

CANCER

DIAGNOSTICS

HEART

LUNG

STROKE

NHS Improvement Heart  
A guide to commissioning  
cardiac surgical services



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## Foreword

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There has been substantial progress in cardiac surgery over the last ten years. Surgeons are operating in a more timely fashion on more people with higher levels of risk and co-morbidity, yet they are delivering better outcomes.

The national audit has been a major driver for success and so has the work of NHS Improvement where a focus on systems that deliver high quality care has been pivotal.

Now we face an even bigger challenge. Over the last ten years, we have benefited from higher levels of growth in NHS expenditure than at any time in its history and cardiac services have been substantial beneficiaries. Today, we have to recognise that it is inevitable that the wider financial situation is going to impact on each and every one of us. This challenge, to deliver continuing high quality care while at the same time delivering it much more efficiently, is the biggest challenge that has faced us in the history of the NHS.

It is a clinical challenge, since it is, in the end, clinicians that spend the money. So, every clinician is required to examine their practice and actively look for ways to deliver care more efficiently, removing waste and saving money.

In my last foreword (*Improving the patient experience: Developing solutions to delivering sustainable pathways in cardiac surgery*, March 2009), I pointed out that there are still long delays in the non-elective pathways that lead to heart surgery. These delays have not gone away and still need to be addressed. Many of the issues regarding pre-assessment and theatre scheduling are other examples where the priority projects have addressed the key efficiency measures over the years. Now, we cannot rest on our laurels, there remains much to be done.

### **Professor Roger Boyle CBE**

National Director for Heart Disease and Stroke, Department of Health



**Professor Roger Boyle CBE**



## Introduction

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A superficial view would suggest that cardiac surgery has changed little over the last twenty years – we still spend most of our time in theatre grafting coronary arteries and replacing heart valves. However, closer inspection shows marked changes in the type of patient being seen by surgeons. The era of operating on patients with heart valve disease only when their symptoms became severe has passed and now many patients are operated on specifically to prevent deterioration rather than improve symptoms. This change means that patients having heart valve surgery are not having their operations when they have begun to slip down the slope of clinical deterioration when 'risky' surgery is the only prospect of survival but when they are well.

This change has occurred alongside a justified increase in the expectations patient have of what can be done for them and as evidence of this we are operating on an increasingly elderly population of patients. In 2008, 25% of all patients undergoing coronary artery bypass surgery were over 75 years of age.

This has increased from 10% in 1999 and has brought challenges in terms of increasing co-morbidity but results following surgery continue to improve. Mortality following CABG has fallen from 1.9% in 2004 to 1.5% in 2008. The changes in cardiac care set out in the National Service Framework have also had a marked effect on the way patients are treated we have found that we are operating on many more patients on an urgent basis as appropriate treatments are now available much earlier in the time course of patients' disease course.

The attention focused on cardiac diagnostics and 18 week pathways as part of the portfolio of work led by NHS Heart Improvement during 2007/08 highlighted a need to shift attention to cardiac surgery to develop sustainable solutions. Eight NHS Trusts supported by their local cardiac networks have been involved as demonstration sites during 2008/09 testing out new approaches to care and improvement to frontline patient services.

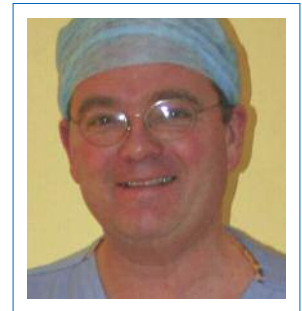
The focus of work undertaken by the current project sites considered to be constraints within the management of smooth patient flows includes the following:

- Pre-admission provision.
- Referral management services.
- Scheduling.
- Discharge and post operative care management.

This report aims to share the successes with the wider NHS providing a range of excellent examples of where local teams have delivered innovation in their service to improve the efficiency and experience for patients and staff.

### **Steven Livesey**

National Clinical Lead  
NHS Improvement - Heart



**Steven Livesey**

## Improvement to the patient pathway - summary of recommendations

Lessons drawn from project demonstration sites suggest that quality improvement to elective cardiac surgery services requires smarter working, a data driven approach to understanding process performance and process variation, the enhancement of staff roles and a shared overview of the patients' journey and patients experience across referring providers and the tertiary centre.

Cardiac networks continue to be uniquely placed to assist with the delivery of the quality agenda by linking clinicians, managers and commissioners together in every aspect of the patients' journey through primary, secondary and tertiary care.

Networks are well positioned to reflect local relationships between clinicians across organisational boundaries to further develop safe and effective surgical pathways of care for patients by providing an opportunity for clinicians and managers to work together on the redesign agenda and to gain agreement on:

- 1. Service priorities**
- 2. Models of care and idealised patient pathways**
- 3. The approach to the change initiative and the identification of root cause issues and solution development**
- 4. The methods/approaches to change management**
  - Strategically in gaining agreement to change service models and contractual arrangements;
  - Operationally in the application of improvements including the adoption of processes that hold and sustain the gains.

This document identifies a range of initiatives that have been successfully employed in meeting the challenge of 18 weeks in elective surgery which inevitably required the focus to extend to systems and processes that support the whole surgical process, elective or otherwise.

The detailed case studies within the publication aim to share the knowledge and learning from these pilot sites which breaks down into the following four areas:

### 1. Referral management services

There is often an information gap between referring provider units and the tertiary centre:

- Manage variation in the referral process from provider units and in-house reducing multiple referral points through development of agreed referral criteria to relieve pressure on waiting times for surgery.
- Develop central systems for optimising referral efficiency by streamlining administrative process and referral management linking clinical teams across secondary and tertiary care to triage referrals and advise on appropriate tests/investigations.
- Introduce pooled referrals across consultants as this significantly impacts on waiting times.
- Use appropriate clinical staff to confirm referrals are complete and discusses work up criteria with referrer.
- Introduce a single point of contact at the tertiary centre for referrers and patients. The role of the trained clinical coordinator is pivotal in tracking individual patients and in ensuring the consultant team kept informed of significant events.

## 2. Pre admission provision

- Manage variation in pre assessment services.
- Adopt investigation guidelines which state agreed timeframes from test to planned date of surgery and only carry out investigations which are relevant, indicated and likely to alter management.
- Introduce 'one-stops' for outpatients to avoid wasted clinics for medical staff and patients.
- Maximize opportunities for multidisciplinary team assessment and emphasise use of technology an example would be use of video link between hospitals.
- Maximize pre assessment opportunities as they help manage patient health and reduce risk.
- Maximize pre admission diagnostics particularly in referring district general hospitals by establishing agreed pre operative protocols.
- Maximize patient work up prior to admission and agree the schedule for each clinical scenario for example surgery for coronaries, mitral valve, aortic valve and combination. This has a beneficial effect on waiting times.
- Train and support key clinical and managerial staff to deliver some of the work undertaken by junior doctors reconfigure services to develop opportunities for other health care professionals to widen their skills and scope of relationship with patients. An example is the patient 'navigator' role which benefits patients and families by providing information and support following attendance at outpatient and pre assessment clinic.
- Maximize the scope of extended practice for nursing roles working in pre operative assessment clinics functioning as part of the consultant led team to streamline cardiac surgery patient care.
- Maximize inclusion of different staff groupings for example anaesthetists involved in pre assessment to ensure that all patients presenting for surgery will be adequately assessed as this can reduce cancellation rates, improve operating theatre efficiency and increase patient satisfaction.
- Continue to provide information and support.

## 3. Scheduling

- Move toward Day of Surgery admission as the standard of care for elective surgery as this can improve the patient experience considerably.
- Maximize theatre efficiency by reducing waste in the system for example right staff in place at the right times with the right equipment.
- Optimise theatre capacity by reducing slot cancellations (clinical/non clinical) and by scheduling procedures that assist with patient flow through ITU/HDU.
- Where ever possible pool lists to reduce waiting times.
- Procedure complexity scores developed to assist with scheduling developed as part of MDT.

## 4. Discharge and post operative care management

- Manage variation in post operative clinical management practice.
- Manage variation in discharge patterns reducing length of stay.
- Start discharge planning at pre assessment to identify requirement for support and home aids to reduce requirement for delayed discharge.
- Involve a range of health care professionals for example occupational therapists in discharge planning at pre assessment particularly where patients and in particular the elderly may have complex needs.
- Discharge assessment should form part of the central patient record available throughout the patient journey to all staff groups.
- Move toward nurse led discharge.

Note: The resources developed by these pilot sites are available through the web links and NHS Improvement system at:  
[www.improvement.nhs.uk/heart/sustainability](http://www.improvement.nhs.uk/heart/sustainability)

## Access to surgery

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The reductions in waiting times envisaged by the NHS Plan are now a reality and in order to meet the expectations of shorter waits, the way in which patients are managed and referred from one department to another as their treatment progresses has had to improve.

As a result, the majority of units in the country have adopted a network-agreed system of investigating and referring patients on for further treatment, such as coronary artery bypass graft (CABG). The rapid progress of patients through the system has been greatly facilitated by the adoption of common protocols for investigation and agreed timelines for referral. Many of the steps in the pathway are now overseen by specialist nurse practitioners rather than junior doctors and this has contributed greatly to the efficiency of the process.

The need for non-medically qualified staff to play an even greater role in patients' assessment and treatment is becoming apparent as the effects of the reduction in junior doctors hours are starting to bite. It is vital that training organisations work with trusts to ensure the workforce continues to develop to ensure timely delivery of care in the future.

## Elective pathways

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Elective care refers to care that is pre-arranged (planned). Managing elective and emergency patient flows from decision to admit to discharge can prove challenging for organisations as they work to deliver a number of national and local quality and performance targets among them 18 week referral to treatment admitted pathways, four hour A&E target and locally agreed reduction in length of stay and interhospital transfer times. Yet looking at the pathway of care from the patient's point of view making it smoother, more accessible, less complicated and less subject to delays is necessary given the volume of patients who receive care.

With cardiac surgery often coming at the end of a lengthy diagnostic pathway the delivery of shorter waiting times completed within 18 weeks is increasingly demanding. Specialty beds often occupied by medical outliers and a lack of intensive care beds due to emergencies or the clinical status of patients intensify the complexity of delivering smooth patient flows.

Before cardiac surgery can be carried out a range of resources have to be brought together at the right time and the right place: surgical staff, nursing staff, anaesthetist, theatre time, beds. Remove any one of these components and the operation has to be cancelled. The sharing of staff and resources to support elective and non-elective care treatment can place an added stress to elective work as urgent cases should take precedence resulting in cancellation of scheduled elective surgery causing frustration and delay felt by staff and patients alike. However, as there is a permanent need to provide for non-elective care contingencies can be built into the system.

Pre operative assessment ensures that the patient is as fit as possible for the surgery and anaesthetic and minimises the risk of late cancellations by ensuring that all essential resources and discharge requirements are identified and coordinated. With appropriate training nurses can effectively manage the care of patients referred to the pre operative assessment clinic

in advance of cardiac surgery, including clinical examination, history taking, arranging radiological and haematological investigations in accordance with Consultant or departmental guidelines. The development of new roles allows consultant time to be effectively freed up permitting more appropriate use of surgeons' time. (*Staffing Cardiothoracic Units Developing a workforce for the 21st century*. Livesey, S. Bartley, T. April 2007).

Across the country project sites showed wide variation in their achievement of admitted waiting times and started their journeys to improvement from differing baseline positions based on local circumstances. In understanding how patients flowed through their service with a particular focus on referral management services, pre admission provision, scheduling and post operative care management these essential facets have supported achievement of continuous improvements in elective care pathways.

The detailed case studies included here demonstrate their progress, outlining practical strategies for continuous improvements in the quality of care which has benefited patients in reducing delays, tackling bottlenecks and enabled patients and carers to access clearer information alongside the achievement of targets.

The dilemma of balancing both elective and non elective/emergency work led some sites to adopt a whole system approach to their quality improvement work due to the knock-on effects of the provision of non elective care to planned activity.



## St George's Healthcare NHS Trust and the South London Cardiac and Stroke Networks

## Redesign of the cardiac surgery patient pathway reduces length of stay

**The problem**

In December 2008, the opportunity to take part in a National Priority Project prompted the St George's cardiac surgery team to address how they might deal with some of their longstanding problems to help the unit perform at an optimum level, meeting both national and internal trust standards for issues such as length of stay, cancellations, and notice period of surgery date for patients.

Both the elective and non-elective adult cardiac surgical pathways had room for improvement, particularly within the:

- pre-assessment service;
- management of length of stay, theatre cancellations and slot scheduling;
- referral management processes internally and from referring district general hospitals.

Achieving and sustaining the 18 week target for elective surgery and the requirement to meet the trust's internal priority to reduce length of stay across both the cardiology and cardiac surgery care groups felt challenging. A review of baseline data, gathered using pathway mapping, demand and capacity analysis, and interviews with staff across their respective work area of the patient journey, highlighted a number of system and process issues.



The issues included:

**1. Pre-assessment**

- During 2007/08 fewer than 60% of elective cardiac surgery patients attended the pre-assessment clinic.
- Anecdotally, this was contributing to difficulties with planning patient admission, scheduling and anticipating date of discharge.

**2. Theatre scheduling**

- In Q3 2008/09, the average number of non-clinical cancellations was 10% of all elective cases.
- These were commonly due to theatre overruns and lack of beds.
- Patients were often cancelled the day before, or on the day of their surgery; there was no cancellations policy to prevent or support the decision.

- Analysis of the theatre diary showed cases rarely started on time and often overran.
- There was no policy for theatre scheduling.
- Patients were given little notice of their surgery date; often less than one week.

**3. Electronic referral system, inpatients and interhospital transfer patients**

- The electronic referral system, primarily developed for the referral of non-elective patients from district general hospitals into the tertiary centre (interhospital transfers) that had been implemented in 2006 was not being utilised.
- Paper referrals made from referring sites were frequently mislaid.
- Little and inconsistent correspondence between referring sites and St George's was common place.
- Referring centres were unsure of the work-up required for surgical patients resulting in patients often transferred into St George's unprepared for surgery.
- Length of stay was longer than optimum for admission to referral, referral to transfer, transfer to treatment and treatment to discharge or transfer back to DGH.

- A small number of patients treated at St George's travelled from Jersey – due to flight restrictions imposed by the airline these patients were unable to fly home until at least ten days after their surgery. This resulted in their stay in hospital being extended to ten days post surgery as opposed to usual routine of five days.

**4. Admission on the day**

- In Q3 2008/09, only 10% of elective cases were admitted on the day.
- An admission on the day project for 'second on the day cases' had been successfully piloted in 2006, but had not been sustained.

**5. Length of stay (LoS)**

- In Q3 2008/09, the average LoS for elective patients was 8.8 days.
- In Q3 2008/09, the average LoS for non-elective patients was 15.7 days.
- LoS needed to align with the trust target of elective patients being discharged on day five. Non-elective LOS should also be reduced in recommendations with the NCEPOD guidance.
- The cardiovascular division was required by the trust to make a saving of 10 beds.



Working together on this project has brought the team together and I'm so proud of what we've achieved. We were all sceptical to begin with and I was uncomfortable admitting we had problems with our service, but hearing from other colleagues around the country reassured me that we were not any different and we all had the same issues. Working on this project with the Network and the Heart Improvement Team has encouraged us to start a similar project addressing issues in cardiology – we're now looking forward to a similar success story!



**Jane Fisher**  
General Manager

### The solution

A project team was established and chaired by the unit's general manager with clinical and managerial membership including service managers, heads of nursing, matrons, clinical nurse specialists, clinical audit, transformation project manager, consultant cardiologist and cardiac surgeon. Project management support was provided by the South West London Cardiac and Stroke Network.

Baseline data was collected to identify areas for improvement work. It was clear the project had developed into a whole pathway redesign and was subdivided into five key workstreams. Project team meetings were held every fortnight and leads were nominated for each work-stream to be responsible for the work.

A set of key values that reflected the trust's own strategic vision were agreed and integrated within the team's vision established to deliver the improvement work across the patient pathway:

- 1) To ensure that all patients have equal access to the service.
- 2) That the patient journey is safe and free from complications.

- 3) Compliance with the national and local agenda including 18 weeks, cancellation on the day and reduction in length of stay.
- 4) That the cardiovascular service is as efficient and forward thinking as any other tertiary centre in the country.
- 5) That the staff within the unit are proud to work in the unit and feel valued and part of a team.

Highlight reports were produced for each team meeting and provided the mechanism for monitoring each workstream against key goals, actions, risks and progress against timeline. Analysis of the data to show evidence of the improvements was supported by the trust transformation manager and clinical audit staff members on the team.

The work was also informed by the analysis of qualitative data from patient and carer diaries which were used by a number of patients and their family members from the time they attended their pre-assessment, throughout their stay in hospital, and for a few weeks after their discharge.

Team members attended the national cardiac surgery priority project peer support meetings which inspired members to share existing good practice within the unit and to develop solutions to challenges shared across the peer group.

