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A guide for review and improvement of hospital based heart failure services

Contents

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Section 1

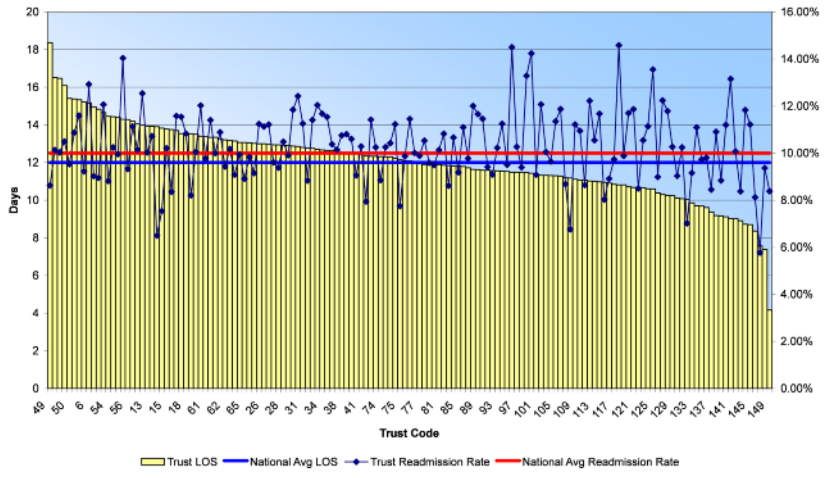
Introduction

The information in this document has been brought together by NHS Improvement, to help hospital teams to review their heart failure (HF) service.

Nationally, there is marked variation in the length of stay and readmission rate for heart failure in-patients (fig 1). It might be argued that a longer than average length of spell reflects close attention to detail, to ensure that care is optimised prior to discharge. However, if this is the case it should be reflected in a low readmission rate, which often it is not. Alternatively a short length of stay might indicate a very efficient service – or conversely one where pressure on beds leads to inappropriate early discharge before management is complete. The "Holy Grail" of short length of spell and low readmission rate does exist but is currently rare in the UK.

For providers where both of these indicators are above the national average, a systematic review of services may help to identify problem areas and direct subsequent improvement work. The two main aims of completing a review are to optimise the time a patient spends in hospital, with early diagnosis and treatment, and to maximise the effective use of resources within the trust and wider NHS community.

Figure 1: LOS/readmission rates



The impact of heart failure

Heart failure affects one in a hundred people in the UK, around 620,000 people, increasing to around 7 percent over the age of 75. In 2009/10 Hospital Episode Statistics (HES) data showed there were 73,752 hospital spells for heart failure (coded in the first position) with a mean length of stay of 11.76 days and a median of 8 days. Ten percent of patients (8,385) were readmitted with heart failure in under 29 days. The government proposal not to pay hospitals for this type of readmission in the future means providers will be under pressure to reduce unnecessary readmissions. As an example a hospital where 20 patients are readmitted with an average 5 days stay could cost £30,000.

The national heart failure audit[1] also highlights that:

- Within a year of admission for heart failure, 32% of patients died
- Mortality is significantly better for those who have access to specialist care i.e. those seen by cardiologists or specialist heart failure services (23 per cent).

In 2009/10, Basildon and Thurrock University Hospital reduced their heart failure admissions median length of stay from 12 days to four days, releasing 1,249 bed days per year, a cost saving of £312,250.

This was achieved by speeding up the diagnosis, optimising care quickly and linking in to community services for early discharge.

[1]National Heart Failure Audit, 2010

Recommended components of a heart failure service

NHS Improvement has reviewed many successful heart failure services (HF) services over the last few years, and this has revealed considerable consistency in their organisation. Certain key 'components' are usually present and these are outlined in the tables on the right. These components are by no means confined to secondary care settings, and indeed in many cases are successfully delivered in primary care. Even though this resource is designed mainly for secondary care, it is essential to look at the totality of the service including the interaction between community and hospital. Optimisation of the primary-secondary care interface around referral and discharge is critical for the efficient use of resources.

