

Monitoring in Medicine

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Monitoring in medicine is my subject; not monitoring in the sense that it is used in intensive care units, but more as defined by Doll (1973), 'the collection of intelligence to provide warning of the need for intervention'. I would add 'or a change in practice' to this definition to emphasise that externally imposed intervention is not necessarily part of the process I have in mind. I hope to show that a more systematic and thorough examination of our own daily professional activities must be an essential ingredient of that activity. It must be one which we as a profession play our full part in devising, and the development of which we must encourage, both to improve our own efficiency, and to prevent the imposition of what are likely to be inept, inappropriate and unacceptable bureaucratic curbs on our professional activities.

I would like to begin by considering the position of musicians in an orchestra of standing. The playing by all is excellent, for anyone who played badly would never earn a living as a professional musician. The performance of each player is open to scrutiny and where he ends up depends to a great extent on the results of that scrutiny. The only death certificate he can sign is that of his own professional career.

As practising doctors we might, without taking it too far, obtain a little insight from this musical paradigm. On the whole, and certainly in this particular example, musicians play in teams. There are occasional soloists and some *prima donnas*, but mostly they perform with others. There is thus a series of 'scrutiny loops', depending on who does the scrutinising and what particular aspect of the musician is scrutinised. The closest loop will be completed by the individual player himself assessing his own performance, and the effect in changing his performance will depend upon his own perception of what he is aiming at and how much he has deviated from it, as well as on his own capacity for correcting himself in the way he feels to be necessary.

The next order of loops arises from the reactions and opinions of fellow musicians; some may like what an individual player does and others may not, but there will be a good deal of consensus about essentials although there may be differences about nuances. The scrutiny at this level will involve considerable and detailed analyses of the performance in addition to the overall

subjective impression of the outcome. For example, the quality of the instrument and the techniques used by the player are bound to be taken into account, as well as the final musical outcome.

The final series of loops involves the reactions of the customers, who have paid to hear the performance. The range of knowledge and the ability to appreciate the finer points will vary much more greatly than it does among expert fellow musicians and almost certainly the subjective feelings aroused by the performance will be of greatest concern. Moreover, the lay listener will look to the conductor to have insisted on a disciplined performance and to have ensured that the individual members of this team are competent players. Apart from the value judgements, both subjective and objective, about a particular player or about a group, comparisons with other players or groups will inevitably play an essential part in any final judgement.

The positions of the doctor and of the health services are infinitely more complicated, but I am sure that the essential aptness of the musical analogy will be obvious, particularly since the average patient is almost certainly more ignorant of what a medical outcome should be than he is about music, although the personal consequences are likely to be incomparably greater.

THE NEED FOR MONITORING IN MEDICINE

Medical activity may be scrutinised in many different ways. At a general level there are the so-called health indicators which include infant mortality rate, crude death rate, and life expectancy. They can be used as a means of international comparison and to indicate changes over periods of time within a given country. They are, however, not very good indices of the effects of therapeutic services (Doll, 1973). For example, Cochrane (1972) has pointed out that the expectancy of life in the United Kingdom has scarcely changed between 1948–50 and 1965–67 in spite of the fact that expenditure on the National Health Service increased about three-fold in the same period, and Hetzel (1972) has collected evidence to suggest that therapeutic services have little influence on such indices, which mainly reflect factors in the physical and social environment. I am more concerned, moreover, to emphasise monitoring in the realm of personal health services, although I would not deny the crucial importance of the more global approach.

International comparisons can be made which are more relevant than the health indicators to our concern about the efficiency of ourselves as a profession. Bunker (1970) pointed out that in the U.S.A. there are approximately twice the number of surgeons in proportion to population as in England and Wales and that the incidence of operations is about twice as high in the United States. There are many factors that undermine the comparability of

his figures, but Vayda (1973) found a similar relative position between Canada and the U.K. where there was a much greater similarity between the statistical definitions. In Canada, over 95 per cent of the population was covered by health insurance schemes, but surgeons there are paid on a fee-for-service basis. Are they performing too many operations or are we performing too few? Does Parkinson's Law apply equally to our professional activities as it is supposed to do to our administrators?

