least, more than one symptom could be scored and perhaps more attention could be paid to the patients' experience of their illness,³ including how they explain their illness and its course, what effect it has, how they feel about it, and what they expect of treatment (this is relatively easily done in an n of 1 trial). The n of 1 trial could indeed be used more in everyday clinical practice with good instruments, generic diaries, and a patient centred approach.

WILFRID TREASURE
General practitioner

Muirhouse Medical Group,
Edinburgh EH4 4PL

- 1 Mahon J, Laupacis A, Donner A, Wood T. Randomised study of n of 1 trials versus standard practice. *BMJ* 1996; 312:1069-74. (27 April.)
- 2 Gotzsche PC. Placebo effects. *BMJ* 1995;311:1640.
- 3 Paterson C. Placebo effects. *BMJ* 1995;311:1640.
- 4 Kee F. Patients' prerogatives and perceptions of benefit. *BMJ* 1996;312:958-60. (13 April.)
- 5 Stewart M, Brown JB, Weston WW, McWhinney IR, McWilliam CL, Freeman TR. *Patient-centered medicine. Transforming the clinical method*. Thousand Oaks, CA: Sage, 1995.

Blood donation

Britain's blood service is committed to spirit of altruism among donors

EDITOR,—Ann Oakley raises a moot academic point in her editorial about whether Titmuss's survey of people's reasons for donating blood needs to be repeated.¹ Unfortunately, her superficially interesting hypothesis is undermined by its construction around a series of allegations that do not stand up to even minimal analysis.

Not all blood services are "in a mess." The National Blood Service in Britain, which is recognised as among the finest and the safest in the world, goes from strength to strength, meeting hospitals' ever increasing demand for its products and services thanks to the increasing number of volunteer unpaid donors. Blood services worldwide have had to face the challenges of HIV infection and hepatitis C, and in Britain this has resulted in increasingly safe products. In common with most medical interventions, however, a blood transfusion is not free of risk. The decision to transfuse blood will remain what it has always been: a balanced judgment about the clinical risk of the alternatives to the patient.

The National Blood Authority has not recommended replacing the 14 blood centres with three zonal management teams. The document issued by the secretary of state, Stephen Dorrell, when he approved our proposals makes it clear that all blood centres are to remain open. The proposals are not a cost cutting exercise but rather a cohesive plan for the future that will improve quality, efficiency, and effectiveness to the benefit of patients and donors. There is no profit motive in the British blood supply; the amount of blood collected is determined by hospitals' need for red cells. Plasma based products for use in the NHS are made from the plasma separated from the red cells. Only if a surplus of such products remains after NHS demand has been satisfied is this surplus offered for sale abroad, at prices that only cover the cost of production. This has been practice for many years.

We are fortunate in Britain that the spirit of altruism that underpins our unpaid, volunteer donor base continues to prevail. It is a spirit to which the National Blood Service is committed. If Oakley is arguing for the increased input of donors' views in a service that depends on their gift, I do not necessarily disagree. She may wish to know that the service has already started such a process with, for example, the publication of a donors' charter and a range of other initiatives. It

is a pity that she bases her contention on such a catalogue of false premises.

E ANGELA E ROBINSON
Medical director

National Blood Authority,
Watford WD1 1QH

- 1 Oakley A. Blood donation—altruism or profit? *BMJ* 1996;312:1114. (4 May.)

Age limit should be reviewed

EDITOR,—In her editorial on blood donation Ann Oakley mentions that New Zealand is experiencing a fall in blood donation in the face of increasing demand.¹ As I have family in New Zealand, this gave me cause for thought. It also reminded me that, along with countless other pensioners, I am no longer a blood donor, although this is not of my choice. With the number of pensioners increasing annually, I wonder whether it is possible, with due regard to safety, to review the age limits up to which it is permissible to donate blood. I, like many others, would continue to donate if given the chance.

R M ARCHIBALD
Retired consultant occupational physician

7 Asden Way,
High Beeches,
Banstead SM7 1LE

- 1 Oakley A. Blood donation—altruism or profit? *BMJ* 1996;312:1114. (4 May.)