1. System for early accurate diagnosis of outpatients

a. Serum NP testing to streamline referrals from primary care
b. Rapid Access HF Clinic (in primary or secondary care)
c. Echo on the day of clinical assessment
d. Management plan produced on the day
e. Ensure confirmed HF patients go on heart failure registers

2. Optimisation of treatment

a. System for uptitrating medication – hospital or community based
b. Agreed care plan
c. Patient education to facilitate self management
d. Access to cardiac rehabilitation
e. Access to implantable cardiac devices

3. Identification of heart failure in patients

a. Serum NP and early inpatient echo
b. Management in dedicated area with expertise – Junior docs/nurses
c. Close liaison/collaborative working with community over discharge planning
d. Discharge with a care management plan

4. Multidisciplinary team working

a. Case management discussions across primary-secondary care interface - early discharge, admission avoidance - seamless service
b. Consultant lead/+GP/hospital HF nurse(s)/community HF nurse(s) etc
c. Designated care co-ordination

5. Supportive and palliative care

a. Unnecessary admission avoidance at end of life - preferred priorities of care
b. Palliative care involvement
c. End of life models for example - Liverpool Care Pathway or the Gold Standards Framework - community
d. 24/7 generic end of life care provision in the community into which heart failure specialists contribute

Section 2

Service review

A service review provides key stakeholders (such as health professionals, service managers and patients) with a baseline assessment to determine how well a service is currently provided and how effectively it interfaces with patients. This information can then be used to prioritise and plan changes for improvement and measure the impact after implementation.

1. Engage key stakeholders
Key stakeholders include anyone who is responsible for, delivers part of, is a user of, or is affected by the heart failure service. As a minimum this team should initially include representation from the admitting and receiving medical teams, the lead clinician, nurse specialists, the service manager and patients. This composition of the team may need to be adjusted during the review to consider specific aspects of the service.

It is important that as well as accurate audit data, the opinions of each of these groups are captured and form part of the baseline. Patient centred care should form the backbone of any change and there are many ways to ensure that patients and carers views drive improvement. For further advice and guidance **click here»**

2. Characterise the current service provision
Document and characterise the current service by each hospital site. This should include the current length of stay and readmission rate in comparison with the national benchmark. This local HES data can be provided by the trust information department (Appendix 2).

Hospital Episode Statistics (HES) data are generated by the hospital coding team, using information from patients' notes. Commissioners use HES data to calculate the payments a service receives. Apparently inaccurate hospital data requires further investigation supported by the originating clinical team, rather than outright rejection. If HES data is incorrect, payment for services will be incorrect.

The National Heart Failure Audit provides information on heart failure treatment across the UK, including patient profiles, length of hospital admission, interventions, medication and outcome. Data entry into the national heart failure audit is a Care Quality Commission quality indicator. However, currently not all trusts are entering every heart failure patient. Patients on whom data has not been collected are more likely to be those admitted under specialities other than cardiology. It is also likely, and supported by the audit itself, that these are the patients with longer lengths of stay and poorer outcomes.

Using the heart failure audit as an accurate measure of a successful heart failure service is only appropriate if it is representative of all heart failure patients.

An audit of patient notes confirms where in the patient pathway constraints repeatedly impinge upon patient care or effective use of resources and can be used to check the accuracy of HES coding.

3. Share the baseline with key stakeholders
Sharing baseline details with key stakeholders will help validate the data and inform the team. Note - avoid making comparisons between providers or clinical teams as there may be errors in the data or clinically appropriate reasons for differing indicators.

4. Map out the process
The basic improvement cycle can be described as 'PDSA' – plan, do, study, act. For more details and for a wide range of improvement tools and techniques **click here»**

Involve all stakeholders in creating and authenticating the process map.

Map out and record the steps which occur in a standard patient pathway, making sure to measure how long each takes and where there are handoffs (management of care or paperwork changes hands). This will highlight time where there is no added benefit to patient care.

It is suggested to start the map from the time of presentation to the trust, noting where the referral comes from, through to the time of first follow-up post discharge. The stages can be divided, for example, into presentation and diagnosis, treatment and optimisation, discharge and follow-up.

Review the impact of services which feed into and receive patients to and from the in-patient service, such as the system for referral from primary care and how patients are discharged to community services.

List and quantify the impact of any constraints identified in the process. For example, if waiting for an in-patient echo causes delay, record the waiting time and the number of patients waiting. Calculate how many bed days are wasted each year and what this costs, then compare this with the cost of providing additional echo resources, to help inform subsequent decisions.

