentage of patients that died in hospital, following admission with heart failure as primary diagnosis, by borough of residence: 2001/2 – 2003/4



Apart from the low death rate among patients from Brent (9.7%), the differences between other boroughs were not large.

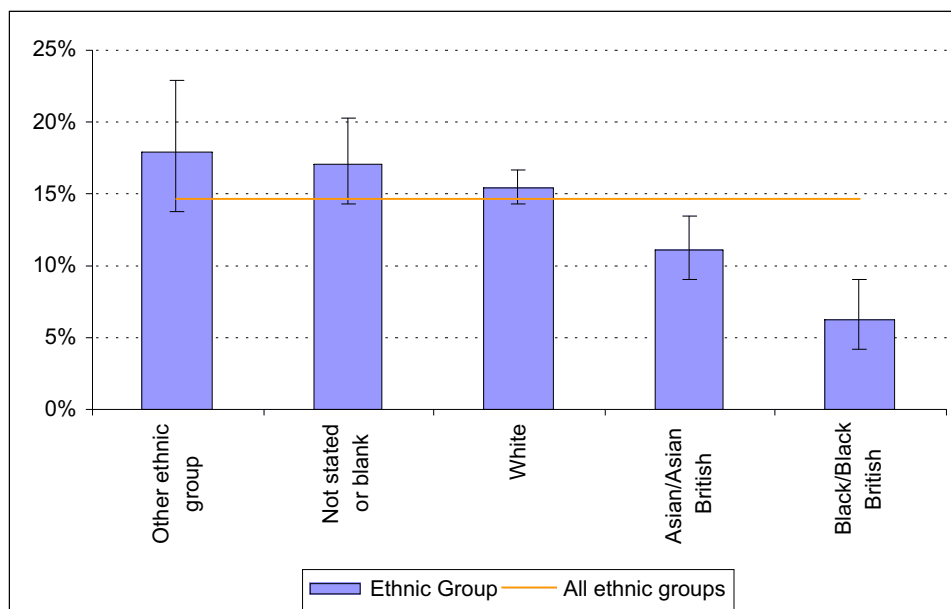
In-hospital deaths by ethnic group

Number and percentage of heart failure patients that died in hospital per year, by ethnic group: 2001/2 – 2003/4

Ethnic Group	Number of patients that died in hospital	Total number of patients	% of patients that died
White	189	1224	15.5%
Asian/Asian British	29	259	11.1%
Black/Black British	8	129	6.22%
Other ethnic group	16	89	17.9%
Not stated/Blank	35	203	17.1%
TOTAL	278	1915	14.5%

The number of patients that died per year among Chinese and mixed ethnic groups was less than 5

The percentage of patients that died in hospital, following admission with heart failure as primary diagnosis, by ethnic group: 2001/2 – 2003/4



The percentage of patients that died in hospital was particularly low among Black/Black British patients (8 deaths, 121 admissions per year).

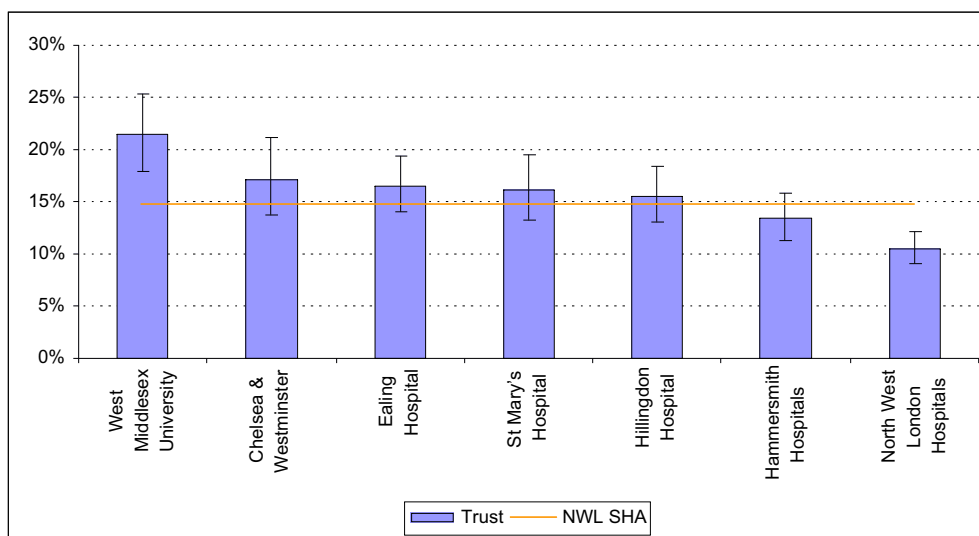
In-hospital deaths by NHS Trust

Number and percentage of heart failure patients that died in hospital per year, by NHS Trust: 2001/2 – 2003/4

NHS Trust	Number of patients that died in hospital	Total number of patients	% of patients that died
Chelsea & Westminster	23	132	17.1%
Ealing	39	238	16.5%
Hammersmith	36	234	15.6%
Hillingdon	36	234	15.6%
North West London	51	492	10.4%
St Mary's	29	180	16.1%
West Middlesex University	34	157	21.4%
NWL SHA	253	1727	14.6%

There were fewer than 5 deaths among patients at Royal Brompton & Harefield NHS Trust.

The percentage of patients that died in hospital, following admission with heart failure as primary diagnosis, by NHS Trust: 2001/2 – 2003/4

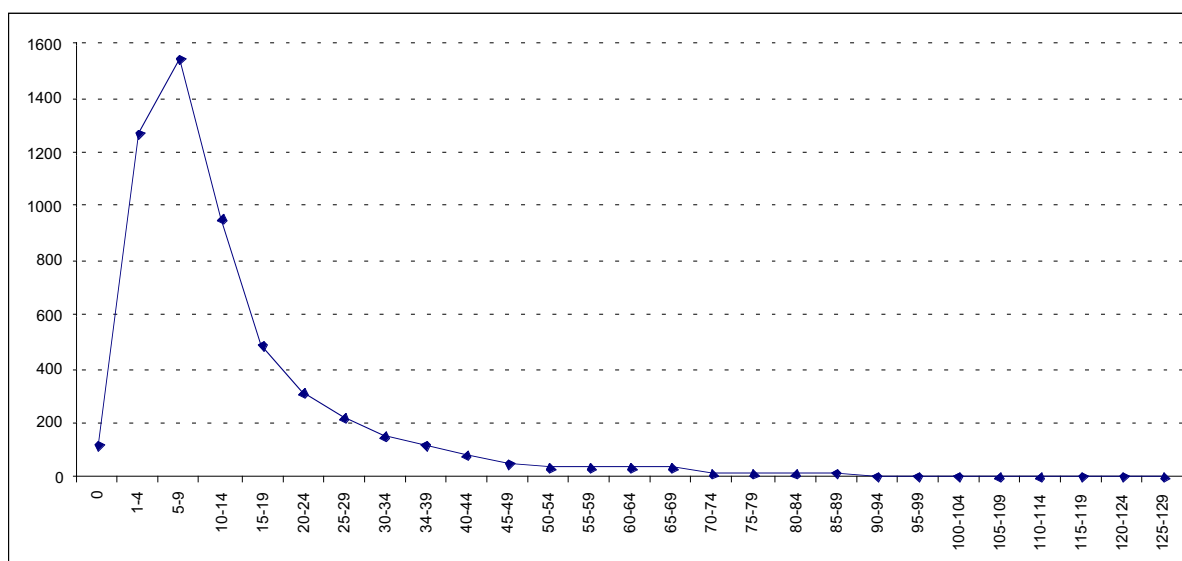


Excluding Royal Brompton & Harefield NHS Trust due to low admission numbers, the in-hospital death rate ranged from 10.4% (North West London Hospitals NHS Trust) to 21.4% (West Middlesex University NHS Trust). Apart from these two Trusts, there was little difference between the in-hospital death rates of other Trusts.