Relation of C reactive protein to cardiovascular risk factors

Assays would have to be developed to measure C reactive protein

EDITOR,—M A Mendall and colleagues' paper raises the question of the role of the inflammatory response in cardiovascular disease.¹ To avoid immunology and other laboratories being swamped with inappropriate requests for measurements of C reactive protein concentrations it is important to emphasise that the authors' study looked at measurements that are within the conventional normal range. Many laboratories use nephelometric methods designed to measure abnormally raised C reactive protein concentrations and do not detect differences within the normal range—that is, <10 mg/l. Mendall and colleagues used a specially designed, in house enzyme linked immunosorbent assay (ELISA) with a quoted coefficient of variation of 14%. This is a large coefficient of variation for an assay attempting to distinguish between two groups of patients on the basis of a small absolute difference in a measurement.

Fig 1—Shewhart plot showing variation in possible values of C reactive protein when one specimen of known concentration (12.5 mg/l) is analysed with routine automated nephelometer several times a day for several days

Measurements of C reactive protein are currently used to quantify the scale of an inflammatory response associated with infection and other inflammatory disorders. The technique is therefore calibrated to distinguish a wide range of values between 1 mg/l and 500 mg/l. It is not, however, sensitive enough to reliably differentiate small differences in the low concentrations described in this paper. Figure 1 shows the daily variation and the variation over time in results obtained from repeatedly analysing a single quality control specimen of known C reactive protein concentration with our routine nephelometer.

If further studies show the C reactive protein concentration to be useful in the acute management of cardiovascular disease then appropriate assays will have to be made available that do not use techniques currently used in routine laboratories.

W A C SEWELL
Registrar in immunology
S E MARSHALL
Senior registrar in immunology
A G BIRD
Consultant immunologist
H M CHAPEL
Consultant immunologist
Department of Immunology,
Churchill Hospital,
Oxford OX3 7LJ

- 1 Mendall MA, Pate P, Ballam L, Strachan D, Northfield TC. C reactive protein and its relation to cardiovascular risk factors: a population based cross sectional study. *BMJ* 1996;312:1061-5. (27 April.)

H pylori and *C pneumoniae* infections may account for most acute coronary syndromes

EDITOR,—M A Mendall and colleagues provide data showing a strong association between C reactive protein concentration (a sensitive marker of systemic inflammation) and coronary heart disease.¹ This finding draws attention to the inflammation as a mechanism underlying the progression of ischaemic heart disease. The same authors have previously shown a greatly increased cardiovascular risk in subjects with *Helicobacter pylori* and *Chlamydia pneumoniae* infections.²

Recently we measured serum levels of antibody to *H pylori* and *C pneumoniae* in patients admitted to an intensive care unit with clinical, electrocardiographic, and biochemical evidence of acute myocardial infarction. We collected serum samples from 37 subjects (28 men, 9 women; mean (SD) age 63 (8) years (range 44-77)). Serum samples from 60 healthy subjects matched for sex and age served as controls. Titres of IgG antibody to *H pylori* were measured with an enzyme linked immunosorbent assay (ELISA; Bio-Rad, Hercules, California) and titres of IgG antibody to *C pneumoniae* were measured with an indirect immunofluorescence test (MRL, California). Cross reactions with *C trachomatis* and *C psittaci* were assessed. IgG titres of ≥ 64 were regarded as positive.

Table 1 shows that a high prevalence of *H pylori* and *C pneumoniae* infections was present in patients with acute myocardial infarction. Thirty two of the 37 patients had antibodies to *H pylori*, 31 had antibodies to *C pneumoniae*, and 28 had antibodies to both; these proportions were significantly higher than those in the control subjects (Mantel-Haenszel χ^2 test: df=1, $P<0.001$; odds ratio 5.24 (95% confidence interval 1.97 to 13.90)).

Our data suggest that infection by these two bacteria may have an important role in inducing and sustaining inflammation. The production of C reactive protein is regulated by cytokines, principally interleukin 6. Fibroblasts, T cells, endothelial cells, and monocytes produce interleukin 6; mast cells also synthesise and release this cytokine. We have previously shown that *H pylori* can elicit an IgE specific response.³ Recently it has been found that *C pneumoniae* infection triggers production of IgE specific to *C pneumoniae*.⁴ Thus mast cell activation by these

Table 1—Prevalence of antibody to *H pylori* and *C pneumoniae* in patients with acute myocardial infarction and controls. Figures are numbers (percentages)

