

**BRIEFING PAPER FOR
KENT HEALTH OVERVIEW AND SCRUTINY COMMITTEE
5th February 2010**

CARDIAC – 24/7 PRIMARY ANGIOPLASTY

What service changes for heart attack patients are planned to provide a 24/7 specialist unit?

Approximately 275,000 people in the United Kingdom suffer a heart attack each year of which around 2,500 occur in Kent. A person has a heart attack (or acute myocardial infarction) when the flow of blood through the arteries, which supply blood to their heart muscle, is reduced to such an extent that part of the heart muscle dies. Between a third and two thirds of heart attack deaths take place outside hospital, many within the first few minutes of the onset of symptoms. Helping people avoid a heart attack altogether is the prime aim. But for those who do have a heart attack, prompt access to the right treatment can mean the difference between living and dying.

The current primary treatment of heart attack is thrombolysis, or treatment with thrombolytic drugs, and these help dissolve the clot within the artery, which is the cause of the heart attack. Since 2003, the South East Coast Ambulance service has been able to provide this prior to arriving at hospital, when a paramedic has been able to ascertain via ECG that the patient has suffered an ST Elevated Myocardial Infarction (STEMI). If this has not been possible, the patient will be taken to their nearest hospital and given thrombolysis there. These drugs help reverse the effects of a heart attack by opening the blocked coronary artery and returning the blood supply to the affected part of the heart again. Thrombolytic treatment can be given up to twelve hours after the onset of the symptoms of a heart attack but it is most effective when given within the first two hours. This treatment will then, in the majority of cases, be followed up by a diagnostic angiogram, which is an invasive technique to view the arteries, and dependent on the result of this, may lead onto angioplasty or by-pass surgery.

There is now evidence to suggest that primary angioplasty (primary PCI or pPCI), where a small balloon tipped catheter is inserted into the blocked artery, inflated and removed, leaving a stent which improves blood flow, has better outcomes in terms of reduced mortality and better long term outcomes than thrombolysis, when both delivered in a similar timeframe.

The Department of Health and the British Cardiovascular Societyⁱ undertook a 2 year study and published its final report on the National Infarct Angioplasty (NIAP) project in October 2008. This project was a feasibility study looking at how far primary angioplasty can be rolled out as a main treatment for heart attack in place of clot-busting drugs. The report concludes that it is feasible to roll out 24/7 primary angioplasty for the majority of England within acceptable treatment times and is being published to encourage best practice, with improved outcomes to patients.

Conclusions drawn / recommendations are as follows:

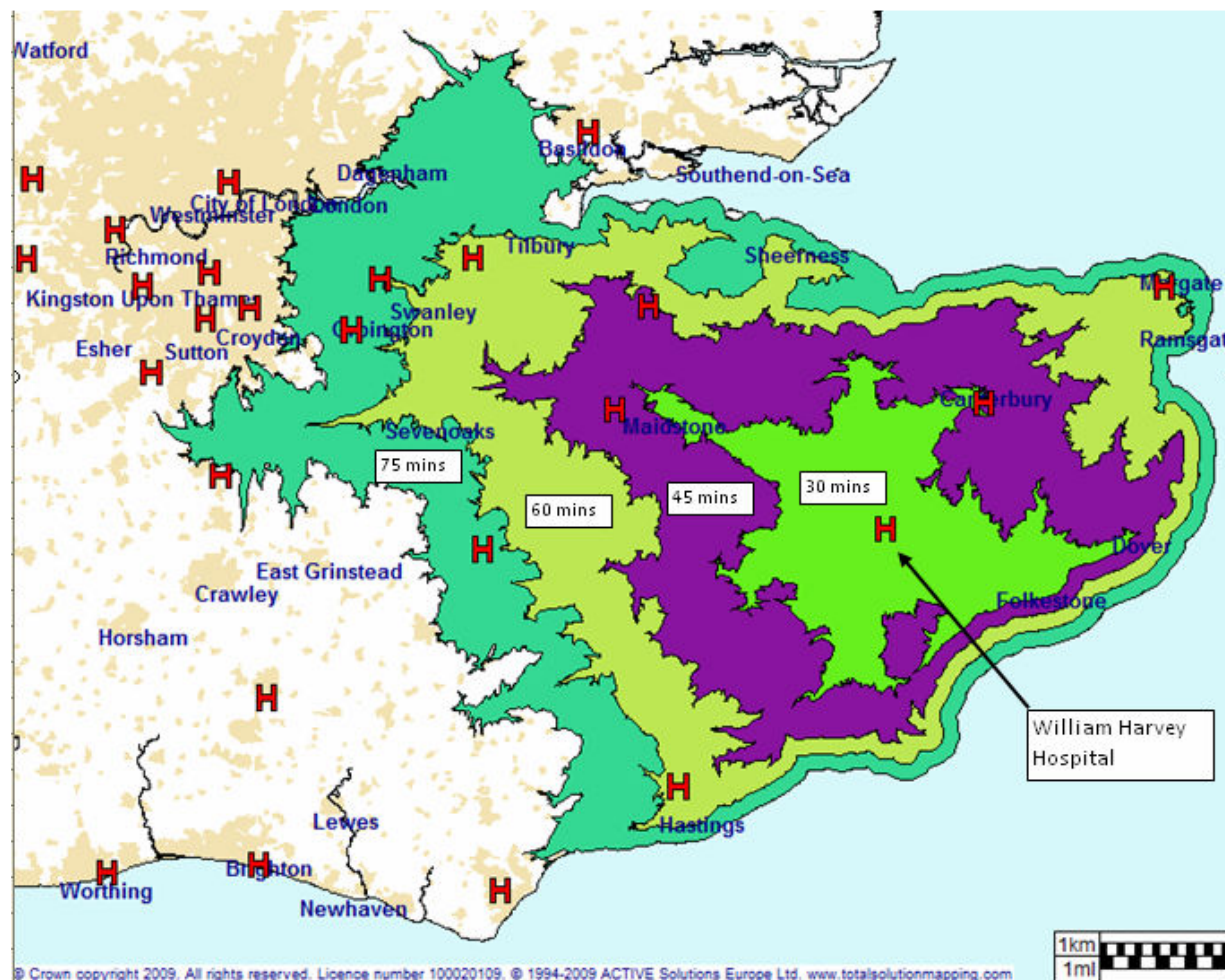
- National roll-out of PPCI is feasible over the next three years, but may be logistically challenging in some parts of the country.
- Times to treatment within 120 minutes are achievable, but a PPCI service needs to achieve these reliably regardless of the time of day or day of the week. **Please note that this time has now been increased to 150 minutes.**
- Hybrid services offering daytime PPCI and out-of-hours thrombolysis are not satisfactory.
- A PPCI service needs to be 24/7 and carried out in centres with a sufficiently high overall volume of cases to maintain and develop skills.
- If an acceptable PPCI service cannot be established, pre-hospital thrombolysis is preferable to in-hospital thrombolysis (usually with subsequent angiography/treatment. Forthcoming European guidelines are likely to recommend subsequent referral for coronary angiography for anyone having thrombolysis.

