handle than "home brew" for fine-bore enteral feeding, Mr Keighley and others do not give enough information to substantiate their suggestion that pathogens are the major source of diarrhoea in his "home brew" group.

There is good evidence that diarrhoea in the malnourished is often the result of malabsorption secondary to atrophy of the bowel itself rather than the osmolality of the feed or its contamination by pathogens. (See Keys¹ for an excellent review of the subject of starvation diarrhoea in Western Europe at the end of the second world war.) One of the major factors in maintaining the mass and functional integrity of the bowel is its continued use to absorb food. This was demonstrated by Levine,² who fed the same diet to two groups of rats, one enterally and the other parenterally. After a week the parenterally fed group had suffered a relative loss of 28% of the mucosal mass, 62% of the maltase and sucrase activity, and 44% of the lactase activity in the small bowel. On the basis of this evidence, it is hardly surprising that starved patients often react to enteral feeding by producing malabsorption diarrhoea.

Mr Keighley and others draw their conclusions from the behaviour of a mixed group of patients, who were orally starved, either relatively or absolutely for an unspecified length of time, and, although pathogens may be involved, the conclusion that they were responsible for the diarrhoea in four patients is thus invalid.

T J ARCHER

University Surgical Unit,
Southampton General Hospital,
Southampton SO1 6HU

¹ Keys A, Brožek J, Henschel A, et al. *The biology of human starvation*. Minneapolis: University of Minnesota Press, 1950.

² Levine GM, Deren JJ, Steiger E, et al. *Gastroenterology* 1974;67:975-82.

Twenty-one years of beating beta-lactamases

SIR,—Augmentin (clavulamate-potentiated amoxycillin) is clearly a major development in the biological war between antibiotics and bacteria. The commercial exploitation of this "breakthrough" worries me, and is the reason for this letter. In the *BMJ* of 6 February there is a five-page advertisement about Augmentin, and a glowing editorial from the professor of microbiology at Nottingham (p 369). The scene is set for the Beecham representatives to flourish the *BMJ* editorial as a mark of approval when trying to induce general practitioners to prescribe the new antibiotic. Such a pattern would be familiar to anyone who has experience of modern salesmanship.

There is a wide gulf between bacteria in Professor F W O'Grady's laboratory and members of the public in a general practitioner's consulting room. He is primarily writing about bacterial susceptibility; we are concerned with treating patients; and there is room for a lot of error between those two areas.

How often does a patient with a sore throat or a productive cough or dysuria or a skin rash have the appropriate bacteriological tests done, and the results obtained 48 hours later, before an antibiotic is prescribed? I know the answer is "Seldom." How many patients with any of the aforementioned symptoms do have bacteriologically proved infection when the correct tests are done—all, most, or less than half? Few would disagree that the last is the answer.

Bacteria survive partly by developing resis-

tance to antibiotics. I was taught that one factor which encourages such resistance is the indiscriminate use of antibiotics, and I believe it. I have worked for two years in a country where the Department of Health restricted the prescribing of antibiotics by general practitioners to a small number of familiar and inexpensive but effective ones—for example, penicillin, erythromycin, tetracycline. New antibiotics could be prescribed by general practitioners if bacteriological proof was established. I did not find this a restriction; on the contrary such discipline makes for good clinical practice and sound economics, and discourages the indiscriminate use of new agents.

I am sure that I hold a minority view, but I regret that the Health Departments in this country do not adopt this policy. It would not restrict freedom to prescribe inappropriately—who, apart from the pharmaceutical industry representatives, could object to that?

Thus far I have confined myself to expressing the views of a doctor, but I also pay for the National Health Service with my income tax, and it has not escaped my notice that a course of Augmentin is about 12 times as expensive as a course of most brands of penicillin V; please may this be a consideration before we drench the community in a sea of clavulanate?

R M MILNE

Health Centre,
Kirkliston, West Lothian

Serum retinol and the inverse relationship between serum cholesterol and cancer

SIR,—Dr J D Kark and others (16 January, p 152) propose an interesting hypothesis to explain the negative association between cholesterol concentrations and cancer observed in numerous prospective studies. Their results suggest that this association is a reflection of the negative relation between serum retinol and cancer, which may well have an aetiological basis. A crucial point in the argument is the high correlation coefficient between serum retinol and cholesterol values found in both cancer cases and controls.

