EVALUATION IN THE HEALTH SERVICES

Proceedings of a symposium
held at the
Royal College of General Practitioners
on Thursday 21 October 1971

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by the Office of Health Economics

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Foreword

One of the main ideas behind a symposium on 'Evaluation in the Health Services' was to help establish a fruitful dialogue between clinicians, planners, sociologists, economists and others. All of these might share a common awareness of the need to subject the operations of the health services to critical examination, but it was felt that communications between different disciplines, particularly between clinicians on the one hand and social scientists and planners on the other, could be much improved.

In the event the symposium clearly demonstrated the width of the communications gap, especially between clinicians and others, though only a disappointingly small number of clinicians were actually able to be present. Language, in fact, tended to be a barrier rather than a means of communication.

In view of this it is hardly surprising that no concrete conclusions came out of the symposium. In fact, returns from a follow-up questionnaire sent to participants suggested this would only have been possible if we had restricted the scope of the symposium to one specific area, such as research methodology.

However, since our primary objective was to try to establish some sort of communication between the participants of different disciplines, this was never seriously considered. Another comment was that we would, perhaps, have been better advised to organise a two or three day residential symposium in order to give new ideas time to germinate. But this was not a practical possibility.

Although no conclusions were forthcoming there is nevertheless reason to believe that the symposium served a useful purpose. The follow-up questionnaire was returned by two-thirds of respondents and of these 61 per cent thought the event was useful or very useful. Twenty-nine per cent thought it was of some use while only 11 per cent thought it not useful. No one was so uncharitable to place it in the fifth category 'a waste of time'. As expected, those who thought it relatively useful felt the main value was its demonstration of problems of communication, and, to a lesser extent, the opportunity it provided for an insight into the approaches of different disciplines.

Of course any credit due must go to the speakers themselves and to the other participants whether they contributed verbally or not. It was their interaction which was the primary purpose and the main achievement of the event.

Introduction

Mr W A Laing. *Deputy Director, Office of Health Economics*

In giving this introductory contribution, I do not want to tread too much in specific areas that are going to be discussed by the other contributors we are fortunate enough to have persuaded to come. It is inevitable that I will do so to some extent – especially with Tony Culyer's talk this afternoon – since economics is our common discipline, but I want to try to keep my points as general as possible.

Evaluation probably means a lot of different things to different people, but essentially it means finding out by objective means what is worth doing and what has the highest priority. This is the basic question posed by doctors, administrators, planners, economists and perhaps even sociologists interested in the health services. But unfortunately they don't always speak the same language, so it is a good thing that on these occasions we can get a number of different disciplines and approaches gathered together.

What I want to do is to look back over the past few years to see how approaches to evaluation have changed. Then I want to try to identify some of the critical areas where progress is going to be needed if we are going to make best use of the enormous amount of new money and talent that has recently been put into research in the health and welfare services, especially within the social science disciplines.

The notion that the activities of the health services ought to be subject to critical evaluation at all levels in the light of their outcomes is now pretty commonplace – at least among people abreast of the latest developments. This is becoming true of other social services too. But this is a fairly recent development. When the OHE was set up some nine years ago, I think it was true to say – though I was not there at the time – that evaluation was left very much to the doctors, and pretty few doctors at that. It was not that the government was not worried about costs. They were (witness the Gillebaud enquiry into the cost of the NHS) and they exerted pressure to cut costs where they could without interfering with the principle of clinical freedom. But if the then Ministry of Health had been asked what the country got for its money, what the output of the health services was, then it is unlikely that anyone would have even attempted to make a reply (and even now we aren't much further advanced). Because there was an absence of any hard evidence on the actual benefits of the National Health Service, or most of the activities carried on within it, whether in medical, social or economic terms, there were few people who could feel capable of calling these activities into question. Thus although it was easy enough to calculate the cost of various health services, there was very little that could be said about the benefit side of the cost/benefit equation. Thus social scientists were in effect disarmed and could add little to any discussion of priorities. As far as most academic research and planning of the health services were concerned, it had simply to be assumed that whatever was done was a good thing – that any money spent on health was beneficial. This is why the debate on the health services in the fifties and early sixties centred around the rather sterile political issues of sources and amount of finance with no one really feeling able to say anything about what we actually got for our money.

The lack of data on outcomes was very evident in early academic work. Thus economists like Weisbrod in the USA could discuss the health services in relation to cost benefit theory and welfare economics. They could draw up complicated tables on the economic cost of death and disability at so many million dollars. But without data on the effect of medical intervention on death and disability – i.e. the output of actual intervention, these sort of analyses could do no more than awaken people to the magnitude of the costs of diseases. They had no practical value in the planning of the health services. Similarly, Feldstein's classic econometric analysis of NHS hospitals done in the mid-sixties had, on his own admission, little practical use. The basic reason was that he equated output of hospitals with the number of cases treated by them. And the throughput, of course, need bear no relation at all to real benefits to patients, which remained, and still remain, largely unmeasured.

During these years the Office of Health Economics, operating in a virgin field, attempted to pinpoint areas for research and do some retrospective analyses to try to illustrate some of the benefits of treatments. One such exercise was 'Progress against Tuberculosis.' The introduction of antitubercular drugs coincided with an accelerated decline in the number of TB deaths, a rapid drop in the number of hospital beds taken up by TB patients and a similar drop in the number of days of sickness absence attributed to TB. On this basis the yearly benefits of TB treatment were calculated at £55 million.

But it was soon realised that this rather crude and naive approach was not really adequate. In few cases are the historical trends so clear cut. For example, if the same approach is tried with mental illness then you will find that the advent of tranquilisers (among other things) coincided with a rapid reduction in long term stays in mental hospitals. But on the other hand the same period saw a large increase in sickness absence attributed to mental illness. Thus it was not possible to unambiguously demonstrate gains across the board. Rather more sensitive techniques were needed to identify cause and effect.

So instead of trying to do these crude cost/benefit analyses on the very shaky basis of historical data, the Office of Health Economics has tended in its later publications to try to describe the NHS. It has tried to describe the way in which the costs and benefits of NHS activities are generated, quantifying where possible, but recognising the limitations of solely quantitative studies when there is rarely any hard evidence of the outcomes of the activities. And this has been the approach adopted by some others too. Thus the social and economic assessment of the Rotherham Health Screening Clinic admitted that the sort of data needed to evaluate the project could only emerge with monitoring over a long period, so the authors confined themselves to describing the nature and likely direction of the various socio-economic costs and benefits.

One point that clearly emerged from various descriptive studies was the wide and apparently inexplicable variation between regions in all sorts of things. Variations between regions, between hospitals and individual doctors, have been the starting points for a lot of research over the past few years and there is now mounting evidence that the variations do not reflect different case mixes, sex/age structures and so on so much as different doctors taking different actions when presented with the same situation. I look forward to hearing Mr Dawson speak about this aspect of clinical freedom. When faced with these variations the immediate question is who is right? Is the Sheffield region failing in its duties when it only performs half as many tonsillectomies as the Oxford region? Or are the surgeons in Oxford cutting out more tonsils than they ought to. This sort of question now has a familiar ring about it and I think it is pretty well recognised now that the technique of controlled trials is the one most suited to answering questions like this. A recent article in 'Medical Care' revealed a situation in Germany which on the face of it suggests a particularly desperate need for evaluation by controlled trials. The authors found that the death rate from appendicitis was three to four times higher in Federal Germany than in all other countries of the world. They could not fully explain it but they concluded that 'the most probable reason why mortality from appendicitis is three times higher than in the Federal Republic than any other country is that appendectomy is performed three times more often here than elsewhere. This explanation is supported in particular by the fact that the decrease in the appendectomy rate in the USA has been paralleled by a drop in the death rate.'

I think it is pretty fair to say that the OHE was converted to the need for controlled trials pretty early, especially in view of its association with the manufacturers of pharmaceuticals where the use of such trials prior to introduction of new products has been routine for a long time. But of course in suggesting that more evaluative controlled trials ought to be done in other parts of the health services, especially the hospitals, we were simply echoing the long standing advocacy of Professor Cochrane and I am very glad that he has consented to talk here today.

It is here, in the conduct of controlled trials, that I think the different approaches of doctors and economists are likely to find their most productive meeting point. For their part doctors, and here I am really talking about clinicians, want to know whether, and in what circumstances, their intervention is effective. Economists and planners of health services for their part want to have hard data on the effectiveness of intervention so that they can place valuations on the different outputs and hopefully determine priorities at a macro-level. Controlled trials can provide the necessary empirical data for both.

When we talk about measuring the effectiveness of intervention, of course, we include the measurement of alternative methods of delivering medical services, especially since one of the most important NHS policy questions today is the balance between hospital and community facilities. In one of our recent publications, Building for Health, we pointed out that the hospital plan was largely based on historical trends of bed usage extrapolated forward to 1975, rather than any experimental assessment of the number of cases which do better in hospital and the optimum length of stay for them. But of course it is one thing to suggest trials to compare the costs and benefits of different institutional frameworks for the provision of medical care – it is quite another to say how the evaluation ought to be done. This is an extremely difficult area and I don't think we really had any suggestions to make them. Probably it is pretty pointless to try to measure one institutional framework in toto against another, because of the impossibility of getting a decent control group, the enormous cost and difficulty of following up the overall health status of large populations, but most importantly because institutions are multifaceted things and you might find yourself condemning hospitals in given circumstances or approving health centres when in reality it was only one facet of the institution which was responsible for bad or good results. Probably to get such evaluation down to manageable proportions and to avoid misleading results it will be necessary to try to define the elements of institutions and find out the extent to which they are beneficial or detrimental to various groups of patients.

So, assuming that the techniques of controlled trials are going to be used more and more, to compare institutions, new screening programmes or existing common surgical or medical procedures, how are we going to use the results? First of all, I don't think we will ever be able to get to the stage of arraying all of the activities of the health services in order of their return to investment and on this basis make precise calculations on the optimum allocation of resources. There are a number of reasons for this but perhaps the three most important are

a) because in many cases it would be unethical to get hard data by means of controlled trials even though we may have imperfect knowledge of natural histories,

b) because medical technology is constantly changing and in doing so can at a stroke outdate the results of long-term and painstaking evaluative studies and

c) because of the inherent difficulty in ranking the relative benefits from, for example, more renal dialysis or better conditions for the mentally subnormal. But I want to come back to this problem of valuation later.

The second point I want to try to make about the use of results is that at the present time at least it is not of the highest priority that economists and planners at the centre should have all the data on the effectiveness of NHS activities tailor made to their needs. This is because in most cases it is not them that take the decisions. I remember a recent lunch-time talk at the Hospital Centre when Professor McKeown pointed out that planning authorities are often reluctant or unable to use their power to ensure that their policies get implemented. They can use the power of finance, or their strong influence over the building programme to make sure that certain facilities are available or not available, for instance kidney machines, and this clearly affects what clinicians are able to do, but most of the time it is the clinician at the periphery who takes the important decisions which involve the use of resources. Often the only way to affect his behaviour is through persuasion and the provision of information. The implementation of change can be primarily a matter of education and public relations, as for instance letters from the Scottish Home and Health Department doing no more than pointing out to consultants the wide variations between them and their colleagues.

For this reason I think it is vitally important to construct controlled evaluative trials and frame the results in such a way that they are comprehensible to both planners and clinicians, to the decision-makers at the centre and to the decision-makers at the periphery.

So what is it that both planners and clinicians want to know in order to take decisions? Presumably they both want to know what are the real benefits derived by patients in relation to costs. This brings me on to the critical area of what to measure, that is how to define the objectives of the health services, and even more difficult, how to put valuations on the different objectives. Now I know that Tony Culyer is going to talk about this later so I just want to make one or two short suggestions about what we ought to be measuring. The first obvious objective is to increase expectation of life – in so far as people think it is worth living that is – because many people will feel a cabbage-like or very painful existence is of little value to them. The second obvious objective is to minimise pain and suffering – especially long term pain. The third is to minimise disability and this I would stress very strongly. The Americans have done quite a lot of work in the way of defining objectives and they tend to put a lot of emphasis on a functional definition of health and ill health, that is the extent to which treatment can eradicate disability and restore the patient to normal activity in his or her social, economic and personal roles. In this respect I feel that evaluative trials ought to measure the effect of any given intervention on sickness absence rates, not so much the short term absences (which medical intervention is unlikely to alter much anyway) but absences of 3 or 6 months or more which reflect serious functional disability over which the individual has little control. The minimisation of incapacity in chronic conditions is I think of central importance because so much of the work of the NHS concerns chronic illness, because of the highly detrimental effect of prolonged absence on the individual and his family, and because of the real economic loss that is involved when the long term disabled person has to rely on the community for support. All of these measures could be combined to forecast the effect of any given programme on the expectation of pain-free and active life, that is, to give measures of the extra length and *quality* of life offered by the programme.

Then we come to what might be termed the non-medical outputs of social care, in which the health services are necessarily involved, and which are difficult even to define much less measure. Here I will look forward to both Professor Jeffereys' and Jimmy Algie's talks.

Finally there are the resource saving effects of any programme. These include the greater or smaller amount of NHS resources that have to be used up in total and also the indirect financial costs of lost working time as measured by sickness absence rates.

All of these objectives, except perhaps the value of social care, could be measured in quantitative terms without any great difficulty in controlled evaluative trials.

But if we managed to measure the merits of alternative activities or investments in these terms we would find ourselves faced with the problem of putting some sort of value on the different outputs so as to decide on priorities. In this area I can think of no positive suggestions to offer. All I can do is to criticise what attempts there have been among economists at valuing outputs in the past. Take for example a screening programme which on the basis of evidence from controlled trials could be expected to increase expectation of life to 100 and save 50 million days of sickness absence. As far as lives are concerned what has sometimes been done in the past is to forecast remaining lifetime productivity and lifetime consumption and take the difference as being the net value of a saved life. Now this sort of approach is appropriate to a society of slaves where the value of a person is what he can produce, but as a sole means of valuing saved lives it cannot be taken seriously because it comes up with invalid answers. The method will suggest, for instance, that as soon as a person retires his life is not worth saving. There is also the implication that the more a person earns the more his life is worth saving. Rightly or wrongly, this sort of approach is incompatible with the principles of the NHS. Some economists in the USA, and the OHE, have taken a rather different position by measuring the value of future production and ignoring consumption. But this is equally invalid. The point is, I think, that some economists in the past have latched on to the only so-called 'objective' methods of valuation they could find and used them to the exclusion of all else. As I see it if a programme offered the possibility of making people live to 100 quite happily but incapable of economic activity then someone would have to put a value on these years of life in comparison with the necessary reduction in per capita income (which could be worked out from the production and consumption data), but this ought to be considered separately as one of the indirect costs of the programme, as distinct from the value (whatever that is) of a person's life to himself, his family and so on.

Similarly, with the valuation of days of sickness absence, the convention of costing one day's absence as equal to gross earnings per day is totally inadequate. Whenever I see a figure like '£400 million in lost production' my immediate reaction is increasingly one of distrust because the real cost of the absence is almost certain to be totally different. They were some use in the past to indicate orders of magnitude but they have little real meaning. As we pointed out in *Off Sick* at the beginning of this year, employees can and do make up for *short* term absence by overtime and a longer working week and the real cost is probably the disruptive effect on industry which no one has ever measured. For *long* term sickness the convention that cost equals gross earnings is probably nearer to the truth but this still ignores the personal and social consequences of long term incapacity to the individual and his family.

To me, the insistence on using what 'objective' measures you can find regardless of their adequacy is one of the things which has tended to discredit cost/benefit analysis. Thus the Roskill Commission's mammoth enquiry into the 3rd London Airport fell down

a) because it didn't have enough hard data on the consequences of the alternatives and

b) because it excluded many items from its final sums simply because there was no so-called objective means of valuation for them.

I wonder though, whether it really matters too much that we cannot yet be confident in placing values on the hard data from evaluative trials. Economists have always been keen on adding up the costs and benefits in common (i.e. monetary) terms so as to calculate a rate of return on investment, but is it really necessary at present to take things that far? I agree that the valuation must take place somehow and somewhere and we might as well sharpen up our analytical tools ready for the time when there are plenty of hard data to work on, but for the moment I think we would be just as well off if we just produced the results of evaluation (increased expectation of healthy life, reduced incapacity and so on) and allowed the decision-makers to make the valuations themselves. After all we are still in a situation when the results of trials are likely to indicate a clear yes or a clear no to any given policy. Decision-makers are not likely to be faced with nice decisions on one programme which offers a 10% return on investment and one which offers 12%.

And if we find from evaluative trials that in fact the benefits normally go in the same direction, that is an increased expectation of life is accompanied by positive benefits in all other areas too, then there will be an even less pressing need for reducing the outputs to common terms by making overt valuations of trade offs between two or more outputs.