7.3 Length of stay

There were 5,566 heart failure patients with length of stay recorded. Length of stay ranged from 0 to 357 days, with a mean of 14.7 days and a median of 9 days. In the figures below, length of stay is shown only up to 130 days, as only 28 patients (0.5%) had longer stays.

The length of stay of heart failure patients: 2001/2 – 2003



The length of stay of heart failure patients peaked at 5-9 days, and then fell sharply.

Length of stay of heart failure patients per year: 2001/2 – 2003/4

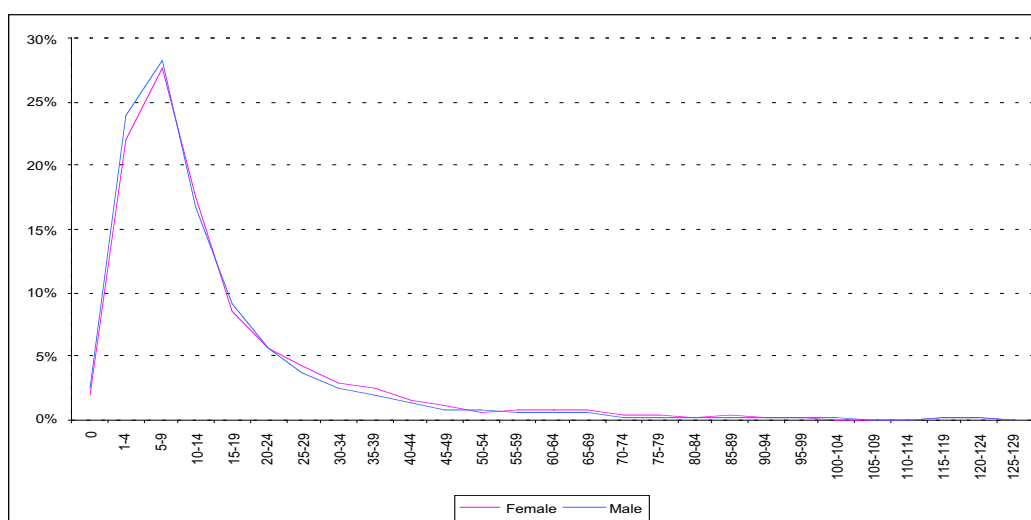
Patient Group		Number of bed-days per year	Mean number of bed-days per patient	Median number of bed-days per patient	Minimum number of bed-days	Maximum number of bed-days
All patients		27,362	14.7	9	0	357
Died?	Did not die	21,441	13.6	9	0	357
	Died in hospital	5,919	21.3	13	0	289
Sex	Male	12,208	13.5	8	0	235
	Female	15,154	15.9	9	0	357
Age Group	60-64	1,377	12.3	8	0	177
	65-69	2,305	13.2	8	0	235
	70-74	3,167	12.7	9	0	169
	75-79	4,134	14.3	9	0	189
	80-84	6,105	16.4	10	0	275
	85+	8,288	16.5	10	0	289
Borough	Brent	3,062	11.5	8	0	230
	Ealing	5,389	15.2	9	0	289
	H&F	3,253	20.3	11	0	235
	Harrow	2,438	11.3	7	0	357
	Hillingdon	3,595	13.7	8	0	236
	Hounslow	4,466	16.8	10	0	240
	K&C	2,023	15.7	11	0	163
	Westminster	3,136	15.6	10	0	215
Ethnic group	White	18,447	15.6	9	0	289
	Asian/Asian British	3,152	12.3	8	0	357
	Black/Black British	1,830	15.3	10	0	169
	Other ethnic group	1,173	13.5	8	0	189
	Blank/Not stated	2,601	13.1	8	0	230
NHS Trust	Chelsea & Westminster	1,823	13.8	10	0	88
	Ealing	3,445	14.5	8.5	0	289
	Hammersmith	5,059	20.8	12	0	240
	Hillingdon	3,239	13.9	9	0	275
	North West London	5,281	10.8	7	0	156
	St Mary's	2,915	18.1	11	0	215
	West Middlesex	2,944	18.7	11	0	237

The mean and median length of stay for all heart failure patients in NW London are very similar to the national figures for 2001/2 – 2003/4 (mean: 14.3 days, median: 9 days), although the national figures are for both emergency and non-emergency admissions. The national mean and median length of stay for all diagnoses were much lower than for heart failure patients, at 8 and 2 days respectively.

(Source of data: Hospital Episode Statistics online)

Length of stay by age & sex

Comparison of the distribution of length of stay, by sex: 2001/2 – 2003/4



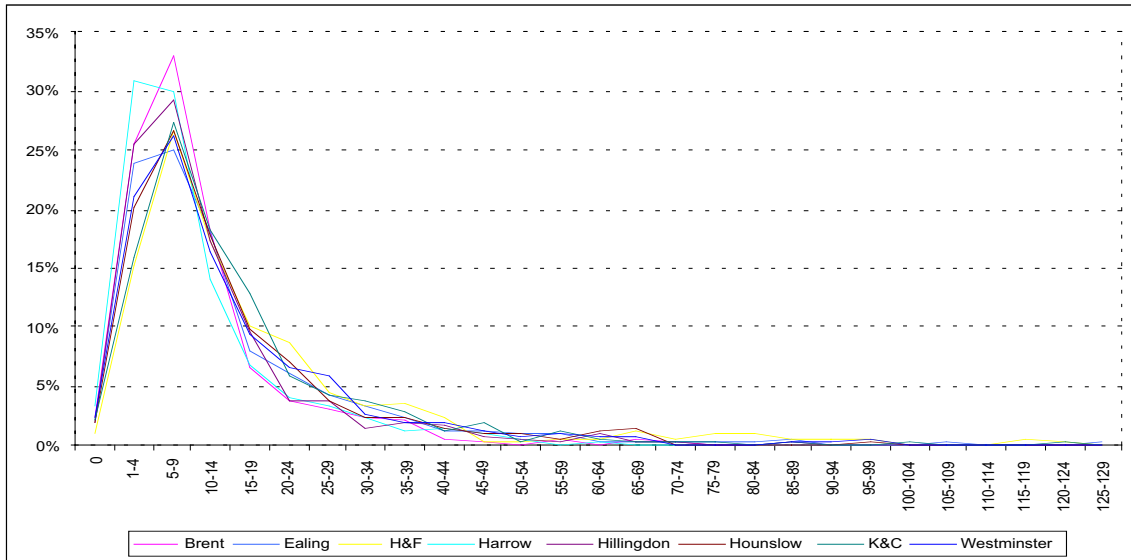
The distribution of the length of stay of heart failure patients was very similar among males and females.