### The new pathway featured:

- The pre-assessment of all elective cardiac surgery patients by September 2009.
- A theatre scheduling policy introduced in October 2009, including improving notice to patients of their date for surgery.
- Regular monitoring of theatre cancellations to reduce the number non-clinical cancellations
- Implementation of the use of electronic referrals for non-elective cases by January 2010.
- Implementation of admission on the day as normal practice.
- The recruitment of two additional staff; a pre-assessment nurse and a cardiothoracic nurse practitioner:
  - Whilst these new posts required funding overall the project was cost neutral – as savings were gained due to the improvements made by each work-stream, in particular, reductions in LoS and cancellations.

- Implementation of new discharge planning for Jersey patients.

Below is a summary of the work and achievements in each workstream:

### 1. Pre-assessment

- Reviewed demand and capacity within pre-assessment clinic.
- Employed second clinical nurse specialists to increase capacity.
- Converted all pre-assessment clinics to nurse only clinics.
- Worked with admissions co-ordinator to formalise process between acceptance onto waiting list and admission to hospital.
- Developed patients information sheet to explain process, now sent to all patients when added to the waiting list.

### 2. Theatre scheduling

- Theatre lists published weekly, ten days in advance and with slots available for emergency or inpatient cases.
- Set up weekly MDT meetings to review lists for following week and identify possible issues/over runs/resources.
- Implementation and enforcement of cancellation policy.

- Locum theatre manager in post.
- Annual/study leave booked a minimum of six weeks in advance.
- Consultants' rota set at six weeks ahead.
- Improved theatre start and finish times.
- The notice period given to patients about their surgery date increased from one week to three.
- Outpatient referrals pooled for first time CABG to ensure equity of waiting times – this had an impact on general 18 week waiting times.
- Implementation and enforcement of theatre scheduling policy.

### 3. Electronic referral system, inpatients and interhospital transfer patients

- Cardiothoracic nurse practitioner post developed and recruited to.
- Met with referring hospitals to discuss new cardiothoracic nurse practitioner role, established direct contact of individual who would take responsibility for each referral.
- Training sessions delivered to staff (at each site) on how to use referral system.
- Electronic referral system used for in-house in-patients between cardiologists and cardiac surgeons at St George's.

- Electronic referral system used for IHT non-elective patients.
- All in house and IHT non-elective referrals addressed to 'dear surgeon' and managed by cardiothoracic nurse practitioner, rather than to a named surgeon.
- All referrals also processed through nurse practitioner, who then contacts referrer to confirm receipt and discuss work-up criteria.
- Nurse practitioner liaises with pathway co-ordinator to arrange dates for surgery, keeping referring hospital informed.
- The matron and nurse practitioner also worked with the Jersey Hospitals and staff at St George's to develop and implement a new discharge routine for Jerseys patients – the team designed a clinically safe and practical protocol to discharge patients on day five to stay in a local hospital with regular nurse check-ups until day ten, before flying home. This was done in collaboration with the Jersey referring hospital, who were pleased with the team's dedication to safe practice and clinical effectiveness.

### 4. Admission on the day

- 2006 pilot reviewed.
- Admission on the day exclusion criteria agreed.
- Policy agreed and signed by all cardiology, cardiac surgery and anaesthetic care groups.
- Commenced 31 July 2009.

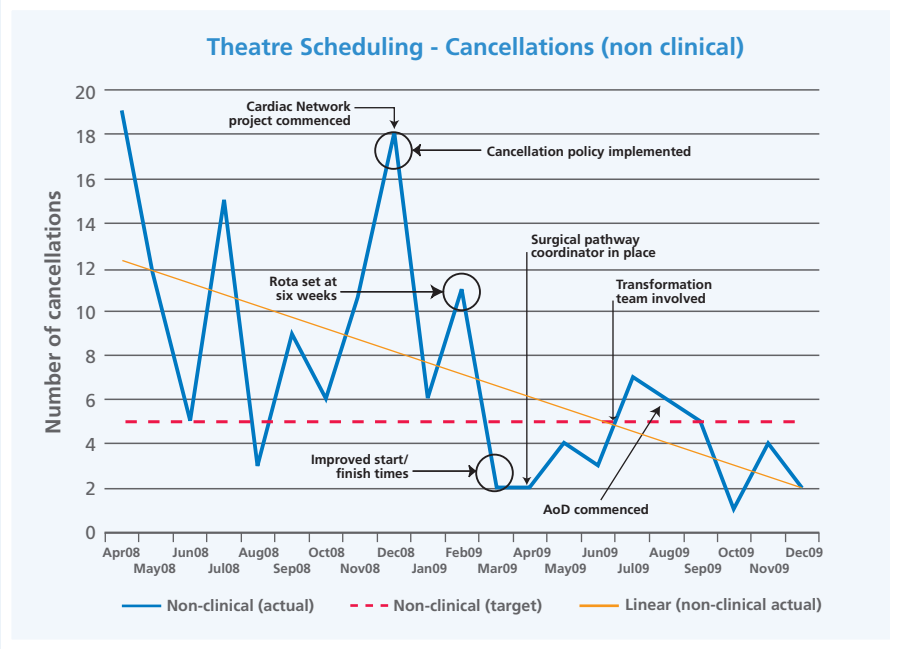
### 5. Length of stay (LoS)

- Analysis of LoS compared with peers and national standards was used to estimate where beds could be saved.
- The transformation project manager worked closely with each workstream to measure where LoS was saved.
- Alignment of the project to the strategic direction of the trust to specifically save 10 beds increased engagement at senior level.

**The results**

The new pathway has resulted in: The improvements have lead to an overall increase in productivity – theatre scheduling, increased pre-assessment and admission on the day, reduced cancellations and length of stay have all contributed towards an increase in activity by £103k to date.

**Reduction in non clinical cancellations** from an average of 10.1% of cases per month in Q3 2008/09, to 2.3% of cases per month in Q3 2009/10.

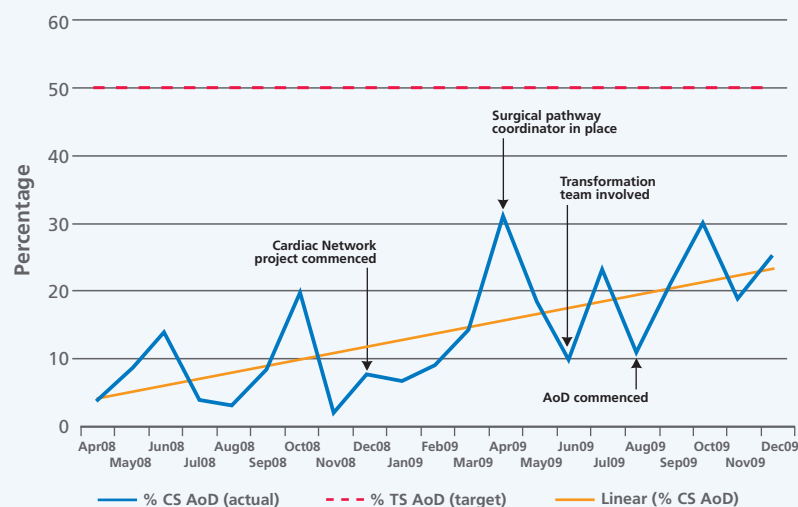


**Increase in admission on the day** from an average of 9.9% of cases per month in Q3 2008/09, to 24.6% of cases per month in Q3 2009/10.

This equates to 69 patients admitted on the day in 2009/10 to date; at £200 per bed day this makes a saving of £13,800.

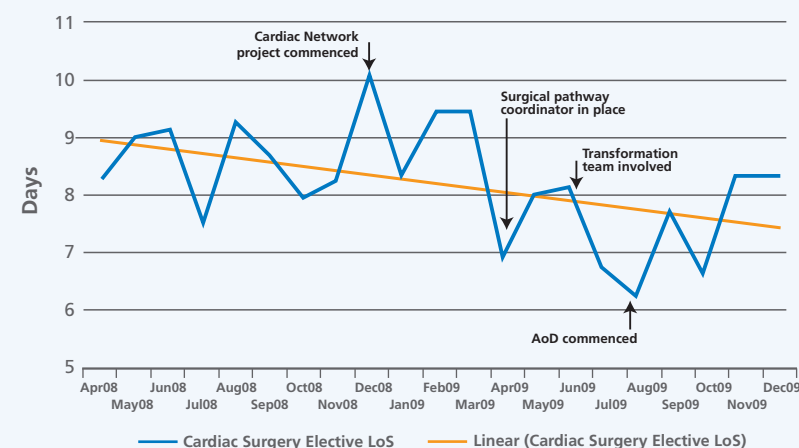
Baseline figures	Percentage of non-clinical cancellations		
	Mean	Median	Range
April - March 2008/09	8.3%	9.0%	3-15%
April 2009 - present	3.7%	4.0%	1-7%
Oct - Dec 2008/09 average	10.1%	10.3%	5-15%
Oct - Dec 2009/10 average	2.3%	1.9%	1-4%

### Admission on Day of Surgery



**Reduction in length of stay** for elective cardiac surgery patients, reduced from an average of 8.8 days in Q3 08/09, to 7.6 days in Q3 2009/10.

### Length of Stay - Elective Cardiac Surgery

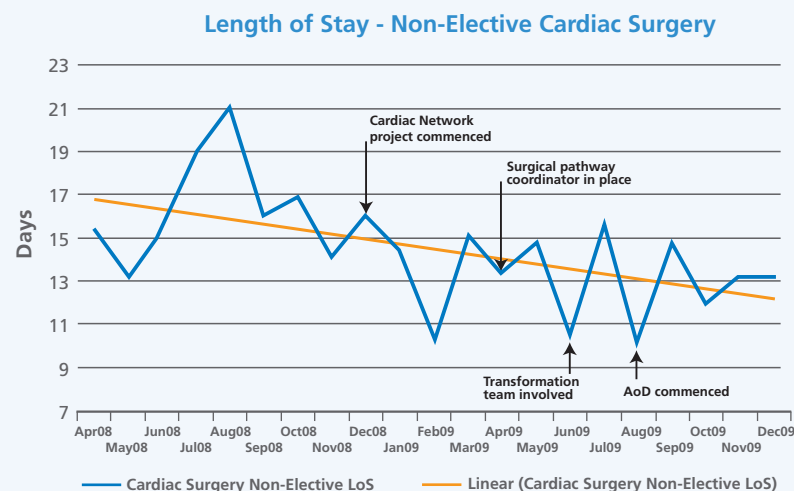


Baseline figures	Percentage of admitted on the day		
	Mean	Median	Range
April - March 2008/09	8.5%	8.0%	1-15%
April 2009 - present	20.9%	21.1%	10-31%
Oct - Dec 2008/09 average	9.9%	7.7%	2-20%
Oct - Dec 2009/10 average	24.6%	25.0%	19-30%

Baseline figures	Length of stay for elective cardiac surgery		
	Mean	Median	Range
April - March 2008/09	8.8	8.8	8-11 days
April 2009 - present	7.4	7.7	6-8 days
Oct - Dec 2008/09 average	8.8	8.3	8-9 days
Oct - Dec 2009/10 average	7.6	7.8	7-8 days



**Reduction in length of stay** for non-elective cardiac surgery patients, from an average of 15.7 days in Q3 2008/09, to 13.3 days in Q3 2009/10.



Baseline figures	Length of stay for non-elective cardiac surgery		
	Mean	Median	Range
April - March 2008/09	15.5	15.4	10-21 days
April 2009 - present	13.2	13.3	10-16 days
Oct - Dec 2008/09 average	15.7	16.0	14-17 days
Oct - Dec 2009/10 average	13.3	13.1	12-15 days

### Top tips

1. Engagement at senior level and alignment of the project to the strategic direction of the trust specifically saving 10 beds.
2. Regular reporting to senior management supported by robust data across a defined set of measures agreed early on in the project to ensure focus.
3. Access to data. A member of the team with access to data was vital to measuring improvement as the network project manager struggled to gain access to data, being perceived as an 'outsider'. The internal data manager was able to retrieve and analyse data shared across the project team to drive the work.
4. Interdisciplinary core project team was reflective of the key staff vital to implementing and maintaining changes being tested.
  - a. The core team consisted of the lead for each work stream; these individuals were the people who would plan and measure the changes – they were the people who could really make a difference.
  - b. The core team held the five points outlined as a shared vision of change, and worked together to achieve these goals.
  - c. As well as for planning purposes, the team meetings were important for boosting morale for when the work was facing opposition or difficulties.
  - d. As a result of the project, relationships and communications throughout the team and across the pathway boundaries have been improved.
5. Keep in the forefront that improvement does not need to come at a financial cost – but that by working more efficiently and more productively, patients can receive better care that is value for money.

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## University Hospitals Birmingham NHS Foundation Trust, Heart of England NHS Foundation Trust and Birmingham, Sandwell and Solihull Cardiac and Stroke Network

### Ensuring patients are fit for surgery and reducing delays in the cardiac surgical patients pathway

#### The problem

Achieving the national target of 90% of admitted cardiac surgery patient pathways being completed within 18 weeks was proving a challenge across organisations within the Birmingham, Sandwell and Solihull Cardiac and Stroke Network. One of the most common delays in the patients' pathway at Good Hope Hospital was the time between angiography and case review by the multidisciplinary team (MDT). On average the wait was four weeks but at its longest nine weeks, particularly if the MDTs were cancelled. Surgeons from the tertiary centre were required to travel across the city to attend the MDT meetings held at the referring provider centre to review individual cases requiring surgical opinion. Clinical commitments often meant that attendance at these MDTs was not possible. Not all patients were discussed at MDT and the process of ensuring that patients were fully worked up for surgery prior to referral to the MDT was not supported by an agreed protocol.

The system of ensuring patients were fit for surgery was characterised by inconsistency and variation across the surgical teams with pre-screening not carried out in all surgeons' outpatient

clinics and with some patients attending a further appointment at pre-assessment clinic. The pre-assessment clinic workforce did not have the required skills to support a full assessment, including history taking, patient examination and assessment. Therefore, an SHO was required to review all patients.

Attendance at pre-assessment clinic was often more than four weeks before the date of surgery which resulted in the need to duplicate chest x-rays and blood tests on admission. This created unnecessary expense to the Trust and inconvenience to the patient

There was no anaesthetic service in the pre-assessment clinic, resulting in clinical problems often identified late in the patient pathway; on admission to the tertiary centre problems had been identified following assessment by the anaesthetist. This often resulted in the patient being declared unfit for surgery and the operation cancelled. The clinic was not working to full capacity, flow of patients through the clinic was low and a review of the pre assessment services illustrated that not all slots were being fully utilised.



There was also some pressure to reduce the overall length of stay and improve efficiencies in the patient pathway, as the tertiary centre is reducing its overall number of beds on the cardiac surgical ward from 39 to 32.

#### The solution

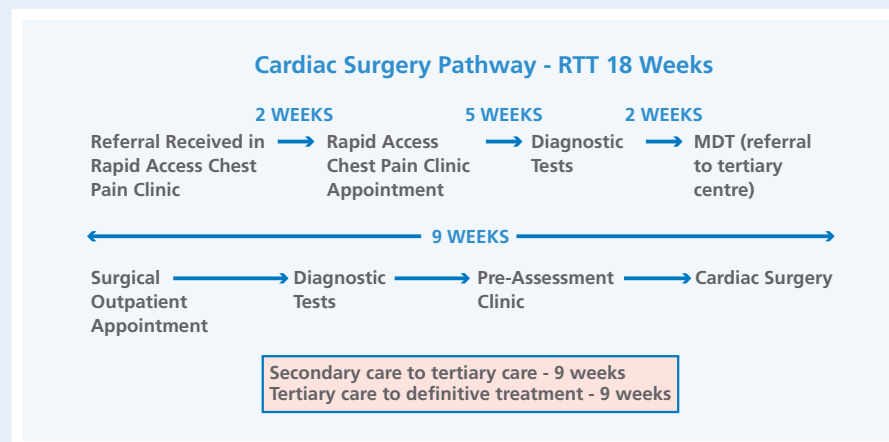
A surgical steering group was set up which included cardiologists representing the tertiary centre and district general hospital, a cardiac surgeon, an anaesthetist, management representation from both trusts, a cardiothoracic nurse practitioner and tertiary centre cardiac audit clerk. The Birmingham, Sandwell and Solihull Cardiac and Stroke Network provided project management support.

A patient progress tracker was appointed by the network to track the patients through their journeys using a live database to help map the pathway and identify delays in the journey. Tracking patient pathways also helped to demonstrate that patients sometimes attended more than one surgical/ cardiology appointment.

A new pathway to support the achievement of 18 weeks was developed and agreed by all key stakeholders. Baseline data was collected to help define the problem and scope of the project.