Hedley *et al.* (1974) compared the results of partial thyroidectomy for thyrotoxicosis in Iceland and in Aberdeen. They found a striking difference in the rate of recurrence of hyperthyroidism and in the incidence of hypothyroidism in the two centres. Why? Wade and Beeley (1974) showed that in 1966–67 the sale of chloramphenicol comprised but 1 per cent of the sales of all antibiotics in the U.K., Belgium, Sweden and the Netherlands, whereas it was 5 per cent in France and 25 per cent in the Federal Republic of Germany. It is difficult to believe that there could be such different proportions of infections specifically calling for the use of chloramphenicol in these different European countries. Facts like these, taken almost at random from the literature, immediately raise questions about the basis, which is supposed to be scientific and international, of our professional actions.

Such international differences might be explained by differences in medical education and similar factors, so we should turn to comparisons within our own country where, owing to such influences as the General Medical Council, there was, and to a large extent still is, a considerable degree of uniformity of content and standard in our various medical schools.

As long ago as 1938, Glover outlined his remarkable findings on tonsillectomy to the Royal Society of Medicine. Among his conclusions were the following—

‘6. A study of the geographical distribution (of tonsillectomy) in elementary schoolchildren discloses no correlation between the rate of incidence and any impersonal factor, such as overcrowding, poverty, bad housing, or climate. Incidence is not correlated with the general efficiency of the school medical services of the area. In fact it defies any explanations, save that of variations of medical opinion on the indications for operation.

7. Large, and in some cases, drastic reductions in the numbers of operations performed in elementary school children in certain areas have had no unsatisfactory results.

8. Puzzling as is the geographical distribution, the social distribution

is yet more of an enigma. Tonsillectomy is at least three times as common in the well-to-do classes. The more fortunate the child in all other circumstances, and the better the opportunities for careful nurture, so much the more liable he is to tonsillectomy.'

The most obvious explanation is that avarice had its full play before the institution of our National Health Service, and unduly influenced professional opinion about the indications for tonsillectomy. How then does one explain the prescribing habits of general practitioners in the National Health Service in Northern Ireland with regard to amphetamines and oral hypoglycaemic drugs? Moorehead (1968) found that between 1963 and 1968 the sales of amphetamines by wholesalers increased three times, despite their almost negligible prescription at that time by hospital staffs. Wade and Hood (1972), moreover, in analysing N.H.S. prescriptions for 1966, found a vast variation in the amount of amphetamines prescribed per 1,000 patients in different practices. In fact 4 per cent of the practices prescribed 20 per cent of this type of drug. In another investigation of prescribing habits Wade *et al.* (1973) showed large differences between areas in the rate of prescribing oral hypoglycaemic agents and large differences in the type of hypoglycaemic agent prescribed in different places.

There are quite marked differences in the overall expenditure on our health services in different parts of the country, as shown by Noyes *et al.* (1974), who estimated the differences in total expenditure by health authorities in what were at the time the three branches of the Health Services in various regions. Nearly twice as much per 1,000 population was spent in the South-West Metropolitan as in the Sheffield Region. Curiously, although they showed a correlation between regional expenditure and proportion of 'well-heeled' social groups, the only 'outcome' they included was infant mortality rate which, as has already been indicated, scarcely reflects therapeutic medical efficiency at all. As a matter of fact, when one compares the standardised mortality ratios for conditions where therapeutic medicine is likely to be beneficial and where the number of deaths renders statistical comparison not too unreasonable, one finds that, on the whole, things are better in the South-West Metropolitan Region, an outstanding exception being carcinoma of the lung or bronchus (Registrar General, 1970). Many reasons, other than rate of expenditure, with resultant improved therapeutic efficiency, may lie behind these differences, but they certainly require investigation.

Apart from regional differences in the expenditure of money on health there appear to be considerable differences in the way illness can affect capacity for work. The Department of Health and Social Security publish a Digest of

Statistics analysing Certificates of Incapacity (1969–70). Figures are given for spells of certified incapacity by cause and by area, and in another table the number of days of certified incapacity for the same causes and areas. If one divides the number of certified days lost by the number of certified spells for the same cause and area, one discovers quite remarkable differences. Much of this might be explained by inaccuracies in certification, and a great deal by sampling errors introduced by the method of compiling the tables. Nevertheless, it is surprising to find that a certified spell of sickness for men with varicose veins averaged 39 days in one part of the country and 66 days in two other parts. If a man sustains a fracture of the upper limb he is liable to be off work for 42 days in England, 43 days in Scotland and 54 days in Wales. A fractured lower limb would lose him 100 days in England, 105 days in Scotland and 146 days in Wales. It seems astonishing that men should be off work for an average of between two and three weeks with an attack of migraine; the working woman, incidentally, only loses one to two weeks!