In another study, in New Zealand,¹ a significant positive correlation of serum retinol with low-density lipoprotein cholesterol but not with high-density lipoprotein or triglycerides was shown. The conjecture of Dr Kark and his colleagues would be strengthened if this same lipoprotein fraction—namely, low-density lipoprotein—were to be shown to be the unique source of the low mean cholesterol concentration found in future cancer cases. However, up to now this has not been shown. The cholesterol-cancer association was found in the Paris prospective study² and some observations indirectly suggested the probability that this was a secondary effect of the clinical course of cancer.

Total cholesterol and triglyceride measurements at the fourth annual examination of the

population were complemented by a semi-quantitative lipoprotein electrophoresis (cellulose acetate-CEBIA) giving the approximate relative percentages of the lipid content of α -, pre- β , and β -fractions. All data concerning 5056 men aged 47-56 are available, among whom 56 subsequently died of cancer during follow-up (mean 4.4 years). Mean lipid and lipoprotein values are given in the table. The significantly lower cholesterol concentration among cancer cases was accompanied by a significant decrease in the β -fraction but also by a highly significant decrease in the pre- β -fraction, even though the difference in triglycerides was of borderline significance. Since the lipoprotein percentages must add up to 100%, the higher mean value of the α -fraction may be considered a consequence of the nearly equal diminution of β - and pre- β -fractions.

These results suggest that very-low-density as well as low-density lipoproteins are lowered in cancer patients and thus do not fully support the mechanism surmised by Dr Kark to explain the interaction between low-density lipoprotein cholesterol and retinol.

P DUCIMETIERE
F CAMBIEN
A JACQUESON
J RICHARD

GREC, 75015 Paris, France

¹ Smith AH, Hoggard BM. *Lancet* 1981;i:1371-2.

² Cambien F, Ducimetiere P, Richard J. *Am J Epidemiol* 1980;111:388-94.

Allergy to antibacterials

SIR,—We read with interest the answer of Dr Linda Beeley in "Any questions?" (6 February, p 408) regarding "allergic" manifestations of antibacterial drugs. We feel that the statement: "The common ampicillin rash is not a sign of allergy to penicillin" is rather misleading and could lead to the belief that there are no ampicillin rashes of allergic origin.

We regularly, however, see patients with these rashes in whom a delayed-type allergy can be detected by means of epicutaneous (patch) tests with penicillin G and ampicillin.¹ Recent investigations showed that more than half of the patients with positive epicutaneous tests had a positive lymphocyte transformation test with penicillin G, ampicillin, or both (to be published). Furthermore, positive scratch, prick, or intracutaneous tests, demonstrating an immediate-type allergy, are also observed in patients with these maculopapular rashes.² In some of these cases circulating antibodies may be detected with an enzyme-linked immunosorbent assay.³ It is important to realise that a patient with delayed-type allergy may react at subsequent administration of penicillin with another type of allergy⁴ even with anaphylaxis.⁵ The high incidence of these rashes in patients who received ampicillin is probably due to the greater tendency of ampicillin than penicillin G to polymerise.⁶ Unfortunately from a clinical point of view it is

Mean ($\pm$ SD) cholesterol and triglyceride concentrations in cases of cancer and controls

	Cancer cases (n = 56)	Controls (n = 4995)	z value	p
Cholesterol (mg/100 ml)	221 $\pm$ 35	231 $\pm$ 40	-2.12	0.04
Triglycerides (log mg/100 ml)	2.020 $\pm$ 0.197	2.069 $\pm$ 0.219	-1.85	0.07
α (%)	33.3 $\pm$ 10.5	27.8 $\pm$ 8.6	3.91	0.0001
pre- β (%)	4.5 $\pm$ 5.6	7.3 $\pm$ 7.8	-3.70	0.001
β (%)	62.2 $\pm$ 9.1	64.9 $\pm$ 8.9	-2.21	0.03

Conversion: Traditional to SI units—Cholesterol: 1 mg/100 ml $\approx$ 0.0259 mmol/l. Triglycerides: 1 mg/100 ml $\approx$ 0.0113 mmol/l.

impossible to make a distinction if an exanthema due to β -lactam compounds is mediated by a "toxic" or an immunological mechanism. Therefore, once a rash occurs the best policy is to perform epicutaneous and intracutaneous tests for penicillin allergy, before subsequent administration of ampicillin or related drugs. In this way unexpected, unpleasant reactions may be avoided.