Mean number of bed-days per patient, by sex: 2001/2 - 2003/4



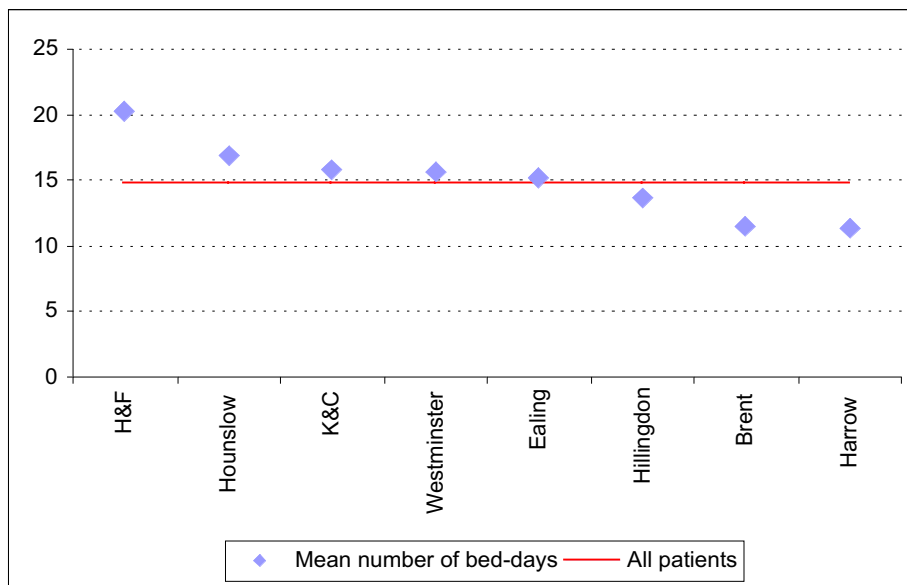
The mean number of bed-days per patient was higher among females (15.9 compared to 13.5).

Comparison of the distribution of length of stay among patients aged 60+, by age group: 2001/2 – 2003/4



The distribution of the length of stay was similar between age groups, with a slightly lower peak at 5-9 days among the older age groups.

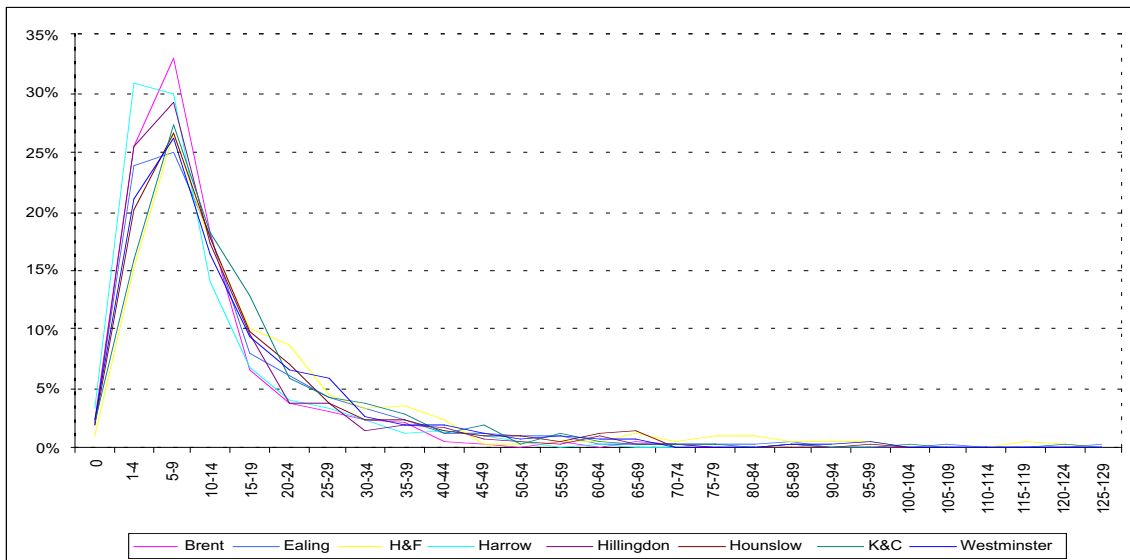
Mean number of bed-days per patient, by age group: 2001/2 - 2003/4



The mean number of bed-days per patient generally increased with age, from 12.3 (age 60-64) to 16.5 (age 85+).

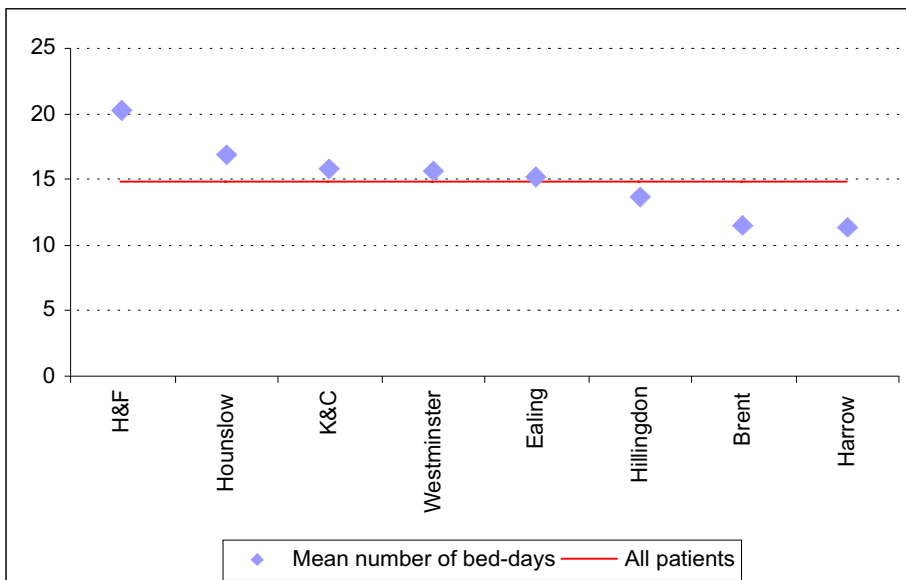
Length of stay by borough of residence

Comparison of the distribution of length of stay, by borough of residence: 2001/2 – 2003/4



There was some variation in the distribution of the length of stay between boroughs, with the main differences being the position and extent of the peak around 1-14 days.