The objective of cost benefit analysis as I see it is to produce evidence on costs and benefits in a readily understandable form so as to assist rather than confuse decision-makers and there is no reason why the decision-makers should not make the valuations themselves, or at a different level, why individual patients should not make up their own minds when given the facts. No single set of criteria for valuation is going to be applicable to all people in all situations. The really important thing is to get the hard data and get it in a form that is comprehensible to all the people interested in decision-making processes – clinicians, planners, epidemiologists, economists and so on, including patients. This really means presenting the raw facts on the effectiveness of a programme as simply as possible and with as little embellishment as possible.

Rather than get bogged down in a largely philosophical (for the time being) discussion of the precise values that ought to be placed on the various outputs of the health services, for the moment a much more practical and immediately useful step would be to get widespread agreement among decision-makers and other interested parties on what the basic objectives of the NHS are and thus what parameters ought to be consistently measured in evaluative studies.

I have suggested a few of the obvious parameters which could without serious difficulty be used in most evaluative studies where they are applicable. I do not suggest in any way that these are pat answers but the following would seem worth measuring:

1) the effect of a programme in changing expectation of life at various ages.

2) the effect on pain, suffering, the ability to perform routine activities, the quality of life in general. This would come from patients' own assessments.

3) the effect of the programme on absence from work, broken down by length of absence so as to separate out the effect on chronic economic disability.

4) the effect of the programme on other measures of personal and social functioning – perhaps marital status or other indicators of stable inter-personal relationships. I would imagine that measures such as these, if validated, could be especially applicable to the evaluation of mental health services.

5) the effect of the programme on those aspects of the doctor's work which might be placed in the category of his social care function. I must say I would not know how to start measuring this.

If we could hammer out some sort of agreement on the parameters that ought to be measured in order to find out the extent to which we are attaining our objectives (so defined) then this would in itself be a very useful practical step forward. I am not suggesting that such parameters as were agreed need always be gospel. Sometimes they would not be applicable and most of them would have to be validated in use (about the only really unambiguous indicator is death). But if such a set of parameters could be clearly set out and publicised then those who are engaged in evaluative studies would clearly have to take note of them and justify non use of them. The advantages of the use of a common set of parameters are obvious. Comparability is half the battle in deciding between alternatives.

Perhaps agreement on parameters could also be extended from ad hoc controlled trials to the routine collection of statistics. This would be an important advance since all that are collected at the moment are input and administrative statistics. The potential in extending the parameters to record linkage studies is pretty obvious too.

I am afraid that I have really been concentrating on a narrow area, but it is one which we think is of central importance. Deciding what the NHS ought to be doing is after all what evaluation is all about and I hope that gatherings such as this one can really make a positive contribution in this direction.

Discussion

Professor Jeffereys There is a problem implicit in the last point Mr Laing made about the comparability of statistics and relating them to decision-making. My opinion is that the way in which the health services actually operate, in terms of the parameters which he suggested, depends very much on what happens and what the actual situation is in the institutions at the operational level. Unless decision-making takes place very largely at this level, the performance of people in the field tends to be very poor. One of our problems in the National Health Service is that decision-making and planning is taken at national level, and certainly at regional hospital board level, and not at the level of the general practitioner. We may well have to sacrifice the collection of some national statistics if we are going to give people a greater challenge at local levels, with the freedom to try to set their own objectives and not to accept national objectives which may be imposed from above. In the reorganisation of the National Health Service we have to try to avoid a tendency which is going, on the grounds of 'managerial efficiency,' to centralise decision-making and impose more and more duties without giving people freedom of action at grass roots level. This course will defeat the whole purpose of raising the quality of care, and also, and most particularly, of bringing the patient into the decision-making process.

Mr Laing I wonder whether the sort of thing I was suggesting would really inhibit initiative and enthusiasm at the grass roots level. Of course we want to avoid the imposition of objectives which are meaningless to general practitioners and others, and which seem to them to be incompatible with good practice in particular instances. But what I was suggesting was the collection, either in trials or as a matter of routine, of the sort of data which would help both the practitioners and the central and regional decision makers to measure the effects of their intervention. This would have to be easily comprehensible to practitioners as well as everyone else if it was to be of any value, or stand much chance of altering behaviour.

Miss Gulland In practice, how would your parameters help the decision between spending on one speciality compared with another unless their values were capable of being reduced to common terms, whether monetary or otherwise? Would you give an example of how you think it would work.

Mr Laing If we have objective evidence, perhaps from controlled trials, then it is highly likely that we will not need to put comparative valuations on the various parameters because as soon as the data become available the situation becomes clear cut. For example, if you take something like surgery for carcinoma of the bronchus and find, as the MRC controlled trial has done, that surgery reduces the expectation of life then there is a clear case that the practice ought to be stopped and that new money ought to go into something like renal dialysis, where lives can be saved, rather than into chest surgery.

Not all situations will be so clear cut, however. We could take as another example treatment for asymptomatic hypertension where the reduced risk of suffering a stroke may be balanced by undesirable side effects. Here I think a comparative valuation of parameters must be implicit in the decision whether to provide or not provide a screening programme, but ultimately the objective of the health service must be to try to achieve the sort of end results that individuals desire according to their own valuations. If this is accepted, then what would ideally happen is that doctors would have at hand the results of controlled trials which showed the risk of premature mortality with or without treatment, the likely amount of sickness absence or other functional impairment with and without treatment, the risk of side effects and so on. It would then be up to the doctor to explain to the patient the consequences of taking or not taking treatment so that the patient can make his own valuations and take his own decision with the advice of his doctor. It would obviously be silly for the doctor to tell the patient that according to the valuations placed on the various parameters by the regional hospital board you would be well advised to take the treatment. So, at this level of decision-making certainly, we want to avoid reducing the pros and cons to mathematical equations.

The contribution of the health services to social welfare

Professor Margot Jeffereys, *Director, Social Research Unit, Bedford College*

As I think has already been indicated by Mr Laing's paper, there are many different levels upon which we can and should try to measure the effectiveness and efficiency of the work of those engaged in activities which I think by popular consent have to do with people's health. But generally speaking, the more specific the work and the more limited and well defined its goal (and these, I think, are topics which are suitable for clinical controlled trials), the easier it is to measure its effect and assess its results against the resources required to achieve it. For example, it is relatively – and I stress the term relatively – easy to evaluate the effectiveness and cost of a drug in the treatment of a disease; a coronary care unit; a renal dialysis unit; transplant surgery; even a multi-phasic screening programme.

But the task I've been set today, that of assessing the contribution of the health services to social welfare is of much greater complexity – of a totally different order. It is in fact asking what as a nation we get in return for the resources we invest in that vast complex of activities which we call health services, and which absorbs in manpower terms – and I did not check with the latest OHE publication as I could do – over half a million people, including about 50,000 doctors, a quarter of a million nurses and a host of others. In money terms, over 60% of the resources are tied up in our hospital services. The rest is distributed through a vast number of fragmented units, many of them very small and as varied as drug companies and chemist's shops, local health authorities, general practitioner units, dentists, opticians and so on.

There are various ways in which one could try to tackle the question. First, we could ask how far does any particular unit fulfil the various functions expected of it. For example, does general practice unit A operate effectively as an agency for primary and continuing medical care? Or does Hospital B deal efficiently with its task of providing specialist services? Second, we could ask whether general practice units collectively or hospitals collectively are efficent and effective. Third, we could ask whether, taking all branches of the services together, they are fulfilling the functions assigned to them in the most effective way given the resources which are invested in them.

Whatever the level on which we are concerned to make a judgement, however, we need first to ask ourselves more precisely what tasks we have set the health services collectively and what we expect from individual units. These objectives – understatement of the year – are not always explicit, and when they are, they are at a level of generality which makes measurement almost impossible, and which hardly ever provides a guide to action on the part of those providing the service.

What I want to do today, therefore, is to consider how we might try to specify the possible contributions which health services make to social welfare goals, and then go on to suggest how their contribution to these goals could be assessed, and possible ways in which, if one believes, as I do, that this contribution is inadequate in relation to the resources given, it might be improved.

At a gross level of generality – and, again, these are, I think, replications of points already made by Mr Laing, the health services are expected to contribute to social welfare in three main ways: first, by reducing premature mortality in utero, in childhood, adolescence, early life and middle age and thus increasing the expectation of life; second, by reducing morbidity both by preventing disease, and by shortening its duration if it should occur; and third by reducing pain and distress associated with illness or handicap and increasing functional capacity.

I think there would be general agreement that these are three manifest and legitimate goals of health services. But there are other latent goals assigned to them which I also want to consider. Health services are also implicitly involved in at least two other functions which can be said to relate to social welfare policies: These are:

1) Equalising life chances in a society where these are patently unequally distributed at birth.
2) Participating in society's mechanisms to control aberrant behaviour which is believed at least by those with political power to threaten social stability.

Can we take each of these in turn – the three manifest objectives and the two latent ones – and ask in relation to each how far the health services have been effective and where there is evidence that they might do better given the same resources, or given more resources, and whether a different distribution of resources or a different approach on the part of the personnel involved might bring a different kind of result.

First, briefly, because it needs least elaboration, what has been the role of the health service in reducing mortality? This certainly has been impressive in the last thirty years, and, in the sense that saving the lives of children and of adults in working life reduces economic, social and emotional distress among surviving dependants, makes a substantial contribution to social welfare. I think we should recognise, however, that the contribution of the NHS is little different from those of other industrial countires, all of which have shown the same kind of trends in mortality rates.

There would be little dispute that success here has been due to advances in pharmacology and immunology and their application by doctors both in the primary medical care field and in hospital specialties which have substantially reduced deaths from infectious diseases.

Advances in surgical techniques and skills have also played a part in reducing mortality, especially from neoplasms, accidents and gastro-intestinal disorders. The resources devoted to reversing the death sentence which was a likely outcome of some diseases can therefore be said to have been very effective. Moreover, as judged by the interest shown by some of the most talented scientists and doctors and the comparatively large resources which they, compared with those in other fields of health and social welfare, have been able to obtain and command from governmental and voluntary sources to pursue their work, the concentration on mortality reduction can be said to correspond to the general public's value judgements and sense of priorities. I think this is an important point. Remember it brings us back to the philosophical point raised, but not discussed, in Mr Laing's paper. It can, however, be asked whether these value judgements do not now present a stumbling block to further progress. They may prevent a reallocation of research and service resources from areas where there is likely to be diminishing returns from the investment of time, and equipment to those in which the return is ultimately likely to be greater, if indirect. This is a point I would like people to take up in the discussion.

Let me also say a brief word about the second objective – the reduction of morbidity. The difficulty in assessing how far health services have been or are now successful in this area is obviously one of definition. If morbidity was a measure of the presence of one or more of a finite number of agents agreed to be pathological, or observable physical lesions only, then it would be possible at least to show whether the morbidity in any given population over time *for which help was sought* – a necessary reservation – had, or had not changed. Assuming that there had been no change in the proportion of morbid incidents brought to health services, and we know full well this is an unjustifiable assumption, it might be permissible to extrapolate to morbidity as a whole. But, of course, morbidity is not as simple as that. It is dependent on everchanging concepts of what states and what kinds of behaviour are to be regarded as pathological.

Generally speaking, health services in the past three decades have been, I would suggest, conspicuously successful in reducing certain kinds of morbidity, either by preventing it altogether or by shortening the duration of morbid episodes. But the very successes on certain fronts have contributed to the multiplication of morbidity on other fronts. For example, the burden of morbidity in children has been largely replaced by the burden of morbidity in middle and old age. The comparative victory over infectious disease has had the unintended consequence of increasing the volume of degenerative diseases. In addition, we are now more likely than we were to treat certain kinds of aberrant behaviour as illness falling within the scope of medicine rather than as lapses from explicit or implicit codes of conduct requiring penal measures or perhaps, in certain circles, penitence. Except in so far as the health services themselves have helped to re-define as morbid behaviour once viewed as merely immoral, they cannot be blamed for the failure to reduce the overall burden of morbidity. But it could be said that they might have been able to make a greater contribution to the reduction in some of these problems had they not tried to deal with them within the confines of a narrowly based medical model – that is, one which places almost the entire emphasis on the physical aspects of functioning, and discounts the importance of the psychosocial aspects.

This brings me to one of the major problems in thinking about the needs in society which we now have to face, given successes in dealing with those who have predominantly overt physical manifestations of morbidity compared with those in whom the problems are connected with their psychological or social functions.

This brings me naturally to consideration of the third objective: the reduction of pain and distress associated with illness or handicap, and the restoration of as great an amount of functioning as possible.

The medical profession has had at its disposal in the last decades an ever-increasing variety of pharmaceutical products including psychotropic drugs which have infinitely increased its capacity to relieve physical pain, discomfort and mental distress. This goes without question: but there is some evidence that the availability of these products has led to indiscriminate prescribing and the growth of iatrogenic drug dependency. It may also have served to distract attention from other ways in which pain and distress can be relieved. I am thinking, for example, of the all too frequent accounts by parents of mentally retarded or otherwise congenitally handicapped children of their failure to find sympathy or understanding from members of the caring professions and their feeling, when they are already extremely vulnerable and hurt, that they have been further rejected or stigmatised. It is pertinent to ask whether the technology and tools of the medical sciences have not been all too frequently used as a substitute for as potent a therapeutic agent – human sympathy. The stance of scientific detachment which has contributed so much to the style in which health services of all kinds are delivered – general practice and psychiatry cannot be excluded – may have been necessary in the attempt to discover the nature of disease, but it has much to answer for as well. In particular it has blunted our capacity to empathise and has devalued the part played by kindness in enhancing the social welfare of those with persistent disadvantages.

I want now to say something about the fourth kind of contribution which health services could make to social welfare – *the equalising of life chances*, which I described as a latent rather than a manifest objective. We should remember that one of Aneurin Bevan's major aims was to create a network of social services which would help to iron out inequalities in the distribution of material goods and services and of life chances. He saw, and his Party with him, and indeed, the nation as a whole at that time, the creation of a National Health Service in which access by those in need was not dependent on capacity to pay, as vital to the fulfilment of this aim. He saw control by public authorities as essential if resources were to be made available according to this principle. We have to ask how successful the health service has been in redistributing its resources to reduce such inequalities.

As I see it, there are three inter-related types of inequality to consider – regional, social class and handicap. As far as the first is concerned there has been some redistribution of the resources of primary medical care between different regions and within regions, to areas of greatest social disadvantage. The financial inducements given to doctors to work in designated areas has probably helped to achieve this result in the primary medical care field. But, as Julian Tudor Hart pointed out, in a perceptive paper in the *Lancet* in February 1971, this redistribution has certainly not gone far enough. Moreover, the method used until recently to allocate resources to hospital regions tended to perpetuate the inequalities which already existed at the inception of the National Health Service. The very recent decision to take other criteria into account in allocating resources may enable us to secure a better distribution regionally; but an examination of regional distribution in relation to income, and educational advantage, suggests that the National Health Service, together with the other social services, has made not all that great an impact on regional variations in the distribution of goods and services, including public services.

In so far as social class is concerned, Martin Rein, an American, argued in a controversial paper in *New Society*, published in June last year that the method of financing the health service in this country had been conspicuously successful in removing social inequalities in the delivery of health services. While this may be true if the comparison is made with the United States, Professor Titmuss is, I think, right when he argues that there are still many inequalities in the health delivery system which result in the lower social classes generally receiving in many respects a poorer quality of care.

It is difficult to know how such differences can be reduced or eliminated since they clearly do not depend entirely on the activities of health professions: the service they can render is, after all, the outcome of interactions in which much will depend on what patients bring to these services, including what kinds of attitudes. But it can be argued that greater self-awareness on the part of health professionals is required, that is a greater awareness of the hidden values in their work, and of the built-in biases and prejudices which lead them to place different values on the lives of different kinds of patients. This awareness must be inculcated in medical, nursing and social work training and reinforced in subsequent practice, if any great inroads are to be made in helping the poorest sections of the community.

Those of us who have either been born into professional classes or achieved professional status through our own efforts, inevitably make value judgements relating to different individuals. Changing these values is a tremendous task and cannot be accomplished by simple moral exhortation to become 'good' people over-night, valuing everybody equally in every sense. That obviously would be impossible. Such values are deeply embedded and hard to change.

There would be little dispute, I think, that those who suffer from serious mental or physical handicap, and their families, constitute a disadvantaged group in society and that throughout the first 25 years of the National Health Service, too small a proportion of our resources has been devoted to them. The residential institutions and hospitals which cater for them are often, as we know, grossly under-staffed and under-financed. The domiciliary services, which are needed if the handicapped are to survive in the community without placing an undue burden on their relatives, are certainly inadequate in almost every local authority area and in some are quite disgraceful as shown, I think, by the recent surveys of handicapped and elderly people conducted by Amelia Harris of the Government Social Survey.

There are welcome signs of increasing commitments to help these disadvantaged groups. The first report of the Hospital Advisory Service – a most humane and forward-looking document – is indicative of this increasing commitment as is the decision to increase the allocation of resources to hospitals for the mentally subnormal. Much will depend, however, on how local authority Social Service Departments tackle the task of implementing the Chronically Sick and Disabled Persons Act of last year. In this connection, Central Government could play a larger part in seeing that the provisions of the Act are implemented if they were to make earmarked grants to local authorities for this purpose rather than assuming that the local authorities themselves are likely to allocate resources necessary for its implementation, in competition with the very many other calls for expenditure which local authorities have to meet in education and welfare fields.