	Patients with acute myocardial infarction (n = 37)		Controls (n = 60)	
	<i>C pneumoniae</i> positive	<i>C pneumoniae</i> negative	<i>C pneumoniae</i> positive	<i>C pneumoniae</i> negative
<i>H pylori</i> positive	28 (76)	4 (11)	12 (20)	20 (33)
<i>H pylori</i> negative	3 (8)	2 (5)	18 (30)	10 (17)

bacteria, mediated by IgE, could be responsible for the enhanced production of interleukin 6. The intense proinflammatory and procoagulant properties of this cytokine could account for most, if not for all, acute coronary syndromes.⁵

ANTONIO ACETI
Director

Institute of Infectious Diseases,
University of Sassari,
Sassari,
Italy

GIORGIO MAZZACURATI MARIA A AMENDOLEA
Senior registrar Biologist
ALFREDO PENNICA BARBARA ZECHINI
Assistant Research fellow

Department of Infectious and Tropical Diseases,
La Sapienza University,
Rome,
Italy

MASSIMO TRAPPOLINI MARIO PULETTI
Assistant Associate professor of cardiology
Medical Department 2,
La Sapienza University

- Mendall MA, Patel P, Ballam L, Strachan D, Northfield TC. C reactive protein and its relation to cardiovascular risk factors: a population based cross sectional study. *BMJ* 1996;312:1061-5. (27 April.)
- Patel P, Mendall MA, Carrington D, Strachan D, Leatham E, Molyneux N, et al. Association of Helicobacter pylori and Chlamydia pneumoniae infections with coronary heart disease and cardiovascular risk factors. *BMJ* 1995;311:711-4.
- Aceti A, Celestino D, Caferro M, Casale V, Citarda F, Conti EM, et al. Basophil-bound and serum Immunoglobulin E directed against Helicobacter pylori in patients with chronic gastritis. *Gastroenterology* 1991;101:131-7.
- Emre U, Sokolovskaya N, Roblin PM, Schachter J, Hammerslag MR. Detection of anti-Chlamydia pneumoniae IgE in children with reactive airway disease. *J Infect Dis* 1995;172:265-7.
- Maseri A, Biasucci LM, Liuzzo G. Inflammation in ischaemic heart disease. *BMJ* 1996;312:1049-50. (27 April.)

Drug use in prison

Methadone maintenance in prison needs to be evaluated

EDITOR,—Kate Dolan and colleagues claim, on the basis of inadequate data, that methadone maintenance reduces injecting in prison.¹ This claim is based on recall of the number of injections in prison per week by a subgroup (number not stated) of ex-prisoners who—inside prison—both had received a maximum methadone dose exceeding 60 mg and had not defaulted from the programme.

The efficacy of methadone maintenance in prison should be evaluated prospectively in randomised controlled trials analysed on an intention to treat basis.² For modest targets—such as a reduction from 70% recidivism to 60% in the year after discharge from the index sentence and a reduction of 25% in the median number of days' incarceration for recidivists (down from 88 to 66 days)—to be identifiable in tests of significance, the consent of some 800 inmates who inject drugs would be required.

Any trial of methadone maintenance in prison should take into account the fact that 35% of prison terms for injecting drug users may last for less than 10 days and only 20% for more than 100 days (unpublished findings based on a study of 300 injecting drug users with a median of four (range one to 28) terms in Saughton prison, Edinburgh, between 1983 and 1994). If the data from Edinburgh are typical, methadone maintenance in

prison is mostly of short duration. The efficacy of this is unclear because most studies in the outside community have been of longer programmes (and have been non-randomised and inadequate in size) and have excluded defaulters from analysis.³

SHEILA M GORE SHAUN SEAMAN
Senior statistician Research student

MRC Biostatistics Unit,
Institute of Public Health,
Cambridge CB2 2SR

- Dolan K, Hall W, Wodak A. Methadone maintenance reduces injecting in prison. *BMJ* 1996;312:1162. (4 May.)
- Smith T. Evidence based politics. *BMJ* 1996;312:127. (13 January.)
- Ward J, Mattick R, Hall W. *Key issues in methadone maintenance treatment*. Sydney: University of New South Wales Press, 1992.