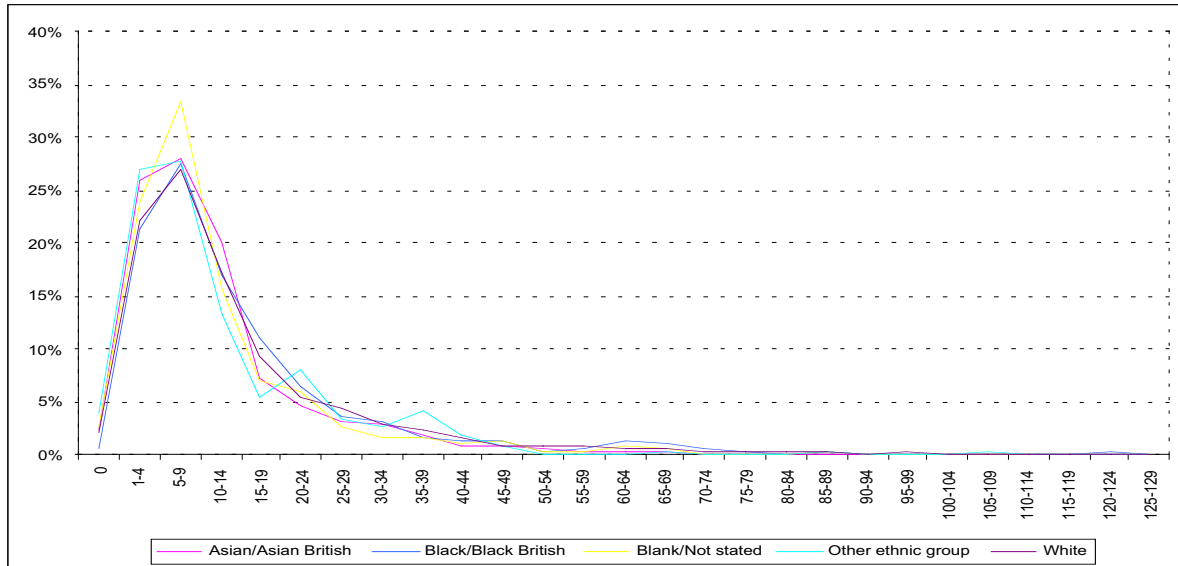
Mean number of bed-days per patient, by borough of residence: 2001/2– 2003/4



There was quite substantial variation in the mean number of bed-days per patient, ranging from 11.3 in Harrow to 20.3 in Hammersmith and Fulham.

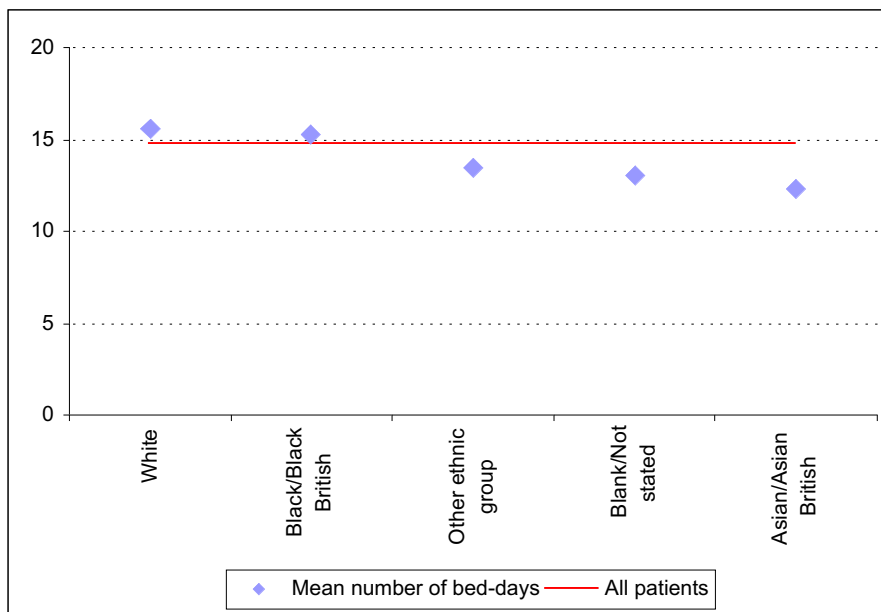
Length of stay by ethnic group

Comparison of the distribution of length of stay, by ethnic group: 2001/2 – 2003/4



There was also some variation in the distribution of the length of stay between ethnic groups, with the main differences being the position and extent of the peak around 1-14 days.

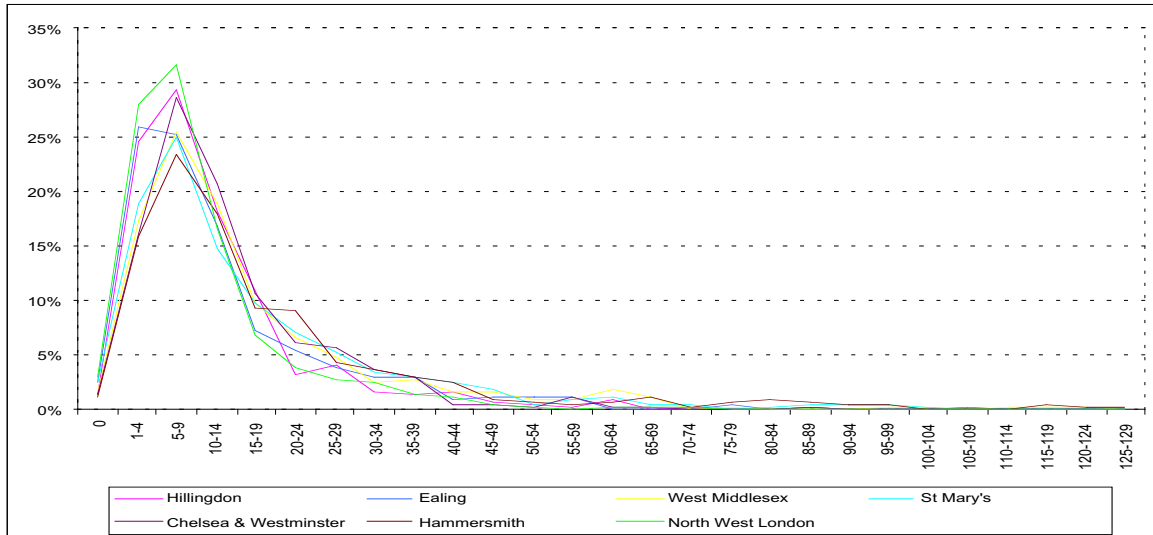
Mean number of bed-days per patient, by ethnic group: 2001/2 – 2003/4



There was some variation in the mean number of bed-days per patient, ranging from 12.3 among Asian/Asian British patients to 15.6 among white patients.

