

The unit has received 889 patients with myocardial infarction, of whom 159 have been delivered directly by paramedics. Altogether 495 of the patients have received thrombolytic treatment, including 131 of those delivered by the paramedics. The mean (median) times from arrival in hospital to thrombolysis (door to needle times) were 89 (107) minutes for all patients with acute myocardial infarction yet only 42 (43) minutes for those delivered by paramedics. Altogether 171 patients given thrombolysis who were admitted to the coronary care unit direct from the accident and emergency department had mean door to needle times of 80 (76) minutes.

At present we do not give thrombolysis in the accident and emergency department, although this policy is under review. The door to needle time that we achieve with our paramedic direct admission service is similar to the Sheffield model of thrombolysis in the accident and emergency department. This model should also be considered as a means of delivering thrombolysis more quickly than traditional methods of admission to hospital. If thrombolysis starts to be given in the accident and emergency department in Chesterfield we will have to compare this service with the existing paramedic service and determine if the model proposed by Edhouse et al is even quicker.

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- 1 Call to needle times after acute myocardial infarction [letters]. *BMJ* 1999;318:597-8. (27 February.)
- 2 Sandler DA. Paramedic direct admission of heart-attack patients to a coronary care unit. *Lancet* 1998;352:1198.

GPs are encouraged to rely on ambulance service

EDITOR—I was interested to see that the letters criticising the paper by Rawles et al on call to needle times after acute myocardial infarction were written by trust employees.^{1 2} As a general practitioner practising immediate care and offering domiciliary thrombolysis I wonder whether they have a genuine wish to improve patient care, or are they influenced by a powerful conflict of interest?³

As Edhouse et al and Ahmad et al confirm,¹ in an emergency most patients make a 999 call for an ambulance in the belief that an ambulance offers the quickest route to hospital care and therefore the best outcome. This need not be the case. As Rawles et al show, at least in the case of acute myocardial infarction, general practitioners can offer an improved clinical outcome but only if they are adequately equipped, readily available, and mobilised in time.²

Few general practitioners currently offer domiciliary thrombolysis or indeed any other emergency medical care. Most receive financial inducements to delegate out of hours care to the cooperative deputising services. Unfortunately, this means that in many cases a doctor cannot be provided in time to influence the clinical outcome when one is genuinely needed. Delays in visiting of

more than an hour are now common, so it is no surprise to learn that the corporatist NHS hierarchy, in the form of the Sandwell NHS Trust, encourages acutely ill patients to bypass their general practitioner and dial 999 instead.¹

Although official ambulance response times in Suffolk often exceed 30 minutes and the trust is under investigation by the region for its poor performance, local general practitioners are encouraged to rely on the ambulance service in all acute cases rather than provide a comprehensive service themselves. On one occasion the ambulance trust initially refused to contact me for a patient in pulseless ventricular tachycardia after its receipt of a 999 call, although I had been asked for by name and was readily available. In fact, I arrived well before the ambulance and initiated treatment and the patient survived. In a more recent but identical case I was called belatedly, only to confirm death.

The provision of quality medical care by general practitioners is greatly hampered by unreasonable patient demand and trust corporate philosophy. In consequence there has been a reduction in general practitioners' involvement and an increase in the use of the ambulance service and accident and emergency departments. I have yet to be convinced, however, that patients receive better treatment in consequence.

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- 1 Call to needle times after acute myocardial infarction [letters]. *BMJ* 1999;318:597-8. (27 February.)
- 2 Rawles J, Sinclair C, Jennings K, Ritchie L, Waugh N. Call to needle times after acute myocardial infarction in urban and rural areas in northeast Scotland: prospective observational study. *BMJ* 1998;317:576-8. (29 August.)
- 3 Thomas PD. Emergency care in general practice. *BMJ* 1995;310:1268.

New standard of 60 minutes has been proposed but may be too rigorous

EDITOR—Since our paper was published¹ and the responses to it were written,² a new standard call to needle time of 60 minutes has been proposed.³ This supersedes the 90 minute standard set by the British Heart Foundation.