This NIAP report, as well as clinical evidence suggests that pPCI is a more effective intervention, due to:

- Reduced mortality rates
- Lower rates of re-admission
- Significant reduction in average length of stay
- Faster recovery times
- Better quality of life outcomes for the patient.

A 'Fit for Future' consultation exercise was undertaken in 2007 and completed at the beginning of 2008. Once the NIAP report was published in October 2008, the final decision was that Kent and Medway should look to provide 24/7 primary angioplasty from one central site, that being the William Harvey Hospital in Ashford. This will mean that once the service has been implemented, every patient across Kent and Medway will be taken directly to this specialist centre for treatment.

Map indicating location of service:



Using the Myocardial Infarct National Audit Project (MINAP) data over a 12 month period, it is estimated that approximately 500 people per year across the whole of Kent and Medway will be accessing this service, having suffered an ST Elevated Myocardial Infarction (STEMI) (410 Kent residents, 90 Medway residents).

The new service will be available to every patient who is diagnosed after ECG as having suffered a STEMI, regardless of age, gender or ethnicity. The patients will experience a change in service provision, predominantly the fact that they will now have access to a specialist service 24/7 and receive their intervention within 150 minutes of their time or initial call for help, instead of having to wait for individual diagnostics and then treatment over a longer time period. It is expected that the patient will on average have a length of stay of approximately 3.5 days, whereby the patient will be discharged home, and receive follow-up and rehabilitation from their local hospital.

The current pre-hospital thrombolysis service will cease upon implementation of the new service.

Improved outcomes in terms of mortality rates

The National Infarct Audit Project (NIAP) was a two year study involving data collection on 2,245 patients, during the year April 2005 to March 2006 and then follow-up for a year. Of those patients 65% were admitted directly to a pPCI centre and 35% to a centre not providing pPCI services. Of those 35% who were initially taken to a non-pPCI centre, 58% of these were then transferred to a pPCI centre and underwent pPCI.

The table below shows the mortality rates for those patients who either had pPCI or thrombolysis.

Treatment	30 days	1 year	18 months
pPCI	5.6 %	8.7 %	9.9 %
Thrombolysis	7.9 %	12.4 %	14.8 %

Source: MINAP report October 2008

Time is crucial when delivering this service, but extensive work has been undertaken to ensure that all Kent and Medway residents can receive this service within a timely manner. The maximum transfer time from all postcodes to the William Harvey Hospital will be 75 minutes. It should, however, be noted that this time is for **standard travelling time, not 'blue light emergency travel'**, therefore it is expected that the travelling times will actually be shorter. Below is a table showing mortality rates against time pPCI was performed.

Call-to-Balloon time	In-hospital	30 days	1 year
60-120 mins	2.7%	2.9%	5.1%
120-180 mins	4.5%	4.9%	8.7%
180+ mins	11.4%	12.2%	15.9%

Source: MINAP report October 2008

It is not envisaged that any particular groups will be worse off with the new service provision, in fact, more patients will be clinically eligible for primary angioplasty than thrombolysis due to their being no upper age limit.

