tioners. Thus far Maynard and Scott's is but a voice "singing in the wilderness."

The alleged fall in the number of applicants to general practice training schemes has been attributed to the stresses incurred by general practitioners under the new contract. I think not. It is because most aspiring medical graduates want to practise medicine for most of their working week rather than deal with non-medical problems such as business management and medical trivia better dealt with by nurse practitioners.

With the inception of this ill conceived, untested contract general practice is dead. The trainee general practitioner could now profitably spend his or her time attached to a large firm of accountants rather than acting as a locum tenens for the partners for 12 months. The case for a salaried contract for general practitioners either full or part time must now be put to the vote.

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1 Maynard A, Scott T. *Will the new GP contract lead to cost effective medical practice?* University of York: Centre for Health Economics, 1991.

SIR, — I am surprised that after one year of exposure to the new contract, which was unilaterally thrust on us, causing perhaps the biggest change in a general practitioner's working life, I and my partners, who are members of the BMA, have had no opportunity to give our point of view other than by writing a letter such as this.

As far as I am aware, there have been no local meetings in which BMA members have been able to vote in either a referendum or a ballot to ascertain general practitioners' views. I cannot think of any other profession or trade union that has been so moribund and wonder if other members feel similarly. I would also be interested to know whether our "leaders" have any plans to rectify this sad state of affairs.

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*The secretary of the BMA replies: BMA members who are general practitioners have been able to express views on the new contract at meetings of BMA divisions when the association's annual report has been considered and in motions submitted to both the BMA's annual representative meeting and its craft conferences. In addition, an extensive monitoring exercise undertaken last summer enabled every practice to give their views about the day to day working of the contract. We are sorry that these opportunities to express views may not have been sufficient, but we are not convinced that a referendum or a ballot would have served any useful purpose. It is widely known that many general practitioners are unhappy with the day to day working of the contract, and there is no need for a referendum or ballot to prove this. The GMS is now engaged in a wide ranging consultative exercise to assess current policy and establish future policy. It is planning to involve all general practitioners in this exercise, which could take some two years to complete. This will enable all general practitioners to express detailed views on a wide range of specific subjects, many of which concern the working of the new contract.

Suicide among men in the highlands of Scotland

SIR, — Mrs Vera Carstairs¹ and Dr J D M Douglas² point out that suicide by visitors could artificially inflate the apparent mortality in the highlands.

This will apply only to people not normally resident in Scotland as deaths among visitors from other parts of Scotland are coded to their place of usual residence. None the less, there was an inflationary effect on the data that I used in my study,³ but it was much smaller than that predicted by Mrs Carstairs. The standardised mortality ratio for men in the highlands over the period 1974-86 was 161.3, which after exclusion of suicides by non-residents becomes 148.9.

The discrepancy between Mrs Carstairs's estimates and my own may have arisen because she used a limited period, 1986-8, and the resulting standardised mortality ratios may have been atypical owing to chance variation. Certainly, in a subsequent personal letter she reports an analysis of the period 1980-5 and concludes that, after exclusion of non-residents, "the mortality remains high in most of the highland districts." The conclusions from my study were not just about high rates in the highlands but also that the rates were unexpectedly low in the central belt of Scotland. Again, in her further analysis Mrs Carstairs confirms this finding.

Dr Douglas would be unwise to overemphasise the low standardised mortality ratio of the western isles (77) as the small number of deaths on which it is based means that the 95% confidence interval is very wide (46 to 120). The issue of regional variation in the incidence of mental illness is not one on which I expressed an opinion—I raised it only as a possibility that should be investigated further.

I am interested to learn from Dr P M Darragh⁴ that suicide in Northern Ireland seems to differ from that in Scotland in being less common in rural areas. This makes more puzzling the Scottish pattern of high rates in the rural highlands and low rates in the urban central belt.

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- 1 Carstairs V. Suicide among men in the highlands of Scotland. *BMJ* 1991;302:1019. (27 April.)
- 2 Douglas JDM. Suicide among men in the highlands of Scotland. *BMJ* 1991;302:1019-20. (27 April.)
- 3 Crombie IK. Suicide among men in the highlands of Scotland. *BMJ* 1991;302:761-2. (30 March.)
- 4 Darragh PM. Suicide among men in the highlands of Scotland. *BMJ* 1991;302:1020. (27 April.)

Supply of blood products

SIR, — We share Professor J D Cash's anxieties over the statement issued by the Department of Health entitled *Supply of Blood Products: The UK View*.¹

Five years ago the regional transfusion directors (England and Wales) asked the Department of Health to consider options available to achieve a nationally coordinated transfusion service. After reviewing the management consultancy report the department decided against creating a special health authority for the National Blood Transfusion Service; in October 1988, however, it established the national directorate to coordinate the activities of the 14 regional transfusion centres. The national directorate has been very successful, particularly with regard to quality assurance, management information services, assessing targets for self sufficiency in plasma, and interregional transfer of blood and fresh blood products.