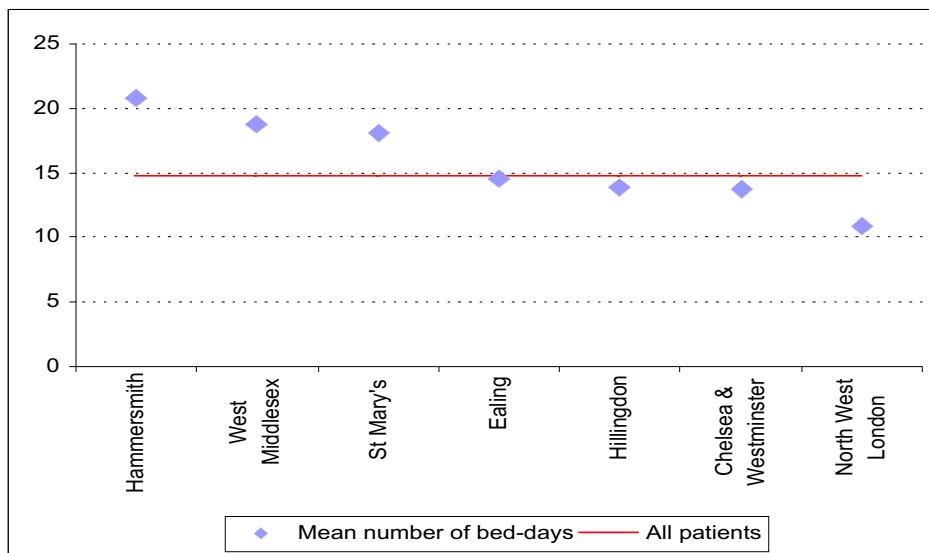
Length of stay by NHS Trust

Comparison of the distribution of length of stay, by NHS Trust: 2001/2 – 2003/4



There was also some variation in the distribution of the length of stay between NHS Trusts, with the main differences being the position and extent of the peak around 1-14 days.

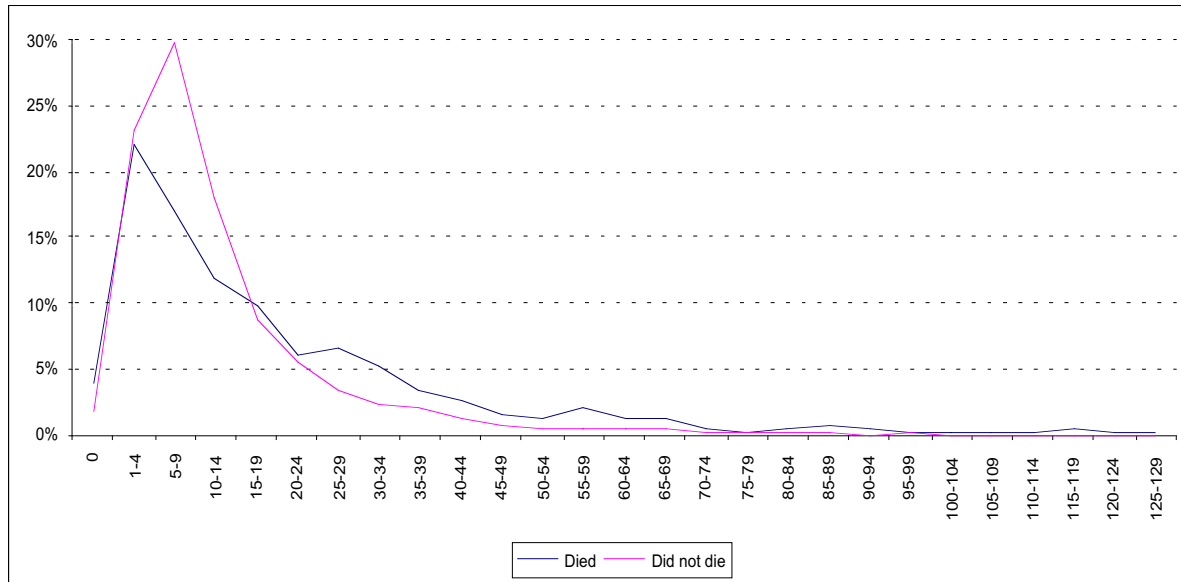
Mean number of bed-days per patient, by NHS Trust: 2001/2 – 2003/4



There was quite substantial variation in the mean number of bed-days per patient, ranging from 10.8 among patients in North West London Hospitals to 20.8 among patients in Hammersmith Hospitals.

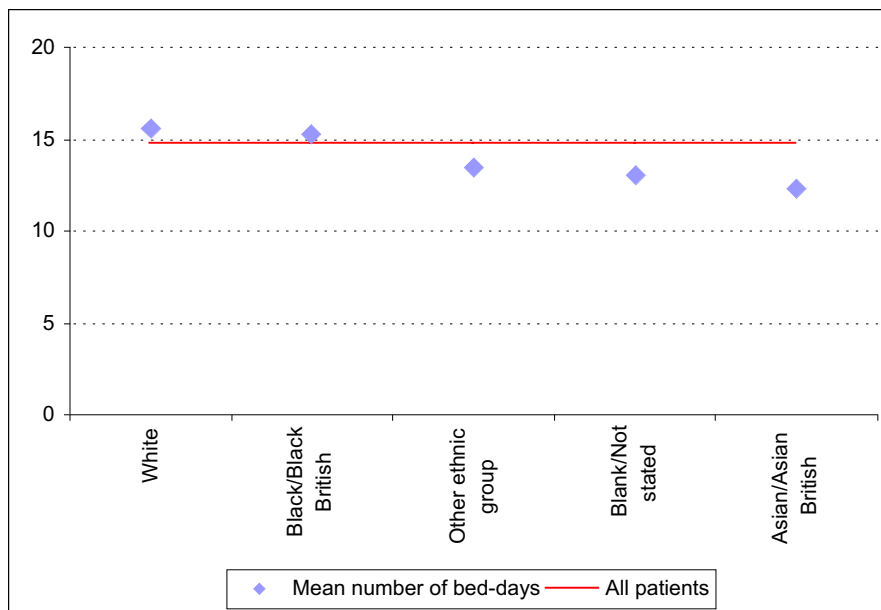
Length of stay, by in-hospital mortality

Comparison of the distribution of length of stay, by in-hospital mortality: 2001/2 – 2003/4



The distributions of the lengths of stay of patients that died in hospital and patients that did not die were quite different. Among patients that died, the peak at 1-4 days was relatively low, and fell off quite gradually. Among patients that did not die, the peak at 5-9 days was relatively high, and fell off steeply.

Mean number of bed-days per patient, by in-hospital mortality: 2001/2 - 2003/4



The mean number of bed-days per patient was much higher among patients that died, at 21.3 compared to 13.6.

7.4 Heart failure deaths

In order to identify deaths from heart failure, the underlying cause of death field in the Office for National Statistics (ONS) 2004 annual district deaths extract was searched using the ICD10 code for heart failure (I50).

It is important to note that heart failure is commonly underreported as the underlying cause of death, as guidance on death certification states that heart failure is a mode of death, not a cause. Other causes of death, such as CHD, are therefore more often stated as the cause of death of people with heart failure. The British Heart Foundation estimates that the true number of heart failure deaths is just over double the recorded number. Around 40% of people die within 1 year of their initial diagnosis of heart failure. Therefore, although the people that died from heart failure in NW London in 2004 had not necessarily been admitted for heart failure during 2001/2 – 2003/4, it is likely that at least some had.

(Source of information: *Mortality from heart failure: <http://www.heartstats.org>*)

There were 250 heart failure deaths recorded in NW London during 2004.