Let me turn to the fifth objective, that of social control.

There are several ways in which health service personnel are expected to play a part in the social control apparatus of the modern State. For example, they are asked to certify claims for sickness benefit, and to legitimise absence from work or school. They are also charged with the responsibility of maintaining individuals whose mental derangements suggest that they are a danger to themselves or others. Under the terms of the 1968 Abortion Act they have been given the task of deciding whether or not a woman should be helped to abort.

There is no doubt that these control functions are the ones which doctors find it difficult to discharge particularly since they seem to conflict with the traditional ethics of the Hippocratic code. They set up potential conficts for him between his traditional task of serving individual patients and his role as a facilitator of the will of the collectivity expressed through Parliament. The first question which we have to ask is whether the control mechanisms are really necessary and whether they contribute to social welfare; if we decide that they do, would it be better if they were exercised differently, or by different people. For example, we should be asking whether sickness certification is effective as a mechanism for legitimising absence from work or entitling individuals to financial benefit. If it did not exist, would it lead to a greater increase in unjustifiable claims which is presumably the main goal of this piece of legislation? If a system of certification by 'others' – that is someone other than those who need the certificate, is required, could it be done by other than doctors in or outside of the medical services? Or, again, what ends are gained by using doctors as arbitrators in a decision as to whether, or which, women are or are not entitled to be allowed to abort? Would it lead to social disaster if women were allowed to take the decision for themselves as they are increasingly doing, for example, under the abortion legislation in New York State? Certainly many doctors believe that their present responsibility places them in an invidious position which ultimately may damage their relationships with their patients and their capacity to help them in the future. I do not have answers: they are questions which have to be on the agenda of any discussion concerning the contribution which the health services make to the wellbeing of the community as a whole.

To sum up: the contribution which health services make to social welfare will always, it seems to me, be problematic and equivocal. In pursuing its traditional functions of reducing premature mortality and morbidity, caring for those in pain and distress, we have to ask whether it is using its resources effectively to these ends: we also have to understand that in solving certain problems and achieving certain objectives, it may create problems as great as those which it has solved.

Discussion

Dr Morgan May I thank Professor Jeffereys for a very interesting talk. Since I seem to be the only general practitioner here, I should like to put my own point of view. You say that health services are not equally spread through all sectors of the community, but I am equally available to all my patients. However, the less intelligent and the less well off fail to come to the doctor when they should. They fail to return when they are told to. They fail to take the tablets they are given correctly. We feel very sorry for them and I hope that all of us in practice treat them equally with the more intelligent patients for whom one can probably do more. But there are these patients who are debarred by their own inadequacies from living as full a life as one would like to see. They marry the wrong people; they get pregnant at the age of seventeen and then they get a divorce, and one spends one's life propping them up without any real hope of being able to alter them basically.

Professor Jeffereys You have illustrated the tremendous problems involved in equalising life chances. A valid criticism of all our social services is that those who have the greatest intelligence and the greatest command of resources have benefited most from them. This capacity to profit by services is much more marked in education than it is in the health services. In so far as one of the objectives of our National Health Service was to try to equalise life's chances, those of us who are engaged in the provision of services do not ask ourselves sufficiently often whether we are achieving this objective. It may mean a much more radical rethinking of how we can actually deliver services; what sort of forms they might take; how we can try to make a bigger contribution to the extremely difficult problem of improving the services delivered to the poorer sections of the community.

Dr Pledger I would like to echo the thanks to Professor Jeffereys for her clear statement of the business we are in. But what puzzles me is how long the health services are to have the longstop role. At the moment our job is to take on everybody else's troubles and I wonder, if you had a bigger input into the NHS, whether you would achieve the aims that you really want. I think one could argue fairly convincingly that reducing premature mortality by investing in other things, like housing, would pay off more. I think it is a very real dilemma for the people running the health delivery services.

Professor Jeffereys Part of the problem you have raised was posed in Mr Laing's paper when he talked about decision-makers. The decision-makers are people who have control of existing resources; there is a kind of power situation in which everyone tries to enlist other people's support for their own egocentric view of the relative importance of particular activities. We all tend to believe that our own activity should have a greater share of the existing resources. For example obstetricians and gynaecologists who are concerned with the safe delivery of women and the paediatricians who are concerned with the new born child, in so far as they see their problems as arising from inadequate resources, will go all out to convince their hospital management committee and their local health authority that more resources should be made available to them. This is a genuine dilemma because it may very well be, as you say, that an investment in housing may indirectly have a greater effect in reducing mortality from prematurity than an investment in further obstetric research, and therefore the development of clinical skills. The problem is not just one for those two proponents, the housing manager and the obstetrician. There is something called public opinion which also helps to determine the allocation of resources. It may well lend support to the view that those concerned with clinical skills and the life and death drama associated with the safe delivery of babies, should not be denied resources. They may not associate the problem with wider issues like housing.

Dr Alpert I would like to pose a question to Professor Jeffereys. My own experience in Boston has been a study of 1,000 low income families who were randomised into those who received comprehensive care while their controls did not. This study has indicated – (and I am very generally summarising the conclusions) – that 80% of these low income families, after a period of two years, were well engaged and had developed an effective relationship with the middle class physician. The remainder proved more difficult to involve. The implications of this, it seems to me, are twofold: one, that we have to be very careful about our own middle-class backgrounds when we say the less intelligent patients relate differently to the physician because, in fact, that may be our problem, not the patient's. And, secondly, there is also a percentage of families who, despite our best intentions and efforts may remain beyond the reach of any programme of health care, however comprehensive that might be. That brings me to my question to Professor Jeffereys who made reference to, in a sense, the elimination of the psychosocial area from the traditional medical model. We can say that those problems that fall into that area remain outside of the medical model and someone else is going to deal with the problem. Another approach would be to look at what the doctor's job is and to say: maybe we had better do something different and maybe we had better educate him differently. A series of reports in the USA have called for the introduction of more rather than less psychosocial education in the training of the physician. Would Professor Jeffereys comment on the usefulness of the physician having psychosocial areas included in a substantial way in his education?

Professor Jeffereys There are people who are more closely involved in the educational process than the doctor who could contribute to the solution of health problems. It is crucial, however, that doctors extend their medical model to include the psychosocial aspects of illness if the doctor is going to work collaboratively and effectively with other people whose concern is more closely related to psychosocial problems. Even if the doctor is regarded increasingly as a technologist dealing with physical lesions which are observable, it would be disastrous if he were to cut himself off from the wider context in which disease means something to people besides causing them pain and distress. At the same time we have to try to extend the security which most professional people, the medical profession included, want through dealing with things which have a bearing on their particular expertise. There is a danger in asking them to extend into the much more difficult and vague field of familial and work influences on the way in which people present their problems to health service personnel.

The Chairman Before we take any other points, are there any other comments on this specific point of what should be the role of the doctor in this field? Should he be narrowly biochemical or broadly social? Does anyone want to express a view on this?

Dr Westropp I think I would. I think doctors are now being encouraged to go more and more into the psychotherapy field, even though it is a difficult field. I am sure we would all like more doctors to have some competence here and certainly the psychotherapy side ought to gain. There are several things I would like to pick up but perhaps I might just say one thing. One of my jobs involves school-children, evaluating their potential as regards their future work and spending a long time talking to their parents. I often find myself thinking that this is the first time that they have been able to state their problems properly and get anyone to listen. This makes me think for a moment that I am the only sympathetic doctor. But when I think of the excellent social work of paediatricians and others in Oxford, I realise that my colleagues probably have the same experience. All along the parents say they are not getting enough sympathetic understanding and one of our problems really is how much time you are going to spend on this. A vast amount of my time, and my juniors' time, is spent just on this. Should I not, instead, be dashing around attending to physiotherapy, organising their homes and doing something more related to doctoring?

Dr Ryan I should like to refer to the recruitment of staff and improving services in areas where recruitment is difficult. I would like to express a pessimistic view that it does not matter how much one spends in some areas, you will not be able to improve the services to the standard required simply because there is not enough talent in the community and not enough people interested in this particular area to bring it up to what is regarded as an ideal standard. I think this is particularly true of the care of the sub-normal and mentally handicapped. I speak to a certain extent from personal experience because I was concerned with recruiting to staff for what I believe is a relatively good hospital for the mentally sub-normal and we found it extremely difficult. I do not propose any particular solution to this problem but I think this should be recognised.

Professor Jeffereys Thank you. I have great sympathy with people who are actually trying to tackle problems of inequality, but I also feel that the way in which we have tried to do this in the past may reflect a defeatism which is really unjustifiable. In the 1930s, and I am old enough to remember them, there was a belief in a finite pool of talent and hence a very restrictive view of the numbers who could benefit from higher education. By the late 1960s the Robbins estimate of the number of people who would qualify themselves for some form of higher education had been greatly exceeded as a result of the extension and expansion of secondary school education. In short, we have had an elitist attitude towards our human resources and history has proved us wrong. We have tended, perhaps because our teaching methods and developmental models are inadequate, to place the blame for failures on the material which we have been trying to develop rather than on ourselves. I own that my standpoint is an optimistic one. That kind of attitude is better than the more pessimistic one, that you cannot modify human behaviour. History shows that the latter view just is not true. Even the difficult problem of mental subnormality is not totally insoluble. Kushlick from the Wessex Regional Hospital Board suggested that the state of the mentally subnormal in institutions was often attributed to the poor quality of the staff recruited and to high turnover. But in his view, it is the nurse–patient ratio which can be blamed for many of the difficulties, not the quality of the staff. In some instances, a nurse has to care for 20 severely disabled children at a time when they all have to be potted. These are the sort of conditions which you would not ask soldiers in the trenches to cope with. But if there are reasonable ratios and if people who normally have no part in decision-making can be given more responsibility and opportunity to determine their own work schedules and monitor their results then I am sure that we could make a much bigger contribution to solving an admittedly difficult problem than we are doing at present.

Mr Sharphouse Might I confine my comments to the question of distribution and redistribution ? Maldistribution is a word which suggests that someone has probably got too much, and other people have probably got too little. But I am not sure that this really tells the whole story. There are differences between the regions, between hospitals, specialties and so on and it does not follow that those with more resources than average have really got too much for their needs. It may be the other way round. The calculations of the department show that some regions are well off and some are not. But if one asks 'well off' regions how they are going to economise and part with some money their reaction is likely to be a strong denial that they have in fact got too much. As a region we have to try to secure a redistribution of resources occasionally and I can assure you that the claims for more money are always considerably in excess of any savings that prove to be possible. Those who will accept that they have too much are few and far between, and I do not blame them.

Now, taking the service as a whole, we know that the mental hospitals over the years have been under-financed. No one involved can say he did not know that. We all know the condition of the mental hospitals, but with a limited budget that is the result of the sort of decision on priorities that will always have to be made. What I am suggesting is that there is an *overall* shortage which is masked by this notion of maldistribution. When the BMA, in their report last year, analysed health services financing in other countries, they demonstrated that taking into account not only the spending of the public sector, but the private sector also, the National Health Service is grossly under-financed. The solution to our problems lies in making up the shortages which have been masked for a long time by 'maldistribution.'

Evaluation and social service departments

Mr J Algie, *Tutor in charge of management and organisation studies, National Institute for Social Work Training*

Let us explore what might constitute the key elements in an integrated evaluation strategy for the operations of Social Services departments and some of the effects of evaluation on the actual decision-making process. I shall quote various action research projects we have undertaken at the Institute, all concerned with evaluation at the actual point of application to ongoing action. As Margot Jeffereys pointed out so clearly, this is an extremely complex and difficult area and relates directly to psychosocial aspects of medicine.

Why evaluate ?

Like other departments, the new Social Services Departments must supply more concrete evidence than ever before to demonstrate their relevance. In varying degrees they are accountable to local authority committees, to central government, to service consumers, to professional bodies, even to various neighbouring services.

This multiple accountability is being reinforced in various ways: in more streamlined structures coming with local government reorganisation in 1973; new budgetary approaches like Planning Programming Budgeting Systems introduced at Central Government level; the whole movement for consumer participation in service planning and the increasing status of professional bodies like the British Association of Social Workers who are beginning to specify more coherent professional standards; and by demands from various neighbouring services for advice on the social effects of *their* policies backed up by concrete evidence. These are some of the pressures for improved social evaluation.

Everybody pays lip service to evaluation. As previous speakers have suggested, the really difficult question is 'How?' A major difficulty is that we are trying to evaluate several different (though interrelated) sorts of things at the same time. Let us separate these out under three headings of efficiency, effectiveness and efficacy of social services operations.

Agency efficiency

Social efficiency refers to how far we are reaching our pre-defined social objectives with the minimum of resources – getting more out of less without lowering professional standards.

Are we doing what and as much as we intended? Are we delivering services to the desired level in terms of both quantity and quality to the target clientele? How far, for example, are our present agency workloads quantitatively in line with various average national workloads?

Various national workload studies have suggested some interesting approaches to these efficiency questions.

We can calculate by formula two interesting things. We can calculate how many workers we would need to carry our average department workload at current, national work levels. Or, keeping the numbers of workers constant, we can calculate the total number of case contacts we can expect make in a fortnight and how this compares nationally. The base unit of measurement is the mean time per case-contact-plus-supporting-activities.

National studies show that the mean time for the average social work contact is about 23 minutes. The mean time for contact-plus-supporting-activities is about 73 minutes. All we need to apply our formula are three easily discoverable figures: workers employed, total case interviews, and total absences. Workloads only reveal amounts of time spent on work. They tell us nothing at all about quality of service, about desirable policies or operating methods.

What policy-makers can do, thanks to workload studies, is to translate their policies and priorities into fairly specific staff time allocations over each type of social need or problem syndrome. This does *not* mean laying down any rules for how many contacts any one worker should make in a week or anything like that. It does mean we can monitor our time commitments to each particular problem syndrome and derive policy prescriptions of this sort.

1 'We are spending more time than we agreed on blind welfare at the expense of work with the mentally handicapped. Let us reallocate our time accordingly.'

2 'One area team spends much less time than the national mean of 23 minutes per case contact, while another group spends well over this time.'

Area team A must therefore be under more severe pressure than average, while Area team B is working more intensively if we assume their quality standards are equal. If our policy is to give equal service to all areas and clientele, we have to balance up this discrepancy. If, on the other hand, Area team B were working in, say, a depressed zone and our policy is to give extra social service to such areas, then we might say that the present imbalance is about right.

Agency effectiveness

The question of agency effectiveness is posed by such policy prescriptions. We can define effectiveness for this purpose as 'productive interaction between an agency and its community.' We may be delivering very efficient services which are completely irrelevant to real community needs whatever these are and however we determine them. The questions we are asking under this heading are: What sort of impact do our services make on the community?

How far do they actually meet the needs of clients and communities? What are their cumulative effects?

Priority scaling

At the National Institute, we are running a programme of action research based on priority scaling techniques. This programme is designed to formulate priorities fairly systematically as a basis for evaluating effectiveness.

The first problem, very similar to problems as defined by the previous speakers, is that we lack a coherent, practical language in the social services in which we might formulate and compare social problems on the one hand and alternative methods of intervention on the other. This is what makes it difficult to plan, overall, what sort of resources, and in what quantities, we are going to allocate to which problem syndromes or which clientele. This in turn renders the task of evaluating the results of intervention in practice impossible. How can decision-makers even begin to evaluate such diverse claims on their limited resources as increasing residential places, establishing sheltered workshops, employing community workers, improving aids to the handicapped, increasing foster-parent boarding-out allowances and so on? What is the point of comparison between all the diverse things a social services department may have to decide on at resource allocation time?

The language we have begun to devise for social planning and evaluation covers the whole Social Services Department field. It allows us to think across the full range of problems. It applies both at the level of total agency impact on community problems and at the level of individual practitioner's impact on individual client problems. Such a language is indispensable if we are to adjust information which we collect at one time and place so that we can use it at another time and place, which is the basic purpose of measurement in action settings.

Social problem inventory

The language we have devised consists of a thesaurus of all social needs which an agency might confront classified into problem syndromes. Each syndrome describes a sort of elemental problem unit which, when combined, describe various multiple problem situations. Each syndrome is compiled from characteristic descriptor phrases which practitioners are using in their daily work. Each syndrome is then grouped by different degrees of social pathology along a five-point scale or continuum.

Resource inventory

Set against these target social problems, we compiled a resource inventory. In this, we enumerated all the different methods of intervention which might make some impact on each problem. Research allows us to make fairly confident predictions of what impact some methods of intervention will have on certain problem syndromes. For example, adventure playgrounds have been shown to be more effective than youth clubs in attracting and occupying children from depressed areas between the ages of nine and fourteen. With other unresearched methods of intervention we have initially to rely on the informed judgement of specialists in each particular area.

