available to fund the National Health Service, and a similar one to dispel that perpetuated by your previous nine anonymous correspondents that the application of cash limits to NHS funding necessarily means that there would be a reduction in the service to the patient.

As the demand for health care is infinite, it is likely that even if the whole of the gross national product was available to fund the NHS there would still be a demand for more finance. Similar problems relate to the manpower situation. As the largest employer in the country, the NHS ought to be able to provide a reasonable service; yet the clamour for more staff continues. It should be remembered that wages and salaries form the major part of NHS expenditure, and that the capacity of the community to provide more people to work in the NHS must soon reach its limit.

Dr Marsh has chipped away at the edges of the major user of NHS resources, the hospital service; but we need to do more than this. A radical reappraisal of the way in which hospital services are organised and funded is necessary. We must go back to square one, define the objectives of the hospital service, and see how these can best be provided with the resources available. The present trend of making expensive structural alterations to outdated buildings and plant must cease (the knobs on knobs syndrome). Sad as it may seem, this will mean the closure of hospitals well loved by local communities. The cost of maintaining them is often more than building anew.

The potential for saving in the hospital service is enormous. It does not relate only to the drug bill. Expenditure on energy, telephones, transport, and a host of others can be reduced; but it is all too easy to point an accusing finger at someone else's department when reductions are called for. As Dr Marsh points out, in general practice there is a very real incentive to economise; in the hospital service money saved is available for other uses.

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SIR,—Several of the recommendations in Dr G N Marsh's article (3 May, p 1140) already apply in my practice. I provide most of the medical care of my patients myself.

This means that I am fully occupied by giving general practice care to approximately 2200 patients (my share of the practice list). I am unable to delegate more of my work, because my work needs to be done by a person with the aptitudes and training (and salary aspirations) of a doctor. I cannot imagine any way of caring for 3000 patients.

It is clear from Dr Marsh's published work that he is something exceptional. Perhaps a way of economising in general practice in the National Health Service would be to clone some of his cells to produce 15 000 replacements for the next generation. I believe that I am a more average general practitioner, and I know that I shall be forced to change my employment at least 10 years before the usual retirement age because I shall not sustain the work load generated by my present number of patients.

I agree with Dr Marsh that medication is not necessary for minor self-limiting illness. I believe that my patients are typical patients

and, unlike Dr Marsh, I cannot educate them to know clearly what is a minor self-limiting illness. Last week a mother's failure to understand the difference between a cold and earache led to her daughter's admission to hospital with mastoiditis from my practice.

Our work load, as measured by number of patients looked after, should fall if the "caring general practitioners" whom Dr Marsh describes are not to be overloaded. If the number of patients rises as he recommends they will go to casualty to demand attention.

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SIR,—The consultant paediatrician in your series "If I was forced to cut" (15 December, p 1570) thought that the number of junior doctors could be reduced. I heartily agree with him but for vastly different reasons.

As a radical medical student I was convinced that as regards the medical profession the NHS was greatly undermined. This view was confirmed during my houseman's year, when I worked very long hours flaunting my newly acquired skills. As an SHO (in paediatrics), however, an embryo of dissent appeared; but such thoughts were suppressed by sleep deprivation. Since October 1979 I have been one of two doctors looking after a 120-bed hospital in Tanzania. We are greatly aided by two "medical assistants" and once every 10 weeks get a visit from the flying doctor service. One soon learns about priorities and it was not long before—*eureka*—there seemed not too few doctors in the NHS but too many. How else does one explain a system which demands five years' training so that one may be able to take blood, put up drips, sew up minor cuts and episiotomies, and give intravenous injections? This ensures that the junior doctor is disturbed on at least two or three occasions the night he is on call, which gives him the satisfied feeling that he is overworked and underpaid. This iniquitous situation is encouraged by the hierarchy of the medical and nursing professions.

In most cases the junior doctor is over-trained for the work he does. I am not suggesting that we adopt a system employing lesser trained staff (for example, medical assistants, as in Tanzania) for I do not believe the British public would accept this—many people are no longer content with their GP and demand a specialist opinion. I would advocate, though, removing the trivia from a junior doctor's schedule and asking the nursing profession to pull its weight and regain some of its respect. If this were achieved the doctor could get on with the real business of tending the sick.

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Long-term care of patients with major illness

SIR,—Dr I S L Loudon (26 April, p 1118) will find many hospital doctors who agree with him that the long-term care of patients who have been admitted to hospital for major illness should be in the hands of the general practitioner. In my own practice this has been the case for several years. Apart from the fact that it is more convenient for the patient and

more economic of transport, it would not be possible, with our staff and the time and space available in the surgical outpatient department, to see all such patients. By referring most back to the care of their practitioner, which in this area (from which Dr Loudon writes) is done with no little confidence, we have more time available for those who particularly need hospital follow-up.