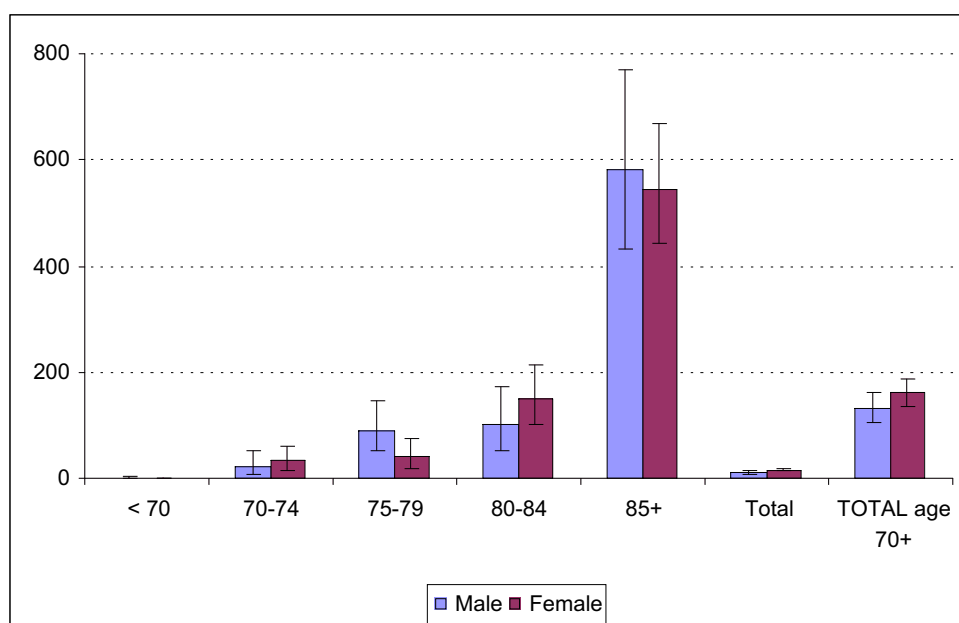
Deaths by age & sex

Number of heart failure deaths per year, and mortality rate (per 100,000), by age & sex: 2001/2 – 2003/4

Age group	Number		Mortality rate	
	Males	Females	Males	Females
< 70	15	7	1.8	0.8
70-74	6	9	24.1	32.0
75-79	16	10	89.4	41.8
80-84	13	30	100.0	149.3
85+	49	95	583.3	546.0
TOTAL	99	151	10.8	16.4
TOTAL 70+	84	144	130.8	160.9

Over 90% of deaths occurred among those aged 70+, and over half of all deaths occurred among those aged 85+. The number of deaths was higher among females than males in those aged over 80. Numbers in the younger age groups were relatively small.

Heart failure mortality rates (per 100,000), by age & sex: 2004



The heart failure mortality rate generally increased with age, with a much higher rate among those aged 85+.

Overall, female mortality rates were slightly higher than male mortality rates.

Deaths by borough of residence

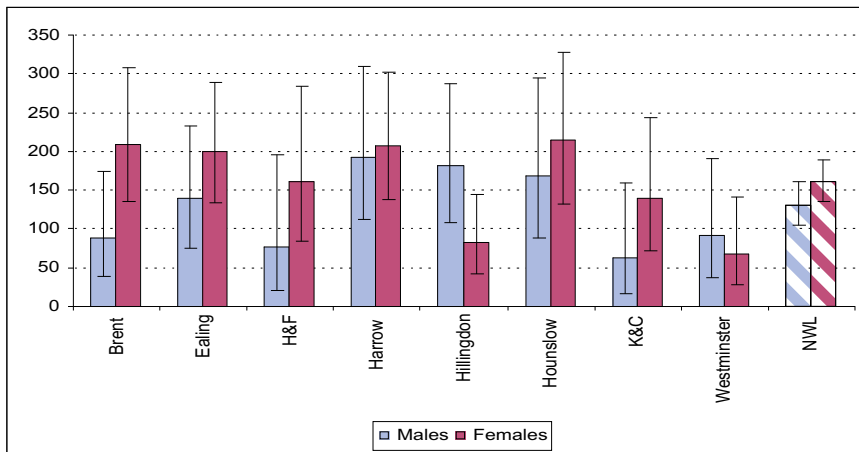
The number of heart failure deaths, and mortality rate (per 100,000), by borough of residence: 2004

Borough	Number of deaths	Mortality rate	Mortality rate: Age 70+	Age-standardised mortality rate
Brent	39	14.57	155.7	12.7
Ealing	47	15.50	174.3	12.6
H&F	16	9.05	129.0	7.9
Harrow	45	21.24	202.8	12.2
Hillingdon	33	13.27	123.5	8.4
Hounslow	35	16.49	196.4	13.5
K&C	20	10.86	106.7	8.2
Westminster	15	6.52	78.2	5.6
NWL SHA	250	13.63	148.6	10.4

Heart failure mortality rates were highest in Harrow (21.24 per 100,000) and lowest in Westminster (6.52 per 100,000).

Over 90% of deaths were among those aged 70+. Mortality rates among those aged 70+ were highest in Harrow (202.8 per 100,000) and lowest in Westminster (78.2 per 100,000).

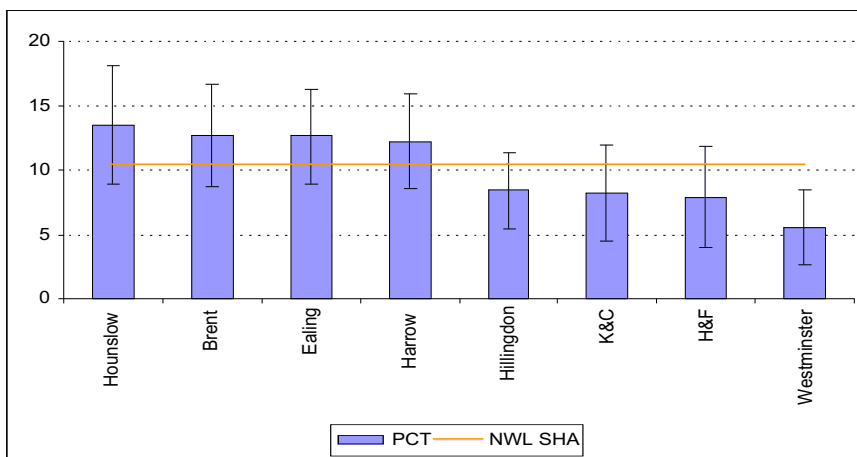
Heart failure mortality rates (per 100,000) among those aged 70+, by borough of residence and sex: 2004



Heart failure mortality rates were much higher among females than males in all boroughs, except Hillingdon and Westminster. Numbers of deaths are too small to effectively compare age- and sex-specific rates between boroughs.

Age-standardised heart failure mortality rates (per 100,000), by borough of residence: 2004

Using age-standardisation, heart failure mortality rates were reduced in all boroughs. The reduction was



largest in Harrow.

Age-standardised rates were highest in Hounslow (13.53 per 100,000) and lowest in Westminster (5.58 per 100,000).

