constituents in the two groups was in exact proportion to the machine-smoked yields of the two types of product. This means that any long-term benefits from switching to a low-tar cigarette are better than the hitherto published short-term switching studies would suggest—provided that any dose-response relationship between “disease” and “tar” intake regresses toward zero, and cigarette consumption does not increase.

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¹ Rawbone, R G, *et al*, in *Smoking Behaviour: Physiological and Psychological Influences*, ed R E Thornton. Edinburgh, Churchill Livingstone, 1978.

² Freedman, S, and Fletcher, C M, *British Medical Journal*, 1976, 1, 1427.

³ Rawbone, R G, *British Medical Journal*, 1976, 2, 177.

Alcohol-dependent doctors

SIR,—The high susceptibility of doctors to alcoholism (leading article, 11 August, p 351) is reflected in the findings of a fairly steady percentage of 2-4% of doctors among male alcoholic admissions to the alcoholic units at Warlingham Park Hospital and St Bernard's Hospital over a 25-year period (1952-77).^{1,2}

Unfortunately, as you say in your editorial, most alcoholic doctors present late for treatment and usually only under considerable pressure from their families, their medical partners, etc. Yet when treated in a therapeutic community they more often than not prove very co-operative patients, participating actively in treatment, taking a leading role in helping fellow patients, and showing an active interest in follow-up activities; they only rarely discharge themselves prematurely against advice, and their prognosis is by no means bad.^{1,2} One of the most hopeful developments in this field in this country (as in the USA) has been the formation, over five years ago, of the British Doctors Group for recovering alcoholics.

A questionnaire survey recently undertaken by members of the group elicited 59 replies (50%) from 120 doctors to whom the questionnaire had been mailed.³ The replies indicated that, out of 56 returning fully completed questionnaires, 37 doctors had been “sober” (that is, fully abstaining from alcohol and psychotropic drugs) for a mean period of 4.1 (range 1-26) years. Of these 37 doctors, 28 (76%) stated that they had in the past tried, unsuccessfully, to control their drinking. Thirty-one (84%) had received inpatient treatment at some stage, 20 (54%) of them in an alcoholism treatment unit. With two exceptions among the 37 doctors, the great majority regularly attended either Alcoholics Anonymous meetings or local after-care facilities, or both.

In theory there is no reason why prognosis in the case of alcoholic doctors should not be reasonably good, once they can be motivated to face up to their problems. Prognosis in alcoholism depends mainly on emotional and social stability of the personality; the majority of medical men surely have a relatively stable personality, and it is probably largely environmental rather than emotional factors which are responsible for the majority of cases of alcoholism among medical men. Continual excessive emotional and physical demands, frustrations, the need to relax after working hours, etc. may prompt many doctors to rely more and more on the familiar comfort of their student days.¹ Education about alcohol problems is the more important for medical students for many of whom unfortunately medical schools often appear to be “excellent training grounds for the drinking habit.”⁴ But in general doctors have been taught so little about the early stages of alcoholism that many still do not suspect the condition until they are confronted with its physical complications; and quite a few alcoholic doctors tell one that they had felt they could not possibly be alcoholics because, after all, they were

not spending most of their days dead drunk in the gutter.

The outcome of the still-prevailing laissez-faire attitude to education and the early diagnosis and treatment of alcoholic doctors will be many more avoidable cases of dead doctors and perhaps also dead patients. Alcoholism is, or should be, to a large extent a preventable disorder particularly among doctors. From our own experiences in the teaching of medical students about the early stage of alcoholism over the past 20 years, it would seem that such teaching should present no difficulties and that students quickly begin to take an interest in this increasing socio-medical problem and its victims.

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¹ Glatt, M M, *British Medical Journal*, 1977, 1, 507.

² Glatt, M M, *Lancet*, 1974, 2, 342.

³ British Doctors' Group, 1979, personal communication.

⁴ Fox, R A, *Lancet*, 1978, 2, 731.