Problems – resources matrix

We end up with a matrix which relates changing community problems and changing agency services. As we vary our resources (improving or increasing investments to meet one set of needs and decreasing them elsewhere), we can watch for variations in each social problem. If the observed variations fall out-of-line with effects which we were predicting when we allocated our resources, then we know that we have wrongly estimated the potential impact of a particular method of intervention on a particular need. Until we have defined such inter-relationships, no agency can systematically test out the daily judgements which staff are already making about which methods of intervention will cope best with which problems. Unless, we systematise daily decision-making processes themselves in some way, we cannot evaluate their effects as part of the ongoing management function.

Efficacy

By agency efficacy, I mean continued effectiveness through time. We might achieve beneficial short-term effects on the homelessness problems, for example, by housing the homeless in emergency accommodation prior to settling them in housing estates. The longer term effect might simply be to convert such problems as inadequate housing into problems of rent arrears, whilst at the same time attracting homeless people from other areas, which is the situation in Oxford for instance.

The relevant questions of efficacy are: Is the agency addressing itself to significant community problems, however we define 'significant'? Is our agency making any impact at all on the key variables of community needs? How can we continuously evaluate changes in social conditions?

Social service objectives

The first problem in evaluating agency efficacy in the social services area is, as previous speakers have pointed out, to specify agency objectives in terms of desired social outcomes and benefits which we seek and inter-relationships between these benefits. In setting objectives, how can we find our way among the range of conflicting social values and pressures on us in some rational or systematic way? What, in short, are the fundamental aspects of social life that we are trying to isolate for quantitative definition?

Two Institute projects may be relevant. The first is an inventory of objectives we have defined which participants in the social service system are apparently seeking to obtain. We have defined fairly specifically 24 basic social objectives and also their cycles of inter-relationship as perceived by a range of practitioners. We have derived these objectives by analysing a range of case and other targets which hold in many agencies, and also bringing in some consumers to state their expectation of services. The remarkable feature about these 24 objectives is their consistency and their ubiquity. They are based on fairly basic values which appear to condition social work priorities, whatever method is being used. We then formulated those methods which decision-makers might use in the here-and-now reality to assign differential values or weightings among these objectives so as to make coherent action decisions in the light of their valuations of objectives. I shall illustrate this process by considering what happened in a particular policy group of one department in deciding systematically how to allocate extra resources for the aged.

Assigning values

At the first stage, we defined three objectives which I will summarise, calling the first the 'social integration' objective: to reduce social isolation of the elderly within the community. The second objective was Independence: to preserve identity and independence of the aged. The third was Nurture: to improve physical wellbeing of the aged. In fact, they were much more specified than this. We asked to which of these three objectives did the policy group attach the most weight or value, and in what proportions?

Value scale

At stage 2, we constructed a 10-point valuation scale and the policy group tentatively estimated what weight along this scale they attached to each of the objectives. The policy group accepted this approach once we had all recognised that in making real-life decisions on what to do about any one particular elderly person, we are often by implication evaluating the relative importance of the three objectives.

The group then made a first rough evaluation, allocating three degrees of priority to the social integration objective; five degrees to the independence objective; and eight degrees of priority to the nurture objective. The valuations resulted from extended and complex arguments among group members. A basic part of the process is to articulate motivations, reasoning and implicit objectives of decision-makers. Some of the reasons that were given during our tentative first evaluation were that nurture seems to be a primary physiological need without which, in a sense, independence or social integration would be impossible. Secondly, independence seemed to be a basic cultural value. In the west, we are willing to tolerate more social isolation than for example in the Soviet Union, because we would find intolerable the amount of social control which would be necessary to drastically curtail social isolation and its effects. Lots of arguments were put forward. Many people were very unhappy about their own first valuations. But we all asked ourselves how we could improve upon them.

Having made the first valuations, we made a different sort of comparison. We asked ourselves a different set of questions. Suppose we took nurture on the one hand and put social integration and independence in combination on the other side. Then suppose we *had* to choose between these two sides. Would it generally be worth our while giving up both independence and a full social life for the sake of maintaining full physical agility? This particular group's unequivocal answer was 'No.' So we selected social integration and independence in preference to nurture alone. We therefore concluded that 'social integration' and 'independence' are higher level values. When taken together, they should influence our decision-making more than the primary value 'nurture' on its own. Yet in our original valuation, we had valued 'social integration' plus 'independence' together as of equal significance to 'nurture' alone (at 8 degrees of priority). We therefore adjusted our original valuation accordingly.

The essential point about such a process is to really articulate reasons for choice. In formulating any policy, or making any decision, or taking any action, we cannot in practice avoid taking some definite standpoint on values (even if only implicity) and thence assigning, by implication, more significance to one value than others. Articulation of the reasoning behind our daily action was one of the pay offs from this process.

From a series of successive valuational choices of this kind, posing the questions in several different ways, we ended up with a final valuation of social integration at 4 degrees; independence at 5 degrees; and nurture at 8 degrees of priority.

We then converted these into percentages by normalising them and we were left with 20% to social integration; 30% to independence; 50% to nurture. The policy group then allocated resources according to these ranked and weighted objectives. We looked at existing resource allocation in the Department and found that the actual priorities were not at all like this. Changes were made to gear present resource allocation to the more requisite allocations evolved by the policy group.

The underlying principle is that when a decision-maker is presented with choices between different outcomes, his preferences give some information about the value basis for his daily decision. They tell us something about the real value the agency places on these outcomes. Each successive choice is used as basis for improving the decision-maker's original valuations since his second set of judgements has some potentiality for revising the first set. Each successive choice gives us more information about the agency's real valuation of these outcomes, in practice. By the same method, the group then looked at various courses of action, for example, developing better community care as against developing better residential care in terms of resource allocations. We assessed how far each of these alternative courses of action contributed towards the objectives as we had previously weighted them.

This process has been used in various fields and has been shown to have validity in diverse areas, for instance deciding the most effective priorities for development among alternative services and products and testing predictions of consumer preferences in industrial and research development contexts. The main aim is to try to tackle, from a practical point or view, the problem of weighting various benefits as well as weighting various kinds of psychological costs in that final cost-benefit equation of overall effectiveness which we are trying to reach.

Evaluation methods

Various alternative evaluation methods are open to us in support of this overall evaluation strategy we have been trying to develop.

Ongoing statistics

Let us look at each in turn: first, ongoing statistics. If we are measuring directly observable or countable events, we can set up an intelligence system to get the counting done statistically. Then we can answer questions about how, in practice, we are distributing resources. Bleddyn Davies in his book 'Social Needs and Social Resources' has wrung the maximum evaluation possible out of existing available statistics. Davies correlates indices of service resources of various kinds. He then reviews social conditions in terms of facilities like housing, income, employment, household expenditures, and so on, as reflected by whatever statistics he can lay his hands on. Then he compares trends and variations from area to area in extensiveness of service provision as weighted by existing social conditions, all within the framework of the available figures. This approach allowed departments falling below national standards of provision to argue for more on the basis of territorial justice. It has also allowed us to model the situation of a typical social services department in so far as this is mirrored in such statistics.

Taking groups of decision-makers, we asked how we could improve the situation of this typical department by re-allocations and new investments. We posed this question through the medium of a management game designed to model the real-life decision-making situation in all its aspects. Playing through this game, we began to define alternative feasible responses to the current situation and to predict probable consequences of the alternative policies. But even after such essays, I think fundamental questions still remain about which statistics it would be most helpful for us to collect for evaluation purposes.

Surrogates

Many important things which practitioners talk about daily and, like self-realisation, self-respect and social competence, are not directly observable or countable and do not fall into any of the treads indicated by present statistics. As decision-makers or as practitioners we need much more information about such matters and much of our attempted evaluation is couched in such terms. What we might be able to do is to infer something about these phenomena by using a set of surrogates. If we cannot directly count or observe something, perhaps we can find some substitute item which *is* observable and countable and which can stand-in for, and do duty for, the unobservable characteristics.

A surrogate is a substitute or proxy measure. We cannot observe the amount of self-respect which an old lady has. What we can observe and count is how much of her personal money she spends on her personal appearance. In conjunction with other surrogates, this figure might tell us *something* significant about what we refer to as 'her self-respect.' For instance, an old lady who spends £1 a week on her personal appearance might very well have greater (what we describe as) 'self-respect' and a greater personal sense of identity than her comparison who only spends £1 per annum on personal appearance. Interestingly, in testing this out in residential home situations, we have found that this seems to work reasonably well. It seems that those who spend most on their personal appearance also seem to feel least pressure in residential settings to conform just for appearance's sake, to have the strongest personal opinions of their own, and also are the ones who disagree most strongly with others during resident participation meetings. There is no reason why this connection should always hold.

Ranking

Another approach is ranking. Where we cannot assign quantities to characteristics, we might be able to assign characteristics to fairly precisely defined classes. We might be unable directly to quantify the degree of social pathology of one problem family as compared with another. But we can rank both problems along one scale in relation to a fairly precisely defined set of factors.

We can do this by drawing a scale showing five degrees of social pathology or problem severity ranging from no problem at all at one end to an extremely severe problem at the other. Translating this into real terms, we may say in the field of homeless families, something like this: Stage 1: Reasonably well and securely housed – no problems; Stage 2: Able to maintain own home if given the opportunity; Stage 3: Able to maintain own home if educated to do so; Stage 4: Able to maintain own home only with extensive supervision; Stage 5: Unable to maintain own home at all – catastrophic problem.

We might use this scale as a basis for intuitive evaluation of problem situations. We might elaborate it to include other relevant factors like domestic management, family unity, health care, rent arrears. Or we could take each of those stages outlined and try to suggest yet more surrogates for each one stage. We would have to limit our search for more surrogates in some way since we would not want to get to the point where they were so multifarious they could not be used in practice. We are talking about reducing the uncertainty of present action and decision-making processes by a few degrees. We are not really talking, at this stage, about reducing that uncertainty completely. This latter step would only be possible if we built in a fairly elaborate research programme into cause-and-effect in each need area.

We have produced a comprehensive set of scales covering the total range of problems which confront Social Services departments. Each of the syndromes is described as various descriptor phases indicating the varying degrees of severity along a ranked scale. On referral, we can assess where each client's problem comes in terms of the scale of social pathology and reassess their position after treatment. If they move from point 4 on referral day to point 1 on the last visit, then obviously the situation has improved. If they move down to point 5, it has deteriorated. This is a very specific form of case target-setting.

People might object to the condition of such scales. They were crude. But in practical terms this might not matter at all. Changes in various aspects of client problems or social conditions seem to be made in face of a massive inertia. This inertia may be embodied in the client's background and development; his socio-cultural situation; and the institutional structures with which he interacts. The behaviour patterns with which we are dealing are, by and large, so stable that subtle changes will have little effect on results. On this basis, a simple 5-point scale will usually provide enough discrimination to define the sorts of behaviour changes with which we are concerned. If we analyse on-the-spot, daily decision-making we find that decision-makers use a mental 3-point scale in practice, and more often a mental 2-point scale in making their intuitive choices. Either things remain much the same as they are, which is indicated by the central point on the scale. Or they are very much better or very much worse than at the time of initial referral, which we represent by the two extreme ends of the scale. Or they are a little better than when we started or a little worse, which we represent by the two intervening points. In fact, people do not seem in their actual decision-making processes, to discriminate in terms of any larger or more complex scale than these five-pointers when making judgements about reality.

Specifying criteria

Another approach is to specify an objective and the criteria for its achievement so precisely in terms of observable factors that participants can readily observe whether they are present or not.

I shall illustrate this by talking about an action research project in an old people's residential home. With staff, residents and management we discussed ways of improving the life situation in the home. We find one key objective which we felt, if pursued successfully, would in everyone's opinion make a major impact: 'to encourage interrelations among people in the home which might better meet their emotional needs for social integration.' Then, in conjunction with staff, residents and management, we devised programmes of action to attain this objective. We asked ourselves: How could we know if, at the end of the day, this objective was realised or not? We defined the criteria of success quite specifically by analysing what exactly we meant by the key phrases in the agreed objective.

Analysing objectives

The phrase which referred to the final, desired outcome was: 'Emotional needs for social integration.' What types of social integration were we trying to fulfil? We obviously could not meet everyone's needs and it would be undesirable to meet any need which was pathological like the quasi-sadistic's needs which were revealed in the case of one old lady who nearly disrupted the whole home.

The key phrase referring to intermediate targets was: 'Interrelations among old people.' What types of interrelations were we aiming to achieve? We did not want to encourage those which result in the old people becoming emotionally distraught.

The phrase 'to encourage' we felt referred to the input or effort criteria. Only certain methods and styles of encouragement are appropriate in trying to achieve this objective. Physical force would obviously be inappropriate and in any case prohibited. We compiled an inventory of all the factors relevant to the needs for social integration, the nature of the interrelations we hoped to encourage, and the method of encouragements to be used.

Social integration

Social integration factors include elements like residents' ability to inform themselves and each other about their own problems; their ability to distinguish differential contributions made to home life; sharing the informal leadership functions going on and so on and we derived specific scales for each of these factors. We began to distinguish between *mere social presence* of the resident on the one hand, where a person really grasped very little of what was happening in the home, regarding events and inhabitants as alien to herself; and *genuine social integration*, as we used the term, where a resident knew almost everything that was happening to everyone, identifying with those events and with other residents in a familial way. Residents' information and concern about what was happening to who, became our key indicator of social integration.

We made a similar inventory of inter-relationships in terms of their number, frequency, type, compatibility and range, we derived criteria scales and began to distinguish between *mere contact* where one resident neither understood nor responded to messages which others tried to communicate; and *genuine interaction* in which the message was understood and some positive or negative response was made. Degree of responsiveness to initiated contacts became our key indicator for resident integration.

In terms of encouragement, we began to distinguish between *imposition* in which various forms of overt or covert pressure were applied by management on staff and by staff to residents; and *genuine encouragement* in which informing people, questioning, providing example, proposing, and inculcation through resident participation, were the order of the day All forms of commanding or ordering, were ruled out. The degree of participation became the key indicator for genuine encouragement.

We had criteria scales against which we could assess where we were currently and where we wanted to get to in future. We set targets for this desired future state and evaluated, after our programme of action, whether we had achieved these targets or not. We were diverging very considerably from normal evaluation procedures, since at all points our criteria were evolved and applied via discussions with staff and residents. No commands were issued at any time. Agency visitors to the home began to ask questions which were designed indirectly to elicit how life in the home was proceeding in relation to the defined objectives. These questions began to focus attention on the residents' social and emotional needs and away from those physical needs and comforts which, I think everybody agreed, had been over-stressed in the past and which were being reinforced by the questions visitors asked when they visited the home.

In evaluating their own performance, staff themselves formulated the questions they were going to ask residents on the basis of the preliminary questionnaire. The staff asked the questions, monitored the responses and took residents' response as cues for modifying their own action. A continuous process of self-evaluation had been put into effect.

Social indicators

Where it would be too big a job to evaluate in this way all the different factors involved in a situation intensively, it might be helpful to take just two or three key indicators to do duty for all the measures we cannot make. In the case of this residential objective, in applying the scheme to other homes, we used the three indicators: residents' information about what was happening to who; degree of responsiveness to initiated contacts, and degree of participation.

Social indicators are interrelated, aggregate figures telling us about situations as wholes, rather than situational elements. They summarise whole varieties of changes in one set of meaningful numbers and therefore allow us to aggregate with other similar aggregates.

Integrated evaluation programme

How do these procedures fit together into an integrated evaluation programme? To derive evaluative statements about optimum work schedules which are justified by evidence, we must model the degree to which the total array of needs are met, the types of service or method of intervention necessary to meet them, and then the associated activity patterns. We then have to introduce variations in the model under controlled experimental conditions. To do this at the level of the total system would be a vast and expensive job.

The question we are exploring here is rather how we might evaluate the impact we are making as part of the normal management function, rather than as a result of special research programmes. To make progress in this direction we have to tolerate a much greater level of uncertainty than that which normally satisfies academic researchers. Evaluation programmes which are built into daily operations raise some fundamental questions about the meaning and status of measures, how these are derived and how they are used in practice. We are working, in fact, in an area which lies somewhere between the complete uncertainty of the subjective, unconscious evaluations which are used in existing, everyday routines and the complete certainty of indicators derived from thorough-going research.

To achieve this kind of integrated evaluation strategy, we need to interrelate the three levels of efficacy, effectiveness and efficiency – that is, to relate macro and micro indicators. We have suggested several approaches. We used direct measurement for quantitative analysis of workloads. We used surrogates to tell us something about the qualitative impact of our work, for instance, in a residential situation. We then combined these several surrogates into ranking scales to determine what impact various resource allocations had on community problems. We combined several ranking scales together to produce comprehensive criteria on how far we had achieved specific residential objectives. We have begun to derive indicators for the various overall agency objectives pursued to decide whether sought-for benefits materialised or not. We have begun to combine various methods of making valuational estimates of the physical, psychological and social costs and benefits so as to try to determine overall benefit-to-cost ratios.

Each approach to evaluation seems to lead on from assessment of shorter-term efficiency of a specific, delimited operation, through to longer-term, macro-evaluation of efficacy in terms of impact on community. What we are striving towards is some means of controlling the complex mechanism by which the social service interacts with the community system, how this changes and with what effect.

