in childhood is therefore unlikely to be both sensitive (that is, identifying true positives) and specific (that is, not identifying non-cases as cases). This is especially so for schizophrenia of adult onset, which is characterised by abnormalities of cognition and behaviour not manifest in childhood. It is perhaps more important, however, to find out if and why potential cases either fail to develop schizophrenia or develop some disorder other than schizophrenia. Children with conduct disorders have been shown to be at high risk of alcohol and drug misuse and antisocial personality in adult life.[1] Whether the pattern of misconduct in these children differs or whether intervening events lead to different conditions remains to be determined.

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Side effects of dental materials

EDITOR,—Ivor A Mjör estimates that side effects of dental restorations occur at a frequency of between 1 in 1000 and 1 in 10 000 treatments.[1] In stating this he refers to his paper presented at the National Institutes of Health's technology assessment conference on dental materials in 1991. This paper refers to a single study by Kallus and Mjör, which recorded 24 spontaneously reported subjective side effects and 22 objectively diagnosed side effects of dental treatment in 13 325 patients of 137 Swedish dentists over 10 days.[2] In addition, 31 dentists retrospectively recollected 113 side effects during their entire careers (387 years).

This study is of limited value with regard to dental amalgam. The incidence of spontaneously reported subjective side effects is grossly at variance with results of a recent questionnaire survey of a representative sample of the Swedish adult population (1000 subjects). In that survey 4% of respondents believed that they had or had had health problems caused by dental amalgam. The fact that numerous symptoms apart from rare oral lichenoid lesions related to allergy to amalgam are reported to have improved after, or been cured by, removal of amalgam in uncontrolled studies will hardly lead to objective diagnoses by dentists. To assess the incidence of adverse effects of amalgam and other dental materials long term controlled studies are needed. Either comparable groups should receive different kinds of dental restorations or dental amalgam should be replaced with other restorative materials in selected groups while control groups retain their amalgam.

Dental amalgam is the single largest source of mercury for the general population without occupational exposure.[3] In a multielement analysis of different regions of the brain of patients with Alzheimer's disease the most notable difference from controls was a fourfold increase in mercury in the nucleus basalis Meynert,[4] which degenerates in Alzheimer's disease. Inorganic mercury was found to inhibit the ADP-ribosylation of the neuronal proteins tubulin and actin in rat brain.[5] The concentration used (<0·5 μmol/l) was similar to the mercury concentrations recorded in the brain of monkeys 28 days after the placement of 16 radioactively labelled amalgam fillings—hence the theory that mercury from dental amalgam may be involved in the pathogenesis of Alzheimer's disease. Further research, not Mjör's premature conclusions, will shed light on this theory.

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Author's reply

EDITOR,—A large number of patients are needed to determine whether a side effect is significant. At an incidence of 1 in 1000 about 4000 patients receiving the same treatment have to be examined to confirm any reaction if 95% confidence intervals are used.[1] Objectively diagnosed side effects to dental restorative materials are rare. Thus controlled clinical studies to establish their incidence are difficult and costly. Clinical experience showing the safety and efficacy of dental restorations is, however, overwhelming and does not call for the incidence to be established; an estimate, as indicated in my editorial, is considered adequate. If the media focus on a cause and effect relation this undoubtedly affects the incidence of reports by patients, especially if vague, general symptoms are involved. This is a likely explanation for the report referred to by Harald J Hamre, that 4% of Swedes believed they had or had had health problems caused by dental amalgam.

The importance of self diagnosis of disease is difficult to assess. Undoubtedly, something is wrong, but differential diagnosis would require extensive investigations. So far as mercury from amalgam restorations is concerned, the comprehensive reviews that I referred to in the editorial excluded this source as a likely aetiological factor of systemic diseases. Another review, from an expert group appointed by the Swedish National Board of Health and Welfare, was published after my editorial.[2] It concluded that results from scientific studies since 1991 "have not shown that mercury from amalgam has an adverse effect on health, with the exception of isolated cases of allergic reactions."

The latest Swedish report pointed to the heterogeneity of patients with alleged adverse effect from amalgam fillings and identified "a considerable proportion of psychic disturbances and psychosomatic overtones."[2] Thus many types of specialists are required to provide adequate treatment for these patients. How easy it would be to help these patients if all it took was the removal of their amalgam fillings.

