action—but the debate will then have moved away from fundamental scientific issues concerning the genesis of mental states.

This view, which is close to what is often termed the social concept of disease, brings its own difficulties, and until these are resolved no one is in a strong position to pronounce on the definition of mental health. The approach nevertheless has certain advantages, including its recognition of the arbitrary way in which conditions are designated as requiring to be prevented or treated. There is a large measure of agreement about these, as reflected in standard taxonomies such as the *International Classification of Diseases*. Yet even that distinguished publication includes some rule of thumb decisions. Few would doubt that patients with schizophrenia or Alzheimer's disease fall outside the rubric of the healthy, but with the common neuroses or personality disorders we are dealing with extremes of distributions rather than categorical distinctions. In such cases—as with, say, hypertension— the dividing line must be based on informed judgment rather than logic. A solution of this kind may be untidy, yet it may serve us best for practical purposes.

Assuming, then, that we have provisionally identified the condition we wish to tackle and are fortified by some extensive epidemiological knowledge of psychiatric disorder, the next problem is to devise and apply preventive strategies. Again, that is not easy. With some conditions, such as alcohol abuse, plans for a detailed public health approach have already been advanced—for example, by the royal colleges.[1] The government (and perhaps society in general) seems reluctant to act, but a strategy can be and has been mapped out. Yet what are we to make of a recent publication on the prevention of mental disorder that stipulates "peace, social justice, decent housing, education, and employment" as essential components of a preventive programme?[2] No one is against such objectives, but perhaps it would be more rewarding—at first, at least—to concentrate on more specific efforts ranging from better antenatal care and improved physical and psychological health of schoolchildren to counselling for the bereaved and community management of the elderly. It would be better to succeed piecemeal than to fail comprehensively.

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1 Anonymous. Royal colleges unite to fight alcohol misuse. *Lancet* 1987;ii:1162.
2 Anonymous. Mental health. *Health for All by the Year 2000 News* Spring 1989 (no 8):1 (Faculty of Community Medicine, Royal Colleges of Physicians.)

Audit in general practice

Two track programme needed

The *Oxford English Dictionary* defines audit as "a searching examination, *cf* Day of Judgement." The medical profession seems to have found the concept of "audit" one of the better bits of the white paper curate's egg, but there may be substantial differences of intent among general practitioners, family practitioner committees, managers, and the Treasury. The government will hope to find out what it is getting for its money; general practitioners will want to close the gap between what they think they are doing and what actually gets done; and managers will want to use audit to drag the tail of the caterpillar toward the head. A programme with three different goals is fraught with problems.

Audit is defined in the draft departmental circular HC(FP)(89)—which is now available for consultation—as "the systematic critical analysis of quality," but none of the words are defined. General practice is a complex mix of activities (prevention, the care of patients with acute and chronic illness, and terminal care) that aims not only to be comprehensive (all illnesses, all population groups) and continuing (all phases) but both in formulating problems and planning treatment to take into account physical, social, and psychological factors.

A "systematic" examination will have to take a balanced view of all these activities. A "critical analysis" suggests that there are valid measures available to be applied to the care given, but very few of the measures of process that make up much conventional audit have been or even could be validated by measures of outcome.

We all have strongly held ideas about what constitutes "good" care in general practice, but whether such care makes much difference to the outcome perceived by the patient is seldom proved one way or the other. "Quality" has three different components (which might well be put in a different rank order by each of the three parties referred to above, let alone by the "consumer"): effectiveness, efficiency, and acceptability. By definition, if care is not effective (that is, it improves the outcome in terms of measured health status) there is no point in seeing if it was efficient (effectiveness gained with minimal use of resources). If the whole thrust of the white paper is toward the citizen consumer then acceptability becomes paramount, even though there will be times when maximum acceptability—in terms of the patients getting what they want—may be neither effective nor efficient.

The draft circular pays far more attention to structure and administration than to these fundamental questions as to the philosophical and scientific basis of audit. Its statement that data from the family practitioner committees and district and regional health authorities must be available to the Medical Audit Advisory Group suggests that it sees data from these sources as identifying "outliers" who could then be submitted to (or encouraged to undertake) audit. Homogenisation of services is no doubt attractive to managers, but is it realistic, and do these data give useful information about the day to day activities of the practitioner such as ordinary consultations?

I believe that what is needed is a "two track" programme of internal and external audits. General practitioners should be helped to set up and run practice information systems that will allow them to answer the question, "Is what I think I am doing what really gets done, and if not, why not?" The costs need not be very high. Educational initiatives should be aimed at helping general practitioners to formulate such questions across the whole range of their activities and to answer them reasonably objectively as a basis for improving their practices where needed. At this level it is less important that the measures used should have been validated against outcomes because the first question must be, "Have I got a clinical policy, and can I achieve it?" A practice audit programme of this kind should examine accessibility, the process of care in a

reasonable range of clinical activities, coverage of the population for preventive initiatives, patient satisfaction, and the satisfaction and learning opportunities of the practice's staff. Doctors should be prepared to describe such audits and, in broad terms, the findings and their future plans to the Medical Audit Advisory Group, which should then reach an opinion as to the range and rigour of the audits undertaken.