W G VAN KETEL
P DE HAAN
D P BRUYNZEEL

Department of Dermatology,
Free University Hospital,
1081 HV Amsterdam

- ¹ van Ketel WG. *Contact Dermatitis* 1975;1:253-4.
² Chandra RK, Joglekar SA, Tomas E. *Arch Dis Child* 1980;55:857-60.
³ de Haan P, Boersma DM, Kalsbeek GL. *Allergy* 1979;34:111-9.
⁴ Fellner MJ. *Int J Dermatol* 1976;15:497-504.
⁵ Idsee O, Guthe T, Willcox RR, de Weck AL. *Bull WHO* 1968;38:159-88.
⁶ Bungaard H. *Acta Pharm Suec* 1977;44:67-80.

Peterborough Hospital at Home Scheme

SIR,—The Peterborough Hospital at Home Scheme (27 February, p 641) clearly demonstrates a long overdue need for a domiciliary alternative to hospital admission under the NHS. Its enthusiastic reception by patients and their families, consultants, general practitioners, nurses, and other health workers over a testing period of three years confirms its validity in human terms. Cost considerations, however, cannot be ignored. If a hospital at home service is to become an established Health Service facility it must also demonstrate that it makes economic sense. The high running costs of the Peterborough scheme compared with similar facilities in France which inspired it can be accounted for in several ways.

(1) French schemes have to operate within an annual budget (under 50%, usually 40%, of the average daily cost per patient of maintaining an acute hospital bed in the particular area of the scheme's operation). An agreement to this effect has to be signed annually between the hospital authority responsible for each separate scheme and the statutory insurance body in the area which finances it. Failure to operate below the 50% level may result in the closure of a scheme.

(2) French hospital services are empowered to extend their facilities to patients in their own homes and to continue treatment under the clinical responsibility of their own doctors provided both patient and family agree (Hospital Law Reform, Article 4(6), 31.12.70). This enables planning and organisation of the kind necessary to regulate and monitor expensive services of "secondary" care within a traditional "primary" care setting.

(3) In order to preserve the full "hospital alternative" identity of French hospital at home schemes (which now number around 25), prior hospitalisation of patients referred for admission is required—even if this is only for a nominal 24 hours. This means that preliminary investigations by hospital at home personnel, to ensure cases meet criteria for admission, take place while patients are secure in their hospital beds. There is thus less danger of families being inadvertently pressurised into arrangements with which they may not be in full accord than if the patient was already at home and unaware that a hospital admission was available. Families and friends of already hospitalised patients thus tend to contribute willingly more in time and resources in order to make home care feasible than do those who may nurse some hidden resentment that hospital admission has not taken place. The only scheme which does not require prior hospitalisation in France is Santé-Service Bayonne in the Basque Country, where hospital facilities are sparse and often geographically inaccessible. It took three years of difficult negotiation

between Santé-Service and its financing body before a formula was agreed which enabled a both effective and economically viable scheme.

(4) According to the French experience, the optimum size of a hospital at home unit is one which caters for between 50 and 70 patients at a time. Below this number the scheme is incapable of economic operation and above it begins to lose its capacity for sensitive response to the needs of individual patients. The average number of patients at any one time in the Peterborough scheme has been 7-42.

(5) For the Peterborough experiment, Cambridgeshire Area Health Authority had to choose between a hospital-based service—unacceptable to GPs and their practice-attached nurses—and a service exclusively under a community nursing administration, which by definition had no authority over paramedical and other hospital-located resources. Inevitably it chose the latter, which meant that the use of the scheme was firmly in the hands of independently-contracted GPs, which is different from the essential requirement of GPs having clinical responsibility for their patients admitted to the scheme. Administrative control exercised by the health authority was therefore in the main confined to nursing functions, usually through practice-attached nurses. Difficulties in resource control, and hence economic planning, are inherent in this arrangement.