5. Prioritise and plan improvements
Create a list of where improvements are required and the order in which these should be implemented. Section 3 describes some of the common challenges and suggests how these might be tackled.

Once you have confidently identified and measured the constraints on the service, agree with the key stakeholders what actions should be taken to optimise care and which should be implemented first.

Ensure that these proposals are agreed with all the clinical team and by patient representatives. Support from the management team is also essential to make sure the changes are in line with trust policy.

It is important to set goals for your improvements. There is very little point in making changes if you cannot accurately assess whether the impact made is positive. Set a baseline for each of your improvements, then regularly measure this goal after the improvement is implemented to ensure it is effective, finally embed this measurement into the regular running of the service so as the ensure that the improvement is maintained. An example might be to reduce the wait for an inpatient echo from the baseline median of six days, down to two days.

6. Action and reassess
Implementation is a key step. For further advice and guidance look on the NHS improvement heart failure website **here»**

Examples of how other heart failure service providers have implemented change within their service can be accessed **here»**

Section 3

Heart failure management issues in secondary care

Outpatients: Early accurate diagnosis and treatment

1. System for early accurate diagnosis of outpatients

a. Serum NP testing to streamline referrals from primary care
b. Rapid Access HF Clinic (in primary or secondary care)
c. Echo on the day of clinical assessment
d. Management plan produced on the day
e. Ensure confirmed HF patients go on heart failure registers

2. Optimisation of treatment

a. System for uptitrating medication – hospital or community based
b. Agreed care plan
c. Patient education to facilitate self management
d. Access to cardiac rehabilitation
e. Access to implantable cardiac devices

Close integration of HF services across primary and secondary care is essential at all stages of the patient pathway. New patients presenting to hospital with advanced HF or known patients presenting with poorly controlled symptoms may be an indication that some patients are not being identified early enough and treated effectively. The protocol for initial investigation and subsequent referral of suspected new HF patients to specialist services must be easily accessible to all in primary care. Once the diagnosis has been confirmed, there must be an agreed care plan which covers support, up-titration of medication, subsequent follow up etc. to make sure that patients do not fall through the net. Rapid, comprehensive intervention in this way can often avoid the need for admission in this high risk group.

Inpatients

Reorganisation of heart failure care for inpatients raises a number of issues. In an ideal situation, all HF patients should be managed when in hospital, by a team led by a consultant cardiologist or HF specialist, on a specialist ward (cardiology or HF).

However, at present, in many hospitals in the UK, HF patients are spread throughout the medical and care of the elderly wards. The reasons for this are many, but include elderly age, the presence of co-morbidities and the variability of presentation (and subsequent difficulty in rapid identification). Occasionally the influence of co-morbidities is so significant that management based on a care of the elderly ward is more appropriate.

Identifying patients admitted with heart failure

3. Identification of heart failure in patients

a. Serum NP and early inpatient echo
b. Management in dedicated area with expertise – Junior docs/nurses
c. Close liaison/collaborative working with community over discharge planning
d. Discharge with a care management plan

The crucial first step in the reorganisation of inpatient services is to identify patients presenting with heart failure. There are two main options here:

(i) Identification at the front door

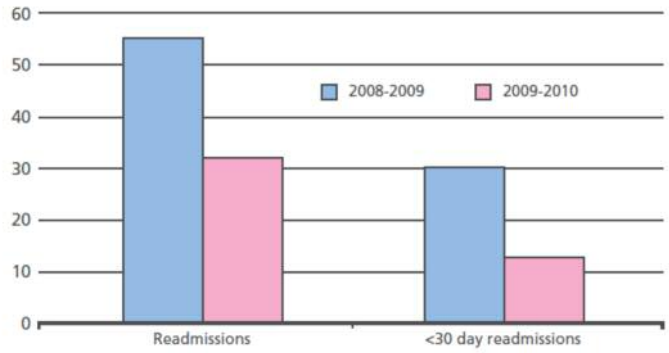
This is the ideal situation. Patients with breathlessness or oedema suggestive of HF should have an immediate serum NP measurement. Patients with a positive or borderline result should then receive echocardiography in <24 hours to confirm the diagnosis and suggest an underlying cause. Once patients have been identified they can be directed to the appropriate cardiac or HF ward, where this is not currently available aiming to cluster HF patients onto the same ward should be a priority. Where there are multiple problems or major co-morbidities the patient can receive shared care on a medical or care of the elderly ward.

