Better care without delay: acute myocardial infarction

This month we begin a series exploring how the CHD Collaborative is helping clinical teams across the country achieve clear improvements in services for patients with coronary heart disease. Each article will focus on one of the Collaborative's six project areas (seen in the heart right). Here, national clinical leads and other Collaborative staff, who have a particular interest in the acute myocardial infarction pathway, report on some of the work that has been done so far.

Clinical teams across the country are working with the Coronary Heart Disease Collaborative (CHDC) to review and revise local service delivery for patients with coronary heart disease. The aims and objectives of the CHDC are outlined in box 1. Its approach is winning support from a wide range of professionals.

Cardiologist Dr Alastair Cooke is an acute myocardial infarction (AMI) project clinical lead in the UK. He is responsible for the AMI project in one of the Collaborative's local programmes at Sherwood Forest Hospitals NHS Trust. He is convinced of its benefits.

He feels the Collaborative has established a sound framework to enable close development of the service with the primary care sector. "The real story behind the success of the work of the CHDC is allowing clinical teams to work with each other and with patients so that we can improve the way in which we offer CHD services. This has allowed us to understand each other's perspective and make a positive, measurable impact to patient care," he said.

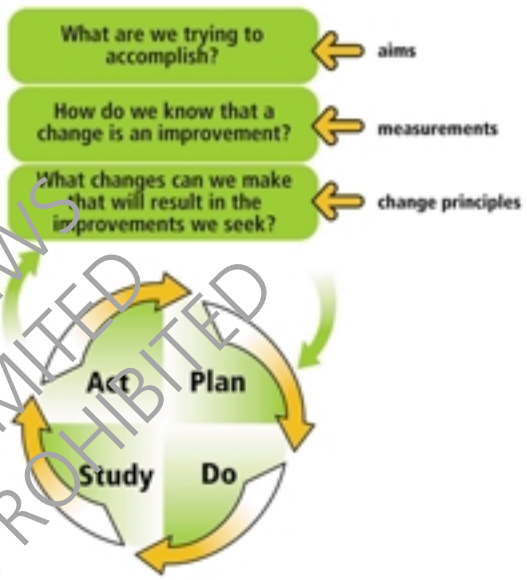
AMI pathway

Different teams across the country have used the CHDC techniques to identify and test a wide range of improvement ideas. The first stage is to map out the patient's journey and then look for what can be improved.

Using a hypothetical AMI patient journey, this article illustrates the types of changes that have occurred because of the CHDC work. Many of the ideas are not unique to the Collaborative. One of the strengths of the methodology is that it promotes sharing good ideas across different organisations and different parts of the

Box 1. What is the Coronary Heart Disease Collaborative?

The Coronary Heart Disease Collaborative (CHDC) is a national programme and part of the work of the NHS Modernisation Agency. Involving a network of 30 local coronary heart disease (CHD) programmes across England, its goal is to improve the experience and outcomes for patients with suspected or diagnosed CHD. These 30 local programmes help local teams to examine the care pathways travelled by cardiac patients across primary, secondary and tertiary care. Drawing on the work of the National Service Framework for CHD, the aim is to fundamentally redesign systems for prevention, diagnosis, treatment and care of CHD.



Central to the CHDC approach is the idea that small changes in care can be planned and tested on a small scale, for example, at patient, consultant or clinic level. If the change is found to be effective then it can be rapidly replicated on a wider scale.

The work is divided into six project areas: acute myocardial infarction, stable angina, heart failure, revascularisation, rehabilitation and secondary prevention and, for all of these, the project scope encompasses the whole patient pathway.

Support from the CHDC consists of advice, training in practical techniques and opportunities to share ideas at local and national level. These include:

- Mapping the patient journey
- Examining capacity in the system and the demand for services
- Understanding patient and carer views via discovery interviews
- Measuring for improvement, including a web-based reporting and information system
- Shared learning workshops.

The Collaborative has published a series of service improvement guides containing practical examples to help jump-start local initiatives. Copies of these guides and other materials are available from the CHDC website www.modern.nhs.uk/chd or call 0116 222 1414.

country. The CHDC believes this sharing of experience is central to delivering national improvements in CHD services in line with the aims of the National Service Framework for Coronary Heart Disease.

Signs and symptoms

Example: 'One night, Arthur, a 50-year-old man feels unwell. He takes indigestion tablets and is woken by an acute, strangling chest pain at 5.30 a.m. His wife rings the GP at 8.30 a.m. requesting an urgent appointment.'