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Antibiotics for sore throats

Patient and doctor should reach decision together

EDITOR,—Both papers representing the two sides in the controversy over whether antibiotics should be given for sore throats seem to miss the point.[1] That by P S Little and I Williamson concludes that antibiotics provide so little benefit that this is outweighed by the costs and that general practitioners should therefore have a policy of not using them. The other, by Pesach Shvartzman, suggests that there is insufficient information to deny patients a possible benefit of antibiotics for sore throat; the final sentence implies, therefore, that all patients with sore throats should be treated with antibiotics. In the accompanying commentary Peter Rubin regrets the paucity of data and asks for more research.

More research would probably only confirm what we already know: that antibiotics confer significant benefits in terms of relief of symptoms and prevention of suppurative complications and acute rheumatic fever.[2] The question is, are these benefits clinically important? Is a mean shortening of symptoms by eight hours in an illness whose mean duration is three to four days worth a visit to a doctor and the risks of antibiotic treatment (of which probably diarrhoea, candidiasis, and rashes are the most common)? Probably the only person who can answer this question is the patient.

Our job is not to attempt to formulate a universal policy or even to best guess the causative agent for each person. Rather it is to achieve a common understanding with patients.[3] This is not easy: "You have a 90% chance of being symptom-free in seven days whether or not you use antibiotics: however, with penicillin you have a 50% chance of being symptom-free on day 3 rather than day 3½."[2] The challenge is in explaining to our patients the small size of the benefits of antibiotics, derived from empirical research, rather than relying on simplistic concepts of killing bacteria that are susceptible to the antibiotic but may or may not be causing the infection.

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Potential of antigen detection tests

EDITOR,—The Audit Commission has said that general practitioners prescribe antibiotics and other drugs irrationally and unnecessarily.[1] The use of antigen detection tests may be a way to diagnose infection with group A streptococci rapidly in patients with a sore throat, thus enabling more rational prescribing of antibiotics. However, the overall impact of other kinds of near patient testing has been challenged.[2]

We studied the impact of using antigen detection tests for group A streptococci (Abbott TestPack Strep A Plus, Concise Strep A (Hybritech), and Kodak SureCell Strep A) on the prescription of antibiotics by 34 general practitioners in 18 practices in Denmark. Patients with symptoms of a sore throat were consecutively enrolled into the study. On the basis of the clinical assessment general practitioners stated whether antibiotic treatment would have been prescribed if the test had not been available. After having read the result

Prescription of antibitics by general practitioners to patients with sore throat according to result of antigen detection test and culture for group A streptococci

Antibiotics prescribed before test*	Result of antigen detection test	Antibiotics prescribed after test result known	No of patients (% of total)	Results on culture†	
				Positive	Negative
Yes	Positive	Yes	203 (15)	183	20
Yes	Negative	Yes	83 (6)	4	79
Yes	Negative	No	81 (6)	4	77
No	Positive	Yes	159 (12)	144	15
No	Positive	No	1 (>1)	1	0
No	Negative	No	800 (60)	54	746
Total			1327 (100)	390	937

*On basis of clinical assessment. †Values are numbers of patients.

of the test they decided whether to prescribe antibiotics or not. A throat swab was sent to the streptococcus laboratory in Copenhagen for culture.

A total of 1389 patients were included initially; 62 were subsequently excluded because their data were incomplete. Of the remaining 1327 patients, 390 (29%) had group A streptococci on culture. The overall sensitivity and specificity of the tests compared with culture were 84% and 94%, respectively. The table shows the distribution of patients according to the result of the antigen detection test and the general practitioner's decision whether to prescribe antibiotic before and after the test results. The table also shows the numbers of patients positive and negative for group A streptococci on culture. The use of antigen detection tests led to an increase in the prescribing rate for patients with positive results on culture (from 49% (191/390) to 85% (331/390)) but to a decrease in the prescribing rate for those with negative results (from 19% (176/937) to 12% (114/937)). Overall, the use of the tests led to an increase in the prescribing rate of antibiotics from 28% (307/1327) to 34% (440/1327) of patients with a sore throat ($P<0.001$, McNemar's test). In 164 patients the result of the antigen detection test was negative and in disagreement with the pretest decision. Antibiotics were prescribed to 83 of them (51%), and culture revealed infection with group A streptococci in only four (5%). Of the remaining 81 patients, only four (5%) had group A streptococci on culture.