It is the practice in this as in other areas for medical and surgical consultants to conduct outpatient clinics in peripheral hospitals and health centres—for example, seven different centres are visited by general surgeons from the John Radcliffe Hospital and seven by general physicians, quite apart from the orthopaedic, ENT, rheumatology, and other specialist clinics which are held. The purpose of these visits is threefold: to see urgent new patients before a hospital appointment is available; to ease the follow-up of the young, the old, and the unwell; and to ensure regular contact between specialist and practitioner. The last should answer the plea in Dr Loudon's ultimate paragraph.

With increasing hospital specialisation the referral of patients by general practitioners is to more and different outpatient departments than in the past and this may contribute to the "reality so far as long-term care is concerned" as Dr Loudon sees it. Two suggestions come to mind to help improve this unnecessarily gloomy account, so far as this area is concerned: firstly, fuller use of the existing resources available at the peripheral hospitals and health centres; and, secondly, a means (perhaps by recorded telephone message) by which hospital staff might at any time transmit without delay to the practitioner's surgery or health centre up-to-date information, particularly that referring to the patient's discharge from hospital and the necessary follow-up requirements.

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Epidemiology and clinical practice

SIR,—I read with interest the letter by Professor E D Acheson and colleagues (26 April, p 1122). I think there is no doubt that epidemiology adds a dimension to clinical methods and can often be employed in the sort of situation general practitioners encounter.

Among its great uses are to survey populations at risk and to define risk factors and disease entities which would otherwise not be obvious when the size of these problems is unknown. I think it is worth saying that these problems are not always appreciated in general practice, but if good epidemiology methods are used they can be quantified.

There are, of course, great opportunities for epidemiological research in general practice and we are perhaps unique in having a fairly well defined population under our care. This means that a clinician can look at the whole group of patients and be informed on the clinical aspects of disease in a fuller manner than observers of a bigger population can do. These patients are actually under his care and remain under surveillance for many years. The situation, I am sure, does not hold in the rest of the continent of Europe, or in the United States, where it is very difficult for

clinicians to examine patients who may be under the care of other doctors.

There is an additional point which I would like to bring forward. The loss of the medical officer of health was a great one. There is no doubt that he could be very helpful to general practitioners, and that general practitioners with an epidemiological background could often alert him to what was going on in their area and allow controlled measures to be applied.

I would like to support the study of epidemiology in clinical practice as a very useful activity.

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Measles again

SIR,—Dr Hillas Smith (15 March, p 766) believes that the current level of measles vaccination in the UK will result in an increasing incidence of measles in older age groups and this is certainly possible. He quotes as one reason for this the American experience of "loss of vaccine-induced immunity in the group aged over 15," but there is no evidence that this is happening here. The Medical Research Council trial of further attenuated (Schwartz strain) live measles vaccine given to children aged 10 months to 2 years¹ has now completed 15 years of follow-up and the attack rate in the vaccinated group shows no signs of a loss of immunity (see accompanying figure). This was confirmed by estimations of

Medical Research Council investigation of measles vaccines: annual attack rate in children 1964-79.

measles antibody (by haemagglutination inhibition) 10 and 15 years after vaccination. It seems unlikely on this evidence that there will be a sudden loss of vaccine-induced immunity after 15 years. Measles is more likely to occur in adults who have neither been vaccinated nor contracted measles, and in the small proportion in whom vaccine has failed (4-8%).^{1,2}

The UK policy of measles vaccination since May 1968 (set out in CMO 1/68) has been to give one injection of live attenuated measles vaccine in the second year of life. Killed vaccine followed by live vaccine was used in the UK only for comparatively small numbers in trials up to June 1968, and multiple doses of killed vaccine have never been used. The American experience of measles following these vaccine combinations is therefore unlikely to be duplicated here.

Measles vaccine was introduced because of the risk of severe complications of measles.³ These have not changed⁴ and encephalitis, the

most serious, can follow an unremarkable attack of measles at any age. If the policy of selective immunisation were to be adopted, both the incidence of measles—and inevitably the complications—would increase again. Immunisation of "groups at risk" is notoriously difficult both for the decision as to who is at risk and because of the problem of how to reach them.