Tetraplegia caused by gymnastics

SIR,—Within a period of a month two teenage girls have been admitted under my care with fracture dislocations of the cervical spine resulting in tetraplegia. Both injuries had been caused while the girls were participating in gymnastics. The first, aged 13, suffered her neck injury while trampolining; and the second, aged 14, while practising asymmetrical bar exercises to take part in first-class competition.

These are otherwise rare injuries and I wonder whether these tragic accidents are chance occurrences or the first of a trend brought about by the great interest taken in gymnastics by young girls at present. I would be interested to know if any of your readers have had similar experiences.

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Nutritional standards and saving money on school meals

SIR,—There is much current discussion on the possibility of saving public money from the education budget by changes in school meals and questions have been raised about lowering the nutritional standards. One suggestion is that savings may result from altering the type of meal from the traditional “meat-and-two-veg” to sandwiches and soup. In measuring any change in nutritional content one question is whether we are using the standards laid down by the Department of Education and Science or comparing the meals with what is currently being supplied to the children.

Nutritional guidelines state that children in each age group should be served with a minimum of one-third of their recommended daily intake of energy and 42% (between one-third and a half) of their recommended daily intake of protein.¹ This would result in the targets shown in table I. However, a thorough examination of 12 schools in one area² showed that this target was almost never reached (table I). For the younger children, presumably those at greatest risk, the amount of food supplied (energy) reached only two-thirds

TABLE I—Nutritional targets and achievements in school meals²

Type of school	Energy		Protein	
	Target (MJ*)	Achievement (%)	Target (g)	Achievement (%)
Infant	2.5	65	19	76
Infant and Junior	2.9	76	22	77
Junior	3.1	70	23	74
Middle	3.6	86	27	81
Senior	3.7	95	28	86

*1 MJ ≈ 239 kcal.

of that recommended—and this without taking into consideration any left on the plate.

Similar figures were obtained in an earlier cross-sectional survey of 48 schools.³ This used the guidelines suggested at that time, which were not very different from current recommendations, although not stated so precisely and therefore open to various interpretations by the caterers in charge of menu planning and purchasing.

These figures showed that 63-75% of the energy target and 55-61% of the protein target were achieved in various age groups. Another survey⁴ showed similar shortfalls. These meals were very varied in composition but basically of the traditional pattern of meat with two vegetables or fish and chips or salads, followed by puddings of various types (often rich in sugar).

Now the problem arises when we consider whether snack meals or sandwiches will result in a reduction of energy and nutrients supplied. Do we use the recommended guidelines or the amounts that are in practice being supplied (at least in three areas)?

Soups and sandwiches can be of many types, depending on the skill of the mother or caterer who is supplying them; but for the purposes of comparison we could take a lentil soup as analysed in the standard food tables⁵ and cheese and bread (amounts would obviously vary with thickness, etc). Table II shows that this can be as good as any traditional type of meal. If sandwiches and soup are cheaper to provide, then there is no need to change nutritional guidelines.

TABLE II—Energy and protein content of soup and sandwiches

	Energy (MJ*)	Protein (g)
Two cheese sandwiches		
Bread (4 slices = 100 g)	1.0	8
Cheese (1 oz = 30 g)	0.6	8
Lentil soup (7 fl oz = 200 g)	0.8	9
Total	2.4	25

*1 MJ ≈ 239 kcal.

Guidelines are not laid down for other nutrients but should reach one third of the recommended daily intake. Our first survey³ showed that the meals offered supplied 2.3 to 4.3 mg iron and 160-200 mg calcium, and included 20-25 g sugar (one particular meal supplied 80 g of sugar (1.3 MJ; 320 kcal), or about 40% of the energy target for the entire meal). Our second survey² showed adequate supply of nutrients—38-75% of the total daily recommended intake of vitamin C, 16-30% thiamin, 24-29% iron, and 26-49% calcium. These figures were calculated and analysed figures were much lower for vitamin C.