Figure 1 shows regional variations in certified days of absence from work per spell of sickness for men suffering from the common cold, appendicitis, cardiac ischaemia and hypertensive disease. The ordinate is plotted logarithmically.

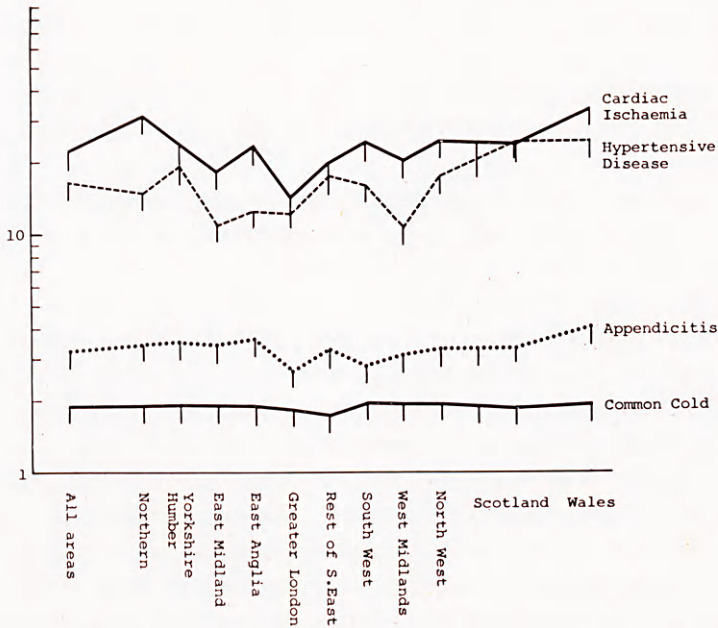


Fig. 1. Average days off work per 'spell' of certified incapacity for different areas of Great Britain.

mically so that proportional differences are represented by equal deviations. There is a great similarity between areas so far as the common cold is concerned, where therapy makes little difference to the outcome. For appendicitis, where therapy is presumably crucial, there begins to be some variation, but when we look at cardiac ischaemia or hypertensive disease, where medical activities could certainly be important determinants in the period off work, the differences are extraordinarily great. There may be quite simple explanations, but we should know what they are.

Lee *et al.* (1957) obtained figures suggesting that the mortality rate from acute appendicitis, perforated peptic ulcer, hypertrophy of the prostate, and also from diabetes with coma or other complications, was higher in non-teaching than in teaching hospitals. Of 17 independent comparisons of rates, based on 5 or more deaths, the advantage lay with the teaching hospitals in 16. Clearly these differences are not a matter for self-congratulation by the teaching hospitals, but indicate the urgent need to determine why they occur. Ashley *et al.* (1971) later looked into the reasons for the differences for hyperplasia of the prostate by means of a detailed study involving four hospitals. They showed that what mattered was operation, rather than expectant treatment, in unplanned emergency admissions. But many other questions were raised which need urgent answers if we are to increase the efficiency of our health service. Their work may form a basis from which we might obtain an explanation of the differences in standardised mortality ratios for hypertrophy of the prostate found between different regions (Registrar General, 1970) although many factors, social as well as medical, may play a part.

To quote from the final sentence of their report, for it mirrors part of my message—‘None of this will be possible without an effective information system the lack of which, at every level, has been probably the biggest single failing of the National Health Service’.

Apart from money, and apart from the differences in knowledge and skills of doctors and the results they obtain, there are many other differences, for example, in organisation. Organisational differences are likely to apply more to general practice with its system of independent contractors than to hospital practice. For example, the development of Health Centres and group practices is of undoubted benefit to the doctors working in them, but how do they affect the patient? Do they in some cases undermine the personal doctor-patient relationship and, if so, how much does this matter? Fry (1972) claims that one general practitioner can deal with a list of 4,500 patients satisfactorily, whereas the ‘norm’ is somewhere between 2,000 and 2,500. This is startling because, if Fry’s patients are as satisfied and if the outcome of care

is as good as it is in those of other more 'average' practices, we should be able to cope quite quickly with our imagined shortage of medical manpower. Should we not be attempting to develop objective measures to appraise the quality and the outcome of care so that suitable comparisons of results can be made and explanations of differences sought with the object of increasing our effectiveness?