This is probably the primary planning and research task of social service departments and one whose results will have wide implications on the whole network of social services.

Effectiveness and efficiency in medical treatment

Professor A L Cochrane, *Director, MRC Epidemiological Research Unit (South Wales)*

I feel somewhat embarrassed today. For the first time in my life I address a medical audience without presenting hard evidence that I have collected myself, usually supported by some tests of statistical significance. I have been encouraged to stray from that world into this curious socio-economic medical world where I feel very insecure. I hope you will bear with me. My only comfort is that I seem somehow to have regained my amateur status and am now able to speak more freely.

For the last year or so in my unit, in our spare time, we have been looking at the health service as a rather sick organisation. We have concentrated on the therapeutic side of the health service – the cure side if you like – because in this area the objectives are more clearly defined. To simplify the issue I am assuming that the objectives of the cure section are to alter the natural history of diseases for the better. My general line this afternoon will be to describe the curative services very briefly, to try to make a diagnosis and to suggest a treatment.

Much of what I am going to say will be well known to you so I shall go pretty fast in the first part and then talk more carefully about the parts that I am interested in, the measurement of effectiveness and efficiency.

The first thing we looked at was the history of medical therapy in this country. I just want to make three brief points. First of all, until the 1920s, as McKeown and Lowe have pointed out so well, the therapeutic service probably did not affect vital statistics at all though it may have had some psychological effects.

The second point is possibly not so well known but I think it is well established. Osler in about 1880 called attention to it. He noted that the main characteristic differentiating men from animals is the desire to take medicine. People want medicine and actually believe that if they get medicine from doctors it will help if not cure them. Allied with this, and possibly causing it, is the curious tradition in the medical profession that it is always better to do something than nothing, whatever the probability of improvement.

The third point is possibly more subtle but I think you all know it. It is the curious thing that happened in the 19th century when British science divided into 'pure' and 'applied' science. It has had a devastating effect ever since. Pure science became snob, or 'U,' and applied science was left to the lesser breeds. I was advised by very senior people at Cambridge, a long time ago, that the only research worth doing was 'useless' research. I am sure you all know the dreadful effect this division has had on the health service because until recently there has really been no applied medical research done in this country. Those are the three points I want to make historically.

Then, having studied the history, we turned to the rather difficult field of input and output in the health service. On this I have had a lot of wise advice from various friends who are not responsible for my views. I think the best way of looking at it is to think of the external input and the real input. The external input is enormous. I include in this all the discoveries, usually made outside the medical profession, and the medical research which has led to new drugs, new therapies and new operations. The amount of external input in the last 20 years has been far greater than in any other 20 years in history. For that reason alone, we would expect a great increase in therapeutic output from the health service. The NHS cannot take credit for the external input. It gets credit or discredit according to the use it makes of it.

When I speak of real input I mean the goods and services which are actually purchased by the health service. There has been, as I am sure you all know, a marked increase in the number of doctors and nurses and the number of diagnostic tests carried out, both chemical and radiological. There has also been a definite increase in numbers of prescriptions though somewhat interrupted by various charges. Talking about money is a bit unreal because it changes its value so rapidly. But these changes I have mentioned are real increases in input and most of this has gone into the therapeutic sector. It is rather difficult to separate this out from the information available but I am fairly confident that most of the increase in input has gone into this sector.

When we turn to output, you all know the trouble we have in trying to measure it. The two classical measures are mortality and morbidity. The changes in mortality data are incredibly gloomy; the expectation of life has increased but not very rapidly and not very much. In the case of middle-aged men the decline in mortality rates has come to a stop and there really is no suggestion of a dramatic increase in output to correspond with the dramatic increase in input. The lack of change in total mortality is, of course, in some cases, due to a decrease for one disease cancelling out an increase for another.

As an illustration of the difficulty of interpreting trends and attributing outputs to inputs, take cervical cancer. The fall in mortality has been continuous at about 1 per cent per annum for many years but you cannot possibly associate that with anything done by the national health service. It was falling at that rate long before any action was taken about smears and the fall has gone on continuously. You cannot really give the health service any credit for anything unless there is a well established causal relationship between intervention and the observed improvements.

Morbidity is equally difficult. The only measure of morbidity that is really available is certified 'time off' for sickness. This, as you probably all know, is going steadily up with a particularly dramatic upturn in the sixties. It is, I am sure, a real output of the health service, as it is certified by doctors under contract to the health service, and as such must be considered very depressing. Looking at the trends for separate diseases, there are the same 'swings and roundabouts' as in mortality with absence from some causes going up and absence from others going down. When we have effective therapies, as for tuberculosis, absence has gone down but there have been massive rises in time off from all the ill-defined causes such as headache and backache.

In our unit we had a quick look at all this and decided that we were not really going to make much sense of it. But we came away with the strong impression that there was a complete lack of balance between the output and the input. We thought the next logical step was to look at individual diseases. We had to invent some indices to do this and we decided to use 'effectiveness' and 'efficiency.' On the whole I think I use them in a way similar to the last speaker but I would like to define them accurately.

I use 'effective' in a purely research sense as evidence, mainly from randomised controlled trials, that the treatment alters the natural history of the disease for the better, be it morbidity or mortality. There are some treatments about which you do not need evidence from randomised controlled trials, but the latter is the only satisfactory means of measurement available that can be widely applied. It is the only standard I have for effectiveness. The major constraint in measuring it is the ethical one, which applies particularly in the cancer field. There are one or two important cancer therapies which have never been properly evaluated. Elsewhere there are a whole range of therapies particularly in the area of physiotherapy and psychotherapy which could be evaluated and which, I regret to say, have not.

'Efficiency' is the term I use to cover everything else, i.e. the use of men and materials in deploying effective treatment to the people who need it. We played about with a number of indices of efficiency but they are not terribly satisfactory. The first one I tried was the cost of producing the desired effect, as shown by research, in ideal circumstances divided by the cost of the minimal use of men and materials to get the same effect. The idea is to find the ratio of actual to ideal costs. I played with this but there are so many medical treatments in current use that are entirely ineffective that you may get nought below the line and a large figure above the line. This would make a ridiculous ratio; furthermore it does not differentiate the degrees of inefficiency with which ineffective treatments are used.

I rather like ratios but I do not really think we can use that one. The one I am playing with at present is the actual cost of deploying effective treatment to the population minus the ideal cost, per 100 cases treated. Something like that, I think, is probably one that could be used. For ineffective treatment the ideal cost is nil so this index can still be used quite satisfactorily. We can take as an example a condition for which treatment is extraordinarily effective: tuberculosis. More than 100 randomised controlled trials have clearly shown which drugs are effective, the best combinations of the drugs and how long they should be given. This is a superb example of effective treatment and we were rather interested to see how efficiently it is applied, particularly as this effectiveness is rather rare in medicine. Some epidemiological work has been done on place of treatment for tuberculosis. This is important as place of treatment is one of the most important variables in efficiency and because hospitals cost so much more than home treatment. As most of you know, WHO and the MRC organised a randomised controlled trial of place of treatment in Madras which showed very clearly that people could be treated even in the slums of Madras as effectively at home as they could in hospital. This has been confirmed by Tyrrel and others in this country. The amount of bed rest, or the length of stay in hospital, was one of the first things we looked at regarding the efficiency of TB treatment at present. It is rather depressing to find that the average length of time in hospital for TB patients has only slowly fallen to seventy days. I think it costs about £40 a week to keep a patient in a TB hospital.

The cost of hospitalisation is very great compared with the cost of home treatment so the efficiency rate is incredibly low. But that is not all. Looking at some other aspects in greater detail it is interesting to compare the different policies for following up TB patients, how frequently they are X-rayed and how frequently they have their sputum examined. There are the same extraordinary variations amongst consultants and no effort is being made to find what the optimum is from the point of view of the patient.

As another example I can quote the results of a recent confidential survey. This looked into the way different consultants used a test called tomography which has a very high radiation risk and is thought by most people to be absolutely unnecessary once the diagnosis has been established by a positive sputum. Three different hospitals were examined. In one only 2% had tomograms after they had been found to have positive sputum; in another one 54%, and in another 88%. These are very expensive investigations and give a considerable radiation dosage. Similarly one could go on to quote a whole series of rationally inexplicable variations in the percentage of patients who have lateral and oblique X-rays. So, in what is probably the medical area with the most effective treatment in the world, the treatment of tuberculosis, you could find a fantastic inefficiency ratio or a fantastic sum of money wasted when you compare the present cost of treatment with the ideal costs.

I wanted as a comparison to take an example from the other end of the scale, i.e. a relatively ineffective treatment deployed very inefficiently. I think the best example here is the treatment of mature diabetes. Traditionally insulin and more recently the oral diabetics have been used because of their effect in bringing down the blood sugar. Until recently no one had done any randomised controlled trials to see whether the morbidity rate of people with mature diabetes was lower or even whether they lived longer when given these drugs. But in the United States a short time ago, the results of multicentre trials were published showing that the two oral diabetic drugs commonly used are probably positively dangerous and that insulin has no effect. There has been one trial in this country suggesting a very small beneficial effect from the oral diabetics. All these trials can be criticised. Few trials are perfect, but if one trial suggests that the drugs are dangerous and the other that they might help a little, the only conclusion I think reasonable people can come to is that it is better not to give the drugs at all. As these are the only treatments given for mature diabetes it seems that this is an example of a large group of people being treated by ineffective drugs.

Then, how efficiently are we giving this ineffective treatment? Traditionally people all go to diabetic outpatient clinics and this happened to be a place where I worked as a young doctor. I had the job of seeing all the chronic outpatients. I knew very little about diabetes. I always assumed that the general practitioners must have known more than I did as the patients rushed past me at the rate of about two a minute. I am sure that they were being treated in the wrong place. This, of course, is only a hypothesis that I am putting forward but I am happy to say that a randomised controlled trial has been organised to test this hypothesis, randomising half those at a diabetic clinic back to their general practitioners, so we should soon have an answer.

As an example of the general run of treatment, which is neither particularly effective or ineffective, nor strikingly efficient or inefficient, I have chosen coronary disease. Three important treatments, all of them very expensive ones, have been introduced in the last 10 or 15 years; the first was anti-thrombotic therapy. Doctors took up anti-thrombotic therapy with great enthusiasm at first, but after a large number of trials I think the present opinion is that it is of no value to women and is only of value to men if they have had a second attack and/or are suffering very severely from angina. There appear to be very limited indications for this therapy, and its use is slowly dying out.

Then we had the craze for glucose and insulin and I remember a statement by a senior member of the medical establishment that it was so well established that it would be unethical even to do a trial. As usual when a trial was done, it showed that it had no effect at all.

Then came coronary care units, imported from the United States at very considerable expense. Again, it was a good idea but you really have to check whether these ideas actually work in reality. I think it is very much to the credit of Dr Mather and the DHSS (who provided the finance) that a randomised controlled trial was organised and carried out in Bristol. This compared treatment at home against treatment in the coronary care unit in hospital and showed, not to my surprise, that there was no significant difference between the mortality rates of the two groups. On the whole the home treatment group fared a little better with a 9 per cent mortality rate compared with 13 per cent for those who went into hospital. One trial never establishes anything. It must, of course, be repeated. In this case it is difficult to separate the 'effectiveness' and 'efficiency' aspect of treatment because the place of treatment enters into both. The important point is that we do not know where or how to treat coronaries, though I suspect we will find that treatment is better at home if home conditions permit – but we simply do not know how long bed rest ought to last. Nobody has ever worked this out even though bed rest is a very expensive thing, especially in hospital. However, I am glad to say we have just got a trial going on this.

One can theoretically randomise all the variables like length of stay and number and frequency of tests in order to find the optimum type of treatment. It is just a matter of hard work and getting consultants to co-operate and someone to do the detailed costing. The economists are terribly good at advising how to do it but they seem very reluctant to do it themselves.

We then tried to give a diagnosis to this sickness that besets the therapeutic sector. I think – and here I am sticking my neck out a long way – that the best name for the ailment is inflation – the nicest possible type of inflation because it is based on a desire to help, coinciding with a great desire to be helped, in medicine. This results from the performance of more and more marginally useful services with no apparent limit except that imposed by the money available. If we look for external causes of this state of affairs I think the main one is the psychological state of the nation. People demand medicine and doctors are prepared to do something rather than nothing, whether or not it is effective. But there are other causes. I think I must include the pharmaceutical industry and also some medical research. The latter often adds to costs without causing an improvement in effectiveness. There is also the almost complete lack of applied research in medicine until very recently. We all know the troubles the late lamented Prices and Incomes Board got into when it tried to control inflation in the economy but I would argue that we are in a much better position to control medical inflation. We have the objective scientific techniques for almost complete evaluation of effectiveness and efficiency in the therapeutic field and I can see the time when we would be able to control inflation very satisfactorily.

I am rather an inefficient type myself and I would never suggest the NHS should be 100% efficient. I think that would be pretty ghastly in any profession. But we certainly could make an enormous improvement and I would argue that it is a matter of very great urgency because I suspect that if we do not control therapeutic inflation, the first thing that will happen will be that the economic imbalance between the therapeutic section and the care section, which is already wide enough, will grow wider and wider. The second point is that if this inflation continues I am sure that the next stage will be handing over part of the therapeutic section to the forces of the market place, a thing I certainly do not want.

I do not know whether you know the quotation – but some of my colleagues remind me very much of Agatha in T S Eliot's 'Family Reunion.' Agatha wanted medical action 'not for the good that it will do but so that nothing may be left undone on the margin of the impossible.' Too many of our profession flirt along that margin of the impossible and if they could only restrict themselves to doing things where there is a reasonable probability of effectiveness we might be able to cure this inflation.

Discussion

Mr Lavers I wonder if I could ask Professor Cochrane about this measure of effectiveness because it seems to me that he was looking only at differences in death rates. Would he consider the other consequences of illness which it would be desirable to avoid. For instance, the coronary cases quoted may not differ in respect of mortality whether given home or hospital treatment, but one group may suffer more crises than the other.

Professor Cochrane In theory, any index, medical or social, relevant to changes in the natural history of disease, which can be measured without bias, can be used in randomised controlled trials.

Indices of pain, morbidity and social indices such as time taken to return to work, have been used. Most indices associated with effectiveness could be used in this way.

Among the coronary cases, detailed morbidity studies are being planned. I think John Ashford is here and could tell us more recent figures about the Bristol survey.

Professor Ashford Mortality is very easy to measure. But absence from work is very difficult. I think it is too early to say anything about the effects of treatment other than in terms of mortality, though with long term follow up morbidity data will become available. It is fairly easy to measure the incidence of second attacks, which would be one measure of morbidity but this takes time. We have not got enough patients or enough events to do the analysis yet. Also, our attempts to randomise different treatment methods, the amount of bed rest for instance, are confounded by the attitudes of consultants who very naturally are not always enthusiastic about randomisation.

Professor Jeffereys I think some of the problems of evaluation are illustrated by this last point. I do not think it is valid to assume that all of the desirable outcomes we are trying to obtain can in fact be attributed to specific variables such as drugs or bed rest which are possible to randomise. We ought to bear in mind that the interaction between a patient and a doctor is, in itself, part of the therapeutic process. It may be either bad or good or indifferent in relation to the outcome but I cannot see it being varied arbitrarily. I am saying this because I think that if we become satisfied that we have got a good measure of input and output we may close our eyes to other more intangible variables which are especially important when we are talking of less serious but much more prevalent morbidity like the common cold.

Mr Laing One thing that sometimes worries me is that trials may not differentiate between sub-groups who may react very differently to the treatment being given. Is it not likely that in the case of coronary care units some people would benefit, some people would not benefit and some people would actually be harmed? Unless we identify the sorts of patients who are likely to react differently then we may miss the right answers. How can we be sure we have not passed over a small group of people who really do react differently from the rest?

Professor Cochrane I think this is a perfectly fair point and I think widely, if not always, recognised. There is always the possibility there may be a small group who benefit from a trial, which could be overlooked. For that reason you usually analyse the results by every conceivable sub-group. In this case I know John Ashford does this by symptom groups, ECG findings and past history and I think I am right in saying that so far no sub-group's results have been found to differ significantly from the aggregate results. It is important to make the trial as big as possible originally so that there are sufficient numbers for statistical analysis of smaller groups.

Mr Dawson How do you think the medical profession managed to abandon useless, doubtful, or even dangerous treatments in the years before randomised controlled trials had been heard of?

Professor Cochrane I am very interested in this though I do not know an awful lot about it. Giving up an established treatment seems to go very slowly. At present I am interested in the use of B_{12} in the treatment of pernicious anaemia and some other conditions. I published a paper recently with Fred Moore on expected and observed consumption of B_{12}. In doing this, we found a lot of B_{12} had been given for Herpes Zoster and we have been tracing the literature to see when this originated. It goes back a long way, apparently to a lecture round about 1900. It has gone on and on and it seems very difficult to kill the fallacy altogether. As another example, anti-thrombotic therapy is falling off only very gradually. The decline has accelerated but no-one likes to come out and state categorically it is wrong to give this or that treatment. Another example is amphetamines. I am sure we ought to stop prescribing them and a lot of local BMA committees are doing this. But it takes a very long time and there is no accepted technique in the medical profession for discouraging doctors from using particular drugs if they want to.