What is often lost sight of is that individuals, including children, vary enormously in their energy needs, and while this is taken care of to some extent in some schools by offering “seconds” or different sizes of portions this is not true of all schools that we examined—in some areas second helpings were not permitted and in others the same quantity was provided whatever size was requested. In view of these differences in requirements, not to mention daily fluctuations in appetite, it is possible that a cafeteria type of service offering a choice of foods and portions may be helpful, apart from any saving in staff.

In our survey² we found in the five types of schools where a cold buffet was offered that the average food per plate provided 10-25% less than the hot meal in the same school both for energy and for protein. At that time we were considering whether or not the target was being achieved and this greater shortfall with the cold buffet indicated that it was not getting as near the target as was the hot meal. However, since children vary so much in their needs perhaps, when offered a choice, they select what they need rather than what the nutritionist thinks that, on average, they ought to have.

On this basis there might be an actual saving in the cost of food if the children were offered a choice instead of the traditional approach. Certainly sandwiches, beans on toast, and similar snacks which are usually looked down on can be as nutritious as a traditional hot meal.

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¹ Department of Education and Science, *Nutrition in Schools*, London, HMSO, 1975.

² Bender, A E, Harris, M C, and Getreuer, A, *British Medical Journal*, 1977, **1**, 757.

³ Bender, A E, Magee, P, and Nash, A H, *British Medical Journal*, 1972, **2**, 383.

⁴ Essex-Cater, A, and Robert-Sargeant, S, *Health and Social Service Journal*, 1975, **85**, 758.

⁵ Paul, A A, and Southgate, D A T, *McCance and Widdowson's The Composition of Foods*, 4th edn, p 266. London, HMSO, 1978.

Care of children in general practice

SIR,—Dr Stuart Carne's paper (21 July, p 190) is certainly an interesting account of one man's practice of child care in general practice. There are, however, some points that he raised that I would take issue with.

As I understand him, he criticises the hospital paediatric specialist for offering only episodic illness care. Yet, if I read Dr Carne correctly, by offering an illness care service on to which seems to be grafted a method of surveillance contriving to assess overall development as well as vision and hearing carried out on sick or recovering children, he seems guilty of offering just such a service, based as it is on the episodic illness care service of conventional general practice. I also concur with Dr E M Davies (18 August, p 443) in her doubts the wisdom of carrying out a surveillance examination on a sick or recovering child.

It also seems that Dr Carne is unclear about the real aims of offering a surveillance service for under-5s. Those whose hobby horse it is—and I'm proud to be numbered among them—never forget why such a service was set up in the first place in this country. In the developing world the lessons are there for all to see. When more than 80% of the under-5-year children and their parents in any country are making regular visits to the clinics of such a programme with a more than 80% immunisation rate combined with sound nutritional advice, an open-door service for illness care, and a developmental surveillance service, changes occur. The benefits are that mortality and morbidity decline, the growth of the individual child improves, and the demands on the curative services fall.

In this country today there are very few of us who can claim to have achieved these objectives. The general practitioner paediatrician as proposed in the Court Report is certainly an excellent starting point from

which to evolve such a nationwide programme. It is already a good sign that a few GPs are running such programmes and many more are actively exploring the possibility of doing so, despite the rejection of the concept by our leaders.

Finally, I would agree with the other correspondents that there is a need for further education. All three services that care for children—the community health services, the hospital services, and the general practitioner services—have a lot to learn from each other. Mutual respect is built on trust, and perhaps it is because we do not trust the quality of each other's skills that some of us believe that when consultants learn something about this aspect of medical care all will then be well: I disagree. My opinion is that we can and must all learn from each other. Then and only then can we start improving child care in this country.