MEASURING THE QUALITY OF HEALTH CARE

Since it is clear that the available evidence reveals marked differences in the performance of medical activities, we must consider how they can be 'monitored' in a way that is in principle, routine and in practice acceptable to ourselves as a profession, and how the results may be used to increase our efficiency.

A classification of the methods that might be adopted has been put forward by Donabedian (1966) as shown in Table 1.

TABLE 1. Modes for assessing quality of care

STRUCTURE	Explicit judgements Implicit judgements Comparative
PROCESS	Explicit judgements Implicit judgements Comparative
OUTCOME	Explicit judgements Implicit judgements Comparative

Assessment of Facilities or Structure

Without proper facilities it is very difficult to do an effective professional job. Facilities and their use may be expressed at the crudest level in terms of money: total capital outlay or cost per patient, per bed per annum, per patient day, or what you will. There are at least two snags to this approach. Firstly, although it may not be intentional, the league tables are always presented in such a way as to infer that the cheapest is the most desirable, or that anything above the mean is reprehensible. Quite obviously, and desirably, our administration wishes to get value for money, but 'value' can mean a lot of different things, and what never seems to be taken into account is the outcome.

Knowing the work of Ashley *et al.* (1971), already quoted, most men who get an acute urinary retention would want to go to a urological unit and

probably into one in a teaching hospital, even if it were more expensive. Of course, the reason why we do not have this side of the balance sheet is because of the great difficulties involved, not only in defining what should be measured and how it can be, but in an acceptance by ourselves that such measurements are desirable and important. Most of us suffer from a deep feeling of insecurity that makes us want to resist scrutiny of this type.

Facilities can be assessed more specifically; for example, numbers of staff at various grades and of various disciplines, number of operating theatres, extent of laboratory and radiological facilities, presence and extent of a library or a postgraduate centre. The Colleges and Higher Training Committees use criteria of this sort in determining whether a post is suitable for general or specialist training, and so do the universities (although many, until recently, in little more than a rudimentary fashion) in relation to preregistration posts.

Available facilities may be deemed suitable or not either by one or more appropriately erudite persons forming a general impression after visiting the unit in question—the so-called ‘implicit’ judgement—or by listing the available facilities and matching them against a list previously deemed satisfactory by a committee of experts—the ‘explicit’ judgement. Comparisons of facilities available in different units can also be made.

The Way in which Existing Facilities are Used

Clearly, there are likely to be considerable differences in the efficiency with which existing facilities are used within the N.H.S. Comparisons can be made of the throughput per bed, number of new and old outpatients seen in a given period under various diagnostic headings, and so forth. The Hospital Activity Analysis (Benjamin, 1966, 1967) carries this sort of information a good way forward. It suffers in its operation, though not in principle, from a number of defects, particularly (and this is our own fault as a profession) in the limited accuracy of some of the returns, in the unduly long delay before the results are, in many cases, made available to those concerned at local level, and in the fact that the recorded outcome, even mortality, is scarcely of any value because of different policies about discharge. One hospital or one unit may, as a policy, keep a patient with some fatal condition to die in hospital, another may discharge him to die at home. I know of one geriatric unit that has achieved almost as short a stay for its in-patients as the average for an acute general medical ward; but the local general practitioners have told me that many of the patients have to be readmitted after only a few days at home.

A further limitation of the Hospital Activity Analysis is that it fails to deal with out-patients—an activity that might well be more important than in-

patients. A praiseworthy start to analysing out-patient activities at the Royal Hospital, Chesterfield, has been made by Trout (1972) and Trout and Martindale (1974), but these figures make no comparisons even between different units of the same discipline within the hospital.

A most important missing factor is the ability to link the hospital record with those from other parts of the health or social services. The ability to link such records easily necessitates electronic data handling and is coupled with such considerations as a common means of identification and of confidentiality. It is, therefore, a matter of considerable political importance. It is possible, however, to impose safeguards that make it difficult for unauthorised persons without exceptional skills to gain access to a computer file, and to enact swingeing penalties for anyone who transgresses stipulated legal requirements. The very great importance of record linkage has been fully demonstrated by Acheson (1967, 1968) and in my view it is an essential development if we are going to maximise our effectiveness and efficiency.