(6) Lack of direct health authority control over the activities of social workers in the scheme presents difficulties in the co-ordination of their work with that of other hospital at home personnel.

The success of the Peterborough scheme results from the determination of doctors, nurses, and administrative workers on the spot to see a scheme which right from the start demonstrated its humane potential become a permanent part of health facilities in the area. Without their dedication it would almost certainly have failed. It would be a tragedy if traditional divisions between hospital and community, in my view a significant factor in the high running costs of the scheme, were to prevent its growth to an economically viable size and its emulation throughout all health districts, under administrative arrangements commensurate with the needs of secondary care planning.

FREDA CLARKE

Barnet, Herts

Raised respiratory rate in elderly patients: a valuable physical sign

SIR,—I would like to congratulate Mr J P McFadden and others on their excellent paper concerning raised respiratory rate in the elderly (27 February, p 626). It is always refreshing in these days of high technology medicine to read a paper which emphasises the usefulness of basic nursing observations.

It was disappointing to read that they had noted wide discrepancies between their own recordings of patients' respiratory rates and those of the nursing staff. This must reflect the persisting indifference of clinicians who rarely note or act on respiratory rate recordings.

I am fortunate to work in an intensive care unit where the nurses are most conscientious about recording respiratory rates. The reason for this is that the medical staff are constantly seen to be making use of these data in assessing patients' progress and determining the need for respiratory support.

In my opinion "routine" respiratory rate charting by nurses should be abandoned. Doctors should only request respiratory rate observations from the nurses if they can explain to the nurses why these observations will be of value. The doctor making the

request should be prepared to specify an upper and lower limit for the rate beyond which he is to be called at any time of day or night. He should also make a point of letting the nurses see that he has noted their observations. If these recommendations are met I am sure that a dramatic improvement in the reliability of nursing respiratory rate observations will ensue.

W H KONARZEWSKI

Anaesthetic Department,
Hammersmith Hospital,
London W12 0HS

Do appointment systems work?

SIR,—The comprehensive article on appointment systems in general practice (13 February, p 478) does not elaborate on the value of running a dual system. In this three-doctor practice we each hold an open surgery (that is, no appointment necessary) every morning and we use an appointment system for afternoon and evening clinics. Thus a patient can consult the doctor of his choice on any morning and patients unable to make an appointment owing to lack of a telephone or other reasons can consult their doctor without formality.

In practice we have found that this system works very well for both doctors and patients and I am surprised that a mixture of open surgeries and appointment systems is not more widely used. Needless to say, urgent cases which present during the afternoon or evening must be seen. Group practices could arrange for each doctor to do an open surgery at different times of the day, to whom patients presenting urgently could be directed by the receptionist.

DECLAN MURPHY

John Street Medical Centre,
Kilkenny, Ireland.

Women in general practice

SIR,—I have been interested in the articles and letters appearing in your pages, in constant small supply recently, relating to medical work—both regarding training and practice—for doctors with domestic commitments. Having been such a doctor for about 30 years and taken part in much discussion and planning over their problems, I am naturally interested in current activities.

Apparently difficulties still exist—for example, with partial or total temporary withdrawal from medical work, re-education, part-time training, and the obtaining of suitable posts. There are, however, considerable sources of help such as the "retainer" scheme and modification of training programmes in nearly all disciplines to enable part-time training to be undertaken. Post-graduate deans, advisers to women doctors, and advice through the Medical Women's Federation and the British Medical Association are accessible in a widespread network.

The obtaining of suitable employment poses considerable difficulty. In my opinion the main trouble is the relative immobility of the woman doctor with a husband and family, where the progressive training posts and promotion of careers may be incompatible. One partner's professional prospects may have to be preferred to those of the other, when posts necessitate change of residence. In the social setting of our country the common pattern is for the permanently full-time com-