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Referral of mothers and infants for intensive care

SIR,—In their excellent paper on the referral of mothers and infants for intensive care (18 August, p 414), Anthea M Blake and her colleagues seriously underestimate the extent of the antenatal referral service that would have to be provided to cause a reduction in regional perinatal mortality rates. In a region with 40 000 annual births, 120 lives would have to be saved to reduce the rate by three points. It is impossible to be sure of the outcome in a baby of a referred mother had the birth taken place in the district general hospital instead of the perinatal centre. It is fair to assume that babies who develop incipient respiratory failure would die if they were nursed in a district general hospital without facilities for mechanical ventilation. In the authors' analysis of babies of referred mothers, for each baby who required mechanical ventilation, a further two did not. Assuming an optimistic 80% survival rate for ventilated babies I calculate that the saving of 120 lives would entail the referral of at least 450 mothers annually (not allowing for multiple pregnancy). Yet the University College Hospital unit only received a quarter of this figure during a three-year period.

There is insufficient evidence that the availability of procedures other than mechanical ventilation (such as parenteral nutrition, continuous positive airways pressure, and continuous blood gas analysis) has such an ameliorating effect on perinatal mortality rates that transfer in utero is justified for all babies who might require such care. If that were so, many perinatal centres would be required for each region. We can also only speculate on the magnitude of any beneficial effect of neonatal care on the incidence of long-term handicap.

It is not difficult to predict the birth of a low-birthweight baby. It is harder to predict antenatally the occurrence of incipient respiratory failure in such a baby. Those pregnancies most likely to culminate that way are often the ones most likely to give rise to an obstetric emergency during transfer (for example, antepartum haemorrhage, severe pre-eclamptic toxæmia). It would be a retrograde step if we sacrificed maternal wellbeing in our efforts to secure neonatal health.

When comparing the neonatal mortality rate in babies of referred mothers with the national figures one should remember that the latter are likely to be over-represented by socially deprived mothers who received virtually no antenatal care. Before a system of antenatal referral widely develops I hope all the implications will be carefully debated—not the least being the effect on the education of midwives, obstetricians, and paediatricians working in district general hospitals. Surely our priorities ought to be: firstly, an improvement of neonatal staffing and facilities in district general hospitals; secondly, a network of neonatal flying squads to transfer babies with respiratory failure to a regional perinatal centre; and, thirdly, a very selective antenatal referral system for certain women in whom elective caesarian section is necessary before term and fetal lung maturation is uncertain or inadequate.

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Breast or bottle

SIR,—The recent correspondence (25 August, p 492; 8 September, p 609) in which your readers gave a first-hand account of their success or failure in breast-feeding has a number of messages for those engaged in care of the newborn.

Although claims have been made in the past that successful breast-feeding may be established by virtually every mother I doubt whether this is true in our society in 1979. On the Isle of Wight we have recently studied all infants born during a 12-month period and are attempting to relate problems in the first year of life to the mode of feeding. Approximately 1000 infants were included in the study and most of the mothers kept a diary of problems they attributed to feeding. Reading these diaries has been a salutary experience, for, although 60% of Isle of Wight mothers are breast-feeding at the end of the first week after the birth of the infant and 33% after three months, such success is not easily achieved. The health visitors recorded "inadequate lactation" as the commonest cause for abandoning breast-feeding; and, although this may sometimes be the most convenient excuse for the mother giving up something she did not really wish to do, my study of the diaries convinces me this often is the true explanation.

I suspect that the pressures and demands of modern living, even on this peaceful island, make breast-feeding very difficult for many mothers. The Isle of Wight study confirms that breast-feeding protects against certain allergic diseases developing in the first year of life and the increased prevalence of infection in the bottle-fed baby has been well established.

The question arises whether, if breast-feeding is impossible, cows' milk is the best alternative. Perhaps we should consider the wider use of hypoallergenic feeds for the substantial numbers of mothers unable to breast-feed.

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SIR,—I was amused by Dr Paula H Bolton-Maggs's account in Personal Paper (11 August, p 371) of her experiences in establishing