By performing pPCI as soon as it is needed, it is expected that there will be a reduction in the mortality rates of patients, therefore, assisting with the achievement of the target to reduce the mortality rates of the under 75's for circulatory disease.

What plans are in place to ensure that the general public understand these changes?

The Kent Cardiovascular Network in conjunction with NHS Eastern and Coastal have developed a communications strategy. This outlines the methods of communication which will be tailored to a variety of groups.

There will be an awareness campaign through the local media, including newspapers, radio and news articles for television being planned. The ambulance trust will be producing its own leaflets for the patients carers and/or relatives so that they are aware of what is happening, and why the patient is being transferred, as well as giving directions and parking information for the hospital.

How many people in Kent receive emergency treatment for heart attack each year?

Using the MINAP figures from 1 January 2008 to 31 December 2008, there were a total of 1,389 patients who had an ECG determination, and therefore heart attack of either ST Elevation Myocardial Infarction (STEMI), Non-ST Elevation Myocardial Infarction (N-STEMI) or Left Bundle Branch Block (LBBB). Of these, it was predicted that approximately 500 would go on to have primary angioplasty.

How many Kent patients are currently taken outside of Kent to receive treatment in an emergency, where are they sent, and how likely is this to change in the future?

Very few patients are taken out of the Kent area for immediate emergency treatment. There may on occasion be a patient from Dartford who would be taken to Darent Valley Hospital, and then transferred via London Ambulance to a London hospital, but this is a rare occurrence. The arrangements with the South East Coast Ambulance service are that patients should remain within the Kent and Medway boundaries.

What role does the Kent and Medway Cardiovascular Network play?

The Kent Cardiovascular Network plays a key role in the development and project management of this new service provision. It provides the link across all three PCTs and the four acute trust sites, and liaises between all clinical and non-clinical staff.

It has established the Primary Angioplasty Steering Group and Workforce Group and feeds into the Cardiac Board on a quarterly basis. It has worked with a wide variety of stakeholders to produce the commissioning strategy, service specification and pathways, as well as the business case to the commissioners, and continues to provide management around the data collections that will be required, as well as contingency planning.

Through the Network's clinical lead, a strong relationship has been built with all of the cardiac interventionalists (consultants) that will be involved in the 24/7 rota. The Network has successfully recruited 9 out of 10 of the consultants, and they have all had involvement in the pathway design and operational protocols that the service will adhere to.

The Network has hosted two events; 1) a pathway planning event, and 2) a contingency planning event. These have both had comprehensive attendance from a wide range of stakeholders, and has ensured that the opinions of all relevant departments contributing towards the running of this service have been taken into consideration.

The Network has been pivotal in ensuring that all relevant stakeholders from across both primary care and the acute care services have been involved within this project, and have been the driving force to ensure the speedy implementation of this service. The Kent area is ahead of its neighbouring networks in Surrey and Sussex, and has been offering support in their own implementations by sharing learning and experiences.

Progress to date

- Equalities Impact Assessment has been undertaken.
 - Needs assessment completed.
 - Commissioning strategy finalised.
 - Service specification agreed and patient pathways agreed with all relevant stakeholders.
 - Business plan developed by the Network outlining the financial implications to the PCTs, and the benefits this new service will bring.
 - All three Kent and Medway commissioners have agreed to fund this service as of April 2010.
 - East Kent Hospitals University Foundation Trust confirmed that it is able to deliver the service as per the service specification.
 - The recruitment process has started to ensure that the required increase in staff is secured prior to implementation.
 - South East Coast Ambulance service has procured the telemetry system to be installed on each of the ambulances in order that ECGs can be transmitted to the William Harvey Hospital.
 - An additional project manager has been appointed by East Kent Hospitals University Foundation Trust to progress the operational tasks, including staffing, bed and capacity planning, operational protocols as well as contingency plans.
 - The expected date for implementation will be the 12 April 2010.
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Additional Information to note:

It should be noted that:

- the new primary angioplasty service will have an impact in terms of a decrease in mortality rates, therefore assisting with the LAA2 target to reduce circulatory disease mortality rates in the under 75s.
- This service will ensure delivery of the most timely and effective intervention for heart attack patients.
- There has been a high level of patient satisfaction where pPCI is being delivered currently which has been highlighted in the NIAP report.
- This service change has been informed, and is being driven by the Department of Health.
- This service is in line with the key messages within the Darzi review document on developing primary angioplasty.
- The commitment to developing primary angioplasty services is also a key component of the South East Coast Healthier People, Excellent Care Strategy.
- London centres already deliver pPCI as the first line of treatment for heart attack patients.
- An extensive study (NIAP) has demonstrated better outcomes for patients.

ⁱ Treatment of Heart Attack National Guidance. Final report of the National Infarct Angioplasty Project (NIAP) October 2008, Department of Health and British Cardiovascular Society.