In relation to these standards the table shows up to date call to needle times from the Grampian audit, comparing prehospital thrombolysis by general practitioners in rural areas with scoop and run in the city and suburbs of Aberdeen and in rural areas 25 km or more from Aberdeen. In the scoop

Audit of call to needle times after acute myocardial infarction in Grampian in relation to proposed standard of ≤60 minutes³ and British Heart Foundation's standard of ≤90 minutes

| | Prehospital thrombolysis | Scoop and run | |
|---|--------------------------|---------------|-----------|
| | | Urban | Rural |
| Median call to needle time (min) | 45 | 62 | 90 |
| Proportion (%) in whom call to needle time was: | | | |
| ≤60 min | 156/211 (74) | 40/84 (48) | 1/13 (8) |
| ≤90 min | 198/211 (94) | 70/84 (83) | 8/13 (62) |

and run cases, patients taken to hospital after a 999 call were given thrombolytic treatment either in the accident and emergency department or in the coronary care unit to which they were directly admitted. No doctor to doctor referrals occurred in these cases, so these times are about the shortest that are achievable with this approach.

These results suggest that the rigorous 60 minute call to needle standard is unlikely to be achieved in most cases unless thrombolysis is initiated in the community before patients are transported to hospital.

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- 1 Rawles J, Sinclair C, Jennings K, Ritchie L, Waugh N. Call to needle times after acute myocardial infarction in urban and rural areas in northeast Scotland: prospective observational study. *BMJ* 1998;317:576-8. (29 August.)
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- 3 Department of Health. *National service framework: coronary heart disease*. London: Stationery Office, 1998.

Emerging tobacco hazards in China

Is assumption of no association between smoking and other causes of death valid?

EDITOR—Liu et al used the term "proportional mortality study" to describe their method of comparing the smoking habits of 0.7 million adults who died of neoplastic, respiratory, or vascular causes with those of a reference group of 0.2 million who died of other causes in China.¹ The term can be confusing as it is used only for proportional mortality ratio analysis in standard epidemiology textbooks.² We suggest that the study can be more easily understood if it is described as a case-control mortality study.

An important assumption in such analyses is that the other causes of death should be unrelated to the exposure "not only in the sense of causation but also in terms of 'self-selection' for the exposure and the diagnosis and certification of the underlying cause of death."³ Liu et al validated this assumption by showing that the smoking rates of the male and female reference groups were only slightly higher than those of the surviving spouses of the people who had died. However, they did not elaborate whether this similarity was true for each city or rural area in China, and, if it was not, why.

Could this similarity be a feature of populations in which the tobacco epidemic is at an early stage? The authors' assumption may not be valid in other studies (such as our Hong Kong study⁴) or future studies that use a similar design. One potential confounding factor is social class, which is often associated with both smoking and mortality, and it may lead to an association between smoking and other causes of death. Studies elsewhere have observed some association between smoking and other causes of death (for example, in the American Cancer Society's cohort the mean annual mortality from other medical causes was 39/100 000 men

in never smokers and 81/100 000 in current smokers)³; choosing such other causes as referents would underestimate the risks from smoking.

It is fairly easy to define a priori which are the other causes of death for smokers as relations between smoking and many diseases are known, but it is difficult to define them when other risk factors (such as alcohol consumption) are studied in relation to mortality. Information on smoking (and confounders and other risk factors) in another control group randomly selected from the surviving population should be collected for validation; if the results do not support the assumption, classical case-control analysis comparing the dead and the living is necessary.

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- 1 Liu B-Q, Peto R, Chen Z-M, Boreham J, Wu Y-P, Li J-P, et al. Emerging tobacco hazards in China: 1. Retrospective proportional mortality study of one million deaths. *BMJ* 1998;317:1411-22. (21 November.)
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Double standards apply with importation of tobacco into developing countries

EDITOR—Smoking is a scourge that, although universal in distribution, ravages the economies of developing countries both directly and indirectly. As a non-medical person, I acknowledge with admiration the moral and economic purpose behind studies such as those by Liu et al and Niu et al.^{1,2} I wonder, however, about the lack of speculation in the papers, let alone recommendations, on the possible measures that governments, health bodies, and non-governmental associations should undertake to combat what is obviously a healthcare disaster. Given the press coverage that high impact papers such as these attract and that the *BMJ*'s readership extends to the non-medical world, Lopez in particular missed the opportunity to put this right in his editorial.³

In the electronic responses to these studies Pletten attempts to rectify this.⁴ But his triumphalism—that China should learn from the United States' experience of dealing with tobacco—displays the ignorance that individuals with his views have of the enormous contribution made by the United States to the importation of tobacco into developing countries. More sensitive people in the Western world would find disturbing the fact that cigarette packets intended for sale in the West bear health warnings such as “cigarette smoking kills” and “cigarette smoking causes cancer” whereas those intended for sale in the developing world bear warnings diluted of impact, such as “cigarette smoking may be injurious to health” and “cigarette smoking may damage your health”—both in English

and in the language used locally. The ethics, or lack thereof, of the parties concerned is obvious.