Thus, in our study the use of antigen detection tests led to a substantial increase in the prescribing of antibiotics to patients infected with group A streptococci but to only a modest decrease in prescribing to patients without such infection. Redd *et al* reported similar findings, but the sensitivity of their test was low (63%).[3] In a study performed in a university family practice model office the use of an antigen detection test with a high sensitivity (82%) led to a more rational prescribing pattern and an overall reduction in the physicians' use of antibiotics.[4] The discrepancy between the impact of using tests with comparable sensitivities in the university model office and in the general practice setting could be due to differences in the doctor-patient relationship. It may be more difficult for the general practitioners to withstand a demand for antibiotic treatment, thus leading them to ignore inappropriately a negative test result. The use of antigen detection tests could lead to a greater improvement in the quality of care in general practice if negative test results were adhered to as strictly as are positive test results.

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Should doctors charge doctors for medical services?

Tradition of not charging should remain

EDITOR,—Anthony Kenney suggests that doctors should continue to avoid charging other doctors and their immediate families unless asked by the patient to do so,[1] thus reinforcing the representative body's reminder that we should not bill each other.[2] He goes on to say, however, that if this became standard practice insurance companies might have to adjust their premiums accordingly. Unfortunately, British United Provident Association (BUPA), for one, has already done so, and its initially generous discounts in the BMA scheme have been steadily eroded over the years simply because doctors have continued to charge each other. It is not true to say that the Inland Revenue will not allow companies to finance gifts for the providing doctor; BUPA will do so under the BMA scheme when no charge is made unless the patient is already claiming tax relief on his or her premiums or has only the limited cover of the hospital scheme.

It would be a pity to allow ourselves to be influenced by the increasing pressure to change tradition. We might reach the situation in which I found myself when consulting a colleague in central London who suggested that if his fees were an embarrassment to me he would happily continue to see me—in his NHS clinic on the other side of London.

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Doctors should continue to choose NHS care

EDITOR,—The NHS is changing fast, but anyone reading Anthony Kenney's editorial on whether doctors should charge doctors for medical services would think that it had disappeared completely.[1] For most doctors, working in and committed to the NHS, the important issue is not how to negotiate a private arrangement but whether, when, and how to access health care—NHS health care—when they need it.

It can be difficult: 27% of general practitioners in a recent survey had borderline depression or were definitely likely to be depressed.[2] It takes courage for a doctor who is exhausted, drained, or depressed to acknowledge that he or she needs help. In other circumstances, for a more physical complaint, a fast track for medical colleagues may be offered. This, as a recent personal view showed, can be risky: "Doctors and their wives should be treated as ordinary patients"; "they should not be involved in diagnosis and clinical decision making."[3]

There will inevitably be times in doctors' lives when they need to be patients. They have the right, as any citizen does, to NHS care. Most doctors, like most citizens, wish to ignore the propaganda of the private medical insurance companies and exercise that right.

If the general public is given the impression that doctors automatically choose the private route or that the usual system is not good enough for them, what message does that give about the system? It is indeed tempting to short circuit the system, to ask for special privileges. If, however, everyone else in the outpatient waiting room is waiting an hour and half to be seen why shouldn't I share that experience? Why should I, or the consultant who eventually sees me and apologises for not having seen me ahead of my turn, assume that the time of the people in front of me is less valuable than mine? Why should any of us have been waiting an hour and a half?

The more it is assumed that ordinary NHS care (which is often extraordinary) is not good enough for doctors the more we are removed from the opportunity to benefit from, and to fight for, our health service.

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Future of purchasing

Health authorities will have little power to implement strategies

EDITOR,—I cannot share Chris Ham's optimism that "reports of the death of health authorities may be premature."[1] Following the announcement by the secretary of state for health of the extension of the general practice fundholding scheme and the latest letter and accompanying booklet on the development of NHS purchasing from the NHS Executive,[2] I am concerned that the death of health authorities seems fairly imminent.

The extension of the general practice fundholding scheme in terms of both the number of general practices that can elect to become fundholders and the type of fundholding will reduce the role of health authorities as purchasers of health care and therefore their leverage with providers. Ham argues that this will mean that health authorities will be less bothered by purchasing and will be able to place greater emphasis on strategic commissioning. This view is shared by the government, which envisages three roles for the new single health authorities replacing district health authorities and family health services authorities: strategy, monitoring, and support. In this new phase of the reforms fundholders become "increasingly important as purchasers in their own right" while health authorities will be responsible for "implementing national health policy."[2]

What is the point of health authorities having responsibility for strategy if their power to purchase services is severely curtailed? In this vision health authorities can carry on producing