External audit would have to be much more of a broad brush stroke affair—simply because the expense of any meaningful detailed examination of a practitioner's work would be prohibitive. "Mainstream" practices with an audit programme as outlined above could be left to their own devices or sometimes given some new ideas about aspects of care to examine or instruments (such as outcome measures) with which to do it. "Outliers," though annoying to the tidy minded manager, might turn out to be at the head or the tail of the caterpillar. Such outside observers will need to consider how far the local circumstances (deprivation, affluence, ethnic mix, and so on) might account for "aberrant" behaviour before any assumptions are made about effectiveness, efficiency, or acceptability. The circular says that Medical Audit Advisory Groups will "analyse local audit results and discuss them with the local medical committees," but it makes no warnings about being careful to compare like with like. Even with earmarked resources the Medical Audit Advisory Groups will have limited abilities: if they are to have an impact on the "tail end" of general practice they must not be spread too thin over the whole range. Nor must their inquisitiveness impede the curiosity and innovativeness of the progressive practices (whose contributions as leaders have been the best justification for the independent contractor status).

Audit is a precise and scientific term describing a well defined and rigorous discipline. Medical audit is needed in the family practitioner services and it should be welcomed—provided that politicians, administrators, managers, and doctors all accept that they have an obligation to be rational about it.

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The cyclotron saga continues

Advisers advise, the Prime Minister decides

Last year's government decision to provide a donation of £6m towards the building of a cyclotron at St Thomas's Hospital aroused furious hostility in the main cancer funding agencies and provoked a flurry of correspondence in both the *BMJ* and the national press.[1-3] The decision itself was made in order to make irradiation treatment with fast neutrons available again for cancer patients in London after the discontinuation of such treatment at the Hammersmith Hospital in 1984. The Department of Health repeatedly announced its conviction that the clinical results had confirmed that neutron therapy was of established benefit in certain types of cancer and should be made more widely available to NHS patients.

The profession's response to what the government clearly regarded as an imaginative step seems to have piqued the Department of Health, though the then health minister, Mr David Mellor, did agree to meet senior representatives of the United Kingdom Coordinating Committee for Cancer Research, the Medical Research Council, the Cancer Research Campaign, and the Imperial Cancer Research Fund. Despite strong protests that the £6m sum could be much better used for other purposes the department refused to change its stance. A Medical Research Council survey of neutron trials in Britain had already been set up to examine in detail whether the Hammersmith claims (greater efficacy of neutron beam therapy as compared to conventional *x* ray treatment tested in a multicentre setting) could be reconciled with the Edinburgh experience more recently reported.[4-9] This trial, carried out in a single centre between 1977 and 1984, had shown no clinical benefit for neutron therapy in a prospective randomised study of 185 patients. The authors were aware of substantial and irreversible late complications of neutron therapy in patients treated at the Hammersmith and had reduced the dose they used in order to avoid these. Yet nevertheless, the patients in Edinburgh treated with neutrons showed neither superior control nor longer survival than patients treated conventionally; and, sadly, the neutron group clearly had worse long term morbidity with six deaths related to treatment. The Medical Research Council's analysis confirmed for the first time that serious complications and even treatment deaths in the Hammersmith patients were by no means rare, with 10 identified fatalities (close to 20% of the treated group). Moreover, profound irreversible damage to normal tissues from neutron beam therapy has recently been highlighted by surgical groups who have been called in to attempt to repair such massive damage. They report persistent ulceration, trismus, and other features of treatment related fibrosis, as well as radionecrosis and fistula to a degree not previously encountered (D M Davies, personal communication). Such cases are extremely difficult to repair successfully and generally require major "three dimensional" resection leading to a mediocre cosmetic result and permanent functional defects.

Much of this more recent evidence was described in a recent BBC radio programme, *Face the facts*, which has been widely discussed and has served to keep this debate alive. It has also emerged in recent months that the National Cancer Institute in the United States and other funding bodies in Europe have decided to discontinue funding for neutron programmes. The current position in Britain is that the neutron facility at Clatterbridge Hospital in Merseyside continues to recruit patients into its important prospective study, but we now have the prospect of a further neutron programme in London—provided that the Cyclotron Trust, which was so successful at persuading Mrs Thatcher and the Department of Health to part with £6m, proves equally effective in its search for an additional £4m from other charitable sources.

Neutrons may possibly have a part to play in the management of a few specific tumours such as salivary cancers, melanoma, and soft tissue sarcomas,[10] but the case still remains unproved, and the side effects related to treatment seem clearly more severe than with photons—at least with doses currently employed.

By her own admission Mrs Thatcher has taken a personal interest in this current debate. She has chosen to ignore the overwhelming body of evidence and advice rendered her by dispassionate parties equally concerned to identify any