In order to assess how many patients with possible myocardial infarction, unstable angina or cardiac chest pain were transported to hospital by ambulance, and the time limits given by doctors for admission and any recent changes in these limits, all bed bureau forms for November 1990 and for the same month in the preceding three years were examined (Table 1).

The proportion of patients requiring an immediate ambulance response increased between 1987 and 1990 from 23.8% to 37.2% (chi square test, $P<0.02$). However, the percentage of patients travelling to hospital by private transport (appoximately 10%), and the percentage of patients having hospital admission after one hour or more requested (about 25%) stayed virtually constant between 1987 and 1990. There was a reduction in the percentage of requests for urgent patient transport within 30 minutes, from 39.8% in 1987 to 14.1% in 1990.

Because of the benefits of early thrombolytic therapy[2] it is not surprising that there has been a move towards more rapid transport to hospital. In fact, it seems strange that all patients with cardiac chest pain are not conveyed to hospital with a 999 response.

It may be that a proportion of the patients processed by the bed bureau had contraindications to thrombolytic treatment, known to the attending doctor but not mentioned to, or recorded by, the ambulance control officer. There may have been some cases where the diagnosis of acute myocardial infarction was not seriously considered. However, the early diagnosis of acute myocardial infarction is difficult[3] and few general practitioners carry electrocardiographs to aid such diagnosis.[4]

Attending doctors, aware of the pressures on the ambulance service, may sometimes enter into negotiations with the bed bureau staff concerning time limits, such that doctors are asked to stipulate longer time limits during busy periods. This may account for the increasing number of cases requiring urgent transport within 31–59 minutes, and also the proportion of patients arriving at hospital by own transport. However, if all chest pain cases had warranted an automatic 999 response there would only have been an extra three 999 calls each day.

Only by requesting an immediate response can it be certain that the next available emergency ambulance will be dispatched at once. 999 calls always take priority over doctors' urgent calls. Furthermore, at a time when standards of ambulance responses to 999 calls are being improved (50% response within eight minutes, 95% within 14 minutes, in urban areas), the response standard to doctors' urgent calls is being relaxed, such that these calls may be allowed 15 minutes more than stipulated by the general practitioner and still be judged satisfactory.[5]

Unless an acute myocardial infarction can be confidently ruled out, all patients with cardiac chest pain, unstable angina, or possible myocardial infarction should immediately be transported to hospital by a fully equipped emergency ambulance so that the decision whether or not to administer thrombolytic therapy may be made at the earliest opportunity.

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Table 1. Percentage of patients admitted to hospital in November 1987–90 with a diagnosis of possible myocardial infarction, unstable angina or cardiac chest pain, showing time limits stipulated by general practitioners.

Year	Total number of calls	Time limit on admission (% of patients)				
		Immediate	≤30 min	31–59 min	≥60 min	Own transport
1987	181	*23.8*	*39.8*	*2.8*	*24.3*	*9.4*
1988	179	*27.6*	*39.4*	*1.8*	*22.9*	*8.2*
1989	123	*23.6*	*38.2*	*0.8*	*28.5*	*8.9*
1990	156	*37.2*	*14.1*	*14.1*	*23.1*	*11.5*

Diagnosis and treatment of acute myocardial infarction

Sir,

We would like to draw attention to the difficulties inherent in the prompt diagnosis and treatment with thrombolytic therapy of acute myocardial infarction. Between November 1989 and February 1990, we conducted a survey of all patients assessed in a district general hospital with clinical features suggestive of acute myocardial infarction. Initial assessment consisted of taking a patient history and electrocardiograph reading. Blood was taken for later estimation of enzyme levels characteristically raised in acute myocardial infarction. The criterion for entry into the survey was suspicion by the duty medical officer of acute myocardial infarction, on the basis of the patient's history, with or without chest pain.

The criteria for administration of thrombolytic therapy were: a history of chest pain within 24 hours of the onset of symptoms, or characteristic elevation of at least 1 mm of the ST segment on the electrocardiograph recording and no recognized contraindications to therapy. The criterion for a definitive diagnosis of acute myocardial infarction was increased levels of the three enzymes greater than the upper limits of the reference ranges in our laboratory, indicative of myocardial infarction (creatine kinase >180 U l^{-1}, amino aspartase >40 U l^{-1}, and lactic dehydrogenase >450 U l^{-1}).

A total of 305 patients entered the survey. Acute myocardial infarction was confirmed in 147 patients and the diagnosis was excluded in 157 patients; conclusive assessment was not possible in one patient. Fifty patients with a diagnosis of acute myocardial infarction received thrombolytic therapy but a total of 106 patients with confirmed acute myocardial infarction had no contraindications to this therapy. Of the 41 patients with contraindications, two had gastrointestinal bleeding, 11 had a duodenal ulcer, 23 had hypertension, and 38 presented more than 24 hours after onset of symptoms. Six of 157 patients in whom acute myocardial infarction was excluded received thrombolytic therapy.

