

Integrated cardiac care for improved pre-hospital thrombolysis

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INTRODUCTION

The National Service Framework (NSF) for Coronary Heart Disease (CHD) (Department of Health, 2000) sets the standard of treating eligible acute myocardial infarction (AMI) patients within 60 minutes of call for help in order to improve survival rates and long-term quality of life for heart attack patients.

Through integrated team work between emergency care staff and cardiologists at Rochdale Infirmary and paramedics at the Greater Manchester Ambulance Service (GMAS), call to needle times have been increasingly achieved within the standards set by the NSF for CHD over 18 months (August 2001–March 2003) by implementing several protocol initiatives providing seamless care.

Facilitated by a dedicated thrombolysis coordinator, the Rochdale team introduced initiatives such as:

- Pre-hospital application of electrocardiogram (ECG) electrodes – a locally conceived and implemented project, recognized and implemented citywide
- Multidisciplinary education programme – a series of 1-day seminars on chest pain and thrombolysis for nurses, doctors and paramedics

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- Local multidisciplinary protocol – a service-area wide protocol to identify and clarify the roles and responsibilities of the entire AMI team in delivering thrombolysis.

FROM POINT OF PATIENT CALL

Starting from the patient call for help in the Rochdale area, ambulance crews are dispatched from the GMAS. In order to maintain consistency, all ambulance crews serving Rochdale Infirmary within GMAS are trained with a locally conceived training programme.

The training programme facilitates the implementation of pre-hospital application of 12-lead ECG electrodes to suspected AMI patients. The training encourages paramedics to apply the ECG leads en route to the hospital in order to decrease the time spent on scene, which in turn increases the available time for the patient to receive diagnosis and thrombolysis administration upon admission to hospital (Figure 1).

A second initiative designed to decrease on-scene time provides paramedic crews with a proforma checklist of procedures associated with AMI

patients. While in transit the document is completed and given to the emergency care staff on arrival at hospital.

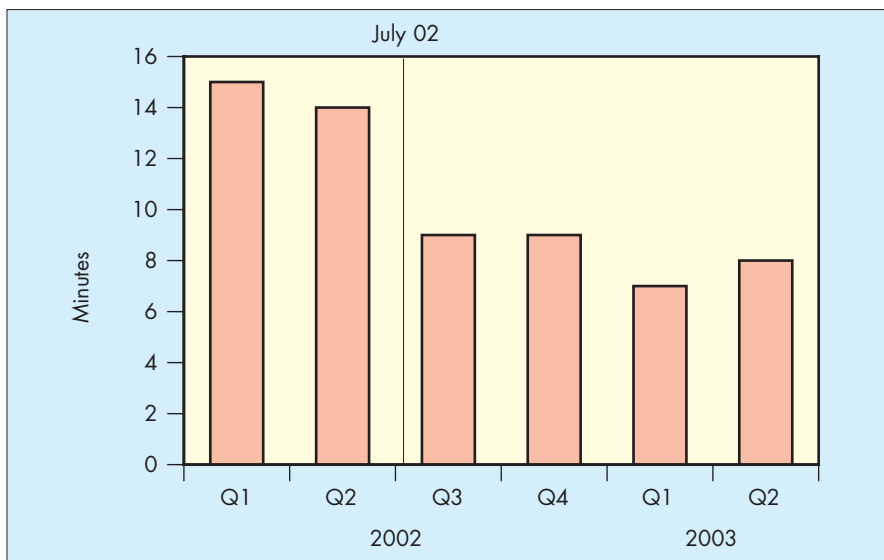
The paramedic crews also use a pre-alert call system while in transit, which alerts the emergency care staff and the cardiology unit that there is a patient with suspected AMI on the way to the hospital. This simple courtesy call allows emergency care staff to prepare the designated chest pain unit.

AT THE HOSPITAL DOOR

With these developments, emergency care staff at the Rochdale Infirmary are fully prepared to receive suspected AMI patients and diagnose them quickly.

Upon receiving the AMI patient at the door, under the guidance of the thrombolysis coordinator, the myocardial infarction (MI) team safely and efficiently deliver thrombolytic therapy to the patient in line with door-to-needle time targets of 20 minutes (Figure 2). Following thrombolysis, the MI team provide essential feedback to the paramedic unit on their application of the ECG electrodes and the patient's condition, diagnosis and treatment.

Figure 1. Mean door-to-first electrocardiogram times. The line at July 2002 represents the date when the study began to record the results of the implemented initiatives.