Mr Dawson Yet medical history records hundreds and thousands of discredited treatments which have been stopped.

Professor Cochrane Yes, they do die out in time and there is comfort in it. Somebody ought to study this decay in the use of certain treatments and maybe throw light on the techniques of accelerating the process.

Indicators of health – an economist's view point

Mr A J Culyer, *Assistant Director, Institute of Social and Economic Research University of York*

I should like to talk briefly about the functions of health indicators, why I believe them to be important and to offer a suggestion as to how one may be devised. I speak, of course, as an economist. That is to say as someone who specialises in choice problems – how individual and collective choices are made and also how they may be improved. It is about the latter – normative – side that I am speaking today, for it is in the context of improving decision taking that I see the role of social indicators. I am especially pleased to be able to do so in view of the professional crosses which I and my colleagues are (almost) invariably thought to bear: namely that we are concerned only with commercial enterprises, that we encourage governments to adopt commercial criteria in public policy (in which I include *social* policy and health policy) and that we are obsessed with the rate of growth of GNP. The first two crosses are ones we do not carry as a matter of fact and while many of my colleagues have, over the past fifteen years (but not much before that), been obsessed with economic growth, I have not been and have been pleased to see my unfashionableness become fashionable in my profession as it realised (as everyone else always had) that GNP does not measure all the most important or the best things in life. It remains, however, that few of the best things in life are free (it does great mischief to suppose otherwise) and my concern with health indicators derives from the opportunity I see in them to give quantitative information about some of the good and bad things that decision-takers (especially at the policy-making stage) think are important that were previously unquantified or even regarded as unquantifiable. Although we are discussing the health service today, I do not think you will find it hard to visualise how the approach I am going to suggest could be of inestimable help in improving policies towards poverty, housing, education, disability and, indeed, in all areas of social policy. In short we seek to find ways in which the non-monetary, non-GNP and often unaccounted effects of both policy and the social and physical environment can be incorporated more fully and systematically into policy choices.

Contemporary interest in social indicators can be dated, I think, probably from about 1962 and derived as one of those famous 'spin offs' of the American space programme. More precisely, it was felt desirable at that time – that remarkably late time, one might add – to try to discover some of the wider consequences of major technological innovations. The need for social indicators, with the emphasis on the 'social' was felt because of the manifest inadequacy, which is now recognised as a manifest inadequacy, of national income data as measures of social well-being. Perhaps it is not altogether surprising that although we may all agree about the inadequacy of GNP in this regard, the wealthiest nations of the West have only begun to show any real political concern over this inadequacy after they had consistently, and for a longish period of time, had their noses rubbed in slow growth rates of GNP, poor balances of payments, under-investment and all that. So it is entirely natural when you are losing the material race, to hunt around for measures of other dimensions of social life in which you may appear to be doing rather better.

Well, if that is a cynical view of the reasons for the current popularity of social indicators, it is not, I think, to say that we do not need them or that they may not be in the future as much a source of concern as our aggregate monetary data are today. Indeed, I personally have high hopes of social indicators, not only because they present new conceptual and empirical challenges to social scientists, hence (as good Keynesians) ensuring our future full employment, but chiefly, of course, because they might lead in the future to a more sensible planning of a world fit for human beings, and other species, to live in.

Now, if we were, like the Americans, to undertake the task of writing a social report, to discover the 'Condition of British Society' we would chiefly lack information – systematic information – about the various dimensions in which one might imagine that the quality of the good life is to be measured. And social indicators, of course, are supposed to indicate just this – either how good it is, or how bad – it does not really matter which way round you look at it.

Functions

I have personally found much of the current discussion of social indicators in general rather unclear. Part of the reason for this is because the function of these indicators has not been made explicit enough – for example are indicators supposed merely to chart the course of social development in a more or less objective fashion? Are they supposed to aid in the task of national policy making? Are they supposed to form a basis for social forecasting? Are they supposed to have normative content telling us what needs to be done? Presumably the function of social indicators is related in some way to the objective of social policy but presumably also indicators do not themselves describe the objectives. On the other hand, they may do. If we are not clear about the function we shall wind up with indicators whose function is unclear and whose usefulness is consequently severely limited.

I shall henceforth concentrate exclusively on the health side. At the broadest level, it seems to me that one might, following Professor

Bickner, identify three functions for indicators. The first of these is the public information function, the second is a health service administration function and the third is the function of aiding medical science.

The first function is that of giving readily digestible information to the lay public and to politicians. This is essentially a PR function, usable by the professionals and experts to call attention to health matters and to get a larger slice of the financial cake in coping with them. As such this type of indicator must be easily comprehensible, or at least it must – and this is probably more important – appear to be easily understood (like GNP). The second, administrative, function is to enable health administrators to be better planners, allocators and administrators. Indicators in this use would improve consistency in decisions at all levels and would provide a firmer base for policy making. The third, medical, use of indicators would help, I would hope, those engaged in empirical research in the field of medical care, providing new and consistent dimensions in terms of which experiments might be designed and evaluated.

In general, I believe that indicators in the second two uses should be more sophisticated than those in the public information use partly because we need rather subtle tools in these second two functions but also because these more subtle tools will inevitably be less readily comprehensible to lay persons, will therefore have less impact and will consequently do their primarily PR jobs less satisfactorily. In general then, we can, I believe, get away with a fair amount of crudeness, eclecticism and ad hoc-ery in the first function. Here, fairly ordinary numbers recording mortality, morbidity, days off work due to sickness, GP visits, doctor–population ratios and so on, can serve without worrying unduly about the meaning of these measures or what bearing they might have on specific policy formation.

I shall concentrate here on the second function entirely because it is more interesting, I think, and also more important than the first and because, as we shall see, it largely embraces the medical function.

What sort of indicators are needed

To discover the sort of indicators required for sensible decision taking we might usefully begin by asking what the *necessary* ingredients of any sensible decision are. It is generally agreed that any sensible decision requires either knowledge or guesses or guesstimates (whatever euphemism you want to use), about four things.

First, the consequences of our action, or in economists' jargon, the output of any particular activity in the health service. So output is the first necessary piece of information or the necessary concept to have a stab at, in evaluation, or in making any sort of decisions.

Second, the need to evaluate these consequences or their output in terms of good or bad, better or worse. Specifically, we have to place social and humanitarian values upon the various rates of output of any activity in the health service. Whether it is ever going to be possible to do this explicitly and formally, I would not like to say. But it has to be done at least implicitly and informally.

Third, we need the means of implementing the consequences. This comes under the category of earlier speakers in what they meant, I think, when they talked about effectiveness; specifically it is the technical implications that are necessarily implied by performing any particular activity. In the economic jargon, we would describe it as the production function.

Finally, we need an assessment of the value of the various means, i.e. the input in the process, in the best alternative social uses to which they could be put. In economic jargon, again, the social costs of any activity.

These are the four things I think we need and they are an exhaustive list of requirements for any decision.

Why are these four things required? The output must be known or guessed at because this is presumably the whole point of the activity. Patients go into hospital because it does something to them, not, I trust, for the hell of it. Valuing output is necessary because we need to guess whether these consequences are good or bad and *how* good or bad they are, compared with some alternative set of consequences which we also might have the means of assessing. The means need to be guessed at otherwise we wouldn't know how to achieve the effects we seek, and the costs need to be guessed at otherwise we wouldn't know whether an activity of known consequences with known social value was really worthwhile – we could (though with some difficulty) abandon the school building programme and double the number of hospitals in ten years or so but this would clearly be of dubious social worth.

This itemisation might appear painfully banal were it not for the fact that the language which we commonly employ in talking about health service policy bears very little resemblance to the language I am using here. A reason for this may be, of course, that it has been directed to the layman and not to experts, but I do not think that this has always been the case. For example, much policy discussion is couched in terms of the *needs* of people, where what is meant by a need for care (at least in its most respectable version) is the state of an individual who has an illness or disability for which there is effective and acceptable treatment or care. According to this view there exists much unmet and considerable unrecognised need. Also, some needs are more important than others. While this concept can, with some interpretation, be related to the four ingredients discussed above it suffers from two major deficiencies in my view. First, it is not really an operational concept as it stands. Even if we devised indicators demonstrating the extent of need in this sense, how should they be interpreted? What should we do about it? It is too imprecise. Second, it carries the inevitable connotation that all such needs ought to be fully met, which is almost certainly not the case. Essentially what this concept of need means is simply a situation in which something can be done to ease or improve a patient's ill-health – it says there is a *potential output*. It does not tell us what social and humanitarian value to place upon this output and it does not tell us what it would cost to realise the output. It therefore cannot tell us how far to go in dealing with such ill-health, let alone telling us that needs ought fully to be met.

It clearly sounds churlish (if not worse) to suggest the possibility that we might choose to accept a degree of unmet need, in this sense, and yet this is both what we currently do and what we should do. It sounds churlish only because of the dangerously emotive overtones of the word being used; a word, moreover, that serves not only to mask the undesirable necessity of having to make choices, but also masks the intellectual path by which we may be able to make these choices better choices.

Another, more personal, reason for objecting to the use of the word 'need' derives from its frequent juxtapositioning with 'demand.' As a recent OHE pamphlet has put it: 'The health services have struggled unsuccessfully to meet demands . . . clearly there is an overall short-fall of supply. Nevertheless, much "unnecessary" demand (whether stimulated by the patient or by the health service system) is at present being met from the available supply of medical care; treatments of unproven value are being provided.' Now the reasons for my objections do not lie in the fact that unambiguous indicators of *technical* need rarely exist. This point is well made by the OHE in the same pamphlet, and is generally accepted, I think. Rather, the reason is that the concept of need as used here, though stated explicitly, or apparently, in terms of supply, like the previously discussed concept, is really a statement about the social demand for care. The expression 'unscientific demands' is misleading and dangerous. It is misleading because although the provision and effectiveness of clinical care is a scientific problem, the demand for it is not – it is ineradicably bound up with value – judgements and personal and public preferences. It is dangerous because to orientate the health services towards satisfying 'scientific needs' is to place in the hands of the 'scientists' decisions that should properly be taken by publicly accountable persons.

It is one thing to decide whether repair surgery for hernia and varicose veins is more effectively or cheaply done in an outpatient basis or in the acute wards of our hospitals, but it is quite another matter to pretend that science can tell us who, or how many people ought to be treated and for what treatable conditions.

I do not dispute that a greater quantity of information on health matters may be desirable on both social and economic grounds; nor do I believe that the adoption of 'scientific need' will be necessarily detrimental at the doctor–patient level – at least so long as the 'scientific need' criterion is restricted to planning, investment and allocation decisions in the health service, rather than instructing the individual doctor on what to do in specific cases. God forbid that the pursuit of 'rationality' should lead us to a situation where the treatment of John Smith, road accident victim, is decided by a Casualty Officer on the basis of any narrow economic considerations of his value to society, or that terminal cases be banished from the public health care system on the grounds that medical science can do nothing for them. My objection to 'scientific need' can be illustrated with an example.

Cigarette smoking harms health and shortens life. Health would almost certainly be better and expectation of life longer if people did not smoke. 'Scientifically,' therefore, it would follow that we should obviously stop people from smoking (ignoring, that is to say, the ill effects on health that stopping smoking might have in terms of obesity and psychological harm and so on). On the 'scientific needs' approach merely to warn and inform, is not enough. By what moral criterion could the logical implication of the 'scientific needs' approach be justified, that is to say, compulsory legislation, to prevent people from doing this. Good health and a long life are by no means the only objectives of life. By what warrant should we be forced to behave as though they were? My own value-judgement is that if, when confronted with the relevant information, individuals smoke and continue to risk their health that is their privilege. They are presumably 'trading-off' the pleasure of smoking and the joy of good health in an optimal fashion. This is a rather extravagant example. But presumably the 'scientific needs' approach, in its application in preventive medicine, would have us stop mountaineering, pot-holing, boxing, over-eating and so on. I am afraid that in all these cases it is the job of the medical profession to warn us and then to pick up the pieces (so far as possible) afterwards but not to stop us from being what has been described (in a very narrow sense) as 'irrational,' 'irresponsible' or plainly self-indulgent. Nevertheless, these seem to be the unavoidable implications of 'scientific need.'

I do not want to over-criticise the OHE's arguments, for they contain much good sense. But I do want to emphasise that needs, health indicators and so on, can never be 'objective' or 'scientific'. Social value judgements are inevitably built into them and the task of making them clear and acceptable must never be shirked.

I could itemise a number of other objections to current practice – for example our persistent use of indicators of inputs (GP–population ratios, patient-weeks in hospital, and the like) as measures of output – but since I suspect that most people are aware of these problems perhaps I should turn from criticism to offering some constructive suggestions.

A proposed health indicator

The need for input (doctors, hospitals etc.) must be derived from the need for output. That much is clear. The social need for output must imply some process by which the various outputs are valued in social terms. This process of valuation is a thorny problem about which I will say nothing today. The root problem is clearly the problem of how to measure output.

If we take as output the improvement of people's health, as I think we must, then we need an indicator of health as our first essential. The suggestion that I and my colleagues are making in this connection is to construct an indicator based on an assessment (a) of the intensity of painfulness of a (physical) condition (b) the degree to which a person's (physical) activity is restricted and (c) the duration, or dynamic pattern, of pain or disability during the history of a condition. This is, at least for the foreseeable future, a limited concept of the output of health services and as such it is not appropriate as a *maximand* of health sector policy, but it can serve a useful function in *supplementing* more conventional (economic) measures such as days off work through sickness.

To get such an indicator what is required? First, one needs to attach numbers measuring the amount of pain attributed to a 'typical' case suffering from a particular condition. I say 'attributed' because I do not think we can rely on individual patients to give us this information since pain thresholds etc. differ widely and in any case individuals have an incentive to distort the picture. We must rely on medical experts to assess the painfulness of a condition, which they customarily do anyway in deciding priorities, forms of treatment, etc. This is part of the diagnostic/prognostic art.

Second we need analogous numbers measuring the degree of disability. These might be obtainable in the same way.

Third we need to combine these in a single indicator. For example, is 25 pain/10 disability worse, better or the same as 10 pain/25 disability? Here we have a social value judgement that must be recognised as such. In general it would be undesirable to let the medical profession have the last say in this choice.

Fourth, having compared various conditions in terms of this pain/disability characteristic and established a ranking, numbers have to be attached to these combinations. These numbers essentially form the health indicator itself and again are *social judgements* not necessarily made or even desirably made, by the medical profession.

Here I want chiefly to emphasise that in my view the subjective elements that have hampered much of the earlier discussion of health indicators cannot be wished away and are best confronted openly. These are:

i) the necessity for third parties to evaluate the state of health of individuals, which introduces a subjectivity but one that is, I believe, unavoidable. Moreover it is a subjectivity that exists already. No additional subjectivity is implied here.

ii) explicit social valuations have to be introduced at two levels: in combining the components of the indicator (in our case, pain and disability) and in assigning numbers to the ordinal ranking of degrees of ill-health. These are almost tantamount to statements of social policy and must be recognised as such.

Illustrations of the use of the indicator

I conclude by offering three illustrations of the possible uses of the health output indicator following the three functions of indicators itemised at the beginning of this paper.

a) *Public information* The first use consists in constructing an aggregate indicator of health for, e.g., the community as a whole, regions, social classes. Such an exercise would require an extensive and periodic survey of the population in question by appropriately qualified interviewers and would provide data about the secular trends in the health of the nation and of constituent parts of it. The proposed National Household Survey may be a suitable vehicle for this kind of survey. Whether its usefulness would justify the considerable expense of collecting the necessary information is a matter I cannot claim to be competent to judge, but I have my doubts.

b) *Health service administration* Cost-benefit and cost-effectiveness studies in health (even of the most rudimentary and informal kind) are plagued by the importance of hitherto unquantifiable social and humanitarian benefits. The proposed indicator would remove some (but not all) of this grey area and increase the range of activities to which quantitative techniques can be applied. For example, in assessing whether more should be spent on, say, kidney machines, the natural history of the disease with care of various kinds and with no treatment could be traced in terms of the dynamic behaviour of the health indicator – the difference in the total scores of any two techniques being a measure of the output gain from using one rather than another. The gain has to be *valued* in social and humanitarian terms, of course. Moreover, it is supplementary information to, for example, the expected gain in working days. Thus since some patients 'in need' do not receive renal dialysis, we have a method by which we could reduce the uncertainties surrounding the consequences of having a more ambitious programme. The major problem here is not likely to be economic or conceptual but whether medical experts can provide the necessary information about natural histories. This leads up to the third type of application:

c) *Medical science* The proposed indicator would provide a dimension by which different techniques might be evaluated for their usefulness by replacing rather informal judgements with relatively formal and standardised criteria of medical success that would be consistent with public policy. (For example, the relative weights to be attached to the relief of pain and getting patients more active would be pre-established.)

