

### What is already known on this topic

Early thrombolysis improves outcome in acute myocardial infarction

Patients from rural areas may be subject to long delays if thrombolysis is initiated only once they reach hospital

The delivery of thrombolytic agents by general practitioners in the prehospital setting has been shown to be safe and feasible and to reduce delay in treatment

### What this study adds

A system of prehospital thrombolysis delivered by paramedics with hospital based decision support is effective in reducing call to needle time in patients from rural areas

saved per 100 patients treated. Benefits from prehospital thrombolysis have also been shown to include a reduction in overall morbidity.<sup>6</sup>

In all the groups, ambulance response time, defined as the time from calling for professional help to the arrival of an emergency ambulance, shows a marked difference between patients calling their general practitioner and those who dial 999. Although

### Corrections and clarifications

As readers of the printed copy of the *BMJ* will have noticed, the recent “patient issue” of the *BMJ* (14 June) looked very different from our usual issues. Putting together our journal in this format (including using a different electronic production system) required even more care and attention than usual. We tried to avoid errors, but inevitably a few glitches occurred.

*Patients’ accounts of being removed from their general practitioner’s list: qualitative study*

We mixed up some references in this research paper by Tim Stokes and colleagues when we converted our usual style to the format required for this special issue (14 June, pp 1316-9). References 8-11 are correctly printed below. Also, the participants’ quotes failed to be clearly differentiated from the main text, which made for difficult reading. In the authors’ affiliation section, “practice” twice managed to gain a superfluous “a.” All these errors occurred only in the printed version of the article. The revised references are:

- 8 Glaser BG, Strauss AL. *The discovery of grounded theory strategies for qualitative research*. Chicago: Aldine, 1967.
- 9 Goffman E. *Asylums: essays on the social situation of mental patients and other inmates*. London: Anchor Books, Doubleday, 1961.
- 10 Scambler G, Hopkins A. Being epileptic: coming to terms with stigma. *Social Health Illn* 1986;8:126-43.
- 11 Goffman E. *Stigma: notes on the management of spoiled identity*. Harmondsworth: Penguin, 1968.

#### Doctors’ diagnosis

URLs continue to tax our powers of accuracy: we got two wrong (relating to multiple sclerosis) in the “Quick facts” section of this “Doctors’ diagnosis” collection of three articles (14 June, p 1323-5). The website for the American Academy of Neurology is [www.aan.com](http://www.aan.com) and for the International Multiple Sclerosis Support Foundation is [www.msnews.org](http://www.msnews.org)

#### Perspectives

We had not intended the title of Les Irwig’s article to come out as “This added to my multiple myopia,” but, rather inexplicably, it did (14 June, p 1336). In an attempt to keep to the style of the other titles in the “Perspectives” section, we had changed Les Irwig’s perfectly appropriate suggestion of “Managing glaucoma: a patient’s view,” but what resulted didn’t make sense.

the contribution of general practitioners in this setting should not be underestimated in clear cut cases, the adoption of the “dual response” suggested by the British Heart Foundation might minimise this delay.<sup>13</sup>

Any system of prehospital thrombolysis requires a rapid response to calls about undifferentiated chest pain received from within the community. Over the 12 months of our study the accident and emergency department received 229 calls and effected thrombolysis in 28 patients. Although this ratio is broadly similar for patients receiving thrombolysis in hospital, it underlines the commitment and resources necessary to promote early treatment.

We thank R Chan, senior lecturer in cardiovascular epidemiology, for his help with the statistical analysis, Robert Colburn of the Scottish Ambulance Service for his help in establishing the project, and Steve Beedie, ambulance paramedic, for his help in collecting prehospital data.

Contributors: DKP designed the study and wrote the paper. KB and EMC collected the data and compiled the database. CGG was involved in the planning, implementation, and audit of the service. IG was responsible for paramedics’ training and service development. GM and THP participated in validation of the data. SDP helped plan the service and revised the first draft of the paper. MCJ had the original idea for the provision and design of the service, participated in implementation and audit, and helped write the paper. MCJ is the guarantor.

Funding: Changes to services in Angus as outlined in this paper were approved and funded by the then Tayside Health Board on the basis that paramedic led thrombolysis services had already been implemented successfully in continental Europe. It was, however, a provision of the decision that the new service was audited. This paper presents the result of that audit.

Competing interests: None declared.

Ethical approval: The comparison of anonymised results from service provision was not thought to require formal ethical approval. This opinion was discussed with the chairman of the local ethics committee, and the view was endorsed.

- 1 Fibrinolytic Therapy Trialists’ (FTT) Collaborative Group. Indications for fibrinolytic therapy in suspected acute myocardial infarction: collaborative overview of early mortality and major morbidity results from all randomised trials of more than 1000 patients. *Lancet* 1994;343:311-22.
- 2 Randomised trial of intravenous streptokinase, oral aspirin, both, or neither among 17,187 cases of suspected acute myocardial infarction: ISIS-2. ISIS-2 (Second International Study of Infarct Survival) Collaborative Group. *Lancet* 1988;332:349-60.
- 3 Boersma E, Maas ACP, Deckers JW, Simoons ML. Early thrombolytic treatment in acute myocardial infarction: reappraisal of the golden hour. *Lancet* 1996;348:771-5.
- 4 Morrison LJ, Verbeek PR, McDonald AC, Sawadsky BV, Cook DJ. Mortality and prehospital thrombolysis for acute myocardial infarction. A meta-analysis. *JAMA* 2000;283:2686-92.
- 5 Department of Health. *National service framework for coronary heart disease*. London: DoH, 2000. [www.doh.gov.uk/nsf/coronary.htm](http://www.doh.gov.uk/nsf/coronary.htm) (accessed 6 Jun 2003).
- 6 Rawles JM. Quantification of the benefit of earlier thrombolytic therapy: five-year results of the Grampian region early anistreplase trial (GREAT). *J Am Coll Cardiol* 1997;30:1181-6.
- 7 Rawles JM. New standard of 60 minutes has been proposed but may be too rigorous. *BMJ* 1999;318:1554.
- 8 Rawles J, Sinclair C, Jennings K, Ritchie L, Waugh N. Call to needle times after acute myocardial infarction in urban and rural areas in North East Scotland: prospective observational study. *BMJ* 1998;317:576-8.
- 9 GREAT Group. Feasibility, safety and efficacy of domiciliary thrombolysis by general practitioners: Grampian region anistreplase trial. *BMJ* 1992;305:548-53.
- 10 Prehospital thrombolytic therapy in patients with suspected acute myocardial infarction. European Myocardial Infarction Project Group. *N Engl J Med* 1993;329:383-9.
- 11 Weaver WD, Cerqueira M, Hallstrom AP, Litwin PE, Martin JS, Kudenchuk PJ, et al. Prehospital-initiated vs. hospital-initiated thrombolytic therapy. The Myocardial Infarction Triage and Intervention Trial. *JAMA* 1993;270:1211-6.
- 12 Evaluation of the time saved by prehospital initiation of reteplase for ST-elevation myocardial infarction: results of the early reteplase-thrombolysis in myocardial infarction (ER-TIMI) 19 trial. *J Am Coll Cardiol* 2002;34:71-7.
- 13 Weston CFM, Penny WJ, Julian DG on behalf of the British Heart Foundation Working Group. Guidelines for the early management of patients with myocardial infarction. *BMJ* 1994;308:767-71.

(Accepted 9 June 2003)