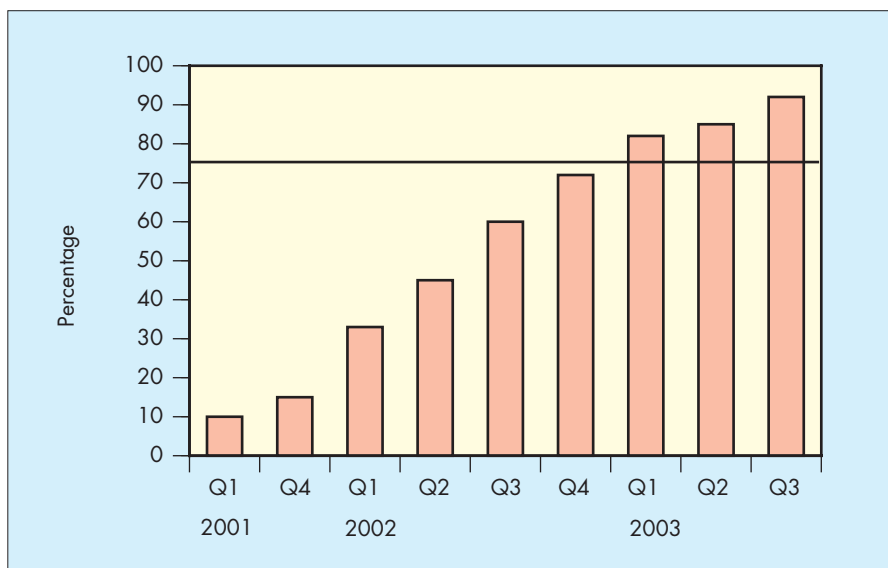


Figure 2. Percentage of eligible admissions to accident and emergency department in Rochdale Infirmary with suspected myocardial infarction who were thrombolysed within 20 minutes. The horizontal line represents the Department of Health target that says hospitals should be thrombolysing 75% of all acute myocardial infarction patients within the set door-to-needle times.

As an internal communications programme, the emergency care staff rotate team members through the MI team to keep input and participation at optimum levels. The team delivering the most outstanding care is rewarded with the 'Thrombolysers of the Month' award.

DEVELOPING THE STRATEGY

In order to effectively implement the strategy a member of the cardiology staff is appointed as thrombolysis coordinator. The purpose of the position is to ensure that internal and external systems are in place to enable rapid and safe treatment of AMI patients. The thrombolysis coordinator position involves working collaboratively across the entire multidisciplinary team to agree patient pathways, to develop clear protocols and guidelines and to provide clear responsibilities for authorization and decision making.

Part of the position of thrombolysis coordinator is also to develop and deliver a multidisciplinary training programme with support from the cardiac care team leading to improvement in standards of care and reductions in call-to-door and call-to-needle times. In addition, a thrombolysis review panel, comprising senior members of the cardiac care team, ensure that quality care is maintained across the service by

meeting monthly to provide feedback to the full multidisciplinary team.

THE RESULTS

The combination of these initiatives successfully implemented across cardiac care services in Rochdale has resulted in increased knowledge and confidence of paramedic units in identifying patients suffering suspected AMI chest pain, and the introduction of protocol-led care for pre-hospital alert calls and ECG lead application.

The multidisciplinary protocol has resulted in improved staff communication across the integrated teams in the pre-hospital treatment and in-hospital thrombolysis of AMI patients, ensuring patients suffering from AMI in the Rochdale area are treated safely and efficiently within the NSF call-to-needle time targets.

Over a 12-month period, Rochdale internal audit data showed that the team achieved:

- An 11% increase in

achieved call-to-door times (88.3% call-to-door times now less than 30 minutes)

- Over 75% of door-to-needle times achieved in less than 20 minutes
- A 14.3% increase in achieved call-to-needle times (91.2% call-to-needle times now less than 60 minutes)
- An 80% improvement in pre-alert courtesy calls (37 out of 37 pre-alert courtesy calls made).

THE AWARD

The Rochdale Thrombolysis Team have been awarded the 2003 Best Practice in Integrated Cardiac Care award. The award is a new initiative developed and sponsored by Roche Products Ltd to reward multidisciplinary teams who demonstrate best practice in integrated cardiac care. Teams from all over the UK were invited to compete for the Best Practice in Integrated Cardiac Care award. It is the first scheme of its kind to recognize acute cardiac care professionals working together as an integrated team across cardiology, emergency care and paramedic disciplines. The Award is supported by the British Cardiac Patients Association, and has partnered with *Hospital Medicine*, *Ambulance Today* and *Nursing Times*. **HM**

The authors would like to thank all members of the emergency care and cardiology units at Rochdale Infirmary and the paramedic units at Greater Manchester Ambulance Service. The Coronary Heart Disease Collaborative was instrumental in supporting the 'Pre-Hospital Application of ECG Electrodes' project

Department of Health (2000) *National Service Framework for Coronary Heart Disease*. Department of Health, London

The Rochdale Thrombolysis Team receiving the Best Practice in Integrated Cardiac Care (BPICC) award from Roger Boyle, National Director for Heart Disease at the House of Commons.