Access to sterile injecting equipment is important

EDITOR,—As Kate Dolan and colleagues comment, substantial drug misuse continues even in prison.¹ As many as 70% of all prisoners will probably use a controlled drug.² Research at Maryland Centre in Liverpool shows that 83 of 87 injecting drug users who were interviewed had been in prison and that 71 had used drugs there. Of these 71, 21 had injected, of whom six (29%) had used non-sterile injecting equipment. This compares with a sharing rate of 14% recorded at the syringe exchange.

Despite recommendations from the health care directorate for England and Wales³ the prison service has been reluctant to introduce methadone maintenance treatment and have relied on often inappropriate drug treatments for symptomatic relief. Methadone should be considered as it may have a valuable role in reducing the contribution of opiate withdrawal to suicide rates in prison. Although prescribing of methadone might have an impact on opiate users, it would be of no benefit to users who inject stimulants, for whom the need for access to sterile injecting equipment, as in the community, remains a crucial factor.

Along with the introduction of mandatory drug testing⁴ there has been a growth in the use of a range of treatment modalities, including drug education programmes, individual counselling, and drug awareness courses. We advise caution over the general acceptance of such services in prisons. While we recognise the importance and value of counselling and education, awareness in itself is not sufficient to reduce the risk of communicable disease.

Current political rhetoric surrounding crime, law, and order and the home secretary's insistence that prison reduces crime may increasingly lead to a criminal justice system that regards a prison sentence as offering a credible drug treatment service. There is likely to be an increasing emphasis on imprisonment as the best option. Such responses further criminalise what for many people is essentially a sociomedical problem.

A report by the North West Regional Health Authority stated that services that intervened early and diverted drug users from prison would reduce the costs to the community in terms of crime and public health.⁵ Prison can recruit people into drug use, while the environment and lack of access to

sterile injecting equipment are not conducive to reducing drug related harm. When users continue to inject in prison, rates of sharing of equipment are higher than those in the community.

CLIVE L MORRISON ALAN MCGEE
Senior clinical medical officer HIV prevention facilitator
Maryland Centre,
Liverpool L1 9DE

- Dolan K, Hall W, Wodak A. Methadone maintenance reduces injecting in prison. *BMJ* 1996;312:1162. (4 May.)
- Hewitt A. Drug testing in prisons. *Druglink* 1996;11(3):16-8.
- Prison Service. *Drug misuse in prison: a policy and strategy document*. London: PS, 1995.
- Prison Service. Clinical services for substance misusers. *Health Care Standard* 1995; No 8.
- Health Care Development Unit. *The criminal justice system and the care of drug users*. Manchester: North West Regional Health Authority, 1996.

National crash call number is needed

EDITOR,—Cardiac arrest is one of the most dramatic events that occur on hospital wards. The successful outcome of such an event may be influenced by prompt treatment. To this end, all staff on hospital wards should be trained in basic life support. They should also be familiar with the process of summoning the hospital's cardiac arrest team to proceed to advanced life support. This is normally done by dialling the crash call number either through the hospital's switchboard or direct.

Table 1—Crash call numbers used by 40 hospitals

Crash call number	No of hospitals
2222	8
333	7
3333	5
666	5
222	4
Other*	11

*Nine other numbers were used.

We have noticed that the different hospitals where we have worked have used different crash call numbers. To establish the diversity of such numbers in different hospitals and whether they are in any way predictable we performed a telephone survey, requesting information from the switchboard operators of 42 acute hospitals in the two North Thames regions (North East Thames and North West Thames). Two hospitals refused to disclose the information. Fourteen dialling numbers were used in the two regions (table 1), 2222 and 333 being the most common. There was no geographical basis for such differences, nor was there any difference in the degree of diversity within the two regions. Surprisingly, some hospitals in the same NHS trust but at different sites used different numbers. Three hospital operators could not readily remember the crash call number in their own hospital.

With the regular movement of medical staff in training posts between hospitals and the frequent temporary employment of locum doctors and agency nurses, the use of different crash call numbers may impair the speed with which help can be summoned and may adversely affect the outcome of cardiac arrests. We suggest that all hospitals should adopt a national crash call number analogous to the 999 number used by the public to call the emergency services.

SALEM A BESHYAH
Senior registrar
REBEKAH SCHIFF
Registrar
FATHI S AL-JEHANI
Senior house officer

Department of Medicine,
Central Middlesex Hospital,
London NW10 7NS