Rapid identification and assessment at the front end of the hospital may also make it possible to avoid admission for some patients, with the Acute Heart Failure Nurse (AHFN) adjusting treatment and arranging early follow up with the community HF nurse (CHFN).

In April 2009, West Herts Hospital introduced an integrated HF pathway in which patients received urgent serum NP testing on admission, followed by rapid access to echo. Daily cardiology ward rounds were then organised to advise on these patients and optimise treatment and this lead to a significant reduction in readmissions.

Serum NP testing also helped identify patients admitted under another specialty, reducing the time nurse specialists spent locating patients and reducing unnecessary echo's.

Readmissions



Cost of bed days saved = £69,000. Cost of providing serum NP = £38,800. Overall saving of £30,200 in one year.

(ii) Identification of patients on the wards

The reality of the current situation is that in many hospitals HF patients are scattered throughout the wards. Access to serum NP for in-patients remains infrequent, and so where HF is suspected from the clinical picture, in-patient echocardiography is usually requested. Referral for echocardiography without serum NP screening can often overwhelm in-patient capacity and delays in diagnosis ensue. This inevitably delays definitive treatment plans and prolongs hospital stay.

Note: Redesign of the inpatient echocardiography service to prioritise these patients can have a significant benefit on length of stay. Definitive treatment is often not instituted before echocardiographic confirmation of diagnosis and this is expensive for the NHS and potentially serious for the patients. For further information on how to calculate demand and capacity **click here»**

In this situation, the role of the AHFN specialist is critical. They need to make sure that all patients are known to the HF team and receive input from the HF consultant. Often this requires "trawling" of the wards which is time consuming, although providing a "hotline" for wards to inform the AHFN of suspected patients can reduce the workload. Additionally some form of alert system via the hospital IT system which is activated when known HF patients are admitted is also useful.

Although inevitably this system is more fragmented and time consuming than option (i), once identified by the AHFN, patients can receive appropriate input to their management and discharge can be facilitated via discussions with the CHFN.

Questions you might consider:

- Are there a high percentage of patients presenting with NYHA class 4? (NYHA explained - www.abouthf.org/questions_stages.htm).
- Are the patients presenting to A&E new presentations, or known HF patients decompensating?
- Should the patient be presenting earlier/elsewhere?
- Once admitted, is the process geared towards rapid diagnosis?
- Is serum NP used as a predictor to enable patients to enter the correct pathway at the door?
- Is echocardiography available within 24hours of admission/ positive serum NP?

Specialist assessment

Once identified, all patients should be assessed by the HF specialist team (consultant/nurse) as early as possible in their admission, to make appropriate management plans. Subsequent input from the HF team can then be stratified according to clinical status i.e. severity of presentation (new patients) or deterioration (previously diagnosed patients).

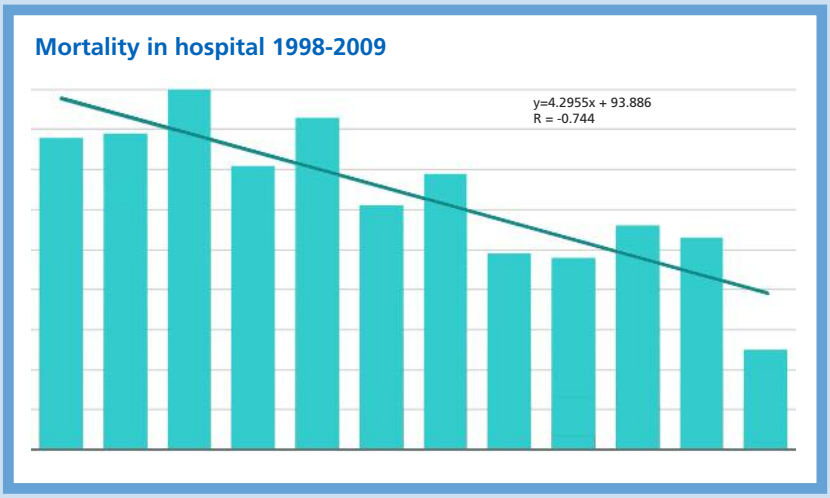
Note: Acute management is best delivered on a cardiac or heart failure ward where the nursing and junior medical staff, are familiar with the protocols and can respond to complications. This is likely to underpin the improvement in mortality seen in the HF Audit for patients managed on cardiac wards.