It is well known that patients frequently delay seeking appropriate help. Many patients do not appreciate the need to call 999 directly and often delay making any call because they do not want to trouble anyone. Some local CHDC programmes are raising public awareness of the need to call 999 by developing leaflets and posters, advertising on local radio and releasing news stories to the local media. In the Black Country, CHDC teams even developed a short drama performed in pubs, schools and community centres (see figure 1), highlighting AMI symptoms and the need for prompt action. It is difficult to evaluate the lasting impact of such initiatives, but CHDC teams are currently measuring the effect of localised strategies with some positive results on levels of public awareness.

Once the patient has contacted the health service it is important to get the most appropriate help. Many local CHDC programmes have looked at the way GP surgeries deal with phone calls from patients with chest pain. Some have developed guidelines/protocols to help receptionists know when to tell the patient to phone 999. Others have run specific training for the administrative staff to ensure the patient gets to hospital without delay. A&E departments are increasingly eager to receive all such patients directly although some may turn out to have non-cardiac problems, if it means catching the true AMI patients more quickly.

Admission to hospital

'Arthur's general practice calls a 999 ambulance to collect him from home and take him to the emergency department. During the journey a 12-lead ECG is undertaken and sent directly by telemetry to the nearest CCU for confirmation of the diagnosis of an ST elevation infarction. Once the paramedics receive this diagnosis, they pre-alert the emergency department who, in turn, alert the local thrombolysis nurse to ensure everyone is prepared for Arthur's arrival. Arthur receives thrombolysis in A&E.'

The CHDC has contributed to the more general push to improve thrombolysis administration. A variety of initiatives have been tried by the ambulance services. These range from raising awareness of acute coronary syndromes, paramedic thrombolysis (especially in rural areas), 12-lead ECG training, hospital pre-alert systems, ECG telemetry and simply making sure that the pre-hospital ECG patches are compatible with the in-hospital machines.

For example, the London Ambulance Service has instituted 'blue light' calls for all suspected cardiac chest pain patients so that emergency department staff are alerted and prepared for their arrival. They are also rolling out 12-lead ECG training across London so that ECG confirmation is achieved before arrival in the emergency department.

In East London, ambulance and emergency department staff attend a joint training day which teaches early recognition of patients with possible acute coronary syndromes with a special emphasis on cultural differences in clinical presentation.

Much work has been undertaken by clinicians and managers towards attaining the National Service Framework target of a 30-minute door-to-needle (thrombolysis administration) time. CHDC tools, such as mapping what happens to the patients during their care, has allowed clinical teams to identify a variety of small changes that added together have started to make real improvements. An example is the work undertaken by the AMI team based in North Nottinghamshire, at the Kings Mill Hospital (see box 2).

Measurement is also an important facet of the CHDC methodology. Teams are encouraged to consider how they will monitor the changes they implement. For example, the collection and recent publication of MINAP data has helped teams to consider progress in door-to-needle times.

Jan Hayes, a thrombolysis nurse specialist at King's Mill Hospital is enthusiastic about the benefits of working with the CHDC. "We have made some useful contacts within the Collaborative. It has been an ideal forum in which to liaise with other CHD healthcare professionals and has enabled us to problem solve, make and maintain improvement within our thrombolysis service."

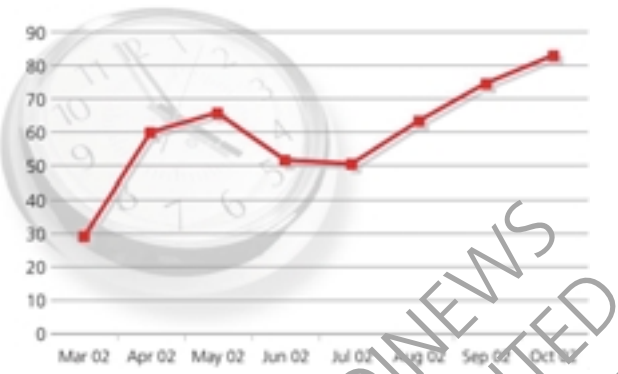
Not every hospital has gone down the route of employing thrombolysis nurses. At both Northwick Park Hospital and at Doncaster Royal Infirmary, for example, emergency department nursing staff have been trained to administer thrombolysis.

Figure 1. Discussion of a short drama performed at a community centre highlighting the symptoms of AMI and the need to call 999 immediately

Box 2. Small changes make big impact at King's Mill Hospital

Dedicated thrombolysis nurses were struggling to maintain a 24-hour service at King's Mill Hospital, Sherwood Forest Hospitals NHS Trust. Having mapped the AMI pathway, the clinical teams made a variety of small changes to the running of the department which together made a dramatic impact on their door-to-needle times (see figure 2).