### The project objectives were:

- Introduction of weekly electronic MDTs using:
  - telemedicine to allow the transfer of images between referring units and the tertiary centre;
  - teleconferencing between the referring consultant cardiologists and tertiary centre surgical teams for the purpose of weekly MDT case review. Use of technology was thought capable of reducing MDT cancellations and increasing the number of patients discussed at MDT;
  - introduction of a pre-referral protocol to ensure patients are fully worked up prior to referral to the tertiary centre.
- Redesign of the pre-assessment process with patients:
  - attending the clinic no more than four weeks before the date of admission for surgery at the tertiary centre;
  - being assessed in pre-assessment clinic by a cardiothoracic advanced nurse practitioner and an anaesthetist to ensure they are fit for surgery on admission to the tertiary centre, with a view to reducing the cancellation rate and optimising use of inpatient beds.



### Progress

The tertiary centre has four core purposes. Therefore, it was imperative that any project undertaken to improve services should be underpinned by the following four principles.

- Excellent patient care**
- Clinical quality outcomes**
- Research and innovation**
- Education and training.**

These have been achieved in the following ways:

- Development of the pre-referral protocol to support the referring cardiologist. This will ensure that all the required information is available at the point of referral including presenting history, past medical history and a summary of investigations and outstanding results. It also specifies the indications for undertaking core investigations such as trans-thoracic echo, carotid duplex scans and lung function tests. Implementation of this protocol will ensure all necessary investigations are completed before referral to the tertiary centre, reducing the risk of the patient being referred back to the DGH for the tests to be undertaken,

potentially adding weeks to the pathway and unnecessary waits for the patient.

- An increase from 0% of patients previously reviewed by an anaesthetist in pre-assessment to 72% over a short period of time. We are working towards 100% of patients being assessed by an anaesthetist in pre assessment clinic.
- Clinic nurses undergoing practitioner training to enable implementation of a cardiothoracic advanced nurse practitioner role in the pre-assessment clinic and to help address demands on clinical service brought about by EWTD.
- Capacity at pre-assessment clinic has increased from approximately 12 to 30 available slots per week, resulting in increased activity. This has been achieved by increasing the number of appointments, and reducing time pre-assessment staff spent on administration duties, to enable them to focus on clinical duties.
- Telemedicine system is in the process of being installed.
- Development of a patient questionnaire survey to gather an understanding of the patients' experience from referral for cardiac surgery to admission for surgery.

“

University Hospitals Birmingham is still in the process of fully rolling out the project. However, we have already seen benefits to patients with the expansion of pre-assessment and pre-screening clinics as well as the development of anaesthetic-led pre-assessment clinics. We look forward to receiving comments from patients about their pre-operative pathway so that we can evaluate our success so far and identify any further improvements to be made. We also welcomed the opportunity to work with a local referring cardiology centre to identify bottlenecks in the patient pathway and are currently working to resolve these.

I feel the project group has benefitted from networking with other centres who have identified similar issues and we have learnt from their experiences how to overcome these to ensure the overall success of the project.

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**Emma Billingham**, Group Manager

#### Top tips

- Mapping the existing pathway is essential in understanding timelines and delays in the system.
- Strong clinical leadership (cardiology and cardiac surgeons).
- Obtain baseline data to identify if a problem exists and build in robust data collection mechanisms to support improvement work.
- Understanding the funding implications and identifying who is going to fund what (things like annual service costs for a piece of kit etc) as early as possible in the project to avoid issues later on.
- Develop a communication plan to facilitate the dissemination of project information to all admin and clerical/managerial and clinical staff involved in the pathway as this helps to foster support and buy in to the improvement work making it everybody's business.
- Bringing together key stakeholders from the referring provider unit and tertiary centre together to identify issues and problems and develop joint solutions.
- Understanding the patient/carer experience is fundamental to the success of any quality improvement work.

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## Royal Brompton & Harefield NHS Foundation Trust in collaboration with North West London Cardiac and Stroke Network

### Process changes significantly increase 18 week performance in cardiac surgery



#### The problem

The trust performance for referral to treatment pathways for cardiothoracic surgery, within 18 weeks between April - August 2008 had remained consistently below the 90% national target, sitting in the low 30-50%. A review of the elective surgical pathway for planned care illustrated the following issues:

- Patients were typically added to the surgical waiting list before they had been assessed and declared 'fit for surgery' which resulted in extended wait times for definitive treatment well beyond 18 weeks.
- The understanding and application of the 18 week suite of rules varied among staff within administrative, clinical and managerial roles at the tertiary centre and referring providers.
- Clinic outcomes were often not documented following the patients attendance at the pre operative assessment clinic (POAC), a crib sheet was developed for the clinic staff to show what rules can/cannot be applied in different situations.
- 18 week clock stops were not always used appropriately, for example patients requiring referral for conditions on a new clinical pathway such as haematology often resulted in an inappropriate continuation of the 18 week clock.
- These patients were not recorded on a central list and were at risk of getting lost 'in the system'.
- A number of patients had already breached their 18 week pathway by the time the referral was received by the tertiary centre, this was partly due to the accompanying Inter Provider Transfer Minimum Data Set (IPTMDS) form being incomplete or incorrect.



Overall there was a considerable amount of incomplete data on the inpatient waiting list (KH07). The position of patients along their 18 week pathway was not known due to clock starts being found/given/used too late. Data flow of patients after going on KH07 was not recorded accurately. These inconsistencies meant that Royal Brompton & Harefield NHS Foundation Trust had little chance of achieving the 18 week admitted referral to treatment pathway target.

#### The solution

The trust employed 18 week co-ordinators to assist the 18 week project manager and received project management support from the North West London Cardiac and Stroke Network to focus on the cardiac surgery pathway.

The surgical pathways were mapped from the point of referral made by the secondary care provider through receipt of referral to treatment by tertiary care centre which helped to identify bottlenecks in the surgical pathway.

A series of meetings with the referring trusts and the tertiary centre helped gain a common understanding of how to apply the 18 week rules suite and develop a shared agreement for applying clock-starts and stops across providers.

These meetings also highlighted concerns around how the IPTMDS forms were being completed. These discussions resulted in a revised surgical patient pathway and process changes featuring:

- Patients seen at the pre-operative assessment clinic (POAC) being declared 'fit for surgery' before being added to the surgical waiting list.
- Agreed and standardised use of the 18 week suite of rules across referring providers and the tertiary centre.
- Inter-trust contacts for administrative, clerical and nursing staff were exchanged so that in future clock start requests were sent to the right people.
- Support and training on application of the 18 week rules for key admin personnel and nursing leads of the pre-assessment service to help reduce variation and ambiguity in their application.
- Patients at other trusts who were under investigation were recorded on RBHfT PAS as 'active monitoring', effectively stopping the clock on their cardiac surgery pathway. The cardiac nurse practitioners would follow the progress of the patient through their appointments and tests ensuring that there were no unnecessary delays, once declared fit for surgery they would be added to the waiting list.



- Redesign of the clinic outcome form with fields developed to show a range of scenarios and how the clock rules apply.
- The integrity of data on KH07 was closely monitored. Appropriate and effective data management and communication significantly improved the accuracy of the data used to monitor performance.
- Where possible clock starts were found prior to booking POAC. The 18 week database was used by pre-operative administrative staff to plan the patients clinic attendance date in line with trust targets and appropriate to breach date.
- Through discussion over the 18 week rules and the use of medical management it transpired that referring trusts treat the majority of their patients before referring them on.

### Results

- By December 2008, the trusts 18 week admitted performance met the minimum 90% which continues to be sustained, often peaking above the 95% target. Pro-active tracking of patients along their pathway has ensured there have been no unwarranted delays.
- There has been a far greater understanding within the hospital staff and between referring trusts of the 18

week rules and how to apply them effectively.

- There has been an improvement in both the number of IPTMDS forms sent through and their data completeness.
- Improved communication between staff has also helped reduce delays in referrals, transferring and sharing of information and the booking of appointments.

### Top tips

- Communication between providers and across staff groups including administrative and clerical, clinical and managerial is key to ensuring full understanding of the 18 week rules and effectively applying them.
- Developing and strengthening working relationships between the cardiac nurse practitioners and the surgical medical teams helped pool the expertise to support a full pre-operative assessment clinic.
- Access to the 18 week co-ordinator contactable by bleep increases their accessibility for staff to flag queries and problems regarding interpretation of the rules.
- Meeting regularly with teams along the surgical pathway for example the theatre scheduler who booked elective and non-elective cases, helped reduce avoidable delays.

### Comparative data of performance for a four month period year on year

#### April - August 2008 Performance

	Apr	May	Jun	Jul	Aug	Average
Wexham Park	71%	80%	79%	44%	50%	64.8%
Lister	60%	66%	41%	46%	12%	45%
Luton and Dunstable	0%	16%	20%	25%	21%	16.4%

#### April - August 2009 Performance

	Apr	May	Jun	Jul	Aug	Average
Wexham Park	86%	100%	97%	100%	96%	95.8%
Lister	70%	88%	74%	70%	86%	77.6%
Luton and Dunstable	100%	92%	86%	84%	96%	91.6%

- A thorough understanding between how the information systems and operational processes correlated by the 18 week co-ordinator had a huge impact on improving data quality and hence performance issues.
- Building relationships and improving communication channels with referring trusts had a considerable impact on improving performance as there was a sense of shared responsibility.

### Contact details

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## Essex Cardiothoracic Centre, Basildon and Thurrock University Hospitals NHS Foundation Trust in collaboration with Essex Cardiac and Stroke Network

### Tackling change - the teamwork way

#### The problem

The Essex Cardiothoracic Centre (CTC) is a relatively new unit which opened in July 2007, with many of its clinical pathways and their supporting systems and processes having been developed early in the organisations history. The trust faced challenges with meeting the national target of 90% admitted pathways completed within 18 weeks of referral to treatment with performance often running between 30-40%. Review of the surgical pathway was seen as paramount to the continued success and growth of the unit, evidenced by internal audits that had identified areas for development and improvement.

The elective cardiac surgery pathway was seen as a key area of focus to review systems and processes in the following areas of the pathway:

- Surgical collegiate system, a process of clinical review to ensure correct procedure and surgeon determined for all cardiac surgery referrals, carried out by surgeons prior to the patient attending an outpatients' appointment. Challenges in sustaining the collegiate system, based on two surgeons reviewing each referral on a bi weekly basis, were related to 'buy in' and agreement from the surgical teams.



- Patients often needed to make more than one visit in the pre operative part of the surgical pathway as a result of surgical outpatients and pre-operative assessment clinics (POAC) being held separately.

ECTC were able to focus on problems several audits were carried out which identified areas where improvements were required in order to streamline the service, improve patient experience and improve efficiency and effectiveness. The unit were keen to maintain high patient satisfaction levels whilst maximizing the use of in patient beds and theatre utilisation.

#### The solution

A Surgical User Group (SUG) was established with members drawn from across the multidisciplinary team to spearhead the development of the surgical service. An action plan with clear timescales was produced, the current service was discussed and ideas generated for future developments and improvements planned. All changes to the service were approved by the SUG. Additional project support was provided by the Essex Cardiac and Stroke Network.

Mapping of the current pathway highlighted issues with:

1. Collegiate system for review of patient referrals.
2. Process for allocation of 'pooled' patients to consultant surgeons resulting in longer waiting lists for certain procedures.
3. Pre-assessment clinic not working to its full potential due to the skills of staff carrying out the clinic.

Baseline audit of the current service was carried out in relation to theatre cancellations and theatre day/time. An audit tool was developed which allowed all sections of the theatre to be measured, for example time taken to call for patient, time in anaesthetic room, knife to skin time. This audit helped to identify timing delays and identified sections of the theatre day where improvements to efficiency could be made in order to optimize theatre usage and reduce surgical cancellations as a result of clinical and non clinical matters. The picture of theatre cancellations was broken down into the following:

- Interhospital transfer patients received at the unit were often not fully optimised.
- Unfit elective patients.
- Anaesthetic cover.
- Availability of intensive care beds.
- Theatre over-runs.

A retrospective audit of 40 case notes was carried out across six consultant surgeons during a three month period – this illustrated the problem of delay patients experienced between being seen in pre operative assessment clinic (POAC) and their admission for surgery which often resulted in tests being repeated, an unnecessary expense to the Trust. The case note audit highlighted in some cases the time interval was 10 weeks between POAC and admission for surgery which invalidated the tests necessitating them to be repeated on admission.

Understanding our cardiac surgical pathway by using service improvement techniques and data helped us to identify service improvements and areas where patient experience could be improved.

#### Our overarching aim was to:

- Reduce the time frame between attendance at pre operative assessment clinic and admission for surgery by four weeks.
- Reduce theatre cancellations to below 10%.
- Reduce waiting times from nine weeks to six weeks for cardiac surgery.

- Improve 18 week referral to treatment times for admitted pathways.
- Improve efficiency within theatre day.

#### The new service now provides:

- Same day outpatient clinic and pre-assessment.
- Dedicated lead pre-assessment nurse.
- Forum for monitoring and auditing measurables to improve service.
- Same day admission for cardiac surgery.
- Super multidisciplinary team (MDT) for review of complex cardiac surgery cases with joint cardiology and surgical assessment of the patient presented.

#### Results

18 week admitted pathways are now performing consistently at 90% as a result of:

- Improved working relationships and MDT working have developed as a result of the involvement of all disciplines within ECTC as a result of the development of Surgical User Group.
- Reduction of in -hospital theatre cancellations from 20% to 10%.
- Reduction in wait from pre operative assessment clinic (POAC to admission for elective cardiac surgery from nine weeks to six weeks.

- Reduction in unnecessary duplication of tests. Tests performed at POAC, CXR, blood tests and ECGs now remain valid from time performed until admission into ECTC.
- Reduced waiting times for cardiac surgery from nine weeks to six weeks.
- Timely POAC to admission has reduced length of stay by one day for some groups of cardiac surgical patients with same day admission.

#### Top tips

- Working together in a multidisciplinary team and collaborating with key stakeholders within ECTC and with referring District General Hospitals (DGHs) meant everyone understood each others perspectives.
- Engagement with staff across a range of disciplines and at all levels including consultant surgeons, anaesthetists, nurses, perfusionists and management team.
- Strong leadership and senior management support.
- Schedule meetings to meet the needs of all disciplines to ensure attendance.
- Production of robust data collection and analysis to support the project, drive key changes and ensure the work remained focused.

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## Cardiac and Stroke Networks in Lancashire and Cumbria

### Cardiac surgery and 18 weeks – A pan network approach

#### The problem

During 2008/09 the network took part in the national 18 Week Diagnostic Priority Project, which highlighted that patients on the cardiac surgery pathway (from the point of District General Hospital referral to surgery) were likely to breach the 18 week target. The network had previously notified chief executives that the 18 weeks target was at risk of not being met due to issues surrounding the surgical component. Work undertaken in relation to diagnostics, one-stop clinics and bed days for the cardiology part of the pathway had already been completed in June 2008.

The surgical waiting time from referral to surgery at the start of the project stood at up to 14 weeks and was characterised by variation in the surgical referral patterns and length of surgeon specific waiting lists, both compromising factors in the delivery of 18 week surgical pathways.

#### The solution

Following successful recruitment to the cardiac surgery national priority project, work began in August 2008, with the support of all stakeholders across the networks constituent organisations. Management of 18 weeks across the network health economies led to an



agreed standard of a nine week split between cardiology and cardiac surgery providers.

A project steering group, with multidisciplinary membership, was established to oversee the project and monitor progress. Project management support was provided by the network. Initial steps to baseline the project included mapping the referral pathways to define the problem and focus of the work. This included:

- Identification of the main challenges in meeting the 18 week target for admitted pathways.
- Mapping of all cardiac surgical pathways in DGHs from point of GP referral with the outcomes from the mapping activity fed back to the service.

- Collection of base line data which included theatre cancellations (clinical and non clinical) and a 12 month review of the number of patients on the surgical waiting list (CABG and valves) to establish trends.
- Mapping of the surgical pathway at Lancashire Cardiac Centre (LCC) with outcomes shared.

Monthly progress reports were submitted to the national team and measures for monitoring progress were agreed as the number of patients on the waiting list for CABG, the number waiting for valve replacement surgery, and the waiting time from referral by DGH Cardiologist to the day of surgery, and the surgical cancellation rate (clinical and non clinical).

The aim of the project was to ensure that the time from referral by a cardiologist to the patient undergoing surgery was limited to nine weeks. Scope of this project was confined to the surgical element of sustaining the 18 week pathway, i.e. from the cardiologist's decision to refer for surgery to the day the patient received surgery. Specific areas of focus agreed by the project board were:

- The interface between secondary and tertiary care.
- Subsequent scheduling of theatre cases.

The aim was to reduce the time from DGH referral to surgery from 14 weeks to under nine weeks.

Early on in the project timeline a meeting was held with 18 week leads from each of the trust's referring their patients to the tertiary centre which resulted in agreement to ensure uniformity of referral processes and collection and transfer of RTT data across the network.

