positive. We obtained some of the same urine specimen and repeated the Clearview test, which now also gave a positive result. Laparoscopy and subsequent laparotomy confirmed a right tubal ectopic pregnancy.

We presume that the initial result was negative because the urine was dilute, the patient having filled her bladder for a scan. As this is frequently part of the investigation of gynaecological patients with pain and abnormal bleeding doctors should beware of testing urine samples passed for a short while afterwards.

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1 Kingdom JCP, Kelly T, MacLean AB, McAllister EJ. Rapid one step urine test for human chorionic gonadotrophin in evaluating suspected complications of early pregnancy. *BMJ* 1991; 302:1308-11. (1 June.)

Skewed distributions and parametric tests

SIR,—I wish to draw attention to some sources of error in the paper by Dr Michael Marber and colleagues on the delay to investigation and revascularisation for coronary heart disease in South West Thames region.¹ In the abstract, for example, the waiting time from referral to cardiac catheterisation in 1988 is given as a mean (115.8 days) with the standard deviation (126.5) and the range of values (22-482). Adding the two extreme values of the range and dividing by two would result in a value close to the mean/median/mode if the values were normally distributed. In this case such calculation gives 252, well away from the mean. This means that the frequencies were not normally distributed. This same problem occurs in 26 out of 40 distributions of frequencies given in the paper.

Skewed distributions should not be described in parametric terms unless the raw data are so transformed that the skewness is removed or greatly minimised. This is usually done by taking logarithmic values. If the transformation is done parametric tests like the *t* test can be applied. If it is not done parametric tests will produce spurious, if not meaningless, results. At the bottom of table V the authors acknowledge the bias caused by outliers to the distribution, but they fail to discuss it.

There is a bias in the paper that the authors missed: private patients are a self selected group likely to differ greatly from the rest of patients in terms of socioeconomic state and thus morbidity and mortality. In this sense the groups are not comparable.

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1 Marber M, MacRae C, Joy M. Delay to investigation and revascularisation for coronary heart disease in South West Thames region: a two tier system? *BMJ* 1991;302:1189-91. (18 May.)

AUTHORS' REPLY.—Dr Ortega-Benito is correct in that the distribution of waiting times in our study is not normally distributed. This does not, however, invalidate the use of parametric statistical tests to compare mean waiting times. The reason for this is that the distribution of a sample mean is itself normally distributed even if the sample from which it is derived is not normal¹—the so called central limit theorem. Thus there is no need to "normalise" our waiting times by logarithmic or other transformations.

We agree that socioeconomic differences are

likely to exist between patients referred to the NHS and private sectors. Nevertheless, for these factors to be important they would have to act independently of the pattern of ischaemic heart disease and the age and sex of a person as we found no difference in these determinants between private and NHS groups. We consider, therefore, that socioeconomic factors are unlikely to make a significant contribution to the deaths of patients on the NHS waiting lists and that this observation is primarily due to the significantly prolonged mean waiting times for NHS patients.

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1 Armitage P, Berry G. *Statistical methods in medical research*. 2nd ed. Oxford: Blackwell, 1987:80-4.

Altitude treatment for whooping cough

SIR,—I was intrigued by Dr P A Casey's letter about the effect of altitude on non-productive coughing after pertussis in children.¹ My experience (after 19 years of uniformed service) is that this phenomenon is widely known. I discussed the situation with my senior colleagues and can report that we in the Royal Air Force medical branch have been using this particular mode of treatment for many years—over 40 to my knowledge.

Our standard approach is to decompress victims to 3000-3350 m above sea level, after which disappearance of the cough is the norm. The pathophysiology of this remains enigmatic. What is without doubt is that the treatment works. Our only difficulty has been to obtain suitable insurance cover for the decompression run, given that the "victim" has almost invariably been a civilian. Fortunately, I am not aware of any complications occasioned thereby.

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1 Casey PA. Altitude treatment for whooping cough. *BMJ* 1991; 302:1212. (18 May.)

Torsades de pointes complicating treatment with terfenadine

SIR,—In their drug point on torsades de pointes complicating treatment with terfenadine¹ Drs T J MacConnell and A J Stanners referred to a report I made in 1984 on the use of terfenadine in chronic urticaria.² Because terfenadine lacks the usual side effects of H₁ antagonists it was possible to give larger doses than the 120 mg/day recommended. The main object of this work was to see if the effect of the antihistamine on urticarial weals increased concomitantly with the increase in dose. The conclusion was that doubling the dose to 240 mg/day had a slight increase in effect but further increases in the dose did not reduce the urticaria any more. This was taken as evidence that substances other than histamine played an important part in producing urticarial weals.

In the past few years many consultants and general practitioners have prescribed terfenadine in a daily dose of 240 mg or occasionally more for patients with urticaria not getting sufficient relief from the smaller dose.