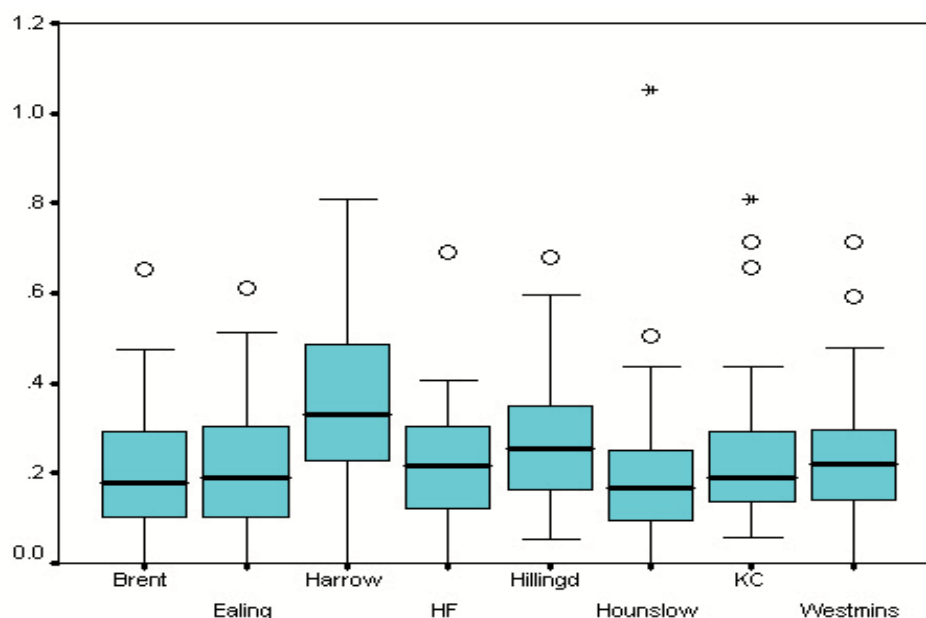
7.5 LVD prevalence & primary care management

LVD is included in the QOF, which is a set of optional quality standards within the new GMS contract. Only those patients with both CHD and LVD are included on the register.

The number of patients diagnosed with CHD and LVD and the prevalence, by PCT: March 2005

Borough	Number of patients on CHD & LVD disease register	Prevalence of LVD
Brent	745	0.21%
Ealing	822	0.23%
H&F	485	0.26%
Harrow	809	0.36%
Hillingdon	719	0.28%
Hounslow	506	0.20%
K&C	448	0.24%
Westminster	619	0.25%
NWL SHA	5153	0.25%

The distribution of recorded LVD prevalence (%), by GP practices and PCT: March 2005

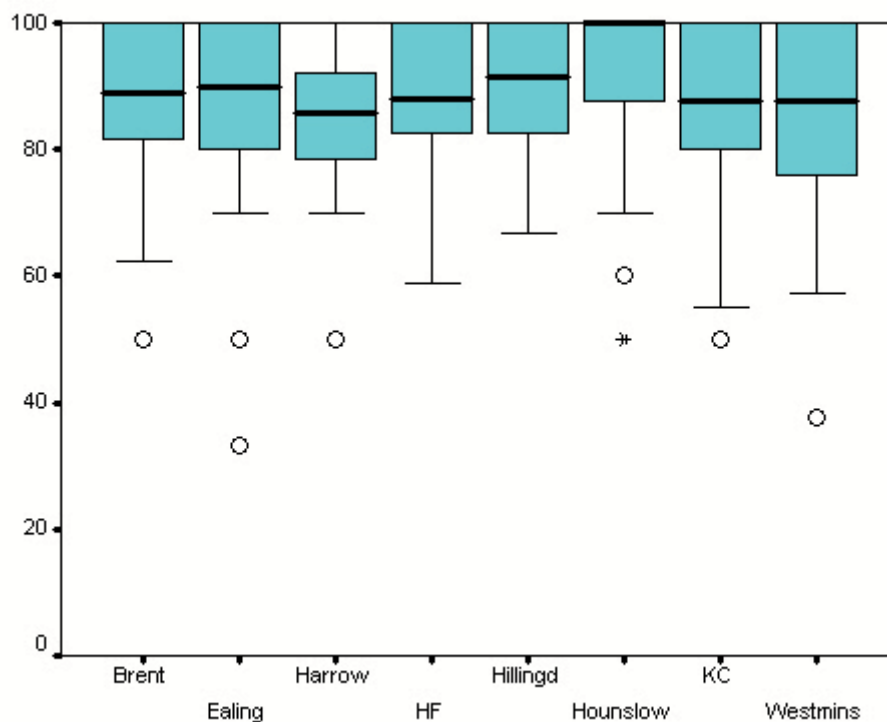


The prevalence of LVD as recorded by GPs ranges from 0% to 1.05%. The number of LVD patients in a practice ranges from 0 to 83. There are 7 practices with no LVD disease register, a further 4 practices with no patients on their register, and 106 practices with fewer than 5 LVD patients.

The number of patients diagnosed with CHD and LVD that have had their diagnosis confirmed by an echocardiogram, by PCT: March 2005

Borough	% with diagnosis confirmed
Brent	80.66%
Ealing	85.79%
H&F	92.24%
Harrow	95.30%
Hillingdon	95.60%
Hounslow	91.30%
K&C	84.40%
Westminster	86.76%
NWL SHA	88.74%

The distribution of the percentage of LVD patients with confirmed diagnosis, by GP practices and PCT: March 2005

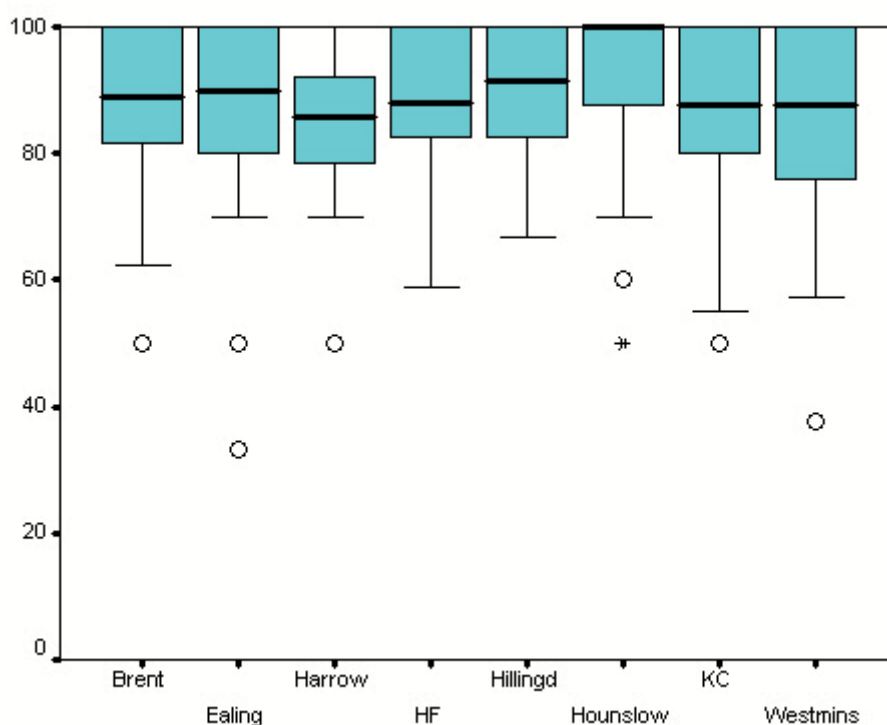


The majority of practices in most PCTs have 100% achievement of this QOF indicator. However, there are numerous practices with outlying or extreme values. The very low number of LVD patients in many practices has to be considered, however, and the achievement of this indicator for only 1 patient is recorded as 100% achievement.