An electronic theatre scheduling tool was piloted in December 2008 to allow the booking of theatre cases to be coordinated actively with theatre resources and capacity, with the aim of reducing both over and under runs.

A flow tool analysis of the 20 bedded Cardiothoracic Intensive Therapy Unit (CITU) was completed to help express bed occupancy and activity on an hourly basis, and was measured over 24 hours for one month. The report was submitted to the tertiary centre and highlighted that the CITU runs at approximately 80% occupancy, with the pattern across the study period indicating that there could be capacity to accommodate extra cases at certain times. A repeat analysis is scheduled for March/April 2010 to monitor the effect of four high care beds introduced in March 2009.

The trust has implemented the advanced nurse practitioner role into this area to assist with case management and we are hoping that the flow tool will help direct this exciting new role within the unit.

The new surgical pathway featured:

- Agreed and standardised pre operative procedures.
- An increase in surgical outpatient capacity through implementation of surgical satellite clinics at two of the referring District General Hospitals.
- Multidisciplinary team review of patients referred for cardiac surgery carried out via videoconferencing.
- Implementation of an electronic theatre scheduling tool.
- Pooled waiting lists for first referrals and those patients with one and two vessel.

### Results

By the end of the project:

- The waiting time for surgery had reduced to six weeks across the board.
- The number of patients on the waiting list at the start of the project was 120 and had reduced to 79 by 9 March 2009.
- The percentage of surgical cases cancelled for clinical reasons has been reduced.

- Agreed protocol across the network standardising pre operative diagnostic investigations were in place.
- Pooled waiting lists were introduced at Lancashire Cardiac Centre for first referrals and those patients with one and two vessel disease.
- Patients on the waiting list were given a date for surgery at their outpatient clinic appointment with the surgeon.
- An electronic theatre scheduling tool has been implemented resulting in a more even spread of the intensity of work across the week, and through individual theatres.

### Top tips

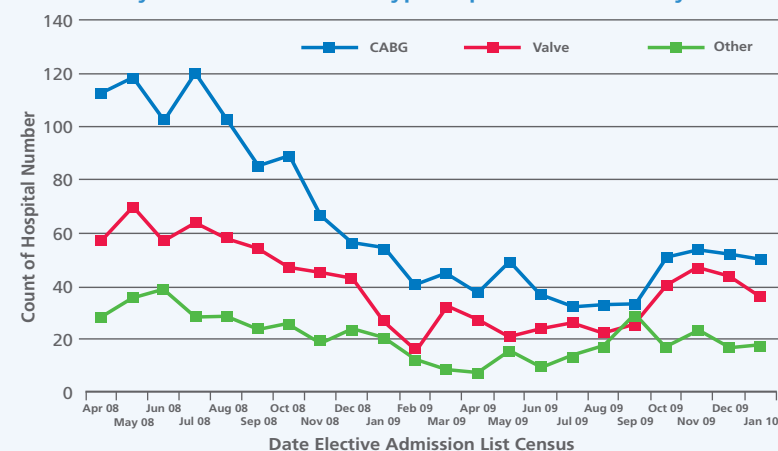
- Engage with all staff from the outset.
- It is essential to get consultant 'buy in' to drive through improvements.
- Scope the project fully and support with robust data.
- Projects that span more than one organisation require sign up at executive level.

### Contact details:

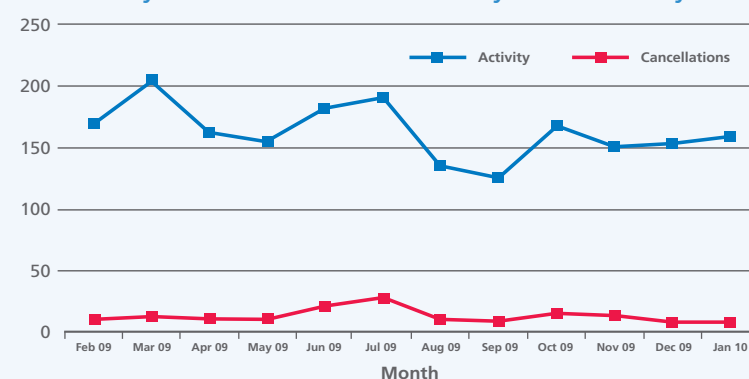
**Jennifer Watts**

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**Number of Patients on Cardiothoracic Waiting Lists by Intended Procedure Type - April 2008 to January 2010**



**Activity Versus Cancellations - February 2009 to January 2010**

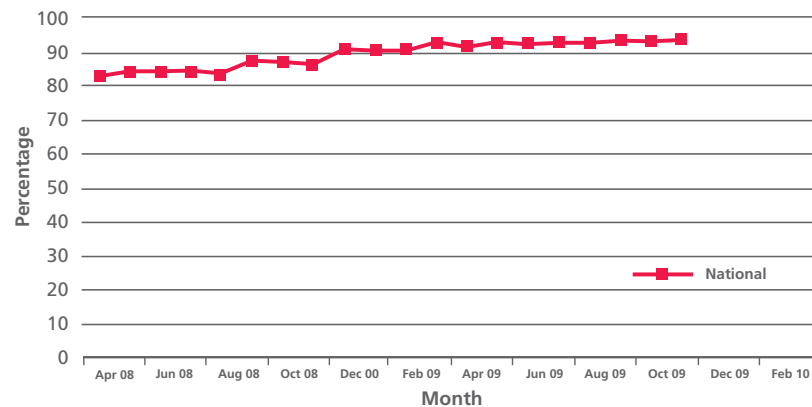




## Cardiac surgery trends - the national picture

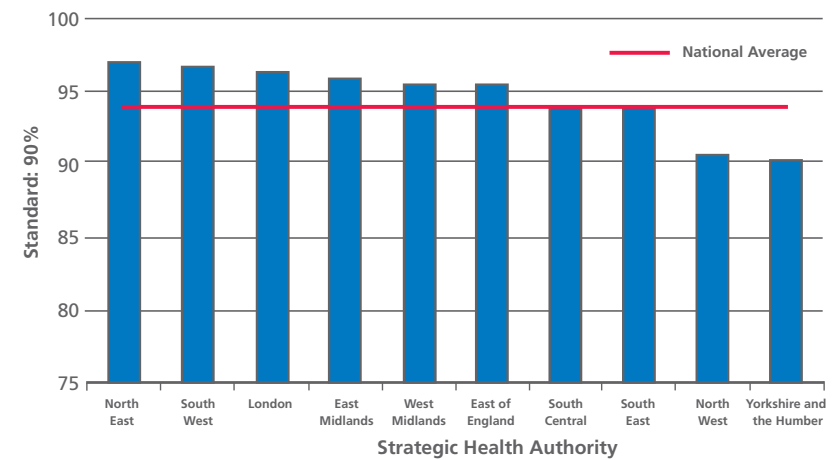
Referral to treatment times cardiothoracic admitted 18 week pathways

**Referral to treatment times cardiothoracic admitted pathways.  
Standard: 90%. National position (data November 2009)**



Source: NHS Improvement Data Dashboard, January 2010 (data from November 2009)

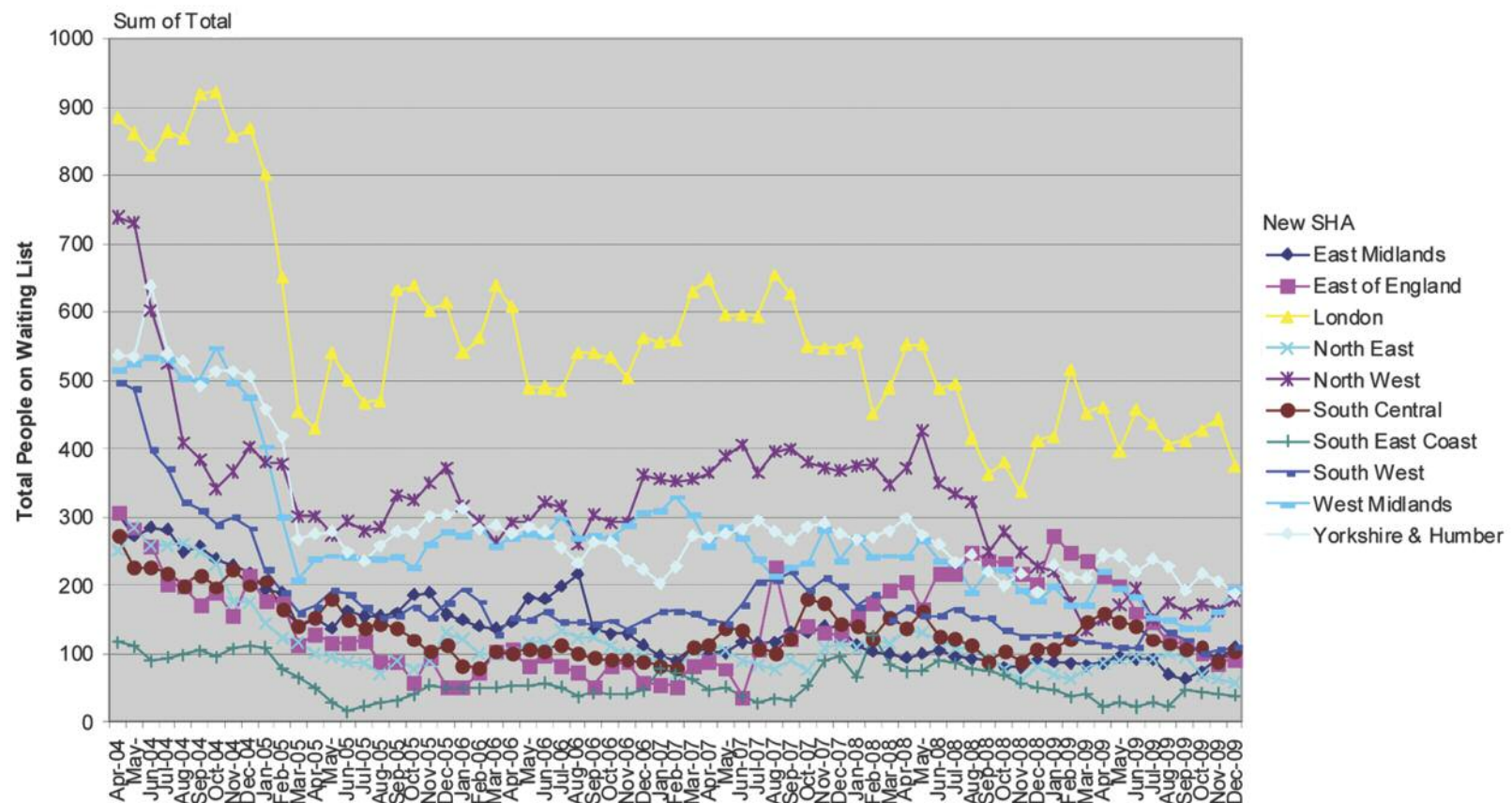
**Referral to treatment times for cardiothoracic surgery admitted.  
Standard: 90%. Position by Strategic Health Authority (SHA)  
(data November 2009)**



Source: NHS Improvement Data Dashboard, January 2010 (data from November 2009)

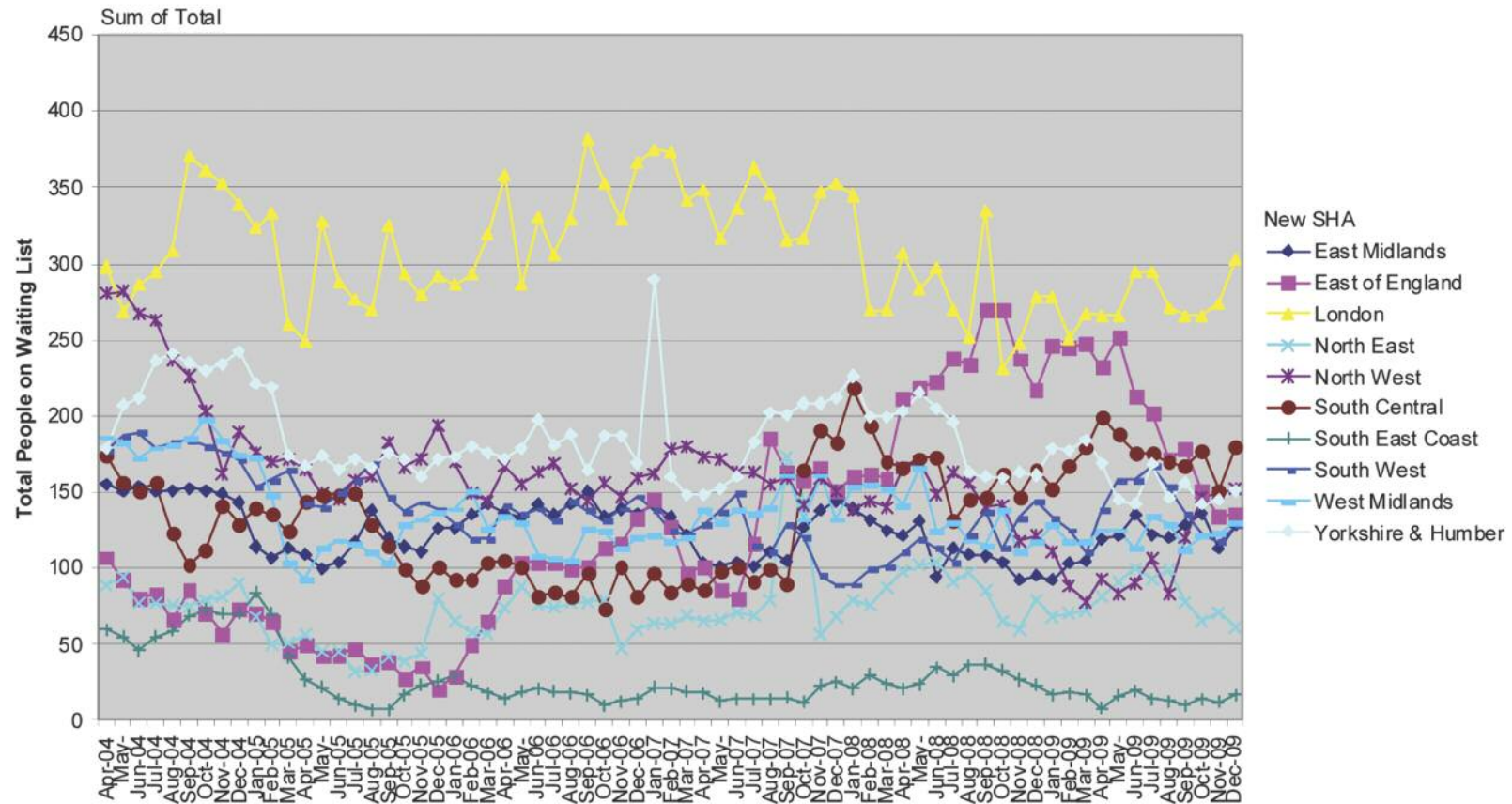
## Overview of waiting list numbers for CABG since April 2004

Coronary Artery Bypass Graft (CABG) - England - Total Waiters by Strategic Health Authority - April 2004 to December 2009