Figure 2. Percentage of patients achieving 30 minute door-to-needle time following the implementation of Collaborative-led initiatives at King's Mill Hospital



- Satellite clocks: These have been placed in the emergency department, medical admissions unit and the cardiology ward, allowing all staff to record accurate times. This, in turn, has enabled the staff to record and analyse what actually happens to their patients and when.
- Thrombolysis drug key: Thrombolysis nurse specialists now have their own key to the emergency department drug cupboard which has saved an average of 3–5 minutes. Previously they had to locate the nurse with the keys before being able to treat the patient.
- Pre-alert calls: Through close working with East Midlands Ambulance Service and the thrombolysis nurse specialists, a pre-alert call system has been introduced which has enabled the thrombolysis nurse specialists to meet the patient at the door.
- Education: Through on-going education of emergency department and medical admissions unit staff, thrombolysis nurse specialists are being bleeped more quickly once a patient arrives in the department if a pre-alert call hasn't been given.
- SHO administered thrombolysis: Door-to-needle time has decreased by giving SHOs the thrombolysis bleep at nights. The SHO knows that if the bleep goes off he/she has to attend the emergency department or medical admissions unit straight away. The emergency department follows a protocol for bleeping SHOs and thrombolysis nurse specialists.
- Education folder: Thrombolysis nurse specialists have devised an excellent teaching folder depicting barn door MIs. This has been used in primary and secondary care.
- Switchboard: The switchboard has a list of the thrombolysis nurse specialists' duty rota. This is particularly useful, for example, in situations where the SHOs are not carrying a bleep so the switchboard can advise on whom else to bleep.

In June 2002, staffing for the thrombolysis service was depleted, reducing cover to 12.5 hours each day. Despite this, the service continued to improve and, as figure 2 demonstrates, continued improvements to door-to-needle times. The service continues to run on 12.5 hours per day.

Stabilisation

'Arthur is transferred to CCU where he is placed on a cardiac monitor, has blood taken and is started on a range of medication. His condition eventually improves and he and his wife are introduced to the cardiac rehabilitation nurse who spends time explaining what has happened and what the future holds'.

A number of CHDC initiatives have focused on making improvements to the way patients receive lifestyle advice and getting them on the correct post-MI medication. Many are centred on risk assessment by the rehabilitation or cardiac specialist nurse as part of phase I rehabilitation. These nurses can also provide the patient with information on any post-MI test and/or procedure through a one-to-one chat, information leaflets or patient videos. They may arrange for patients to have a full physiotherapy assessment prior to future exercise and offer chest pain awareness sessions to teach patients how to recognise the signs and symptoms of cardiac chest pain, particularly where this has not been evident pre-AMI.

Pharmacist visits enable patients to gain a better understanding of the new drugs they have been prescribed as well as advice on what these drugs do, when they should be taken and what side effects they may have.

Other innovative ideas include staff education on acute coronary syndromes – this has been introduced at Homerton Hospital, London, for example, and has helped bridge some of the gaps in specialist staff input at different sections of the patient journey. Invariably this has helped reduce delays and enabled staff to reach a common understanding of each other's roles as well as learning about the latest methods of treatment.

The 'Cardiac Navigator' role is another innovation which has been introduced at Northwick Park Hospital, London. Here a member of staff has been allocated overall responsibility for a patient throughout their hospital stay. The role has contributed to shorter waits for tests, improved co-ordination of the patient's medical management and better overall communication with and about the patient.

Discharge

'After three days Arthur is transferred to a medical ward to make room for a new

admission. Here he is given helpful information leaflets and prepared for discharge home. He knows whom to contact at his GP practice for further advice and together they continue his rehabilitation – this latter part of the journey will be the subject of a future article.'

As well as working on improving information leaflets, CHDC teams have tested a number of other ideas to make the discharge process more efficient. These include:

- Doctors prescribing discharge medicines the day before discharge to ensure that these medications are on the ward helping to prevent traditional hold ups at this stage
- Pharmacy departments using bedside patient lockers for patients' drugs
- Discharge information being faxed to the patient's GP surgery within 24 hours of discharge to inform primary care staff of each patient's status and management plan (including drug therapy). This improves communication and seamless care for the management of patients following an AMI.

Patient experience

Clinical teams are not the sole focus of the Collaborative's work. It has pioneered the technique of 'discovery interviews' with patients and carers. This technique supports clinical teams to really hear the patient and carer's story, not just complaints or compliments.

For example, one patient commented during this discovery interview: "When I went home I was told I would get an appointment in six weeks. It never came and I rang the ward twice. Then I went in and took a tin of biscuits to say thank you to the staff and they sorted it out for me."

Acting on this feedback, the hospital now offers patients appointment dates prior to discharge.

Future articles in this series will go in to more detail about discovery interviews, capacity and demand planning, and other support tools offered by the CHDC. Meanwhile further information about how to contact the CHDC and case studies from the AMI pathway are available on the CHDC website: www.modern.nhs.uk/chd

Acknowledgements

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