Acute management

The more severely unwell patients usually require complex treatment regimes which include intra venous (IV) diuretics - either by intermittent injection or by continuous infusion. Daily assessments of these patients, is essential to ensure appropriate fluid loss without excessive impairment of renal function, or electrolyte imbalance. In the current system in the NHS where junior medical staff, frequently change firms, experienced nursing staff have a major role to play in monitoring the patients during this stage. The HF specialist should be available for advice on a daily basis. When the patient is not on a cardiac ward, the AHFN is ideally placed to liaise between the HF specialist and the ward staff.

Appointment of an AHFN and concentration of HF patients on two wards has reduced in patient mortality in Hastings.

Concentrating HF patients on two wards - General Cardiology and Care of the Elderly Cardiology, with patients being identified by an acute HFN 'trawling' medical assessment ward (without availability of serum NP), has resulted in a reduction in hospital mortality.



Discharge planning

Discharge planning should begin as soon as the patient is admitted. Early discussion between the AHFN and the CHFN facilitates early discharge, without a prolonged period of observation after conversion back to oral medication. Most of this communication can take place by phone or email, but it is beneficial for the hospital based and community HFN to meet on a weekly basis to discuss difficult management problems with the consultant lead, as part of the multi-disciplinary team.

Ideally the rehabilitation team should review the patients prior to discharge, in the same way that patients are assessed after myocardial infarction.

The content of the discharge summary is also critical. Clear details of the treatment provided in hospital and plans after discharge should be included, including details of monitoring and follow up arrangements. Where the patients are discharged on sub-optimal doses of medication (e.g. ACE inhibitors) the reasons for this should be clearly specified, as should any requests for assistance from the GP/practice nurses with subsequent up-titration.

Questions you might consider :

- Are heart failure patients admitted to different wards/specialties and are there differences in their readmission rate and/or length of stay?
- Are patients who are admitted to non cardiology wards referred for a specialist opinion and how long does this take to happen?

4. Multidisciplinary team working

a. Case management discussions across primary-secondary care interface - early discharge, admission avoidance - seamless service
b. Consultant lead/+GP/hospital HF nurse(s)/community HF nurse(s) etc
c. Designated care co-ordination

Multidisciplinary team working

A multidisciplinary team approach is useful at all stages of the patient pathway. We have already highlighted the role of the HF team in the management of in-patients. Regular MDT meetings (ideally weekly) make discharge planning easier for the more complicated patients, and also facilitate management of patients in the community (with the potential for avoidance of admissions).

Questions you might consider:

- Do you have a team approach to heart failure management - if so, who makes up this team?
- Are there mechanisms in place and sufficient capacity for all inpatients with HF to be managed by the specialist team?
- Are MDT meetings taking place regularly between primary and secondary care?

Follow up arrangements

Rapid follow up after early discharge greatly reduces the risk of readmission. All patients should be seen within a week of discharge, and this should include assessment of fluid status (including weight) and renal function. Timely intervention at this stage can often prevent patients becoming dehydrated and developing impaired renal function or alternatively rapidly regaining the oedema they have lost in hospital.

This role is often best carried out by the CHFN in the patients home, but where this service is not available alternatives include hospital based clinics run by the AHFN or practice nurses trained in HF.

Questions you might consider:

- Is there sufficiently robust discharge planning including weekends so that patients are discharged at the earliest opportunity?
- Are patients educated in their condition to allow active participation in their care and are they confident about who to contact when things start to deteriorate?
- Are there out of hours patient support services comparable with the support available during working hours?
- Is the follow-up of inpatients designed to ensure that inappropriate readmissions are avoided?
- Is cardiac rehabilitation available for heart failure patients?
- Can patients be discharged early with confidence that they will be reviewed and have renal function checked within a week?
- Do community nurses have access to hospital information systems to check results?