Professor Cochrane has suggested in the future a wider application of controlled trials. I, for my part, would hope that the health indicator would help him in this sort of task.

The immediate task is, of course, to see whether the scheme is at all practical. It may turn out that it is not, but I shall not accept this view until we have tried it. If it is practicable the interesting problems will then begin to arise – how to make it more comprehensive, sensitive and subtle, how to incorporate mental sickness, how to place social valuations upon it. If initially successful, the health indicators field looks like offering research workers a rich and prolonged harvest of interesting and important problems and the practical chaps an operational tool that may in a decade or so, conceivably revolutionise the decision-making process in Britain and elsewhere. Or is this too sanguine?

Discussion

The Chairman Can I just clear up with you the OHE position in relation to scientific needs and demands because I think you have, perhaps, slightly misrepresented our position. Putting it at its most simple, what we are saying, in common with Archie Cochrane, is that if a treatment is simply of no value whatsoever one should not allow public demand for it. That is, the GP and patient should not have the option to follow a therapy which is not going to do any good. We certainly do not go on, as perhaps you were implying, to say that because a scientific treatment is available and is proven to be beneficial, everybody should be forced to have it. We are not, in other words, going to drag your cigarettes out of your mouth. As we said in relation to hypertension in our most recent booklet, the treatment should ideally be discussed with the patient frankly and they should be allowed to decide for themselves with the advice of their own doctor. They certainly should have the option of saying 'I do not want that treatment, even though it works.'

Mr Culyer If that is the case, I do not think there is any dispute.

Professor Cochrane There is another solution to the demand for, and use of, therapy which is proven to be useless. That is, that people who still want it should pay for it. I do not know whether that would appeal to everybody but I am sure that we ought to come to some conclusion about it. On Tony Culyer's talk, I must say how much I agree with the basic ideas expressed, but the point I was not clear about was how to fit expectation of life into the pain/disability scale. This is important because it must be considered one of the outputs of the health service.

Mr Culyer On the first point – the question of totally ineffective intervention – my value judgement is that the public service should not provide these things. If people want to buy them, then they are welcome, and if they want to throw their money away, as far as I am concerned, they can. On the other point, life expectancy, this is incorporated in the pain/disability scale as we envisage it. What we want to do essentially is to give an index number for the patient's condition through time up to death. For each state of his condition or for each point of time, chosen arbitrarily, one would have an index number score. With data from controlled trials one could plot the probable changes in the index number in the future comparing the prognosis with treatment with the prognosis without treatment. At the moment, of course, it is an insanely ambitious scheme but it would have been even more insane if we had tried to include everything that we have not included in it. At the moment we are only envisaging moving along pain and disability dimensions but in principle, of course, there is no reason why one should not include any dimension which we thought was relevant in the context of public health policy.

Member of audience The trouble, surely, is that if we kill someone, because he is suffering from intractable pain – a man kills his wife, for example, because he cannot any longer bear to see her suffering, that becomes a 'cure' on this index?

Mr Culyer It does not necessarily follow that death is the worst possible eventuality.

Member of audience I think pain and disability receive rather too much weight on your scoring, don't they?

Mr Culyer Well, I have not given my scoring on this occasion. In another publication we have, indeed, attached numbers to the points on the scale but this was purely illustrative. It may well be that we ought to be killing off far more people, though euthanasia is a very difficult area and, furthermore, it may be one in which we cannot reach a judgement. It may be that there can be no consensus about what social policy ought to be on these things. There is not, at the moment.

Member of audience I would guess from our studies that there are very wide differences among people in their assessments of these points, in the sort of values they place on pain or disability or death. How would you choose your subjects in order to get a consensus view on values? Would you use random samples of the population?

Mr Culyer It is something I have not given a great deal of thought to, beyond saying that I do not think I or other economists should do the valuation.

Member of audience Do you mean that the doctors should do it?

Mr Culyer I do not think doctors should do it alone either.

Member of audience One point I would like to get cleared up is whether your scale is an ordinal one or a cardinal one. In other words, do the numbers 1–10 merely reflect a ranking of states of health or do they reflect a weighted valuation, for instance that 'death' at 10 is five times more important than 'restriction to light activities' at 2?

Mr Culyer The scale will be cardinal in the sense that it will be measurable up to a linear transformation, and it will be cardinal in the sense that one should be able to say that one point on the scale is twice as bad as another point on the scale or an increment in the scale of one unit, at one stage along the scale, is a bigger increment or decrement than another one on the scale. The problem will be in getting a consensus about what numbers to give. And a further problem will arise in putting some valuation on how important we think a particular degree of ill-health is, and what we ought to do about it. Those are the big problems.

The Chairman I think, perhaps, it is a very useful concept but am I right in thinking that, in essence, 10 headaches could potentially equal one cripple?

Mr Culyer Yes, potentially, though in practical terms I was thinking of it as being disease specific, in which case a comparison between those two examples would not arise. However, since ultimately we have to make precisely that kind of decision, I think there is a case for considering it in that sort of context to make explicit valuations about these and other things the health services try to alleviate.

Professor Jeffereys We are really at a loss in a whole series of rational and irrational decisions. I suspect that because we have never had a blank sheet the overt decisions we are able to take in reality are more or less confined to the new resources coming into the health services. And this amounts to perhaps around 4 per cent of total expenditure every year. At the moment I suspect the allocation of new resources depends very much on the medical profession and possibly other participating professions each acting as a pressure group for its own conception of the public interest. They all have their own value systems. What I feel is that if you get the medical profession, or any other profession, to judge pain and disability, you are going to get what seem to me totally arbitrary indicators. Who is going to decide how important pain and disability is, Members of Parliament or the Department of Health, or perhaps the local BMA committee? I feel, as I said earlier in my talk, that apart from the problem of choosing our valuers, one of the major problems will be that recent scientific advances have closed our minds to a whole series of dimensions of human rights which are just as relevant, and perhaps more important than physical lesions. But we do not label them as 'scientific' or 'objective' yet, not because they are not real but because they are not susceptible to 'scientific' or 'objective' measurement. I would have thought that if we try to formalise the decision-making process in this situation we would be bound to perpetuate a model of medical care which is probably invalid because it ignores some of the most vital aspects of medical care to the patient. I think you may be creating an artefact which posits a logic which is no more logical than the ways in which decision-making and allocations are now done.

The responsibilities of clinical freedom

Mr B H Dawson, *Consultant Neurological Surgeon, Salford Royal Hospital*

'Of all the arts, medicine is the most noble' – I am quoting Hippocrates – 'but owing to the ignorance of those who practise it and of those who inconsiderately form a judgement of them, it is at present far behind all the other arts.' And he goes on to say 'There is no punishment connected with the practice of medicine, except disgrace.' And I have gathered all through today that still holds.

As I see it, the clinician's total responsibility is to help his patient recover from the illness which has brought him to the doctor, and the purpose of a health service is to put patients in contact with doctors to achieve this object. Included in the clinical responsibility is the need to make sure that the confrontation does not cost the patient too much. There is a further responsibility to the patient's family and the collection of families which makes society. One has to think of the cost to society as well as to the individual and his family. It has to be seen that the patient with too little money does not get under-treated and that the patient with too much money does not get over-treated.

What does a clinician usually have to think about when he is first consulted by a patient? Is that patient ill, or not? If he is ill, is it serious? Will the patient live or die? What will be the quality of his life after treatment? What will it cost the patient? What will it cost the family? What will it cost society?

I hope you will not think I am just letting off steam when I say that any organisation which hinders or harasses a doctor and stops him getting on with his job is a useless, non-productive parasite; and any individual or organisation which improves the doctor–patient contact and makes it quicker, more effective and cheaper is just as strongly to be commended.

On the one hand I am going to say that it is possible to abuse clinical freedom by letting patients become just 'interesting cases' and attending to detail in a mechanical and standardised fashion. And, on the other hand, I am going to remind you that clinicians cannot, and do not, endure complex regulations and regimentation.

People, and doctors who are no exception, tend to become lawless if there is a multiplicity of useless laws. And in a National Health Service where there is a thickly spun web of laws and regulations these merely encourage insolence of office and, sometimes, a supercilious bureaucracy. A good clinician does not need, and should not have, impertinent supervision by meddlers of the citizen-fixit type.

In my view, if a clinician is entangled by complex regulations and organisations, he is likely to handle his patients in a conventional and unimaginative way. He may even neglect them and develop a perfunctory, routine attitude towards them, prescribing carelessly, doing his paperwork badly and keeping bad clinical records.

One wonders whether clinical freedom is a sheer impossibility in an organisation as complex as the existing National Health Service, particularly in view of some of the possible future trends of malignant reorganisation which perhaps reflect a naive over-emphasis on management as an end in itself and a solution to all ills.

When I talk about clinical freedom I mean that the clinician should suffer only the absolute minimum constraint or he will be diverted from his main aim and purpose.

Now, some positive points. Medical care involves diagnosis and treatment. Treatment, of course, does not always mean cure but it always means care. Diagnosis is difficult and the selection of the appropriate diagnostic measures, bearing in mind the cost to the patient, to the family and to society, is difficult. And the doctor has to work within certain time limits. He has to decide how to allot his time and to organise his clinical activities. Here, administrative and management personnel are sometimes impressed by numbers which are supposed to be indicators of efficiency. There is, for instance, bed occupancy and throughput. But if you want full bed occupancy you do not admit or discharge. If you want maximum throughput you admit trivia and discharge them quickly. If administrators and managers argue on the basis of these numbers then medical personnel might react by refusing co-operation – if they have to – though I hope our sense of common service would never bring us to that.

Going on to general practice, hospital doctors with a heavy case load, because of an indifferent general practitioner service, can sometimes give those patients coming to hospital a very raw deal. It has already been said in the discussion (and some recent articles clearly indicating an improvement of the general practitioner service) that responsible practitioners with nursing and secretarial help and good practice premises can reduce the hospital case load enormously. At the same time this can benefit the patient and also reduce costs.

An important job of a clinician is the decision as to how much should be spent on diagnostic services. What are the clinician's responsibilities here? We are getting doctors of two types now: those who think that the more investigation a patient gets, the better deal that patient is getting; and those who feel that it is only worthwhile investigating any patient in any depth if it is going to lead to quick, easy and successful treatment.

I will not dwell on the biochemical profile studies and whether or not it is cheaper to get the results of a whole series of tests which are not necessarily wanted but which the computer throws up anyway. Commercial literature tells you the cost per test, without mentioning that nine tests were unnecessary. Let us face it, for pathology investigations it is the clinician's decision, and the responsibility and freedom of decision here really does cost big money.

Now, what about the cost of clinical freedom? Things were much easier in the old days. When I started clinical work I quivered beneath the beady eyes of an ancient Scot who ruled the outpatient clinic with a rod of iron. When a medical student used a bit more bandage than was needed, she grabbed him by the lapels and said 'That's the money of the poor people of Manchester that you're wasting, young man.' And there were other personal constraints from the rather cost-conscious chief pharmacist – who frequently telephoned house surgeons, questioning the dosage of a prescription, asking whether, indeed, it was required and had he thought of something less expensive?

As well as these checks and balances at a personal level throughout the organisation of an old voluntary hospital, a very clear awareness of costs was created by a hugh neon sign outside proclaiming a debt of several millions and requesting that you put a penny in the box as you went past.

Now what better than to look across the Atlantic to the North American scene to get some clues as to what the future might hold in store? It is a rather grim picture: an ever-mounting cost of inpatient care, an incredibly complex dollar-orientated medical organisation, a very labour-rich health industry. Big business and big business methods prevail and there are conflicts between rival top level institutions as to who can sport the most lavish organisations. Then, at the other end of the town, there is the other kind of competition – how cheaply can city hall deliver medical care to the sick poor with the implicit, or even explicit assumption, in that part of the world, that poverty is not a misfortune, it is a sin.

A lot of things I wanted to say have already been said this morning, but I want to say something about clinical records. Some clinical records are appallingly bad in many regional hospitals. The primary record is quite often indifferent both in quality and in clarity. A good record must be clear, concise and comprehensive but good records seem to be rare. There is a remarkable lack of enthusiasm at administrative levels to acknowledge the importance of a good primary medical record service. The methods of storage and methods of retrieval and methods of analysis of clinical records all leave a great deal to be desired. I think if you talked to a hundred clinicians they would all tell the same story. Secretarial services for clinicians are regarded as a sinful waste of time and money and getting casenotes into typescript so that they can be more readily used or more readily evaluated later is difficult in practically all the regional hospitals. One sees enormously expensive organisations relying upon basic input data which is very suspect and on occasions, wholly false. Analysis of such data with superb mathematical skills and ultra expensive computer installations amounts not infrequently to compounding lies.

Now, something about certification, and the responsibility of clinicians for certification. In signing a man as unfit for work, most of us consider the loss of earnings to his family, the cost to his employer and the cost to the social security system. When we report on a man as disabled from accident, we are aware that if we give an over generous report we are being over generous with the insurance company's money rather than with our own I would personally like to see a lot of the responsibility for certification taken away from doctors, particularly at the primary medical care level. Most doctors find that a good deal of the time could otherwise be used in clinical work. The service tends to get cluttered with people who come to the doctor merely for the certificate. Surely, in this day and age, it could be left to others.

On rehabilitation problems – and in the neuro-surgical world there are plenty of these, some clinicians have become very cynical about the role of disablement resettlement systems in this country and the Department of Employment. The disablement resettlement officers, for their part, often have a thinly veiled hostility towards many clinicians who give them such poor briefs about the patient's possibilities for employment and the type of employment he needs. This is part of the responsibilities of the clinician. Then again, it is not always easy to separate the clinical needs of a patient from his other interests. Thus it is easy to get patients into convalescent homes in the winter, but in the summer, if that convalescent home is by the sea, suddenly everyone seems to need rehabilitation.

To talk about management and administration in relation to clinical freedom is difficult without rancour and without sensationalism. Bureaucracy can, like a tumour, turn malignant and can metastasize throughout the whole body of medicine. We need a good bureaucracy and whether it is good or bad often seems to depend upon the sense of responsibility that the clinician shows towards it. I work in hospitals in three different hospital management committees' areas, all under the same hospital board, and I have formed some very strong views about the varying quality of the administration and the varying attitudes of the administrators and other para-medical personnel in these three areas. They vary from the excellent to the definitely poor. And while management is getting better, the planning and development side seems to get worse and worse.

What, then, are the responsibilities of the clinician? How does he balance his responsibilities to the individual and to the State? How can he be both humane yet realistic? How does he steer away from sentimentality without hitting the rocks of a nihilistic and barbarous approach to medicine? It is an age old problem and it is a problem of ethics, of politics and of commonsense – the rarest sense of all.

I will say again, 'Of all arts, medicine is the most noble but owing to the ignorance of those who practise it, and of those who inconsiderately form a judgement of them, it is at present far behind all the other arts. There is no punishment connected with the practice of medicine, except disgrace.'

Discussion

Dr Draper In what sense is planning and development getting worse?

Mr Dawson Most planners I have spoken to seem to have a morbid attention to detail and seem to be quite unable to handle anything more than that. Both at the regional and local levels they seem to be concerned about trivia and will not discuss broad strategy at all.

Mr Pledger I have recently changed from the clinical to the administrative side and I find planning a hideous process because there is a lengthy process of consultation on practically every detail which certainly prevents me from having time to think about strategy. We have to go to every Hospital Management Committee and discuss the contents of every single item in a development costing a total of £3 million or £4 million.

Mr Dawson Exactly. I think this is where the practice is so bad. I think that if the planning was really good at the local level and regional level these things would never be discussed. If a decision has been made after a proper analysis, it should be implemented without arguments over trivia. It is bad planners who allow minor diversionary studies to take place. Some of these decisions in planning should be taken centrally and then made mandatory. We have got clinical matters to be concerned with, and we should not have trivia imposed on us. The planning process at the moment is rather like asking a soldier what kind of brass buttons he would like.

Mr Pledger The question seems to be should the clinician have the power to decide those things? I think you will accept that there are always going to be more demands on our resources than are available but who are the ones to decide on priorities when discussing, accepting or rejecting plans? Should it be the clinician or should it be someone else?

Mr Dawson It is easier to ask questions than to answer them sometimes. The individual clinician should feel that he can, more or less, do what he likes. He is encouraged to be responsible if he is given this freedom. At the moment, a lot of clinicians feel that they need not be responsible any more because they have got no freedom. It is difficult to express but certainly a lot of younger men feel now that they are not free, and will not be in the future, and thus need not be bothered to accept the responsibilities of freedom. In earlier days the notion of cost consciousness was instilled when you were a house-surgeon, and certainly when you were a registrar. Responsibility was acquired as a series of steps on the way towards clinical freedom. I am not really answering your question, but I am afraid I do not really know the answer.

General discussion

The Chairman I think at this stage we can open the general discussion by bringing all the other speakers onto the platform.