One of the main problems that now faces the national directorate is that it can only advise the transfusion service on present and future policy as the 14 regional transfusion centres are independent of each other and are managed by their respective regional health authorities. The recent changes in the NHS have meant that the regional transfusion centres now have to price their products and services. One of our concerns is that if the situation

does not change in the near future this will eventually lead to competition among the centres, which can result only in fragmentation of the service, a possible waste of blood, and tarnishing of the service's image with the irrevocable loss of the good will and support of the voluntary unpaid blood donors. Without such good will and support the blood transfusion service as we know it cannot exist.

We believe that we must build on the sound foundation laid by the national directorate to collect sufficient blood for use in hospitals and produce sufficient fresh plasma for fractionation by the Bio Products Laboratory to achieve self sufficiency. We also need to attain uniform standards of quality now required of us by the European Community and, ultimately, by patients. Before this service, which underpins many modern hospital practices, is irretrievably damaged the Department of Health must seek to create a properly funded and fully integrated National Blood Transfusion Service.

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1 Cash JD. Supply of blood products. *BMJ* 1991;302:848. (6 April.)

Creutzfeldt-Jakob disease and blood transfusion

SIR, — Currently, the general public are very aware of the potential of blood transfusion to transmit infection unless appropriate selection of donors and testing have been carried out. Thus we are concerned that the comment that "Transmission of Creutzfeldt-Jakob disease may occur through donor tissue, infected blood, and urine" should not be misinterpreted.¹ This comment was referenced to a review that stated, "There is no recorded case of CJD [Creutzfeldt-Jakob disease] transmission by blood in man, but transmission via human blood to mice has recently been reported (Tateishi, 1985)."² The report by Tateishi was of transmission by means of intracerebral inoculation of a crushed blood clot obtained at necropsy from a patient with the disease into mice.³ Mouse to mouse transmission through inoculation of blood was also successful. Manuelidis *et al* have also reported transmission of the disease from the buffy coats of affected subjects by intracerebral inoculation into guinea pigs.⁴

Despite the transmission of Creutzfeldt-Jakob disease from human sources by intracerebral inoculation of laboratory animals and the passage of infection in mice by inoculation of blood, it should be emphasised that there is no evidence of any association between transmission of the disease and blood transfusion in the many millions of patients who have received transfusions. Although viraemia can occur in patients with Creutzfeldt-Jakob disease, current criteria for selecting donors in the blood transfusion service ensure that demented subjects and (since 1986) people who have received pituitary extracts are excluded from donating blood as preventive measures. The differences between intracerebral inoculation of laboratory animals and transfusion of human blood must be clearly borne in mind, while maintaining awareness of the potential hazards of blood transfusion.

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1 Buchanan CR, Preece MA, Milner RDG. Mortality, neoplasia, and Creutzfeldt-Jakob disease in patients treated with human

- pituitary growth hormone in the United Kingdom. *BMJ* 1991;302:824-8. (6 April.)
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Pituitary growth hormone and Creutzfeldt-Jakob disease

SIR,—Dr C R Buchanan and colleagues report six cases of Creutzfeldt-Jakob disease, verified neuropathologically, in patients treated with human pituitary growth hormone in the United Kingdom.¹ They comment that "All presented with clinical features typical of spongiform encephalopathy after pituitary hormone treatment: rapidly progressive cerebellar dysfunction, ataxia as an early feature (with or without myoclonus), followed by dementia and death within 12 months of onset."

In Brazil we have identified Creutzfeldt-Jakob disease in a patient who received human pituitary growth hormone for hypopituitarism between 1968 and 1977. The clinical diagnosis was made according to the criteria of Masters *et al.*² Dementia, characterised by loss of memory, psychotic behaviour, and visual hallucinations, preceded the appearance of cerebellar ataxia. The patient had severe progressive dementia associated with a progressive cerebellar syndrome and, later, myoclonus and mutism. He died 33 months after the onset of symptoms; necropsy was not performed.

Although neuropathological verification was not possible, the clinical diagnosis was confirmed by the detection of abnormal proteins in the cerebrospinal fluid. Cerebrospinal fluid submitted to two dimensional polyacrylamide gel electrophoresis³ showed two abnormal 30 kilodalton proteins characteristic of Creutzfeldt-Jakob disease.^{4,5} The patient had never had any operations. Like the patients reported on by Dr Buchanan and colleagues, he had received pituitary growth hormone prepared before column chromatography was introduced into the purification methods. He had been given growth hormone extracted and purified by Raben, in the United States. The batches of hormone and origin of the pituitaries could not be determined.