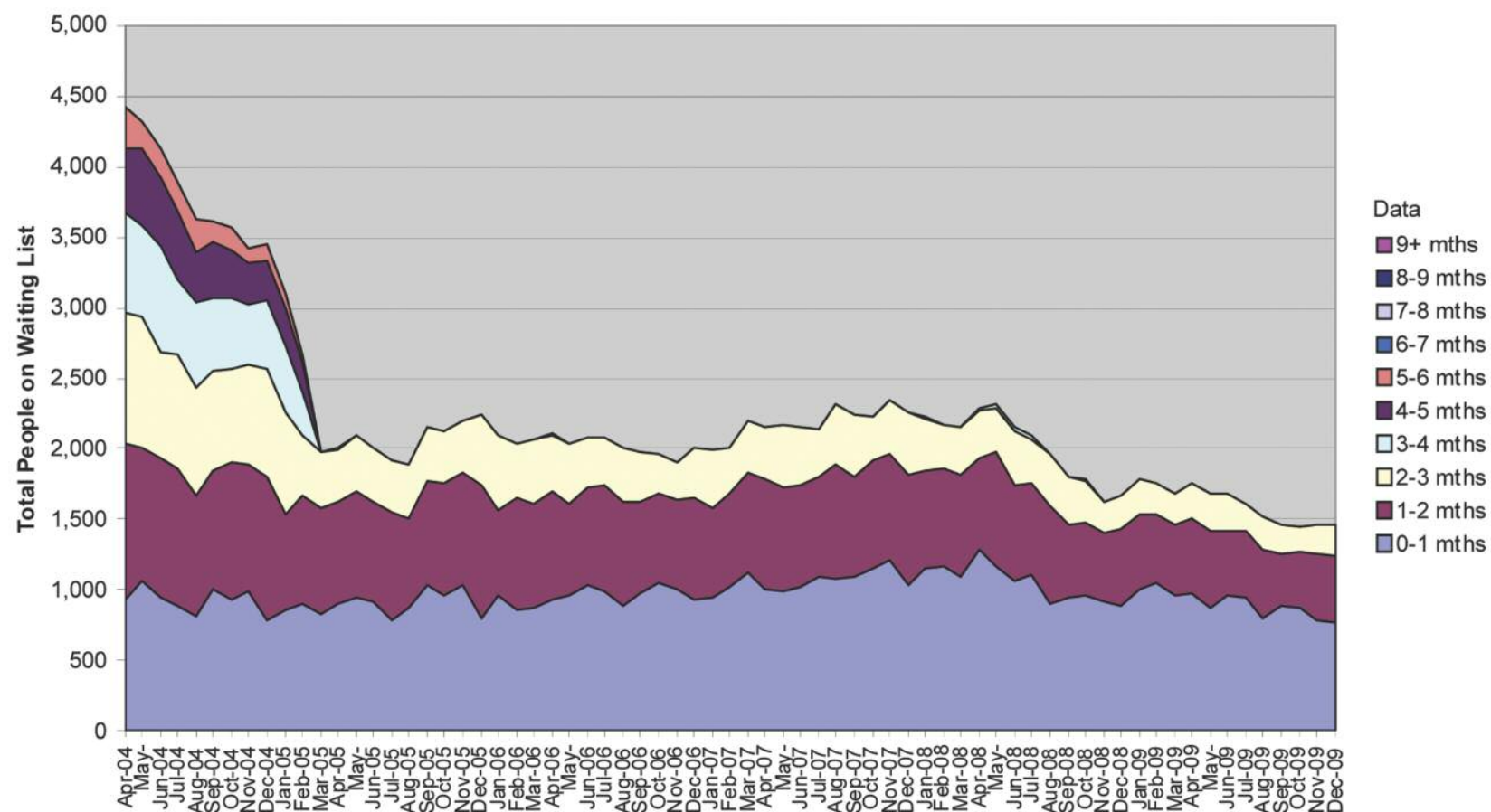
## Overview of waiting list numbers for valves since April 2004

Valves - England - Total Waiters by Strategic Health Authority - April 2004 to December 2009



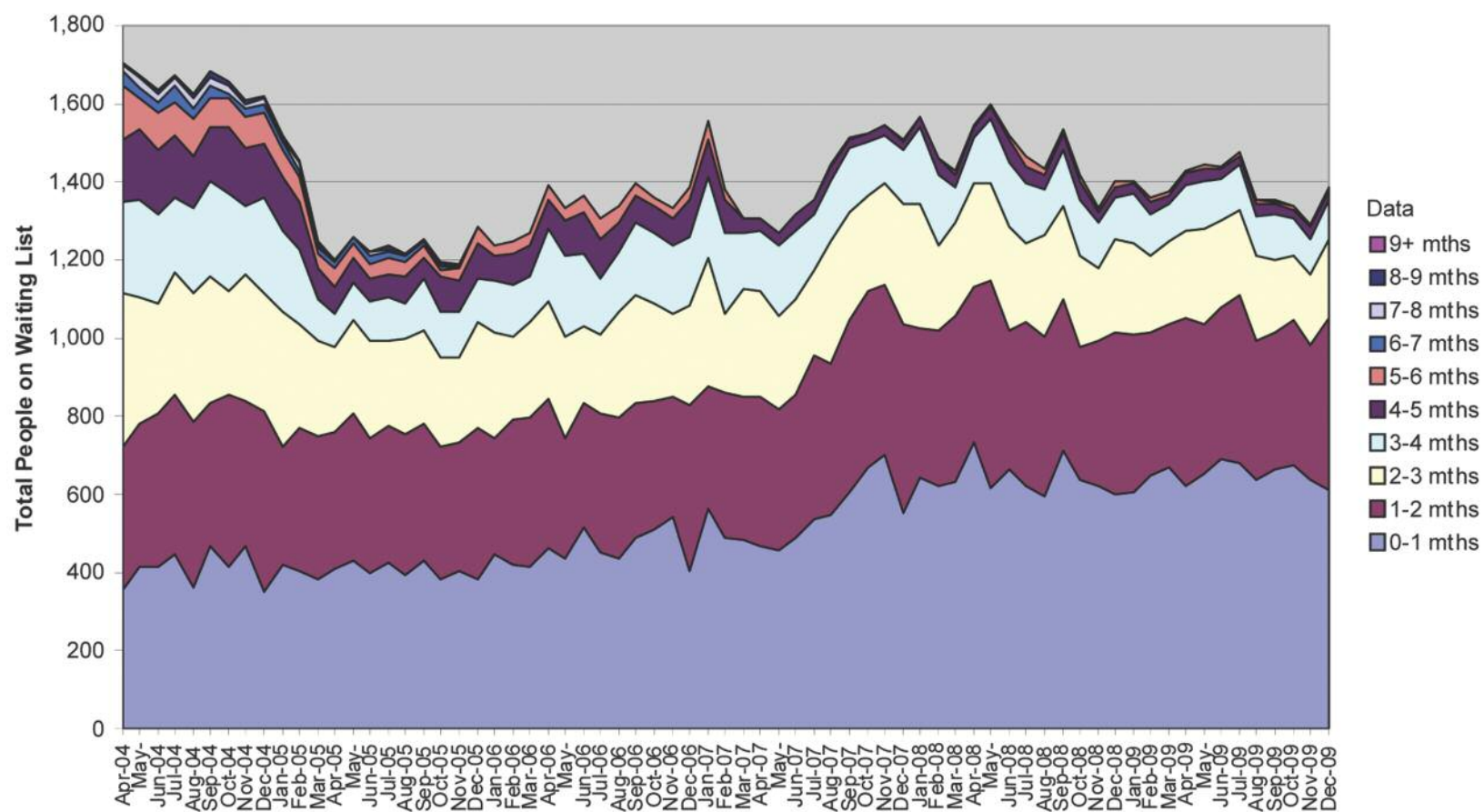
# Waiting times for CABG since April 2004

Coronary Artery Bypass Graft (CABG) - England - Waiters by Time Band - April 2004 to December 2009



## Waiting times for valves since April 2004

Valves - England - Waiters by Time Band - April 2004 to December 2009





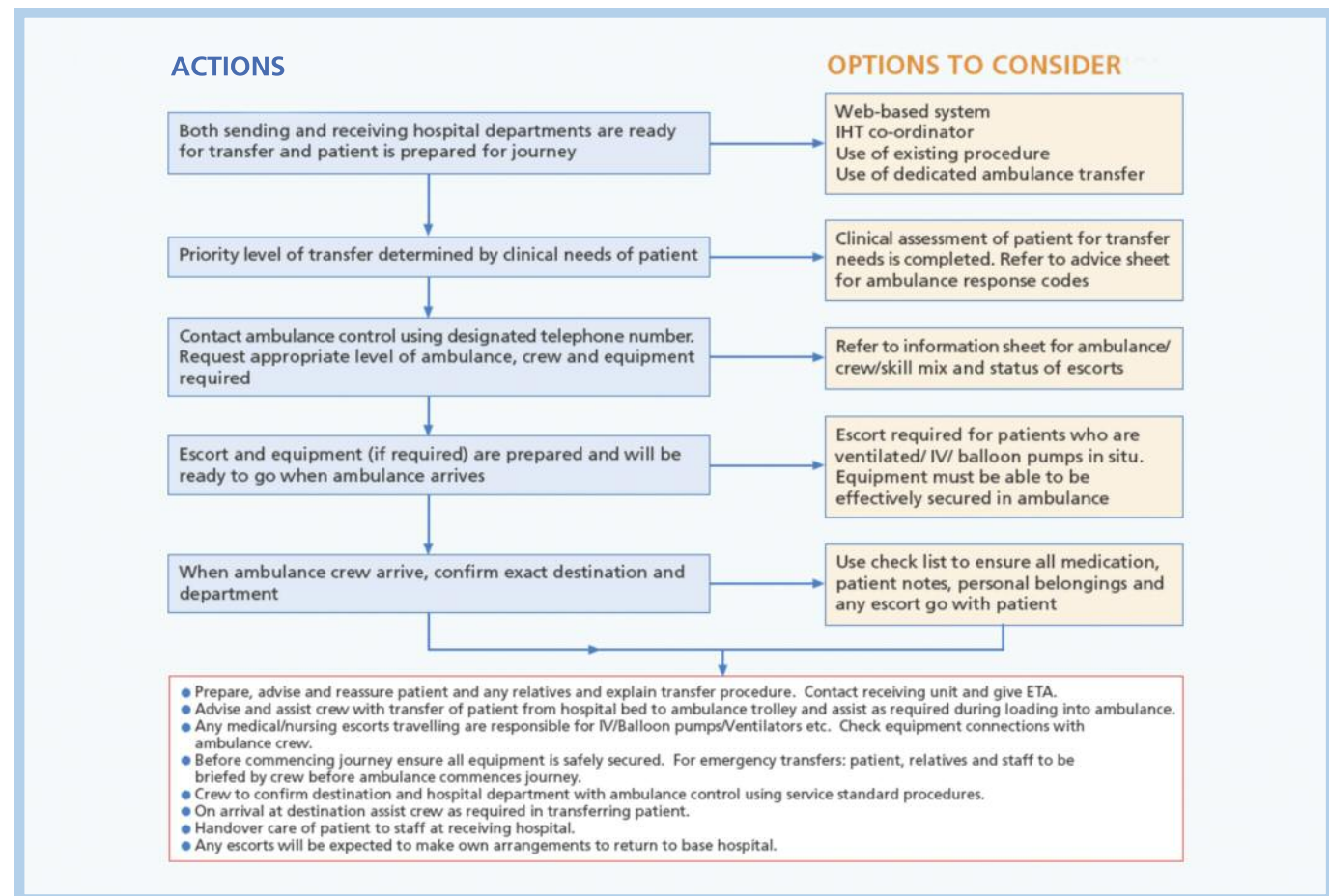
## Non-elective pathways

The care of patients with acute coronary syndromes has changed dramatically over the last ten years as a result of the improvements introduced by the Coronary Heart Disease National Service Framework. As a result, many more patients are being referred for surgical revascularisation whilst hospitalised following an acute coronary syndrome. In many units this comprises up to 40% of the workload and in order for these patients to be accommodated within operating schedules effective systems need to be in place.

As many of these patients are initially admitted to DGHs and have coronary angiography there they then wait for transfer to a surgical centre and are commonly referred to as interhospital transfers. These patients are considered high risk, assessed as being too ill to be discharged home, so wait for treatment on an inpatient waiting list for transfer for diagnostic angiogram, angioplasty, heart surgery or other procedures such as pacemakers or electrophysiological management.

### Options to consider before transfer

*Signposting to Improving Cardiac Interhospital Transfers (September 2007)*



In order to minimise delays for the patient and to maximise efficiency we recommend the following:

- Use of network-wide agreed clinical protocols, to establish the need for surgery and referral.
- Use of a risk stratification system to determine priority for treatment.
- Use of existing electronic referral systems to refer and transfer patients for urgent cardiac surgery.
- Network standards for waiting times.

Considerable work led by cardiac networks in local health economies undertaken across each part of the patient journey to improve the experience and outcomes for this group of patients and staff; to reduce the impact of avoidable bed days and associated challenges for trusts and ambulance services around accident and emergency (A&E) waits and achieving category 'A' targets has been captured within Signposts to Improving Cardiac Interhospital Transfers (HIP 2007).

Escalation policies to help manage waiting times across a local health economy and to accelerate patient flow have been developed by several networks and are aimed at setting locally agreed performance targets which are monitored and if exceeded allow for alternative arrangements to be made to treat patients. The Essex Cardiac and Stroke Network summarise the benefits of developing a network wide policy as providing:

- A framework to ensure that numbers of patients waiting, waiting times and disruption to trusts is kept at a minimum.
- Reassurance for patients on anticipated waits for their procedure.

Delays in the patients journey can occur if the patient is not fit for surgery following their transfer. These delays can be caused by a number of reasons including absence of MRSA and dental screening, or completion and availability of pre operative investigations and tests. These delays can be addressed through joint policies on issues such as MRSA screening, anticoagulant treatment and pre operative tests and

investigations. Clarity is needed about which tests should be carried out prior to transfer, where they should be carried out and what documentation should accompany the patient on transfer (*Making Moves*, Heart Improvement Programme, 2006).

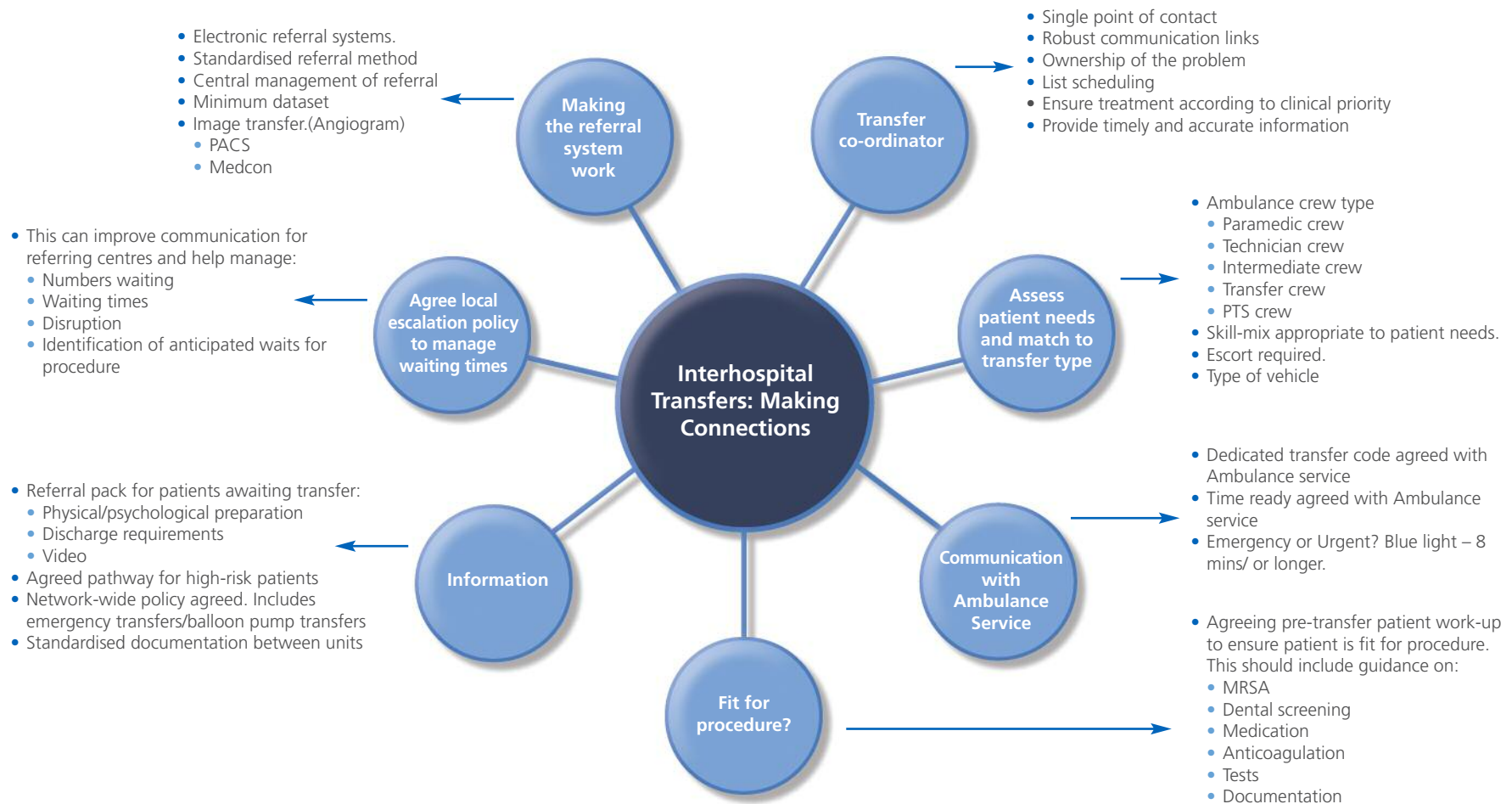
“

So far, improvements in the pathway and transfer arrangements have saved the equivalent of some 959 NHS beds each year across England. We know that there is a lot more that can be done to take this further saving the NHS a great deal of money and patients a great deal of stress and worry.

”

**Professor Roger Boyle** CBE, National Director for Heart Disease and Stroke  
*Signpost to Improving Cardiac Inter Hospital Transfers*,  
Heart Improvement Programme, (2007)

## Improving interhospital transfers



## Glenfield Hospital, University Hospitals of Leicester NHS Trust in collaboration with East Midlands Cardiac and Stroke Network

### ‘Urgent or non urgent’, that is the question

#### The problem

Glenfield Hospital is a tertiary centre providing specialist investigations and treatment. More specifically the department performs approximately 1,200 cardiothoracic cases per year. For some time now the department has worked towards a balance of meeting national targets such as 18 weeks referral to treatment and 13 weeks for coronary artery bypass surgery (CABG). Local targets such as 11 week CABG and seven days for urgent inpatient surgery and an internal standard to accept patients within 48 hours of referral for inter hospital transfers. This has had to balance with the increasing numbers of non-elective referrals which are both in-house and interhospital transfers from referring district general hospitals (DGHs). Non elective referrals have averaged approximately 30% of all adult cardiac surgery activity during the period 2008-09.