These results indicate that approximately 53% of eligible patients received suboptimal treatment. If, for example, 100 000 eligible patients are seen each year in hospitals in the United Kingdom, and if the use of thrombolytic therapy is associated with at least a 10% reduction in mortality in the first 35 days after acute myocardial infarction,[1,2] overall mortality could be substantially reduced if a rapid, accurate and specific means of identifying

patients with myocardial damage could be identified.

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Percentage body fat as a predictor of raised cholesterol level

Sir,

Disenchantment with the concept of population screening for cholesterol levels and general acceptance of targeting only people with other known risk factors may leave those who, by implication are not at risk, with a sense of false security as well as a reduced chance of ascertaining their cholesterol status. This is demonstrated in the study by Mann and colleagues[1] which shows that in those patients with a cholesterol level of over 6.5 mM, only 44% could be predicted on the basis of a family history of coronary heart disease and only 55% from a body mass greater than 25, thus leaving about half of the population for whom raised cholesterol level cannot be predicted.

The percentage of the body which is fat can now be determined simply, non-invasively and inexpensively. The reading from the well validated[2] Futrex® device (Futrex Corporation), which employs an infrared light wand applied to an individual's biceps, is used together with height, weight, age and sex factors to compute this parameter. Does a knowledge of percentage body fat facilitate the prediction of hypercholesterolaemia, and if so to what extent?

A Futrex device was recently used at our health centre on 184 non-diabetic but otherwise unselected men aged 16–69 years, who concurrently had their venous cholesterol level estimated. A total of 64 patients had a cholesterol level of 6.0 mM or more, the designated 'raised' level, and 80% of these patients had a percentage body fat of 21% or more (standard cut-off point). By contrast, only 39% had a positive family history of coronary heart disease and only 60% were 10% or more over the desirable body weight for their height. Among the 120 patients with a cholesterol level of less than 6.0 mM, 67 (56%) had a percentage body fat of 21% or more.

Use of the single parameter of percentage body fat would have predicted four out of five patients with a 'raised' cholesterol level in our group and would have made 66 blood tests unnecessary, that is in those patients with percentage body fat of less than 21%. From this it would appear that percentage body fat is currently the most effective single predictor of raised cholesterol level, and it surely merits further evaluation in clinical practice.

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Increased demands on services as a result of screening elderly people

Sir,

In the two years before screening elderly people became mandatory, a controlled trial of screening of over 65 year olds was carried out in a urban group practice with four partners and one trainee.

Patients were matched for age and sex and divided into cases and controls on the throw of a die. The mean age of all the patients was 77.4 years. Patients in the screening group were sent a letter offering a home visit by the practice nurse. This offer was accepted by 147 of the 175 patients and the nurse visited and completed a questionnaire incorporating a mental health questionnaire. The questionnaires were reviewed by the nurse and one practice partner, and patients with identified problems were seen by a doctor either at home or in the surgery. The 175 patients in the control group received normal care.

All 350 patients' records were examined one year after the screening visit for evidence of contacts with their general practitioner and with other services. The results are summarized in Table 1. In addition, the screened group spent a total of 676 days in hospital as inpatients, compared with 403 days for the control group.

The screened group showed an increased use of almost all services although this was statistically significant only for referral to the chiropodist and for tetanus vaccination. In the year following the screening visit there was a significantly greater number of contacts between the screened group and their general practitioner — a mean of 3.04 contacts compared with 2.22 for the control group (Mann Whitney U test $P<0.01$). This trend towards increased use of health services has been found in other studies.[1,2]

Table 1. Use of general practitioner, hospital and community services by the 175 patients in each group.

Service	No. of times service used: Control group	Screened group
Radiological investigation	42	41
Pathology test	131	191
Drug prescription	287	346
Tetanus vaccination	8	21[a]
New outpatient referral	33	45
Follow-up outpatient attendance	82	134
Accident and emergency department attendance	14	14
Referral to chiropodist	3	14[a]
Referral to optician	5	10

[a]Chi square test, $P<0.05$.

The time spent by nurses on screening visits was approximately 98 hours and each partner had a mean of 29 extra consultations with elderly people in the year following screening. The increased demands on hospital services, as a result of screening, are likely to produce longer waiting lists for outpatient appointments and non-urgent admissions. In addition, the increase in the number of drugs prescribed may have implications on indicative prescribing budgets.

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Sodium valproate, carbamazepine and spina bifida

Sir,

In 1983 it was shown that pregnant women taking sodium valproate during the first trimester have a 1–2% risk of