Statistics of the sort produced by the Hospital Activity Analysis indicate things like the intensity of use of hospital beds, but an examination of the techniques used by individual doctors, or by small teams of doctors, is of potentially greater value as an instrument to feed back correcting information. This approach has almost dominated the scene in the United States and it is in practice the main objective of what has become known as Peer Review, Medical Audit, and of what has now been enshrined in legislation in the form of P.S.R.Os or Professional Standards Review Organisations. There is now quite a voluminous literature on the subject and a whole symposium devoted to Medical Audit was published in the *British Medical Journal* last year (Sanazaro, 1974; Dudley, 1974; Capstick, 1974; Thould, 1974; Werkö, 1974; Howqua, 1974).

The network by which medical audits of either the explicit or implicit types are carried out is shown in Fig. 2. What is being examined is the process by which the doctor or the team has dealt with patients suffering from particular clearly defined conditions, such as hypertension or urinary infection, the parameters of which are carefully specified. The clinical data obtained from the history, and what are considered to be essentials in the clinical examination, are being scrutinised, as well as the laboratory requests, and whether appropriate action has been taken in relation to the results obtained. The review also embraces details of therapy and the appropriateness of supervision. It will be clear that it is a review of the case notes, and the validity depends upon the assumption (which has not been confirmed) that the excellence of the notekeeping, and the degree to which all the 'proper' findings and actions are included, correlate with the desirability of the outcome.

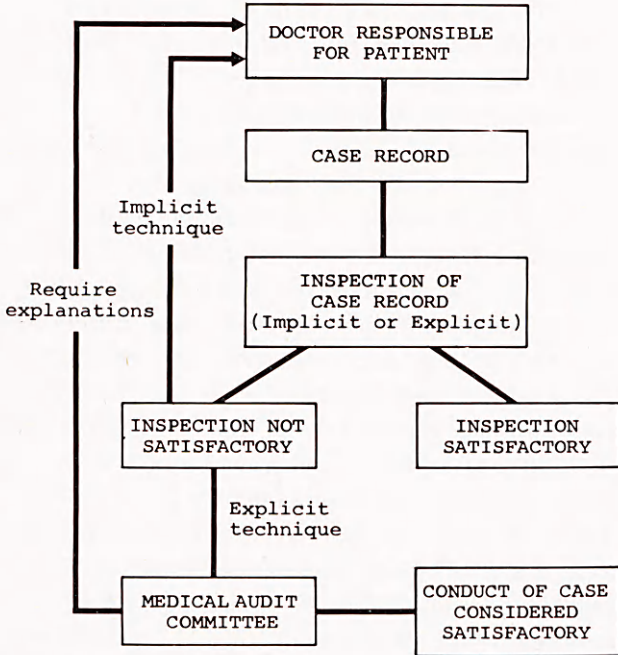


Fig. 2. Flow-chart for 'implicit' and 'explicit' medical audit.

It will be noted that the review involving explicit, previously agreed, criteria can be conducted at the first stage by using trained non-medical people to scrutinise the case records and to match them with the explicitly laid down criteria and is, thus, more likely to be practical where (as seems inevitable in almost every society) there is a shortage of medical manpower. If notes were in a machine-readable form so that the data could be collected and collated electronically, it might be still more of a practical possibility on a fairly generalised scale. It is easy to understand why Weed's system of problem-orientated records has been advocated by a number of workers, e.g. Schmidt *et al.* (1974). Nevertheless, we still need to know how valuable this sort of assessment is by relating it to the outcome.

It should be noted that irresistible pressure for this development in the United States came mainly as a result of the enormously rising costs of medical care, largely paid for on the basis of a fee for service by a variety of private and government insurance schemes. It is probably because of this pressure and because the evidence strongly points to the doctor as being the main generator of health costs—generated, that is, in the process of diagnosis and treatment—that this technique has been so rapidly adopted in spite of its

shortcomings, which have been well stated by Brook (1973) and White (1974). If explicit criteria are drawn up by a team of experts they tend to be idealised textbook requirements to establish each particular diagnosis and, in particular circumstances, many of the procedures laid down may be completely irrelevant. Even where minimum requirements are defined they may not be relevant to the clinical situation, for, as White says,

‘all too often patients do not present . . . with “diagnoses”; they present with symptoms, complaints and problems for which they seek relief. The task of medicine is to resolve the problems that are first perceived by patients as “headache”, “pains in the chest”, “rashes”, “stomach pain”, “backache”, “unusual bleeding”, “cough”, “weakness” and “fatigue” and hundreds of other symptoms that initiate the demand for medical care and constitute the language of disease.’