With the assistance of the East Midlands Cardiac and Stroke Network a number of key areas were identified within the current non-elective care pathway resulting in a higher than average pre-operative length of stay. A review of data extracted from a local data base identified a median pre operative length of stay (LOS) of 19 days and a mean of 23.



Additional data illustrated the total LOS for all urgent inpatient (non emergency) surgical referrals as 33 days which included a 10 day post operative LOS.

Inter hospital transfer patients coming into the department were also exposed to these delays as the majority are referred directly to cardiology without being fully assessed and the appropriate investigations being completed.

#### The solution

A steering group was established from the project outset with multidisciplinary team membership drawn from staff working across the pathway of care. Staff not directly involved in the pathway were also invited to contribute.

The project steering group included:

- General/service and operational management.
- Heads of service for cardiothoracics and cardiology.
- Clinical leads from both cardiothoracics and cardiology.
- Heads of nursing and matron for department.
- Service improvement manager from the East Midlands Cardiac and Stroke Network.
- Members of Leicester City PCT.
- Consultant cardiologists from referring centres.

Regular steering group meetings were held to discuss the progress of the project and to table products such as revised pathway algorithms. The role of the group was to agree an action plan, oversee changes to current practice and agree newly designed pathways and documents.

Agreed solutions to our identified problems included the following:

- Learning from patient and carer experience of the current service by facilitating a patient forum. Patients and relatives were invited to share their experiences of Glenfield Hospital and what it was like to wait for cardiac surgery as an inpatient. An emergent common theme identified

from this forum centred on length of wait and communication.

- ‘Better communication is needed’.
- ‘seemed to be a lot of waiting around with nothing happening’.
- ‘Why couldn’t they have waited at their referring hospital’.
- ‘Why have I been waiting so long?’

Themes from the patient and carer focus group were discussed within the steering group and helped us to shape the direction of some of our work.

An initial task was to look in detail at the current processes and establish where problems and bottlenecks were in addition to understanding aspects of the process we were doing well. Using information gathered from a local database helped establish evidence around the size of the problem for the non elective patient group length of stay highlighting a median pre-operative length of stay of 19 and a mean of 23 days.

Detailed process mapping of both the in-house urgent and interhospital transfer pathways of care was carried out. The mapping exercise helped identify the following areas as potential bottlenecks within the current system:

- Admin and clerical delays (three days from dictation to receipt of letter)
- Decision making process, PCI vs surgery. If surgery, then how urgent?
- Inequity of access to surgical care and treatment in both pathways was evident with variations in referrals processes occurring without consideration of constraints upon the service such as waiting list commitments and availability.
- Inconsistent pre-operative assessment processes across consultant surgical teams with variation in the pre-operative requirements of individual cardio-thoracic surgeons.
- Delays in obtaining some diagnostic investigations due to uncertainty of requirements.
- Referring district general hospitals were unclear about Glenfield Hospitals referral assessment criteria and medical staff at these centres were also uncertain of the timing of surgical referrals, who and where to refer them to.
- Complexity of the referrals process due to variations in practice, referral patterns and relationships formed between clinicians.

The following were identified at all levels across the unit as being a requisite of any service redesign within our department.

#### Referral proforma's

- To streamline admin and clerical delays caused by traditional dictated and typed referral process:
  - Referral proforma's were developed and designed to be available to clinical staff on each of the wards. The proformas provided guidance about the type of clinical information required by the surgeons at the point of referral and went through a period of piloting and refinement. Their use enabled the operational manager to audit the referral process with regard to the level of information available on referral of the patient to the surgical team;
  - Proforma's also enabled the team to re-direct surgical referrals to the surgical team with the necessary clinical skills and theatre availability reducing the inequity that previously existed.

#### Referral pathways

Referral pathways were redesigned to reduce variation. A central point of referral was agreed whereby all surgical referrals with the exception of true emergencies arrived via this point. Initially hand delivery for in-house referrals, faxed by referring DGHs then with a view to electronic referrals. The central referral point also gave the opportunity to provide referring clinicians with waiting list/time information before making the referral.

- Two referral pathways were designed; one for external referrals and another for internal ones. Both providing clear guidelines about how and when to refer patients to a cardiothoracic surgeon. Each of these also provided two arms by which guidance was offered for both urgent and unstable referrals and those urgent but unstable.
- Referral pathways aimed to provide clarity for referring clinicians with regards to whether patients are transferred directly under the care of a consultant cardiac surgeon with a provisional date for surgery. Or whether they are transferred under the care of a cardiologist for further assessment then referral internally.

- A formally agreed set of criteria was developed to provide guidance on why some patients would not receive surgery within the agreed seven day pathway. This includes those patients awaiting multiple dental extractions, patients admitted with extensive Myocardial Infarction where surgery has not been performed as an emergency and require a period of recovery, failed PCI.

#### Algorithms

- Following a number of steering group meetings and discussions with Glenfield Hospital cardiologists and DGH consultants, the general consensus was that they did know what information the surgical teams required from them when making a surgical assessment.
- Likewise the cardiac surgical consultants also felt that the pre-operative assessment was often inadequate for the purpose of deciding the course of treatment. This often proved to be costly in terms of delays in the decision making process.



- Three algorithms were developed providing advice regarding the assessment and investigations required to make a safe decision regarding the eligibility and readiness of a patient for:
  1. Coronary Artery Bypass Grafting (C.A.B.G).
  2. Heart Valve Surgery.
  3. Patients admitted with Acute Coronary Syndrome (ACS).

### **Multidisciplinary team meetings**

A weekly multidisciplinary team meeting (MDT) to review patients with treatment choices and complex treatment decisions was already in existence at Glenfield Hospital for urgent and elective referrals. However, this takes place weekly and with the number of potential urgent referrals we as a steering group believed it would be prudent to start a second MDT. This would largely discuss internal and DGH referrals and so we aimed to invite DGH consultants, anaesthetists and other clinical staff.

### **Results**

Many aspects of this project have been drafted and agreed at steering group and cardiothoracic board level.

- MDTs, surgical referral proforma's and the central referral point have provided a more successful forum for the discussion of surgical referrals. They have promoted better communication between DGH consultants wishing to make referrals into Glenfield Hospital as they are provided with referral data, time frames and waiting list information. The central referral point also provides a means of advice pertaining to surgical specialities within the department.
- The surgical referral pathways have been drafted, redesigned and agreed across the clinical and managerial teams within the department and with external referring centres.

From August 2009 to January 2010, Glenfield Hospital was identified as the National Centre for Extra Corporeal Membrane Oxygenation (ECMO) treatment for the H1N1 Virus resulting in a large proportion of our cardiothoracic surgery/intensive care service being consumed by ECMO. This meant an increase in the length of stay

for urgent in-house surgery. To maintain patient's safety a number of these referrals were outsourced to other cardiothoracic centres across the midlands region. Despite this situation the work currently undertaken has been in everyday use, i.e.; the referral proforma's, algorithms, and referral point.

The new referral pathways will commence following discussion at board level and are likely to be in general use by the end of February 2010. This delay has been largely to ensure we sustain a balance between patient safety and our national and local targets.

### **Top tips**

- Develop a project steering group from the outset of the project with the relevant members.
- Agree clear aims and objectives, retain some flexibility as events can change.
- Map processes at the beginning of any project involving the review of current processes.
- Carry out a demand and capacity exercise to support the project with robust data as this will provide the steering group with the information they need to direct potential changes

- Build in the overall strategic direction of the department to the project work.
- Define a clear set of measures, in these circumstances length of stay, administrative delays, quality of patients' experiences.
- Engaging with stakeholders at an early stage to form and strengthen relationships across secondary and tertiary care as this helps to manage the internal dynamics of a department which may be challenged during the project work.

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## Discharge planning

Managing and maintaining patient flow within the acute setting requires a focus on discharge whilst maintaining an approach that is focussed on the individuals discharge needs. Assessing the patients discharge needs pre operatively, educating patient and family about recovery at home and informing them about care they receive once discharged is important to include within the pre operative assessment clinic service. Optimising the patients discharge can help improve the patients' experience, reduce the overall inpatients length of stay; improve patient flow and efficiency in use of beds.

Delayed discharges are a frustration for patients and staff alike. Establishing the cause of delay and how to overcome issues preventing discharge is important to understand and recognises the need for collaborative working across the health professions if you are to improve patient experience and patient flow. An important part of the discharge process is to discuss the possible options before the patients admission for surgery, encouraging

them together with their family (if appropriate) to consider their discharge plans and place of care. Discharge planning should embrace physical, psychological and social aspects of the patients care.

All of the case studies within this document contain elements of discharge planning and address the importance of:

- Securing admission/discharge protocols between providers.
- Providing information packs for patients and carers.
- Establishing intermediate care processes.
- Seeking the patients and carers views and involving them in discussions to inform change.

The following two case studies illustrate an interesting approach to discharge planning.

The case study presented by Trent Cardiac Centre illustrates how recognising the need for collaborative working with physiotherapists, intensive care practitioners, cardiac rehabilitation nurses, pharmacists,

medical and anaesthetic staff hugely improves the process as together they were able to identify patients suitable for early discharge home. Their combined knowledge and expertise was used to jointly assess the patient pre and post operatively to identify any specific needs or issues to be addressed. The multidisciplinary team developed a range of decision support tools to complement the patient assessment process supported by a series of home visits by the specialist nursing team.

One mechanism for optimising discharge planning is to improve ward efficiency by reducing and eliminating unnecessary avoidable delays by using visual management systems (VMS) to track patient progress, trouble-shoot and progress chase. An example of this approach is demonstrated within the Papworth case study. VSMs bring together the multidisciplinary team to plan discharge/transfer focussing the team on the steps required to support timely and safe discharge/transfer. They help improve the knowledge among the multidisciplinary team of the wider health and social care

aspects that impact on the individual patients discharge and the requirement for advance planning to ensure that services and support are available on discharge.

The case study presented by Papworth Hospital NHS Foundation Trust outlines how they reduced their total inpatients length of stay through using audit of delayed discharges to reduce variation in post operative practice and address patient focussed discharge at pre operative assessment clinic.

## Papworth Hospital NHS Foundation Trust in collaboration with Anglia Cardiac and Stroke Network

### Improving the patient experience for cardiac surgery pathways

#### The problem

Making sure that patients are discharged home when they are medically ready to go and avoiding any unnecessary system delays, was the purpose of a project undertaken at Papworth Hospital in July 2009.

Achieving the challenging 18 week target in cardiac surgery requires inefficiencies to be removed from the patient pathway. Papworth Hospital has an older and more complex case mix than most cardiac surgery units and therefore had a greater challenge.

The Papworth Team undertook a project to streamline the cardiac surgery pathway and began with an audit of 220 patients. Patient and carer satisfaction are high among cardiac surgery patients at Papworth and work with a focus group showed that appropriate, early discharge and the reduction of health acquired infection risk were important issues for patients. Add this to the fact that patients can travel long distances to Papworth, and discharge nearer home was also an important patient driver.

The audit identified that up to 45% of patients experienced delays in their discharge (discharged after their 8th

post operative day, which is Papworth's coronary artery bypass graft standard). A number of areas where the pathway could be improved and a higher quality patient experience could be achieved was identified and focused on the processes related to:

- Variation in practice across the surgical team with regards to:
  - Removal of pacing wire, central venous catheter and urinary catheter;
  - Post operative checks (sternal stability, bowel movement, wound and stair assessments).
- Repatriation process to district general hospitals and liaison with local services for discharge e.g. intermediate care.
- Multidisciplinary team communication and co-ordination regarding discharge and expected discharge date.

As part of the audit we calculated that a reduction in length of stay by one day per patient would result in cost saving of £530,000/year (based on a bed day costing £250).

#### The solution

To streamline the adult cardiac surgery pathway for patients prior to admission and at discharge; thereby using inpatient beds more appropriately and efficiently to maximise available bed capacity for admissions, sustain the achievement of 18 week referral to treatment times for admitted patient pathways and improve the patients experience.

The Anglia Cardiac Network funded a project manager to review the adult elective cardiac surgical pathway for pre admission and discharge. A project steering group was set up, an action plan produced identifying several streams of work, baseline measurement carried out and the current pathway mapped and a new pathway developed and agreed.

This work helped to identify processes carried out prior to admission which could be done either in a more streamlined way, e.g. combining pre admission and outpatient's clinic, or carried out in alternative locations.



Overall we wanted to identify sustainable solutions to reducing unnecessary delayed discharges:

- To ensure the appropriate and safe early discharge of patients either to their own home, referring provider or provider unit nearer to their home without reducing the quality of patient care.
- To maximise the use of beds at Papworth, increasing throughput for both elective and non-elective admissions for cardiac surgery.

The new pathway was approved and piloted and now features:

- Initiation of discharge planning at pre admission (or within 24 hours of admission):
  - Comprehensive discharge assessment documentation within the surgical integrated care pathway;
  - Outlining options and the availability of support services to patients;
  - Patient referral to intermediate care services from pre admission clinic.
- Same day admission for routine elective adult surgical patients, to include those patients who are second on the list, single procedure, non diabetic with no co-morbidities with a plan to extend to a greater patient population.
- Standardisation of surgical discharge criteria. Agreement of the post-operative process in terms of removal of pacing wire, central venous catheter and urinary catheter and completing post operative checks earlier in the patients post operative recovery period.
- A traffic light visual management system to identify an estimated discharge date on the third post operative day.

- Multi disciplinary team involvement in the admission and discharge processes.
- Information for patients, relatives and carers about discharge from hospital in the form of leaflets and DVDs.

### On going work

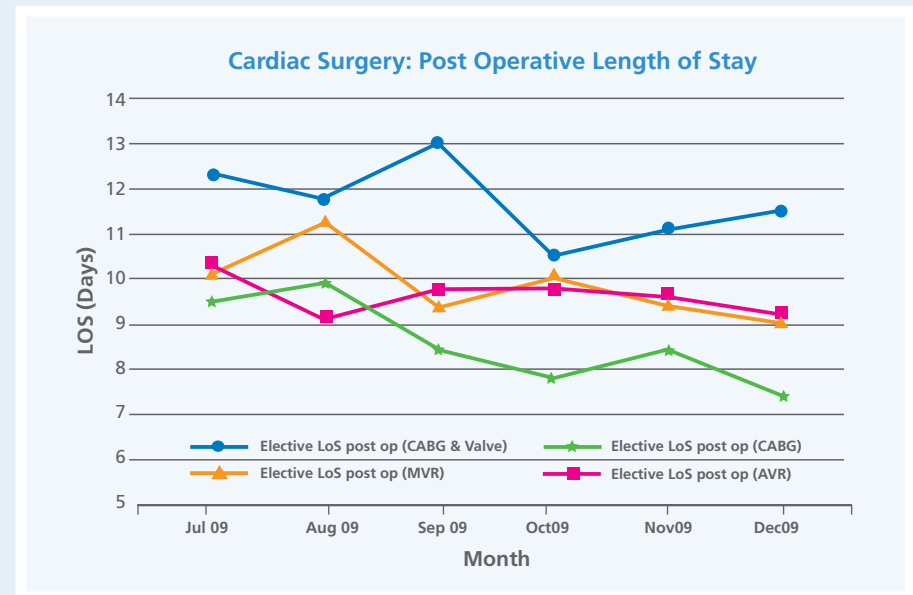
In addition to work completed around delayed discharge, there were several other areas identified which are being addressed:

- Reviewing and updating discharge policy.
- Piloting an improved intermediate care referral system.
- Trialing nurse led discharge within cardiology.
- Preparing a business case for a discharge co-ordinator role.

### Results

Improvements to the pathway have the potential for improving the patient experience for 2,300 patients per year. This new pathway has meant patients will benefit from:

- New information on discharge, which is discussed early in the patients' pathway. Documentation was developed and given to all patients.
- Appropriate and safe early access to intermediate care nearer to patients' homes, due to an improved referral system.



- Improved patient participation and communication regarding estimated discharge date and schedule for post operative procedures and checks.
- Improving the quality of the patient experience has also identified productivity gains, which include (cost savings are based on a bed day costing £250):
  - Total length of stay from 9.98 days to 8.5 days for all elective cardiac surgery equating to a potential cost saving of £741,480 (based on 2007/08 activity figures);
  - Length of stay from 9.01 days to 8.0 days for elective coronary artery bypass graft, equating to a potential cost saving of £506,010 (based on 2007/08 activity figures);
  - Length of stay reduced from 10.74 days to 9.7 days for elective valves, equating to a potential cost saving of £521,040 (based on 2007/08 activity figures).