Because of my knowledge of the patient reported on by Drs MacConnell and Stanners and the other few reports that they mention I have recently obtained electrocardiograms in 10 patients with

urticaria who were taking high doses of terfenadine. Nine patients were taking 240 mg/day and six of these were also taking astemizole 10 mg/day; the other patient was taking 360 mg/day. They had been taking these doses for one to nine months. The QT intervals corrected for pulse rates were within normal limits in all patients.

Terfenadine has been used extensively worldwide during the past 10 years. It has a remarkable absence of side effects, and many patients must have taken these higher doses. An effect on the QT interval and torsades de pointes must be extraordinarily rare. Nevertheless, Drs MacConnell and Stanners are to be thanked for reporting their case.

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1 MacConnell TJ, Stanners AJ. Torsades de pointes complicating treatment with terfenadine. *BMJ* 1991;302:1469. (15 June.)
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Talc granulomas

SIR,—Dr P W Pairaudeau and colleagues pointed out the respiratory difficulties that may arise after accidental inhalation of baby powder.¹

In our paediatric experience at the Royal Hospital for Sick Children, Edinburgh, and Princess Margaret Hospital for Children, Western Australia, we have implicated talcum powder in the aetiology of an appreciable number of so called umbilical granulomas excised from infants and young children. Histologically, many large, multinucleated giant cells containing plate-like, birefringent material admixed with macrophages and other inflammatory cells are seen. A variable degree of fibrosis may be associated with the lesion.

Talc granulomas may arise when powdered talc (magnesium silicate) is introduced into open wounds,² and possibly talc is introduced into the umbilical stump during mummification and dehiscence of the umbilical cord or, later, the navel acts as a reservoir accumulating a deposit of talc. Though this complication is obviously much less disastrous than inhalation of talc, it should probably be listed as a complication of using talc in baby hygiene. We therefore endorse the view that the routine use of talcum powder in the care of infants should be strongly discouraged.

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1 Pairaudeau PW, Wilson RG, Hall MA, Milne M. Inhalation of baby powder: an unappreciated hazard. *BMJ* 1991;302: 1200-1. (18 May.)
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Breast cancer screening: the current position

SIR,—While the debate continues over the potential reductions in mortality associated with the United Kingdom's breast screening programme¹⁻³ we wish to express our concern about the attendance rates resulting from current methods of organising the programme. Of the first 400 women invited for screening from our practice, 207 have attended for mammography, 11 had been recently screened by the practice, and for 14 screening was thought to be inappropriate because of previous or existing breast disease or other illness. Nineteen of those screened will be investigated further.

Altogether 168 have failed to attend for screening

despite a second reminder letter being sent. Our practice is centred on several large council estates, though appreciable numbers of patients live in relatively more affluent areas towards the periphery. The mammography caravan was sited 2.5 km from the heart of the practice area with reasonably direct public transport. One hundred and fifteen of the non-attenders live in the council estates, indicating that this screening programme is having its least impact on the poorer women in our practice. Also of great concern, however, is that overall attendance rates are well below the 70% expected and the hoped for 25% reduction in mortality from breast cancer is thus unlikely to be achieved. The screening programme has been organised at district level, and we have gained the impression that for many women it is seen as separate and distant from other forms of prevention offered by general practice and primary care.

If the government wishes to see more equitable screening coverage increased resources may need to be given to promoting the campaign at a more local level using existing networks of health education and health promotion in general practice.

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- 1 Wald N, Frost C, Cuckle H. Breast cancer screening: the current position. *BMJ* 1991;302:845-6. (6 April.)
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Nightmare of extracontractual referral

SIR,—The following is an example of the new levels of efficiency being achieved in the post-reformed NHS.

A child resident in my district was referred to me by his general practitioner for help with enuresis. It is an unusual case with an underlying psychological element. The boy subsequently moved 8 km with his parents to an adjoining district. He continued to attend the same school and had the same general practitioner. He had increasing behaviour problems and was seen by the educational psychologist in the district in which I work. The psychologist and I agreed that psychiatric help was necessary. I met the boy and his parents to explain this, and they agreed to see the child psychiatrist based in the hospital in which I work. So far, so good. But then the bureaucratic nightmare began.

The child psychiatrist was informed by the contracts manager of the mental health unit that the adjoining district did not have a contract with the unit and suggested that the referral should be returned to me, which he did. I discussed this with the director of public health in my district, who contacted the director of public health in the adjoining district. The director of public health in the adjoining district replied to the director of public health in my district, saying that the paediatrician needed to discuss the referral with the patient's general practitioner and that in his view referral to his district's child psychiatry services would be better. The director of public health in my district forwarded the letter to me. Naturally, I blew a fuse.

I replied to the director of public health in the adjoining district to explain the nature of the teamwork involved with such a patient and the need to be prompt and cohesive in dealing with the sort of problem presented. Fortunately, throughout all this the child psychiatrist decided on the clinical need, saw the patient, and prepared to face the music, thinking this preferable to allowing the bureaucracy to harm the boy through further delay.