In the United Kingdom the costs of medical care, although much less than in the United States, are still of the utmost importance, but our system is totally different and this could have a profound influence on the ways in which we look at ourselves. Of course, within some hospitals excellent activities of the peer review type (such as committees set up to review all deaths) have for long been in existence, though nothing like to the same extent as they have in the United States or Canada. However, we need hard evidence to show that these activities really do result, as we all assume, in changes in clinical behaviour. Devitt (1973) looked at the effect of a peer review into the proportion of positive breast biopsies obtained by surgeons in the Ottawa Civic Hospital with the accompanying educational effect that this should have had. The study was bedevilled by a gradual increase in the proportion of positive biopsies during the years before the experiment was initiated (this demonstrates the value of carefully designed controlled trials) but he concluded that continuing medical education by peer review did work.

In this country we have several examples that fall into the category of peer review, probably the most outstanding of which is the regular *Report on Confidential Enquiries into Maternal Deaths in England and Wales*, first published for the years 1952–54. (A similar though not so rigorous activity was initiated in 1930.) The main objective in this scrutiny of almost every maternal death was to pin-point ‘avoidable’ factors. A similar enquiry in relation to post-neonatal deaths has also been carried out (*Confidential Enquiry into Post-neonatal Deaths, 1964–66*) again with the object of identifying avoidable factors as well as the relative importance of various groups of causes. Such detailed studies are possible on a national scale only when the number of patients under consideration is relatively small.

It is also possible to compare individuals or small groups in respect of particular professional activities, the most obvious one being the monitoring and analysis of general practitioner prescriptions. This has largely been used as a means of controlling expense, but the value of more detailed monitoring of this type has been well demonstrated by Wade and Beeley (1974); for example, they were able to demonstrate a decrease of about one half of the amount of chloramphenicol prescribed in Northern Ireland after the Dunlop circular on its toxicity was sent round in January 1967. They were also able to identify the high prescribers of chloramphenicol (less than 30 out of about 700 practices prescribed more than one quarter of the chloramphenicol) and to show that they generally remained high prescribers even after the Dunlop warning.

Hodgkin (1973) has suggested another simple way to monitor the medical process, with particular reference to general practice. This consists in determining from the practice records the lengths of the various types of delay that can arise. These may be administrative, such as the period during which the patient is kept waiting between the time of his appointment and the actual time he is seen, or clinical. The latter constitute the delay between the patient's first symptom and the time it is reported to the doctor, the delay between this first report and the establishment of a diagnosis, and the delay between this and the start of treatment.

Other ways by which the less specific activities of a general practice might be monitored were suggested by Mansfield (1973) and Williamson (1973).

The Measurement of Results (Outcome)

Finally, and in my view crucially, we must consider evaluation of the outcome of our activities and the acceptability by the patient of all that is done. As White (1974) says:

'The real test of the clinician is the extent to which his patients are returned to work or school, kept out of bed, relieved of functional impairment or pain and freed from the use of unnecessary or useless drugs. These are the measures that really count as far as the patients are concerned—and, I would add, as far as the bulk of the medical profession is concerned.'

It does not require much imagination to realise the difficulties inherent in measuring outcome, not the least of which lies in value judgements and the consequent weighting of different types of outcome so that for particular purposes, such as the relative allocation of resources, they can be combined or contrasted one with another. This type of difficulty, although applicable to the results obtained by teams, arises most forcibly when attempts are made to

measure the global effects of a health service system. Mathematical computations of what might be described as an index of health derived from a whole variety of measurements have been suggested (Chiang and Cohen, 1973; Fanshel, 1972; Maddox, 1972). For the sake of illustration, we might consider the work of Rosser and Watts (1972) in which they described how they derived what they called the 'Sanative output' of a London hospital. What they did was to compare states of disability and distress at the patient's entry to hospital, and at later points in his care, regardless of the underlying condition. The relative weighting of different degrees of disability and distress was derived from monetary awards by the law courts to people with similar degrees of disability or distress. They pointed out that distress may arise from pain, mental suffering in relation to disablement, anxiety and depression, and amplified and defined the way in which a patient's distress might be allocated to one of their four divisions.