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Chemoprophylaxis for *Haemophilus influenzae* type b

SIR,—The editorial by Dr Keith A V Cartwright and colleagues was an important reminder of the increasing incidence of invasive *Haemophilus influenzae* type b disease, and the need for chemoprophylaxis.¹ The authors recommend that all index cases should receive prophylaxis before discharge from hospital to prevent secondary episodes. In view of the reports of second infections despite rifampicin prophylaxis,² would it not be logical also to treat the household, regardless of whether there is a sibling under 3 years, to prevent reinfection of the index case by his or her family?

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- Cartwright KAV, Begg NT, Hull D. Chemoprophylaxis for *Haemophilus influenzae* type b. *BMJ* 1991;302:546-7. (9 March.)
- Cates KL, Krause PJ, Murphy TV, Stutman MR, Granoff DM. Second episodes of *Haemophilus influenzae* type b disease following rifampicin prophylaxis of the index patients. *Pediatr Infect Dis J* 1987;6:512-5.

SIR,—As stated by Dr Keith A V Cartwright and colleagues,¹ information on secondary cases of *Haemophilus influenzae* type b disease mostly comes from America and suggests that the increased risk in young household contacts is high enough to merit prophylaxis. We are, however, concerned with the age limit of 3 years that the authors set.

The overall risk of meningitis due to *H influenzae* in household contacts under 4 years is about 2·1%.² The estimated risk of a secondary case occurring within 30 days decreases with age and has been estimated at 1·4% for children aged 2 and 3 years and 0·06% for children aged 4 and 5 years.³

In a recent Scandinavian study meningitis and septicaemia due to *H influenzae* occurred at a rate of 86/100 000 in those aged 12-17 months, 51/100 000 in those aged 18-23 months, and 37/100 000 in those aged 2 years, decreasing to 23/100 000 in those aged 3-4 and 24/100 000 in those aged 4-5.⁴ In our own district we have seen 22 cases of invasive *H influenzae* type b disease in the past two years; 18 were in children aged 5 years or less, of whom 15 were under 3.

The number of cases in children aged between 3 and 5 is small but should not be neglected. It is debatable whether chemoprophylaxis decreases the rate of secondary attack, but it seems illogical to limit prevention to only a proportion of the population believed to be at risk. The total number in any district requiring prophylaxis against this preventable disease in a year is small. Savings accrued from limiting it to the under 3s are minimal. We suggest that the age limit should be 4 or 5 years.

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- Peltola H, Rod TD, Jonsdottir K, *et al.* Life threatening *Haemophilus influenzae* infections in Scandinavia: a five-country analysis of the incidence and the main clinical and bacteriological characteristics. *Rev Infect Dis* 1990;12:708-15.

AUTHORS' REPLY,—Dr Heyderman suggests offering rifampicin prophylaxis to all household contacts of primary cases of *Haemophilus influenzae* type b disease to prevent second episodes occurring in the index case. No prospective data exist on the

incidence of second episodes of the disease in a patient, but it is believed to be a rare event. No cases have been reported to the PHLS Communicable Disease Surveillance Centre in the past three years.

Second attacks of the disease may occur through three different mechanisms—namely, recrudescence, relapse, or recurrence.¹ Only recurrent disease is potentially preventable by administration of chemoprophylaxis to household contacts.

Rifampicin prophylaxis is known to be imperfect in eliminating *H influenzae* type b from the nasopharynx,^{2,3} and even if it were completely efficient there remains the possibility that household members, including the index case, may acquire strains from outside the family group after a course of prophylaxis. Many young children lead active social lives and the risk of further acquisitions of *H influenzae* type b cannot be eliminated by the use of chemotherapy alone.

We agree with Drs Richards and Williams that the attack rate for primary *H influenzae* type b disease in Scandinavian children aged 3 and 4 years was appreciably higher than the rate in 5 year olds. However, Peltola *et al* give no data on attack rates for secondary disease.⁴ American reports suggest that the rate of secondary disease drops faster with increasing age than the rate of primary disease, and we estimate that about 10% of all secondary cases occur in children aged 3 years or more.

Rifampicin is now widely used as prophylaxis against both meningococcal and *H influenzae* type b disease. Potential disadvantages of more widespread use include side effects in individual recipients and the emergence of resistant strains.⁵ Both proposed amendments to the recommendations would greatly increase the number of family groups being given prophylaxis.

The need for prophylaxis will decline dramatically with the national introduction in 1992 of the *H influenzae* type b conjugate vaccines now under trial in the Oxford region and in Gloucester. In the interim we suggest that parents of children who experience an attack of *H influenzae* type b disease should be reminded that second attacks may occasionally occur, even after an interval of months. After the introduction of the vaccines it will be important to ensure that those infants who have not received vaccine and who experience an attack of the disease are offered vaccine during their convalescence.

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Unintended pregnancies and contraceptive use

SIR,—Dr C B Everett,¹ commenting on Ms Anne Fleissig's paper on unintended pregnancies and use of contraception,² postulates that increasing