- A 52% reduction in the number of bed days lost due to delays in repatriation (n = 107 to 51) a cost saving of £14,000 during the life of the project (non inclusive of costs associated with loss of activity).

#### **Top tips**

Key to the service re-design was working in collaboration with the Cardiac Network, NHS Improvement - Heart and other key stakeholders to identify and implement the necessary improvements.

- Working with patients, carers and staff to seek their views on the discharge process.
- Agree data set and communicate baseline measurement early in the project.
- Strong leadership both clinical and managerial.
- Aligning the work within the organisations priorities.
- Setting out project aims and assigning responsibilities.
- Collecting, and analysing robust data monthly, and making necessary adjustments to the new process.
- Having pre-set meetings with clinical representation.

- The reduction in length of stay is being achieved by increased communication between professions and implementing small changes which are easily sustainable.

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## Trent Cardiac Centre, Nottingham University Hospitals NHS Trust in collaboration with East Midlands Cardiac and Stroke Network

### Reducing length of stay of elective cardiac surgical patients to a one night stay post operatively

#### The idea

The average length of stay for people undergoing cardiac surgery at the Trent Cardiac Centre is around five to seven days. The typical elective surgery pathway includes review of the patient in outpatients by the cardiac surgeon where the decision to undertake surgery is made and the patients added to the waiting list. A week before surgery patients are invited to attend the pre-operative assessment clinic where they are seen by the surgeon, anaesthetist and cardiac rehabilitation nurse. At this appointment the full range of pre-operative tests are undertaken.

Patient and carer satisfaction levels are high at the Trent Cardiac Centre and feedback from patients had indicated that some were keen to leave hospital earlier and return to their usual residence. We decided to test out whether we could send selected low risk elective adult cardiac surgical patients home after a one night stay post operatively following coronary artery bypass surgery, valve surgery or repair of atrial septal defect. An audit of patients stratified as having a low risk profile for cardiac surgery whose operation was performed in the previous 12 months highlighted that approximately 10 percent (80 patients) of all elective referrals may be eligible

for a shorter spell in hospital post operatively potentially being discharged home following a one night stay in hospital. A shorter length of stay would equate to saving four post operative bed days per patient stay and a total of 320 acute beds per year.

#### The solution

The Trent Cardiac Centre at Nottingham University Hospitals NHS Trust, set up a project team with multi-disciplinary membership representing the tertiary unit, primary care and the national improvement lead for cardiac surgery. This group was led by a consultant surgeon with project management support from the East Midlands Cardiac and Stroke Network.

We employed service improvement techniques to look at the current patient process by undertaking process mapping and asking patient and carers to share their views on the current patient experience along the usual pathway of care. A new patient pathway was agreed detailing what tasks, support and mechanisms would need to be in place and delivered by who for patients to be safely and appropriately discharged home. The project team agreed to work toward testing out a one night post operative stay with 10 patients selected against criteria.



Potential risks to patient safety were highlighted through a risk assessment process which helped us to consider each of the identified risks and steps required to mitigate these. To help us understand the concerns patients and carers may have regarding early discharge from hospital we held a workshop to identify their views and experiences of the current service and to gather views of the proposed shorter pathway.

Having identified the potential risks to early discharge and the changes required to ensure patient safety in the pre and post operative surgical pathway we:

- Developed a set of inclusion and exclusion criteria used to select the appropriate patients.
- Produced staff handbooks assembled to contain the full set of protocols, information and processes to support staff training in the pilot.

- Constructed a rating system to score the confidence of patients and carers selected to take part in the one night stay pilot which formed part of the pre assessment process.
  - Produced a DVD 'Moving right along' aimed at informing patients' and carers about the post operative experience which included instruction on using equipment for home monitoring of blood pressure, pulse and temperature, pre-operative advice of what happens within each stage of the patient pathway, exercises to be undertaken and how to safely move and information on how to record results and progress in the self management recovery plan.
  - Devised a patient/carer self management tool to help them monitor recovery at home.
  - Created competency documentation to test the carers use of simple home monitoring equipment.
  - Initiated the use of the patient hotel facility situated on site for the patient and carer to stay one day before surgery rather than admitting them to an acute ward bed.
  - Extended the role of the cardiac rehab nurse as 'the nurse navigator' to ensure robust communication and adherence to protocols and processes.
  - Instigated a series of pre-operative home visits to assess the patients home environment and carer circumstances and built in one to one education on use of the recovery at home plan and home monitoring equipment.
  - Put in place a series of three post operative home visits which helped to support the processes aimed at ensuring patient recovery, safety and carer support.
  - Implemented early system of patient review and assessment with the surgical team at the Trent Cardiac Centre on the seventh post operative day and then the patient was discharged.
  - Composed a process for continuous patient and carer feedback using telephone interviews and an in-depth Discovery Interview.
- Results**
- At the point of publication, two patients have completed the one night stay initiative following elective cardiac surgery and results have demonstrated the following:
- Whilst the work was focussed on a sub set of the elective patient population, the downstream effect has been that several of the processes and products developed to support early discharge and patient self management have been applied to patients on the traditional care pathway, for example, the patient tools developed for breathing, coughing and mobilisation exercises and advice designed by the physiotherapists.
  - Enhanced skill set for cardiac rehabilitation nurses using the confidence rating to help assess patient and carer confidence when exploring participation in a one night stay pathway. These results helped establish if there was a link between the patient's pre admission confidence scores and their experience post operatively for example did high scores of confidence correlate to being discharged on one day after surgery.
  - Feedback from patients and carers who have completed the one night stay pathway highlight the benefits from their perspective as:
    - The peace and quiet at home in comparison to usual care in the hospital environment;
    - Opportunity to eat and drink what he wanted and when he wanted to;
    - Access to own bathroom and toilet facilities;
    - The added bonus of being able to walk in the garden and outside;
  - The carer reported the back up system and emergency telephone contact number to seek advice was used and worked extremely well.
  - The second patient went home after a two night stay returning on the third night and was subsequently discharged on the fourth night post-operatively. Whilst the patient did well, his oxygen saturation levels were lower than the set criteria, this was the only reason for his re-admission. The protocol has been adapted to reflect checking the patients oxygen saturations pre operatively as part of the assessment criteria at rest and on completion of climbing the stairs in order to gain a better assessment of normal values for the patient.
  - A DVD has been produced for patients and carers to support information contained within the recovery at home self management work book. The DVD features video of former patients and carers performing a range of routine post operative activities including breathing exercises, recording core temperature, blood pressure and oxygen saturation levels and more general activities designed to support their recovery.

- Stair assessments performed by the physiotherapists are now routinely carried out for all patients on their third post operative day (where appropriate) rather than the fourth post operative day.
- A consequence of the one night stay pilot appears to have resulted in an overall reduction in the post operative length of stay for cardiac surgical patients in general regardless of whether or not they were part of this pilot study. Typical established post operative pathways resulted in patients being discharged between five to seven days post operatively and since commencement of the project we have seen an increase in the number of patients discharged within three days of their surgery with 15 patients discharged within three days between January to December 2009 in comparison with two patients between January to December 2008. We note there is a difference of earlier discharge of more patients in 2009 with a subsequent 24 bed days saved with equivalent cost saving of £6000 and are assuming this has resulted from dissemination of the local learning from the one night stay project.

- A further knock - on effect is a reduced risk of gaining a hospital acquired infection if patients are discharged earlier and recover at home.

#### Top tips

- Patients should be on a defined inpatient pathway based on a risk profile.
- Clinical decisions need to be made on a regular basis pre operatively and should be part of the structure of home visits, pre operative assessment, in patient visits on a two to three hourly basis on day of operation and first post-operative day, daily home visits with patient/carer self monitoring to promote proactive case management.
- Having a dedicated project team who work collaboratively to formulate ideas and processes to test.
- Draw on the expertise and specialist knowledge of a wide range of staff and professional disciplines involved in the care and support of patients in the pre and post operative pathway of care:
  - Cardiac rehabilitation staff were instrumental in navigating and co-ordinating the patient process and education. They also were

instrumental in providing home visits pre and post operatively not only to the patient but to the carer;

- Physiotherapists were instrumental in supporting the patient breathing and activity pre and post operatively to aid recovery;
- Cardiac intensive care unit nurses were instrumental in supporting the patient immediately post operatively until they were discharged and were the point of emergency telephone contact;
- Advanced nurse practitioners were instrumental in providing advanced assessment of the patient after one night post operatively at home.
- Patient and carers need help to develop their understanding of symptoms in order to encourage their self-management and to know who to contact when needed.
- Having strong leadership from a consultant clinical lead.
- Using the Trusts patient and public reader panel to help gather the patients perspective on information produced for patients and carers.
- Working with patients and carers to understand their experiences.
- Don't underestimate the knock-on effects from the work and how sharing works with the wider team

not directly involved can result in their adoption of several of the patient tools, for example the recovery at home plan for use with patients on the ward.

- Developing a peer support mechanism to help staff recognise and pick up new things from other sites external to the organisation in which they work and in appreciating their own good practice.

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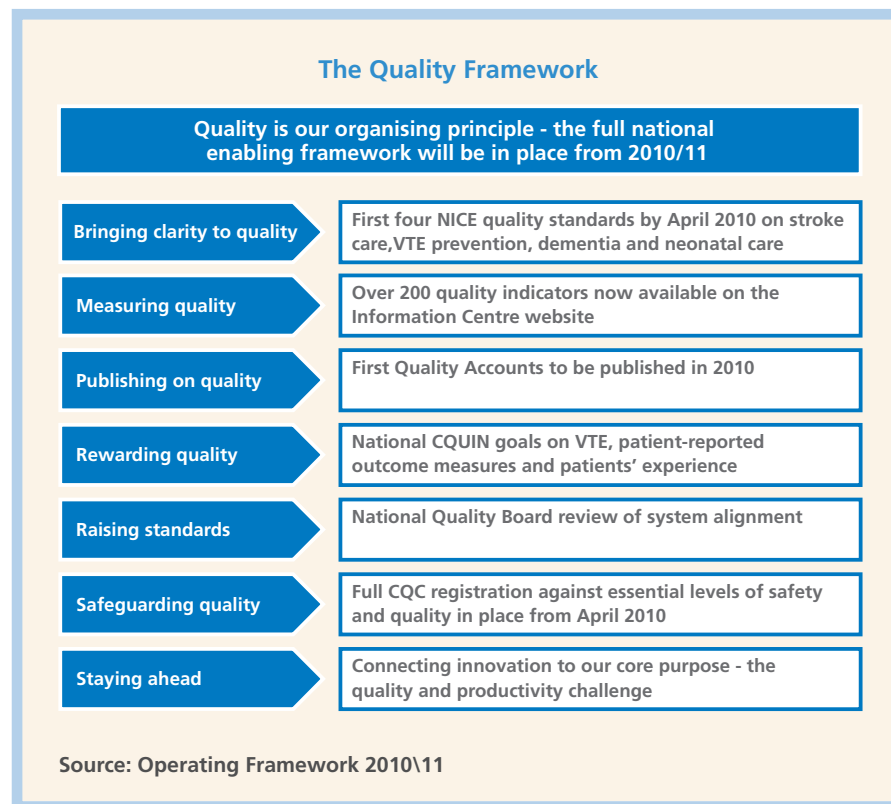
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## Quality - the current context

The document '*High Quality Care For All*' next stage review published in 2008 set quality as the key organising principle of the NHS with 'quality' being defined under the three domains of patient safety, clinical effectiveness and patient experience.

Since 2008, these domains have begun to help define the way the NHS drives forward quality improvement and now feature as underpinning principles within all current NHS strategy including *The Operating Framework 2010/11* (and quality framework see below), *World Class Commissioning* and the NHS *Performance Framework* (2009).

Measuring quality using these domains is emerging with the development of the Improving Quality Indicators (IQIs) by the NHS Information Centre. Additionally many of the emergent Commissioning for Quality and Innovation schemes (CQUINN) are using these domains to define, manage and reward quality improvement within healthcare contracts.



Complementing this approach is the 'Quality and Productivity Challenge' which builds on the above domains by extending the quality focus to include innovation, productivity and prevention. Also described by the acronym 'QIPP' the intention is to provide a mechanism through which better care and better value can be achieved through the reduction of waste and in the prioritisation of effective treatments.

With the above in mind it is useful to summarise the learning from the surgical project sites aligned to these principles. (Note: *The author has omitted 'prevention' as this wasn't considered a primary focus of the initiative*).

## Initiative:

Pre-operative assessment	Safety	Effectiveness	Patient Experience	Innovation	Productivity	Page No.
Same day outpatient clinic and pre-assessment	✓	✓	✓		✓	20
Standardisation of network wide pre operative investigations		✓	✓	✓	✓	22
Dedicated lead pre-assessment nurse	✓	✓	✓		✓	20
Pre assessment processes / protocols	✓	✓	✓		✓	9, 18
Anaesthetic assessment at pre assessment.	✓	✓	✓		✓	15
Implementation of cardiac advanced nurse practitioner	✓	✓	✓		✓	15
Revised pre – assessment algorithm's (CABG , Valve , ACS)	✓	✓	✓		✓	32
Nurse led pre – assessment clinics	✓	✓	✓		✓	9
Patient information sheets	✓	✓	✓		✓	9



Initiative:						
Referral management	Safety	Effectiveness	Patient Experience	Innovation	Productivity	Page No.
Pooling of surgical waiting lists (first time graft)		✓	✓		✓	9,22
Surgical pooling 'Dear Surgeon'		✓	✓		✓	9
Standardisation of pre-referral/pre-assessment protocols		✓	✓		✓	15
Revised inter provider transfer minimum data set (IPTMDS) information capture and consistent application of 18 week rules across pathway		✓	✓			18
Implementation of cardiothoracic advanced/nurse practitioner	✓	✓	✓		✓	9,15
Pro active patient tracking	✓	✓	✓		✓	18
Revised multidisciplinary team processes incorporating telemedicine and teleconferencing	✓	✓	✓	✓	✓	15
Proactively manage inter hospital transfer - role of the nurse practitioner	✓	✓	✓		✓	9
Interhospital transfer admission/discharge protocols	✓	✓	✓		✓	9, 36
Revised surgical pathway	✓	✓	✓		✓	9
Increased surgical satellite clinics	✓	✓	✓		✓	22
Revised referral processes	✓	✓	✓		✓	32
Electronic referral system	✓	✓	✓		✓	9
Electronic referral system for inter hospital transfers	✓	✓	✓		✓	9
Role of the pathway coordinator	✓	✓	✓		✓	9

**Initiative:****Scheduling**

	Safety	Effectiveness	Patient Experience	Innovation	Productivity	Page No.
Admission on day of surgery		✓	✓	✓	✓	9, 36
Inter hospital transfer non elective referral systems		✓	✓		✓	9
Improved theatre scheduling and associated policies	✓	✓	✓		✓	9
Implementation of electronic theatre scheduling tool		✓	✓		✓	22

Initiative:						
Discharge and post operative care management	Safety	Effectiveness	Patient Experience	Innovation	Productivity	Page No.
Interhospital transfer admission/discharge protocols	✓	✓	✓		✓	9, 36
Comprehensive discharge planning		✓	✓		✓	36
Implementation of visual management system for patient discharge	✓	✓	✓	✓	✓	36
Patient information packs	✓	✓	✓	✓	✓	36
Intermediate care referral system	✓	✓	✓		✓	36
Revised post operative procedures	✓	✓	✓		✓	36, 39
One night stay for appropriate elective patients	✓	✓	✓	✓	✓	39
Patient experience questionnaire		✓	✓			15
Development of a patient forum		✓	✓			32
Discharge protocol for Jersey Hospitals	✓	✓	✓	✓	✓	

Initiative:						
Key results	Safety	Effectiveness	Patient Experience	Innovation	Productivity	Page No.
Reduced waiting times	✓	✓	✓		✓	20, 22
Improved multi disciplinary team	✓	✓	✓		✓	22
Improved audit		✓	✓		✓	22
Reduction in theatre cancellations			✓		✓	9, 22
Reduction in wait from pre-assessment to admission for elective surgery	✓	✓	✓		✓	20
Reduction in unnecessary tests		✓	✓	✓	✓	15,22
Reduction in length of stay for non elective surgery	✓	✓	✓	✓	✓	9
Reduction in length of stay for elective surgery	✓	✓	✓	✓	✓	9, 39
Reduction in elective length of stay	✓	✓	✓	✓	✓	36
Reduction in elective length of stay - CABG	✓	✓	✓		✓	36
Reduction in elective length of stay - Valves	✓	✓	✓		✓	36
Reduction in interhospital transfer repatriation times	✓	✓	✓		✓	36
Reduction in non clinical theatre cancellations		✓	✓		✓	9
Improved theatre utilisation	✓	✓	✓		✓	9
Achieved and sustained 18 week target for admitted pathway	✓	✓	✓			15, 18, 22
Improved pre assessment clinic capacity and activity	✓	✓	✓		✓	15
Increased anaesthetic input to pre assessment clinic	✓	✓	✓		✓	15

The commissioning of world class health services will require an agreement between the purchasers and providers of cardiac surgical services to agree both:

- The quantity of services to be provided.
- The quality of care to be delivered.