A more realistic approach to this problem would be to improve on the vaccination acceptance of 50% in the second year of life by offering vaccine at school entry to those who have had neither measles nor vaccine by that age. In the United States this policy has effectively reduced the incidence of measles in school-aged children in the States where it is enforced.⁵

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- ¹ Measles Vaccines Committee. *Br Med J* 1966;i:441-6.
- ² Measles Vaccines Committee. *Br Med J* 1965;i:857-60.
- ³ Miller DL. *Br Med J* 1964;ii:75-8.
- ⁴ Miller CL. *Br Med J* 1978;i:1253.
- ⁵ Orenstein WA, et al. *J Infect Dis* 1978;137:847-53.

SIR,—I see that Professor George Dick (10 May, p 1186) has been blandly asserting that measles is becoming a trivial disease in civilised communities.

We have had two cases of febrile convulsions in children under the age of 3 in the prodromal phase of measles infection in the last month. Both children were admitted to hospital, thereby infecting the entire ward, before the Koplik's spots appeared. Both developed severe otitis media.

From the standpoint of the GP, I believe that measles vaccination should be wholeheartedly encouraged in small children. I see no evidence of a decline in the virulence of this virus.

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Prophylaxis of surgical wound sepsis

SIR,—In your recent leading article on prophylaxis of surgical wound infection (19 April, p 1063) you correctly imply that antibiotic prophylaxis should be in addition to and not an alternative to meticulous surgical technique, and that the choice of the antibiotic used should be determined by the organisms likely to be encountered at operation and also on the prevailing hospital bacteriological sensitivity.

However, your comment that "we still do not know how many doses of antibiotic should be given" is rather misleading. As long ago as 1961 Burke¹ demonstrated in animal studies that antibiotics were only effective in dealing with bacterial contamination for three hours following an operation—in other words, over the immediate postoperative period. That this work is relevant to the clinical situation has clearly been demonstrated in several clinical trials. Short courses of preoperative prophylactic antibiotics given either systemically or intracutaneously have been shown to reduce wound sepsis after general²⁻⁵ and orthopaedic⁶ operations and given systemically to reduce chest infection following cardiac operations.⁷

Furthermore, whenever a short course has been compared to a long course of antibiotics no advantage has been shown for the latter.^{8,9}

The use of prophylactic antibiotics for longer than the preoperative period in either one or two doses given systemically, or given intracutaneously at the end of the operation, is therefore unnecessary in terms of efficacy and expense and will lead to a greater incidence of antibiotic toxicity problems and of emergence of resistant organisms. Finally, it should be emphasised that this type of short course is not appropriate when antibiotics are used therapeutically to treat an established infection.

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- ¹ Burke JF. *Surgery* 1961;50:161-8.
- ² Galland RB, Saunders JH, Mosley JG, et al. *Lancet* 1977;ii:1043-5.
- ³ Griffiths DA, Shorey BA, Simpson RA, et al. *Lancet* 1976;ii:325-8.
- ⁴ Stokes EJ, Waterworth PM, Franks V, et al. *Br J Surg* 1974;61:739-42.
- ⁵ Pollock AV, Evans M. *J Antimicrob Chemother* 1975;1, suppl:71-83.
- ⁶ Pollard JP, Hughes SPF, Scott JE, et al. *Br Med J* 1979;ii:707-9.
- ⁷ Galland RB, Shama DM, Prenger KB, et al. *Br J Surg* 1980;67:97-8.
- ⁸ Conte JE Jr, Cohen SR, Roe BB. *Ann Intern Med* 1972;76:943-9.
- ⁹ Strachan CJL, Black J, Powis SJA, et al. *Br Med J* 1977;i:1254-6.

Outbreak of infection in a urological ward

SIR,—We were very interested to read the article about an outbreak of *Acinetobacter* infection in a urological ward (8 March, p 722). We are also isolating this organism.

Acinetobacter calcoaceticus was first isolated from both male and female patients in the urological ward. Since then, with the transfer of these patients to different wards, we have isolated it from patients in the intensive therapy unit and a general surgical and a general medical ward. In only two of these patients has the organism been isolated from blood. Our environmental screening has been unhelpful and the *Acinetobacter calcoaceticus* returned to the intensive therapy unit despite closing, cleaning, and redecorating the unit. It was not isolated from the environment prior to closing or before reopening the unit. None of the new patients was colonised on admission.

This organism rarely causes clinical infection, but the pattern of multiple antibiotic resistance can make treatment very difficult. How can we best prevent its spread throughout the hospital?

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Preventing infection in clinical laboratories

SIR,—The contribution by Sir James Howie and Mr C H Collins about the Howie code of practice for preventing infection in clinical laboratories (19 April, p 1071) is both timely and welcome.

If clinical laboratories in the United Kingdom had been constructed to a standard design, no doubt the task of the working party would have been more straightforward; the fact is they have not. In general, clinical