At this stage it is still not clear whether the referral will be paid for. The costs are considerable in terms of delay for the patient correspondence, telephone calls, time wasted, and blown fuses.

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Doctors and the European Community

SIR,—Two recent articles on doctors and the European Community have prompted me to write.^{1,2} I am convinced that the free movement of professionals in the European Community is an advantage for the cultural, scientific, and socioeconomic progress of a united Europe. Socioeconomic progress cannot take place if cultural exchanges are not encouraged and increased.

Doctors from the European Community are entitled to full registration with the General Medical Council. Messrs Stephen Brearley and Douglas Gentleman report that 1000 practitioners from the European Community have registered with the General Medical Council,² but it would be interesting to know how many British doctors have registered elsewhere in Europe. How many of these actually find a position in the guest country?

The linguistic difficulties and the different educational systems in the various countries make it difficult to find posts as visiting registrars and opportunities for specialist training, which are necessary for financial reasons. This is the main reason why most doctors, being unable to subsidise themselves for more than one year, return to their country of origin.

It is as difficult to obtain a grant from one's own government as it is from the European Community, and these are often reserved for new graduates. I hope that soon the European Commission will come up with a system to standardise educational training in Europe, although this would benefit only future generations. Middle aged doctors at the apex of their career, eager to learn new technologies so necessary to the progress of medicine and scientific research, are seriously penalised by the lack of specific laws encouraging them to go to other countries. Married doctors encounter even more difficulties.

As long as these problems are not solved, working in the European Community will remain elitist. A solution may be to allow free exchange of medical staff from European universities or hospitals by keeping a certain number of places open for specialist training for doctors from member states. Has the European Commission contemplated this?

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- 1 Richards T. Edging into Europe. *BMJ* 1991;302:1173. (18 May.)
- 2 Brearley S, Gentleman D. Doctors and the European Community. *BMJ* 1991;302:1221-2. (25 May.)

SIR,—In her report on Euromigration Dr Tessa Richards has reported the xenophobic fears that lie behind a veil of concern.¹

The European Community's mutual recognition acts of 1975 have never prompted a cross-Channel passage of multilingual, multicoloured "hordes of doctors" and never will. Indeed, there has been a moderate inflow of junior doctors into the United Kingdom from other countries in the European Community—predominantly as registrars or senior house officers. This should be welcomed by both patients and employees of the NHS.

These doctors have come to fill needs. Firstly, they wish to continue studies. The oversaturation of doctors in countries such as Germany and Spain

has meant that talented doctors are unemployed. Dr Richards also ignores the economic incentives for junior doctors from the European Community to come to the United Kingdom. Stated simply, a junior doctor earns 300% more here than in an equivalent position in Germany. Many work here —to the good fortune of the NHS—until they can return to their country with firm offers of employment and respectable pay.

Secondly, these doctors are filling the needs of the NHS and its patients. They have not wormed their way into this country by bribes or by influence. They have been actively recruited by British agencies, which are paid a considerable sum by British health authorities for each doctor they place. These doctors are not taking the place of British doctors; British doctors do not fill these positions.

Furthermore, it is unlikely that any appreciable number of doctors from the European Community will continue into consultant positions in Britain. Though a fifth have stated that this is what they plan to do, the plans of life often go awry. Doctors from the European Community hold 6% of all senior house officer posts yet only 1% of all senior registrar positions.

Finally, the question remains of whether these doctors are qualified to practise in Britain. Shouldn't we trust the ability of British agencies to hire qualified staff and the judiciousness of British consultants and registrars to weed out those who are in over their heads? For every example of other countries' leniency in terms of time spent in training there is another that reflects the converse. For example, doctors have to spend 18 months in the preregistration grade in Germany compared with 12 months in Britain, and the duration of medical education in Germany is one year longer than that in Britain (six and five years respectively).

We would be interested to hear of a British doctor who is unemployed directly as a result of the employment of a peer from the European Community, or of one doctor from the European Community who has continued for more than a week in the NHS after it has been determined, albeit belatedly, that he or she is underqualified for the post.

Yes, training and qualifications should be standardised within the European Community—for the safety of all the countries, not just the United Kingdom.

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- 1 Richards T. Euromigration. *BMJ* 1991;302:1296-7. (1 June.)

General practitioner outpatient referrals

SIR,—If Mr Desmond A Nunez means what he says—and I sincerely hope that he does not—he demonstrates well the gulf in perceived roles that lies between primary and secondary care.¹

Mr Nunez describes a study in which inappropriate referrals were classified as those in whom no otolaryngeal disease was identified. In other words, if the patient does not have a defined illness he or she should not see an ear, nose, and throat surgeon.

Whatever happened to the generally accepted medical tasks of excluding important disease and of reassuring and educating patients? During the past year I have referred a clergyman with hoarseness of three months' duration, a woman with episodes of disabling dizziness, and a young woman with globus hystericus—all to ear, nose, and throat outpatient clinics. All were distressed by their symptoms: no disease was found in any of