Although this approach is not so general as some suggested, it has the advantage of being much simpler. The use of awards by the courts to form a basis of comparison is ingenious, but I feel that better ways might be devised, perhaps in conjunction with people nominated by the Community Health Councils who should become knowledgeable about professional matters and public preferences. Many of the difficulties of using measures of outcome in overall health service planning have been well set out by Pole (1973). The current approach usually involves a defined planning goal (*Management Arrangements for the Reorganised National Health Service*, 1972) and arrangements for measuring deviations from the goal. At a clinical level the method concerns explicitly defined criteria, an approach elaborated in the United States by Williamson (1971), who relates the process to the requirements of continuing medical education.

I would like to suggest that change and evolution towards greater efficiency might come more rapidly, more appropriately, and without the danger of the disasters that can result from wrong decisions taken more or less intuitively at high level, if monitoring, particularly of measures of outcome, could be built into our activities at unit level. No new principle is involved. On an *ad hoc*, one off, basis involving special effort, this sort of activity has been going on with improving techniques for a very long time in the form of controlled clinical trials and specially mounted follow-up studies. Such activities are absolutely essential to our progress but, unless the results show a radical improvement as a result of the therapy under test, one often wonders how closely they are replicated when they are applied routinely by doctors in general. It seems to me that we are likely to make most progress by careful comparison between units under actual working conditions.

Where real differences in results are found, the units concerned could be informed with a disclosure of where they stand in the league table or in relation to the mean, without necessarily identifying other units. It would perhaps be a more delicate matter, particularly for those who were insecure in their professional activities, if steps were taken to find out why gross differences occurred, but both processes are necessary and should result in continuous change towards improvement. The technique would provide the body of those offering clinical services with a nervous system which, as against the patchy affair existing at present, would ultimately be ubiquitous.

This suggestion will, I am sure, generate considerable opposition. If it were a question of the authorities snooping with a view to taking punitive action against the poor performers, one could understand the resistance. If, however, the system were to be run and controlled by the profession itself, there need be no such fear. Numerous examples exist where units have found differences between each other and have unhesitatingly published the facts so that the reasons could be ascertained; the different incidence of bone disease in haemodialysis units is one example. It is an evolutionary system and as such is likely to be the best to optimise our results.

The technical difficulties are, of course, formidable and to require doctors to spend a lot of time filling in extra and possibly complicated forms would certainly make any general scheme unworkable. An initial aim should be to design ways of ensuring appropriate data capture from the daily professional activities of the medical team or single doctor. In general practice I have already mentioned the analysis of prescriptions and, if proper arrangements were allowed for record linkage, we could perhaps analyse, say, time off work before and after treatment for a given condition; with linkage this type of measurement could also be extended to hospital activities.

Crooks and his team set up a form of systematic communication between hospital and general practitioner several years ago to improve the surveillance of thyrotoxic patients who had been treated with radioiodine (Philip *et al.*, 1968; Hedley *et al.*, 1974). It seems certain that this system is of considerable benefit to the patient and at the same time data are captured in a computer so that important comparisons can routinely be made. Similar arrangements for the care of diabetics and for a wide variety of conditions might be of considerable immediate benefit and might also provide data with which to make useful comparisons.

General monitoring of the results of clinical units clearly cannot be achieved for a very long time but the strategy for its development might lie in two directions: (1) to encourage, on an experimental basis, developments like the examples I have given, that would allow data capture and analysis without

diverting the clinician from what he regards as his proper work, and (2) to identify by gross statistics major areas of difference that could then receive detailed attention.

Finally, we should welcome the development of means whereby patients' reactions to their care can be assessed, for, even if this did not particularly correlate with the objectively assessed outcome, to know the things that are important to patients would be invaluable in the professional training of doctors as well as in improving efficiency by making available and effective services more acceptable. Cartwright (1974) has recently summarised work that has been done in the U.K. in this and closely related fields. With the setting up of Community Health Councils we may have created a mechanism through which this could be done with a degree of continuity and with an understanding of both sides of the coin.

It is in my opinion essential, however, that our profession itself agrees about the need for monitoring its activities and results, for, if it does not, disagreeable restrictions or sanctions may well come to be imposed. This, of course, raises the old question of clinical freedom, but all sorts of restrictions already exist, and we want any help we can get to enable us to alter our ways so that we are being professionally more effective. If acceptable and sensible rules and techniques are to be worked out the profession itself must take an active part in formulating them. That is why, if it turns out to be an organ of real initiative rather than one of subtle inhibition, I welcome the formation of the Competence to Practise Committee as a crucial and major beginning. We must keep our own house in order if we are to remain a free profession.

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