Medical researchers are often in a powerful position when it comes to influencing healthcare decisions and should use this for the public good. Now that these papers have proved the obvious, perhaps we should do something about it.

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- 1 Liu B-Q, Peto R, Chen Z-M, Boreham J, Wu Y-P, Li J-P, et al. Emerging tobacco hazards in China: 1. Retrospective proportional mortality study of one million deaths. *BMJ* 1998;317:1411-22. (21 November.)
- 2 Niu S-R, Yang G-H, Chen Z-M, Wang J-L, Wang G-H, He X-Z, et al. Emerging tobacco hazards in China: 2. Early mortality results from a prospective study. *BMJ* 1998;317:1423-4. (21 November.)
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UK authors' reply

EDITOR—Three different types of study have led to virtually identical conclusions about smoking and death in China^{1,2}:

(1) A case-control study in which the smoking habits of one million people who had died were compared with those of 300 000 who had not¹

(2) A prospective study of 250 000 adults, 10 000 of whom had died²;

(3) What we chose to call a proportional mortality study, in which the smoking habits of 700 000 adults who had died of neoplastic, respiratory, or vascular disease were compared with those of a reference group of 200 000 adults who had died of other causes.¹

To avoid confusion between the second and third of these, we are reluctant to adopt Lam's suggestion of calling the third a case-control mortality study, but the choice of terminology is not very important. What chiefly matters is the results: already there are almost a million deaths a year from smoking in China, and eventually there will be two or three million a year. These facts were not appropriately widely accepted until these studies were done, and their wide acceptance may well be achieved more rapidly if (despite Lhato's concerns) the findings are presented without any strong recommendations other than that they should be widely known. Both papers are available in translation in the February 1999 Chinese language edition of the *BMJ*.

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- 1 Liu B-Q, Peto R, Chen Z-M, Boreham J, Wu Y-P, Li J-Y, et al. Emerging tobacco hazards in China: 1. Retrospective proportional mortality study of one million deaths. *BMJ* 1998;317:1411-22. (21 November.)
- 2 Niu S-R, Yang G-H, Chen Z-M, Wang J-L, Wang G-H, He X-Z, et al. Emerging tobacco hazards in China: 2. Early mortality results from a prospective study. *BMJ* 1998;317:1423-4. (21 November.)

I don't want to be invited to invest in the tobacco trade

EDITOR—The British Heart Foundation was criticised by the *Independent on Sunday* last year for using pension funds that invested in tobacco companies.¹ A spokesperson for the BMA commented that charities promoting health should, as a matter of principle, avoid investment in tobacco companies and that “charities campaigning against tobacco should certainly not invest in tobacco stock.”² However, the *BMJ* and the BMA (through its financial services subsidiary) could be criticised on similar grounds as both promote saving and pension funds investing in tobacco stocks. Last year the *BMJ* carried a full page advertisement for the Royal National Pension Fund for Nurses promoting “an outstanding investment opportunity.”² I would have hoped that saving and pension funds designed for health professionals would avoid tobacco investment, but the Royal National Pension Fund for Nurses was unable to provide reinsurance on this when I wrote to it. As the *Independent on Sunday* has shown, pension and savings funds, unless specifically screened, commonly invest in tobacco stocks because they are profitable.¹

BMA Services also continues to promote funds that have no screening to exclude tobacco investment. Indeed, when I wrote to the company about this it replied that “many doctors require consistent growth in preference to investing ethically.” At a time when pension and savings funds that offer both consistent growth and tobacco-free investment do exist, I find it disturbing to receive promotional literature tucked in my *BMJ* inviting me to invest in the tobacco trade.

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- 1 Woolf M. Heart charity invests in tobacco industry. *Independent on Sunday* 1998 Dec 6:1 (cols 1-2).
- 2 *BMJ* 1998;317:advert facing page 1490 (clinical research issue). (28 November.)

Women must be given fully informed information about cervical screening

EDITOR—The General Medical Council has now produced clear ethical guidelines with respect to getting informed consent from patients undergoing any medical procedure, including screening tests.^{1,2} This would include cervical screening.

The guidelines are quite specific in stating that a doctor or other party should explain the purpose of screening; the likelihood of positive and negative findings, including false negative and false positive results; uncertainties and risks of screening; important medical, social, or financial consequences of screening; and follow up plans, including counselling and support services. Several other, more general, points may also apply to screening, such as