Dr Taylor The Chairman deplored very early in the day the absence of clinicians from this meeting. Now I know why, I think. At least two of your speakers – and I do not know whether the fault is on my side or on theirs – do not speak the language that I speak. What worries me more is that they do not speak the language of the consumer and the product that we are discussing. Mr Dawson tried, but I think it was an impossible task that faced him because at least two of the other speakers just did not seem to be thinking or talking about the same things that we, as clinicians, see as our job to deliver to the patient.

The Chairman I think the point I had in mind, when regretting the paucity of clinicians present today, was that we had originally hoped to have a fairly even match between planners, researchers and academics on the one hand, and clinicians like Mr Dawson and yourself on the other who actually face the patients and can say: 'Look, you planners are not talking the same language as us. This does not make any sort of sense in how we actually have to handle patients at hospital or in the surgery. So let us try to work out some common ground.' We at OHE think that it is very important to get to grips with these problems of communication from both sides and make sure that planners get out of the habit of talking to themselves about planning. Otherwise planners will not get through at all to the consultants and certainly not out into the periphery. Margot, I imagine you would probably be able to comment on this and give, perhaps, the middle point of view between the two sides who cannot understand each other. I take it – we might as well be specific on this – that it is Jimmy Algie and Tony Culyer that Dr Taylor found particularly difficult to understand. Is that right? And am I right in saying that the techniques of evaluation which Tony Culyer is trying to develop make no sense to you in practical medicine?

Dr Taylor Yes, that sums it up.

Professor Jeffereys I really feel this is very unfair of you to put me in this position. I feel rather like the child in the class who has been picked out by the teacher as the most virtuous and I know that is one good way to make enemies. She draws hostility from everybody. All I would say is that obviously there is a problem of communication, partly because of the speed at which both Tony Culyer and Jimmy Algie have put over a tight argument. In so far as I was able to follow it, I had serious doubts, but I think that ultimately the kind of issues with which they were dealing can be translated into the kind of terms with which Mr Dawson was concerned. However, I would much prefer them to talk.

Mr Culyer There are clearly a number of problems. One, as I have indicated, is jargon.

It is very hard to escape from jargon, but I think probably more important, if I understood Dr Taylor's original question, is that we were talking on slightly different levels. Archie Cochrane talked of evaluation in terms that were readily understandable, looking at the problems of prognosis which confront clinicians at the operational, grass roots level. But the problem to which I was addressing myself is really not to do with clinical resources but to do with constraints; in other words the sort of problem with which I was concerned was how we go about making available those wider resources of materials and manpower which are going to be at the disposal of clinicians or anyone else responsible for the community's health. That is the decision-making problem with which I was primarily concerned rather than telling clinicians how they should go about doing their specific job or how they should treat the patients and so on. I think the problem of communication may derive from the fact that we are addressing ourselves to different levels of evaluation.

Dr Taylor I think the trouble is that the constraints that we have all got to face are not the ones that Mr Culyer has been talking about, such as materials and manpower. I think the main constraints are the ones that the consumer applies, whether directly or indirectly. It is difficult to talk in abstract terms but we all know the problems of closing down small, inefficient, useless hospitals. There is a tremendous uproar and it reaches the departmental level, usually through an MP. How do we get through to the patient that the reason we want to close such a unit is because treatment will be better in a bigger unit a short distance away?

The Chairman I wonder if I could, from the chair, try to act as an interpreter for Tony Culyer to the clinician. Dr Taylor is saying that in terms of clinical efficiency it is better to have a large hospital even though the patient has to travel a long way. But the consumer at the grass roots may react by saying that they would rather have worse treatment – thank you very much – on their doorstep. I think Dr Taylor is being hasty in reaching the conclusion that making patients and visitors all travel 10 to 20 miles in order to get more efficient medical care is inevitably right. What Tony Culyer, as I understand it, is trying to do among other things is to discover and quantify the public's value judgements on this sort of question. The people who say 'I want the hospital here; I want to be able to go and visit Granny. I do not want her away from the local town' are expressing their value judgements as rationally as people who say 'I want clinical efficiency above all else.'

Mr Culyer Well, I did not actually mean that but what you are saying is not inconsistent with it. And what you said does, in fact, make a reasonable point in relation to Dr Taylor's emphasis on clinical efficiency above all else.

33 **Dr Taylor** Since this has been raised, could we examine the small hospital, whose casualty department is understaffed even with its 40% to 60% overseas doctors, which has only part-time auxiliary nurses, and where the specialist can only visit on a Monday, making patients missed then wait until the following Monday before they can be discharged. Are doctors correct in thinking that this place, which in their eyes is small and inefficient, ought to be considered small and inefficient by everyone. It is possible to argue a case that the facility of visiting Granny is very important. But are there not alternative ways of visiting Granny, with a better transport service or something of this sort? Should the health services not be saying more firmly that some things are advantageous collectively and some individually, but, taken by and large, we cannot go on spending money and resources on things which are grossly inefficient clinically.

Dr Matthew I am sure that we ought to take conscious decisions on alternative ways of spending our resources so as to try to choose the alternatives which give the greatest benefits for the lower costs. What is rather doubtful, however, is whether we can succeed in obtaining solid evidence about these alternatives, especially alternative institutions such as small or big hospitals, in a way that really enables better decisions to be made; in a way that would enable us to state clearly and confidently that one alternative is better than another. I think we should attempt to do that, but if we are talking about evaluating a whole complex of services for a range of conditions in more or less amorphous institutions then we ought not to underestimate the problems. Traditional randomised controlled trials of the type Prof Cochrane described are difficult enough. They simply test the effect of a single, clearly defined variable on the desired outcome. But other situations are very much more difficult. It seems to me that there is another approach to that of trying to derive aggregated measures of output and input for each of the alternatives and trying to get an answer on that basis. This is what might be called the planners' approach. It comes down to selecting which are the most important questions which need to be illuminated if a sensible decision is to be made and to gathering evidence about these. Some of the evidence will be available from existing information. Strict scientific research would be used to answer questions of critical importance while opinion and consensuses might provide a more practical and sufficient form of evidence for other questions. We must also use, for instance, sociological research methods and make sure that we are achieving a balance between the different types of criteria, both social and economic as well as medical, that should be used in judging between alternatives. What I am saying is that a pragmatic approach is often appropriate to decision-making when the alternatives being examined are ill defined or not clearly understood, while a formal, structured approach, such as the randomised controlled trial, is appropriate where the alternatives are clearly defined and fairly well understood.

Mr Wallbridge I want to ask Mr Culyer whether he thinks that his indices are really capable of reducing the uncertainties surrounding the kind of decisions that have to be made, and are going to be made, in a clinical situation, or whether, alternatively, they are liable to increase the uniformity of decisions which could very well, in a situation of uncertainty, act to the detriment of patients. Variations throughout the country, as well as reflecting irrationality, can also reflect perfectly valid differential responses and value judgements in situations of uncertainty. And Mr Culyer's indices do presuppose a single set of value judgements.

Mr Culyer Many of the criticisms I accept. The sort of technique I have suggested is still at a crude stage. But just to think out a problem in those terms, at least at the more global level of decision-making, should be worthwhile because, at the very least, it forces people to make a shopping list of relevant considerations. Even if it is not possible to define shopping lists in terms of common denominators, or to place evaluative measures upon these so that one can tot up a balance sheet and arrive at a uniquely correct solution – even if we cannot go anywhere near as far as that, I myself believe that there is virtue in the attempt because we get people thinking in the right kind of way about the problems.

Mr Dawson It certainly clears the clinician's mind to have someone around who makes him itemise his reasons for going in for a certain kind of treatment and makes him itemise his criteria for the success or failure of that treatment.

Mr Laing What I would like to know is whether doctors have a mental block when they hear economic jargon being used and if so how are we going to eradicate this? Will both doctors and economists have to alter their attitudes in order to communicate with each other?

Professor Cochrane I would like to tell you about my first contact with medical economics at the York conference early in 1970. This was a three day affair, which brought together economists, a number of people from the Department of Health and people from the medical world. I must admit that on the first day there I understood very little of what the economists were saying. On the second day I was able to understand quite a bit, and on the third day I was almost enjoying myself. I think it terribly important that some link should be established between medicine and economics and we must just see more of each other. I do not see any other solution. On the first day at York the two sides were like two armies facing each other across a battle field. But now, as I say, I really like economists. I think it is pure familiarity which is important and we just must see more of each other.

Dr Morgan I think maybe the economist should adopt the same attitude as doctors who have to simplify their language when giving first aid lectures. I think that we doctors are very interested in economics, but I am sure we did not pick up a quarter of what was said because we just do not understand the terminology.

Mr Algie If we are to make progress – either in management studies or in managing – we need to develop a technical language of planning and control in order to understand and analyse how priorities are decided and resources allocated. This will be similar to the language clinicians have developed to systematise and control the processes of diagnosis and treatment.

It is not surprising that this is different from the action language of day-to-day routine decision-making. We use the control language to comment on and analyse action and decisions. As managers, we can only organise and come to grips with work by using the only language which has been developed to describe its complex aspects – viz. that of management studies. This is a legitimate expectation of those who manage. This does not mean that we should not seek to translate out technical terms – or avoid them completely – in so far as this is possible.

In the experiments I described we actually brought consumers into the process. We even had mentally ill and mentally handicapped people. And we were actually translating out some of these technical ideas on deciding priorities into a comprehensible form by means of very simplified questionnaires. But we had to go through the technical stage first.

Dr Matthew Jargon is no better by being described as 'control language.' I think the challenge is to get a language common to the various disciplines and purge it of all unnecessary and obscure terms.

The Chairman I agree with that entirely. I think it ought to be possible, as you say, to have a common language that all sides can understand.

Mr Monard Coming back to the problem of priorities and the individual clinician, my view is that in conditions of scarcity the effective and efficient use of manpower and money becomes a moral issue, and the clinician has a moral obligation not to waste time and money on therapeutic gestures of proven inefficacy.

Mr Dawson This cuts right across basic clinical ethics in a way, doesn't it? Many clinicians believe that somehow or other they have to hide away from the fact that anything is costing anything at all.

The Chairman This, I think, is a central issue. You have given a very common view among clinicians and I do not think, in fact, that this can go on. To illustrate I would like to go back to the example of the chest surgery I gave today.

There is little doubt that surgeons operating on lung cancer are using the resources of the country to achieve virtually nothing. They are sometimes even getting negative results. They are doing it in very good faith and they would resist vehemently the idea that they should not perform an operation on a patient because they believe that is for the patient's good. I understand the dilemma. But I think we have to face up to it, and I think the clinician has to move away from the situation where he is prepared to do anything, regardless. The idea that we must spend as much as we can if it will save just one life is insupportable. You can translate this into practical terms. There is, for example, the air-sea rescue service with helicopters flying round the coasts. If we had enough helicopters flying round the coasts, we could prevent nearly all drowning accidents. But we would be using enormous resources, and the cost – per life saved – would become totally prohibitive. In fact, we have to say, 'I am terribly sorry, South Devon (or whichever area it is), we cannot give you your extra helicopter this year. We know this will mean that six people will be drowned who would otherwise have been saved. But we cannot give you two helicopters because we can use the resources more effectively for accident prevention where we could save 100 or 1,000 lives for the same money.' This sort of problem is not unique to the health field. It is an ethical problem which we have to face up to, that when you are spending money you are denying it to other people who could save lives with it. I think that however much doctors are committed to their own individual patients we have to recognise that there is a shortage of resources and that we have to have some method of sharing them out for the overall community good.

Dr Taylor I have never when treating a patient, worried about the cost of what I do. I am perfectly aware that the costs of some of the things I do are astronomical; and I am certainly well aware that some of the things I do make very little difference in the end to the patient. The fact is I am terribly proud when I use these resources in this rather expensive way. I should mention that I have spent the whole of my professional life in the free National Health Service. There has, of course, been much talk of overall costs, but no-one has ever asked me to consider costs in relation to individual patients. Now I am quite prepared to reverse this by being cost-conscious, but I think the lead should not come from me – it should come from the politicians.

Dr Wald Is there not an important distinction that will always be there – that between the clinician looking after the patient and the health planners planning the services? We have to evaluate priorities in medical care and then try to organise the services to deal with the most important priorities. This would have the effect of limiting some facilities and increasing others. But for the clinician, working within any given system, there is an obligation to do his best for the patient regardless of cost. He is working within a system where others are doing the planning, bearing in mind the needs of society and medical and social needs. I think this distinction will always be there, and I think it is most invidious for the individual doctor to have to try to establish priorities for attention among his patients.

Mr Culyer Yes, I agree absolutely. I would not like anyone to go away with the impression that I, as an economist, am suggesting anything other than that. I think it would be absolutely appalling if doctors were to have their clinical judgements coloured in any way by the financial and economic considerations that we are talking about. The Chairman's earlier analogy of the helicopter is very appropriate. Our concern is to decide how many helicopters should be provided and where, perhaps, you provide them. But the clinician is the helicopter pilot, and we do not want to tell him where to drive. We are concerned with the facilities to be provided, and the clinician will then be free to use them.

The Chairman Can I just raise one point with Dr Wald in relation to what he said? The broad principle is obviously accepted. But it seems to me that there are certain qualifications which it is important not to overlook. I give you the example of the heart transplant operation at the National Heart Hospital, where, as it was the first in this country, they had to close one theatre for, I think, three to four weeks, for follow-up nursing. During those four weeks all the patients who were on the waiting list for perfectly routine and undoubtedly beneficial heart valve operations were not operated on. Does clinical freedom apply there, or not? Can I put that one to you?

Dr Wald In your example one is dealing with a research project and they always make heavy demands on resources. The example is therefore not strictly applicable to normal clinical practice, although of course, one expects eventually to gain something from research compatible with the resources one puts into them. I agree that there are situations which clinicians meet in their day to day activity where a conflict of interest may arise – for example where giving half an hour to one patient is going to jeopardise the time given to others. He must decide how to ration out his time and how many patients he can see. As far as consultations and demands on his time are concerned, he decides, and he alone. I do not think any other limitation should be brought to bear other than the physical limitation of resource availability.

Dr Draper I should like to make three points. First, it has been suggested that in a situation of uncertainty and complexity we need a profusion of different patterns of health care. Such an appeal for variety 'for variety's sake' needs qualifying with the reservation that we need not so much a great many kinds of health centre for example, but rather a firm understanding of the significance of the major differences. This implies a need for careful evaluative studies. However, with the sharp limitations of money and skill upon the number of differences that can be satisfactorily examined, we probably need therefore a priority list of the major variations that we think deserve trial.

The second point is on a very different subject. I have an uneasy feeling that the interesting approach described in Jimmy Algie's paper has a real danger of being, or turning into, a technocratic control of public services which would remove all decision-making from public, or rather, political, machinery. As has been demonstrated, notably by Herbert Kaufman, there is a tendency for various experts to discuss questions of social policy in relation to health and at the same time to pretend that there are not frankly political aspects to such discussions. Such inadequate definition of the real problems is, to say the least, dysfunctional.

Finally, we have gone along with what seems to me an unjustifiable conclusion about economics. We appear to assume that present economic theory is of undoubted social benefit. Economic indices constantly indicate 'progress' whilst at the same time we know only too well that we still fail as a society to solve problems like homelessness and the provision of houses that do not have water running down the walls or infestation by rats. Further, we know that we waste the labour of, and demoralise, a significant proportion of the employable population. The need for more relevant and effective economic indicators seems to be more slowly perceived than it has been in at least some quarters in the United States.

Mr Algie The question of the dividing line between technocratic and political contributions to policy-making is interesting and explosive. The classical approach is to define operational research contributions to decision-making as formulating the variables in the problem situation more rigorously, articulating the actual constraints imposed on the decision-maker by the situation or system in which he finds himself, and perhaps defining systematic procedures which decision-makers might undertake in order to arrive at decisions which are satisfactory to them or which they judge to be the optimum feasible decision in the situation. Thus, the action research projects I have described have had the effect of increasing the number of major choices which decision-makers can now make consciously where before these choices were pre-empted (or never articulated) thanks to the way the system was operated. Thus, increased technocratic help in devising a *framework* and methodology for decision-making had the effect of actually reducing the scope for technocratic interference in the *content* of actual decisions. This in turn leaves greater scope for the exercise of discretion by political decision-makers, grass roots social workers and ultimate consumers. Conscious judgements by all these groups now need to be made on value issues relevant to the situation in the light of new information provided.

However, the whole progress of science may be analysed in terms of ascertaining factual information on what was previously regarded as matters for purely qualitative judgement. The more we are able to demonstrate specific cause-and-effect relations between things, thanks to improved factual information, the more we reduce the area of uncertainty about various situations and hence redefine the problems within these situations which call for political value judgements. As this conference has demonstrated, our uncertainties about social phenomena are so many and varied that there is plenty of scope for both scientific and political evaluation of service impact. In the action projects described, we have endeavoured to define the scope and inter-relationship of both types of evaluation in conjunction with all participants. Unless such inter-relationships are defined and agreed our community social reports will continue to lag behind our purely economic reports for lack of sufficiently sophisticated social indicators.

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To collect data from other countries.

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