The number of patients diagnosed with CHD and LVD that are currently treated with ACE inhibitors or A2 antagonists, by PCT: March 2005

Borough	% treated
Brent	85.65%
Ealing	85.75%
H&F	86.01%
Harrow	85.57%
Hillingdon	86.88%
Hounslow	88.49%
K&C	83.94%
Westminster	83.01%
NWL SHA	85.69%

The distribution of the percentage of LVD patients that are currently treated with ACE inhibitors or A2 antagonists, by GP practices and PCT: March 2005

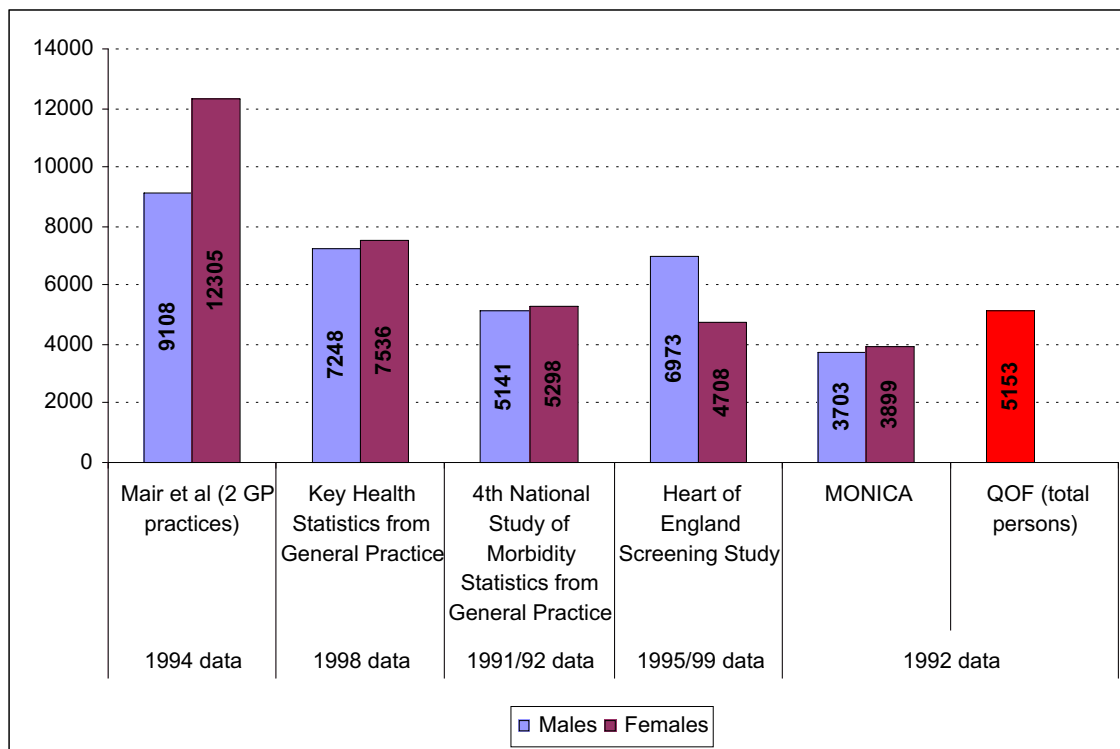


The majority of practices are achieving close to 100% of patients for this indicator. Over three-quarters of practices are achieving over 80% of patients for this indicator. All except 2 practices are achieving at least 50%. Again, however, the very low number of LVD patients in many practices has to be taken into account.

7.6 Estimates of heart failure prevalence

Study	Year	Place	Source	Males				Females			
				45-54	55-64	65-74	75-84	45-54	55-64	65-74	75-84
4th National Study of Morbidity Statistics from General Practice	1991/92	England and Wales	Royal College of General Practitioners et al, 1995	0.5%		3.2%	8.0%	0.4%		2.3%	7.1%
MONICA	1992	Glasgow	McDonagh et al, 1997	---	2.5%	3.2%	---	---	2.0%	3.6%	---
Two general practices in Liverpool	1994	Liverpool	Mair et al, 1996	---	2.7%	5.3%	10.4% (age 75+)	---	1.2%	5.1%	13.3% (age 75+)
Key Health Statistics from General Practice	1998	England and Wales	Office for National Statistics, 2000	0.30%	1.4%	4.5%	10.9%	0.2%	0.9%	3.6%	9.9%
Heart of England Screening Study	1995/99	West Midlands	Davies et al, 2001	0.30%	2.7%	4.2%	7.3%	0.0%	0.9%	1.7%	6.6%

Estimates of the number of people suffering from heart failure in NW London, using mid-2004 population estimate



The estimated number of people with heart failure in NW London ranges from 7,602 (MONICA) to 21,413 (Mair et al). These estimates are higher than the number of people on the LVD disease registers (5,153).

The estimated number of males with heart failure in NW London ranges from 3,703 to 9,108. The estimated number of females with heart failure ranges from 3,899 to 12,305.

8. ACKNOWLEDGEMENTS

The NW London Heart Failure Group would like to thank all of the staff that gave their time to participate in developing this report, in particular the two working groups and the following people who contributed a large amount of time and effort:

Anna Carpenter (H&F PCT & NWLSHA)

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Roxy Senior (NWP)

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Dee Hannah (Harrow)

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9. REFERENCES

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10. ABBREVIATIONS

APC	Admitted Patient Care
BCS	British Cardiac Society
BNP	B-Type Natriuretic Peptide
BSE	British Society of Echocardiography
BSH	British Society for Heart Failure
CCST	Certificate of Completion of Specialist Training
CHD	Coronary Heart Disease
CHF	Congestive Heart Failure
COPD	Chronic Obstructive Pulmonary Disease
COTE	Care of the Elderly
CRT	Cardiac Resynchronisation Therapy
ECG	Electrocardiography
ESC	European Society of Cardiology
GMS	General Medical Services
GP	General Practitioner
GPwSI	General Practitioner with Special Interest
ICD	Implantable Cardioverter Defibrillator
JCHMT	Joint Committee on Higher Medical Training
LVAD	Left Ventricular Assist Device
LVD	Left Ventricular Dysfunction
VT	Ventricular Tachycardia
MRI	Magnetic Resonance Imaging
NICE	National Institute for Clinical Excellence
NSF	National Service Framework
ONS	Office for National Statistics
PCT	Primary Care Trust
PSA	Public Service Agreement
SACC	Specialist Advisory Committee in Cardiology
SIGN	Scottish Intercollegiate Guidelines Network
QOF	Quality and outcomes framework

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