The formal introduction of measurement for quality through initiatives such as IQIs and the CQUIN programme (as a sub set of the quality framework) help to remove the often subjective nature of 'quality' by defining metrics through consultation with a wide range of stakeholders, service users, providers, purchasers and the public. This together with a levelling up of financial risk across health economies, changes in tariff and the introduction of the revised Performance Framework will provide the environment for quality improvement to flourish.

In respect to this, Cardiac (and Stroke) Networks, working with clinical teams, managers, commissioners, patients and carers across the entire patient pathway continue to be uniquely placed to support and drive this agenda. The networks ability to work impartially and objectively across organisational and departmental boundaries has been key to delivering the requirements of the Coronary Heart Disease National Service Framework (and other key cardiac strategies), with the case studies and achievements in this document providing a mere snap shot of the added value that these organisations bring.

#### **NHS Performance Framework 2010/11**



## Supporting Information

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NHS Improvement and specifically the Heart Improvement Programme have collated a bank of useful resources aimed at providing local teams with solutions to problems to support local improvement work.

The following pages highlight some of these practical tools, products, web links and references to help you in your quality improvement work.

For further information go to:  
[www.improvement.nhs.uk/heart](http://www.improvement.nhs.uk/heart)

## Cardiac Data Dashboard

Developed by NHS Improvement, the Cardiac Data Dashboard is an online tool that aims to provide organisations with publicly available data on performance within cardiac service delivery against the national 18 week and diagnostic targets.

Transforming this data into knowledge through the use of maps, graphs and tables provides organisations with an opportunity to enable comparison and benchmarking at a number of levels: cardiac network, SHA, provider and commissioner. The information can also be used as an aid to service improvement as it allows the user to monitor the effect and sustainability of changes made to the service.

Data currently available via the Dashboard includes:

- **Referral to Treatment (RTT) -**
  - Cardiology admitted and non-admitted;
  - Cardiothoracic surgery admitted and non-admitted.
- **Diagnostic data -**
  - Echocardiography
  - Electrophysiology.

The data is grouped together to give a comprehensive view of performance by SHA, cardiac network, provider unit and commissioner giving monthly updates on performance against the 18 week target.

This online tool can be accessed via:  
[www.improvement.nhs.uk/heart/dashboard](http://www.improvement.nhs.uk/heart/dashboard)



## Improving Cardiac Patient Pathways: The Sustainability Toolkit

This interactive resource has been developed with the aim of supporting NHS staff in their work to improve existing cardiac pathways and sustain those improvements.

Based on a generic cardiac map the user can 'interact' with the site to find a range of resources to help plan your service transformation work based on projects undertaken by experienced cardiac service improvement project managers and NHS Improvement national team members.

This pulls together resources in one easily accessible and useable package.

The information contained here is more than just currently available theory. We have taken this a step further. The resource provides a wealth of ideas and suggestions based on actual service transformation projects undertaken by experienced cardiac service improvement project managers and NHS Improvement national team members over the last four years.

The environment is changing rapidly as new information comes to the fore. This resource is not exhaustive but does uphold the guiding principles of the 10 High Impact Changes, so most ideas contained in this package result from projects which are:

- Patient-centred.
- Propose changes that are evidence based.
- Imply a systems view on service transformation.

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To access the resource visit:

[www.improvement.nhs.uk/heart/sustainability](http://www.improvement.nhs.uk/heart/sustainability)

## NHS Improvement System

### What is it?

The NHS Improvement System is a comprehensive, online tool to support sharing of quality service improvement resources in NHS services. Giving you direct access to useful information and stories from around the country, it will assist you in your own service improvement work.

### Why use it?

The NHS Improvement System actively helps organisations to effectively achieve their objectives in line with World Class Commissioning. It enables users to be more strategic and align long-term goals that can help to deliver high quality, patient focussed health outcomes.

### Which specialties are included?

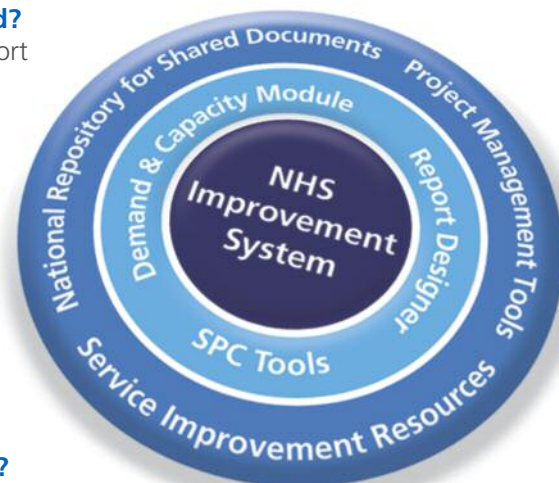
The system can be used to support sustainable service improvement in any specialty.

### What does it contain?

- Service improvement tools and resources
- Practical guidance
- Case studies
- Useful contacts
- Signposting and links.

### Where can I see a demonstration of the system?

Demonstrations of some of the key modules are available on the improvement system home page at: [www.improvement.nhs.uk/improvementsystem](http://www.improvement.nhs.uk/improvementsystem)



### Who can use the system?

The system is free of charge and can be used by all staff working for NHS organisations in England.

### How can I register to use the system?

Access to the system is controlled by user ID and password.

To request an ID contact [support@improvement.nhs.uk](mailto:support@improvement.nhs.uk)

## Good planning can inspire change that leads to improvements

<b>Leadership and engagement</b> <ul style="list-style-type: none"> <li>Identify the key people to be involved early on in the workstream.</li> <li>Who are the key stakeholders?</li> <li>Clinical and managerial leadership is critical to success.</li> <li>Have you included data and informatics and finance, primary care and social care?</li> </ul>	<b>Engagement with public and service users</b> <ul style="list-style-type: none"> <li>Seek and build continuous and meaningful engagement with the public and service users, involve them in shaping services.</li> <li>Have an understanding of different user engagement options, including the opportunities, strengths, weaknesses and risks.</li> <li>Routinely invite service users and the public to respond to and comment on issues.</li> <li>Ensure that users and the public understand how their views will be used, which decisions they will be involved in, when decisions will be made, and how they can influence improvement.</li> </ul>
<b>Knowledge and skills – the basics</b> <ul style="list-style-type: none"> <li>Establish the steering/working group.</li> <li>Has the group got the people with the knowledge and skills? Can they make the decisions?</li> <li>Do they have service improvements skills?</li> <li>Knowledge of health and social care processes?</li> <li>Is there service user involvement?</li> <li>Is their agreed local accountability and responsibility for delivery?</li> <li>Knowledge of commissioning?</li> <li>Information gathered from all perspectives (service users, staff, commissioners, partnerships etc).</li> </ul>	<b>Test out your ideas</b> <ul style="list-style-type: none"> <li>Communicate widely about ideas being tested.</li> <li>Test the idea (maybe more than one testing cycle).</li> <li>Capture results, benefits and measure the impact. Match across to your performance indicators.</li> <li>Capture the learning (the things that work and those that didn't documenting reasons why).</li> <li>Communicate regularly with the whole team and partnerships - keep the message short and snappy.</li> <li>Ensure identified ownership of action points.</li> </ul>
<b>Planning the improvement workstream</b> <ul style="list-style-type: none"> <li>Identify, understand and define the 'real' problem not the solution.</li> <li>Review data to understand demand, activity and variation in performance.</li> <li>How are your improvements going to be measured and monitored? Have you included qualitative and quantitative performance indicators?</li> <li>Match the collection of baseline data with the scope of the problem identified.</li> <li>Remember that no data will be perfect and beware of analysis paralysis (collecting everything that tells you nothing).</li> <li>Break the data down into sections of information to help you identify what needs to be collected and analysed.</li> <li>Look for the 80/20 rule (Pareto principle) this happens to 80% of our users; focus on the 80% first, look for trends in retrospective data.</li> <li>Keep clinicians, leaders and key people involved.</li> <li>Identify (visioning) and design the ideas to tested.</li> </ul>	<b>Evaluation</b> <ul style="list-style-type: none"> <li>Analyse the results and quantify the impact of actual and potential.</li> <li>Identify benefits- e.g. quality, cost, outcomes.</li> <li>Identify risks.</li> <li>Evaluate the alternatives.</li> <li>Make recommendations.</li> <li>Build your business case on evidence.</li> </ul> <b>Implementation - spread and sustain</b> <ul style="list-style-type: none"> <li>Recommendations for implementation (provide the evidence that supports your testing).</li> <li>Commissioners want to see the evidence.</li> <li>Celebrate your achievements.</li> <li>Share the learning - publicise your work.</li> <li>Prepare your spread/adoption strategy.</li> <li>Include how you will measure sustainability.</li> </ul>

## References and supporting information

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**Department of Health (2000) Coronary Heart Disease NSF**

[www.dh.gov.uk/assetRoot/04/05/75/25/04057525.pdf](http://www.dh.gov.uk/assetRoot/04/05/75/25/04057525.pdf)

**Audit Commission (2003) Review of Operating Theatres**

Compressive assessment of NHS operating theatres.

[www.audit-commission.gov.uk/nationalstudies/health/other/pages/operatingtheatres.aspx](http://www.audit-commission.gov.uk/nationalstudies/health/other/pages/operatingtheatres.aspx)

**Department of Health (2003) Discharge from Hospital**

**Pathway Process and Planning**

[www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_4003252](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4003252)

**Parliamentary and Health Service Ombudsman (2005) Consent in cardiac Surgery: a good practice guide to agreeing and recording consent**

The issue of consent and communication of risk to patients is outlined in this guide.

[www.ombudsman.org.uk/pdfs/informed\\_consent.pdf](http://www.ombudsman.org.uk/pdfs/informed_consent.pdf)

**NHS Heart Improvement Programme (April 2006). Making Moves**

Results of a data audit and review of service improvements in interhospital transfer arrangements for cardiac patients.

[www.heart.nhs.uk/Heart/Portals/0/docs\\_2006/Making\\_Moves\\_April\\_2006\\_HIP008.pdf](http://www.heart.nhs.uk/Heart/Portals/0/docs_2006/Making_Moves_April_2006_HIP008.pdf)

**NHS Heart Improvement Programme (September 2006)**

**Web-based referral systems for interhospital transfers**

This document provides a review and comparison of systems in English cardiac networks

[www.heart.nhs.uk/heart/Portals/0/docs\\_2007/signposts\\_IHT.pdf](http://www.heart.nhs.uk/heart/Portals/0/docs_2007/signposts_IHT.pdf)

**NHS Heart Improvement Programme (2007) - Signposts to Improving Cardiac Interhospital Transfers - 'Get the right response to the right patient at the right time'**

This document focuses on the transport issues and signposts to potential solutions surrounding the complexity of the booking and transfer of non-elective cardiac inpatients between hospitals for diagnosis and/or intervention.

This is an interactive pdf document, aimed at commissioners, managers and clinicians within NHS trusts, primary care trusts, cardiac networks and the ambulance service and is produced by the Heart Improvement Programme working in partnership with cardiac networks, ambulance services, ASA and the DH.

[www.heart.nhs.uk/heart/Portals/0/docs\\_2007/signposts\\_IHT.pdf](http://www.heart.nhs.uk/heart/Portals/0/docs_2007/signposts_IHT.pdf)

**NHS Heart Improvement Programme (2007). Getting it Right - Improving the Consent Process for Cardiac Surgery**

A range of materials to support the implementation of the Ombudsman's recommendations for Consent in Cardiac Surgery: a good practice guide to agreeing and recording consent.

[www.heart.nhs.uk/consent](http://www.heart.nhs.uk/consent)

**NHS Heart Improvement Programme (2008)**

**National Priority Projects 2007/08**

Summary documents from the Heart Improvement Programme's 2007/08 national priority projects are available to download from: NHS Heart Improvement Programme - 2007/08 Priority Projects:

- Making Best Use of Inpatient Beds Project;
- 18 Weeks Whole Pathways Project;
- 18 Weeks - Focus on Cardiac Diagnostics Project;
- 18 Weeks - Atrial Fibrillation in Primary Care.

[www.improvement.nhs.uk/Publications/tabid/56/Default.aspx](http://www.improvement.nhs.uk/Publications/tabid/56/Default.aspx)

The summaries include descriptions, supporting information and key learning from the projects. Details of each project site are available in the summary documents, and are linked to the priority project online.

**National Confidential Enquiry Patient Outcome and Death (2008)**

**Coronary artery bypass grafts: The Heart of the Matter**

This NCEPOD report analyses the care of a sample of patients who in the majority did not survive to leave hospital following their CABG operation. It takes a critical look at the selection of the surgery and the strategy and the organisational factors involved in its implementation. The report is available to download from: NCEPOD - CABG: The Heart of the Matter Report (2008).



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**Department of Health (2008). High Quality Care for All: NHS Next Stage Review**

The final report of Lord Darzi's NHS Next Stage Review. It responds to the 10 SHA strategic visions and sets out a vision for an NHS with quality at its heart.  
[www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_085825](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_085825)

**Department of Health (2008). Using the Commissioning for Quality and Innovation (CQUIN) payment framework**

This document is available to download from  
From The Stationary Office at [www.tsoshop.co.uk](http://www.tsoshop.co.uk) or download at  
[www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_091443](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_091443)

**World Health Organisation Surgical Safety Checklist (2009)**

This checklist describes the process which should be used for every patient undergoing a surgical procedure. Lord Darzi helped develop the checklist, which is seen by WHO as one of the best ways to improve patient safety.  
[www.nrls.npsa.nhs.uk/resources/clinical-specialty/surgery/?entryid45=59860](http://www.nrls.npsa.nhs.uk/resources/clinical-specialty/surgery/?entryid45=59860)

**Department of Health (2009). The operating framework for 2010/11 for the NHS in England.**

This document sets out the specific business and financial arrangements for the NHS during 2010/11 and describes the national priorities for the year. It is available to download from  
[www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_110107](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_110107) or in hard copy from [www.orderline.dh.gov.uk](http://www.orderline.dh.gov.uk) quoting: 299522 the operating framework for the NHS in England 2010/11.

**Department of Health (2009). NHS 2010-2015: from good to great.**

Preventative, people-centred, productive. This report describes practical measures to meet the demands of an aging population and the increased prevalence of lifestyle diseases. The document is available via The Stationary Office at [www.tsoshop.co.uk](http://www.tsoshop.co.uk) or download from  
[www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_109876](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_109876)

**Department of Health (2010). Quality Accounts Toolkit: Advisory guidance for providers of NHS Services producing Quality Accounts for the year 2009/ 2010**

This toolkit is for NHS providers to assist with the production and publication of their Quality Accounts in 2010. It features best practice guidance and useful tools based on the findings from the Quality Reporting process in 2009 and discussions with stakeholders. It is an interactive document, designed to be used online.  
[www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_112359](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_112359)

**Department of Health Quality and Productivity**

[www.dh.gov.uk/en/Healthcare/Highqualitycareforall/Qualityandproductivity](http://www.dh.gov.uk/en/Healthcare/Highqualitycareforall/Qualityandproductivity)  
Measuring for Quality Improvement. High Quality Care for All proposed that clinical teams should use clinical indicators to measure the quality of care they deliver, highlight areas for improvement and track the changes they implement. Indicators for quality improvement (IQI) were released on the NHS Information Centre website with descriptive information and links to their sources and can be found NHS Information centre website.  
[www.ic.nhs.uk/services/measuring-for-quality-improvement](http://www.ic.nhs.uk/services/measuring-for-quality-improvement)

**Hospital Episode Statistics (HESonline)**

[www.hesonline.nhs.uk](http://www.hesonline.nhs.uk)

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**Royal Victoria Hospital**

**Birmingham, Sandwell and Solihull Cardiac and Stroke Network**

**Cardiac and Stroke Networks in Lancashire and Cumbria**

**Essex Cardiac and Stroke Network**

**East Midlands Cardiac and Stroke Network**

**Heart of England NHS Foundation Trust: Good Hope Hospital**

**North West London Cardiac and Stroke Networks**

**Nottingham University Hospitals NHS Trust: Trent Cardiac Centre**

**Papworth Hospital NHS Foundation Trust**

**Royal Brompton and Harefield NHS Foundation Trust**

**South London Cardiac and Stroke Networks**

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## NHS Improvement

With over ten years practical service improvement experience in cancer, diagnostics and heart, NHS Improvement aims to achieve sustainable effective pathways and systems, share improvement resources and learning, increase impact and ensure value for money to improve the efficiency and quality of NHS services.

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