Equity and inclusiveness

It is fundamental that the AHFN's work is not confined to the cardiac wards, nor to younger age groups. In the current situation where many patients with HF are admitted to non-cardiac wards, it is these patients who have the highest mortality. It is sometimes easier for the HF teams to fall into the trap of delivering a very high quality service to a relatively small proportion of the in-patient population with HF, whilst a larger group remain unsupported and without specialist input.

In addition all types of HF should be included in the service. Patients with preserved ejection fraction (HFPEF) deserve identical input - and are often more difficult to manage.

Supportive and palliative care

5. Supportive and palliative care

a. Unnecessary admission avoidance at end of life - preferred priorities of care
b. Palliative care involvement

Supportive and palliative, also sometimes referred to as 'End of life' care helps all those with advanced, progressive and incurable conditions to live as well as possible until they die. It enables the needs of both patients and family to be identified and met throughout the last phase of life and into bereavement. It includes physical care, management of discomfort and other symptoms and the provision of psychological, social, spiritual and practical support'

Experience from previous NHS Improvement national projects, shows that service providers often address process issues and service delivery before undertaking end of life challenges. This may in part be attributed to the difficulties associated with the timing of and delivery of end of life care.

NHS Improvement in conjunction with the national end of life care programme team published a Heart Failure end of life implementation framework in July 2010. To view this document **click here»**

The key messages highlight:

- The disease trajectory for a heart failure patient is not easily predictable, and therefore also timing of EOL care plans
- Advance care planning supports patient wishes about their future care arrangements and whilst it is sometimes a difficult subject to broach is often left too late

- Well structured multidisciplinary team working is essential for individualised, flexible patient centred care
- Excellent communication between health professionals, patients and carers is fundamental to a good patient experience
- Most people but not all prefer not to die in hospital, however this is where many people do die.

Whilst this resource focuses on the inpatient service a large online collection of work covering the whole patient pathway, commissioning QIPP and quality standards can be found **here»**

NHS improvement would like to acknowledge and thank all the teams who have willingly shared their experiences for the benefit of others. This is an evolving improvement resource which does not claim to have all the answers. We would welcome feedback and any additional information during the draft release of this document.

Please email these to elaine.kemp@improvement.nhs.uk by 30 September 2011.

Appendix 1
Checklist for a service review

The checklist below describes the key elements of a simple service review

1. Engage key stakeholders
2. Baseline the current service provision
3. Share baseline with key stakeholders
4. Map out the service steps (process map)
5. Prioritise and plan improvements with key stakeholders
6. Implementation and reassessment
7. Sustained best practice

- Continuous communication is imperative at all times between all key stakeholders, especially where there is patient hand over between heath care professionals or organisational boundaries.

Appendix 2
Key sources of information

There are several important sources of information and guidance for heart failure service providers which should be utilised when undertaking a service review:

- **The National Heart Failure audit 2010** - This provides national comparative data to help clinicians and managers improve the quality and outcomes of their services - **click here»**

- **NICE clinical guidance 108 - Chronic heart failure: management of chronic heart failure in adults in primary and secondary care** - This offers evidence-based advice on the care and treatment of people with chronic heart failure, with updated recommendations on diagnosis, pharmacological treatment - **click here»**

- **NICE quality standards – Chronic heart failure – (to be published June 2011)**
  There are a series of evidence based concise statements that show what high-quality care should look like.

- **The British Heart Foundation**
  A charitable organisation providing amongst other things resources for both professionals and patients - **click here»**

- **Commissioning** – NHS Improvement quick guide to commissioning the heart failure whole pathway of care - **click here»**

The codes commonly associated with heart failure are listed below. To review local information note that Heart Failure as a diagnosis can be entered as the primary or subsequent diagnosis. We would suggest initially reviewing data with heart failure as the primary diagnosis.

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

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NHS Improvement's strength and expertise lies in practical service improvement. It has over a decade of experience in clinical patient pathway redesign in cancer, diagnostics, heart, lung and stroke and demonstrates some of the most leading edge improvement work in England which supports improved patient experience and outcomes.

Working closely with the Department of Health, trusts, clinical networks, other health sector partners, professional bodies and charities, over the past year it has tested, implemented, sustained and spread quantifiable improvements with over 250 sites across the country as well as providing an improvement tool to over 800 GP practices.

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