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Resources in Medicine

A collection of papers on management in medicine based on a seminar held at St Thomas' Hospital

King Edward's Hospital Fund for London

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A collection of papers based on a three-day seminar, *Uses of Resources in Medicine*, held at St Thomas' Hospital in 1969. The topics discussed are all broadly concerned with management in medicine. They include the need to plan and to evaluate the aims and achievements of the health service, consideration of problems involved, and discussion of some techniques and recent developments.

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Published by King Edward's Hospital Fund for London 1970
14 Palace Court London W2

Price: Eighteen Shillings 90p

Foreword

WE HAVE COME A LONG WAY SINCE A QUESTION FROM THE DEAN OF A medical school to Sir Austin Bradford Hill as to what statistics should be taught in medicine was repunctuated by other members of the medical staff to read – What! Statistics in medicine! So it is easier to write a foreword to this book than it might have been at one time.

The book was inspired by a course on the management of resources in medicine undertaken at a London teaching hospital, St Thomas'. To those to whom this is a startling thought let it be said that the course was over-subscribed and the book became a necessity. Management in medicine, a short time ago as unholy a thought as statistics in medicine were in Bradford Hill's earlier days, is now respectable. Many regional hospital boards are conducting courses in management for those who would be chairmen of the divisions as described in *Organisation of Medical Work in Hospitals*[1] and find no difficulty in getting clinicians to spend weekends in this kind of way. The King's Fund, which also conducts courses on management, is overwhelmed with applications from clinicians to be included. What is it all about? Why this great interest? I think it is probably fair to say that the development of modern scientific medicine and the growth of the hospital medical team has not been accompanied by corresponding developments of an appropriate administrative structure among clinicians. Add to this the fact that we appear to be short of medical men and women, particularly in the hospital and general practitioner service, and that we have no hope of making any substantial change in our manpower position for ten years at the very least, and the need to organise our resources so as to make the best use of them begins to become clear.

Management has been defined in various ways. Some of the chapters that follow will deal with the definitions but, put simply, perhaps too simply, it means setting oneself objectives or targets and then measuring to see whether these objectives have been reached. Management, however, requires the provision of information about what goes on – the mobilisation of data – and this, apart from being the first step in the management process, may well lead to methods of assessing the quality of medical care and, indeed, enable decisions to be made more readily between one course of action and another.

Management, of course, is not only a matter of getting the right information and coming to sensible decisions. There is a need for changes

in relationships to come about, for example, between the hospital and the community services. The introduction of a new idea is often defeated by its acceptance in principle but endless delay in putting it into practice. Changes involve bringing a more liberal attitude into the professions which make up medicine as a whole and this is not something that will come about overnight. This does not make it any less necessary. The changes that may be needed to make the best use of our resources will mean that many groups in the hospital world and outside will look upon them as threats. Management, therefore, involves not only information but an understanding of the fears and anxieties which people feel as change occurs.

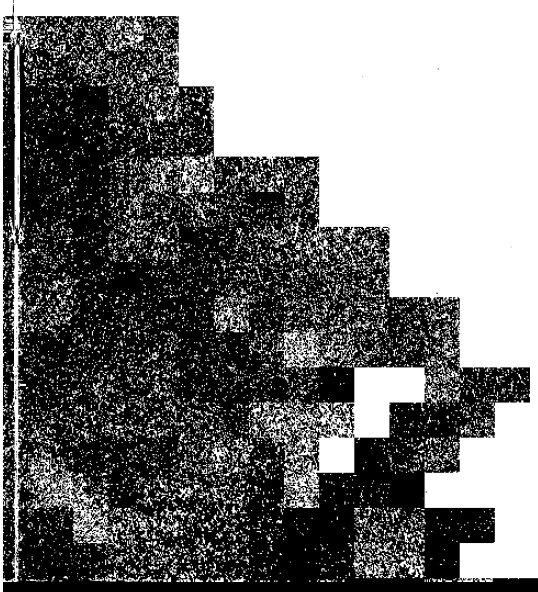
The National Health Service was set up without experiment and it looks very much as though such changes as may be made after more than twenty years will again happen without any trial runs. This makes it all the more necessary for us to have better information. Pioneers or innovators in medicine always have accurate records of their own individual performance. Unless records are kept in such a way as to provide information readily the task of securing information about, say, two hundred examples of a condition under study will be daunting. The hope is that as we move into a computer age we may be assisted in the rapid production and feedback of information to clinicians.

Uniformity of record keeping has not yet come about in the NHS though there have been some remarkable steps forward. There will need to be some reduction in the variety of records if all are to benefit from new techniques of producing information. There are many changes which can be brought about in the hospital service and in general practice which will allow us to make the best use of what we have. Brave attempts are being made by medical schools to increase the number of doctors, but are we using the doctors we have to best advantage? Are they devoting their time to the most rewarding tasks? What are the most rewarding tasks? We have very little information on these matters; indeed, only now, after more than twenty years of the NHS are we beginning to gather effective information on numbers of doctors in the service. Any aspect of the health service which is subject to close scrutiny is found as often as not to be operating in some way other than that which was the design. Sometimes this is advantageous but often it is not. Every aspect of the work in the health service should be the object of close study; the work of every individual and every department can and should bear examination to see whether the experts in each department are using their time to best advantage. A radiography study undertaken some years ago, for example, showed that radiographers were devoting between twenty and fifty per cent of their time to work which could be undertaken by a clerical officer.[2] In the field of nursing we know that a great deal can be done on the wards of a hospital by people other than nurses. What we need is information, and information comes from study and from good recording processes.

P M S Blackett[3], called in to assist the armed forces in World War II, in a paper on operational research made some basic statements which

are as apt as ever and could have been designed for the NHS. His first point was the need to understand fully the possibilities of better use of existing apparatus or machinery before asking for new; the second, that soundly based doctrine needs re-examination since time may overtake it and, third, the simple solution is often overlooked. As I have already said we can only look to better management of our resources to meet the problems ahead since the possibility of any substantial increase of personnel in any short period of time is simply not with us. I am sure that this better organisation or better management is open to us and well within our capacity.

J O F Davies
London 1970



Editor's Acknowledgement It is a pleasure to acknowledge the help received from staff at King Edward's Hospital Fund for London in the planning and preparation of this book, particularly that of Mr G A Phalp.

Jane Collins
London 1970

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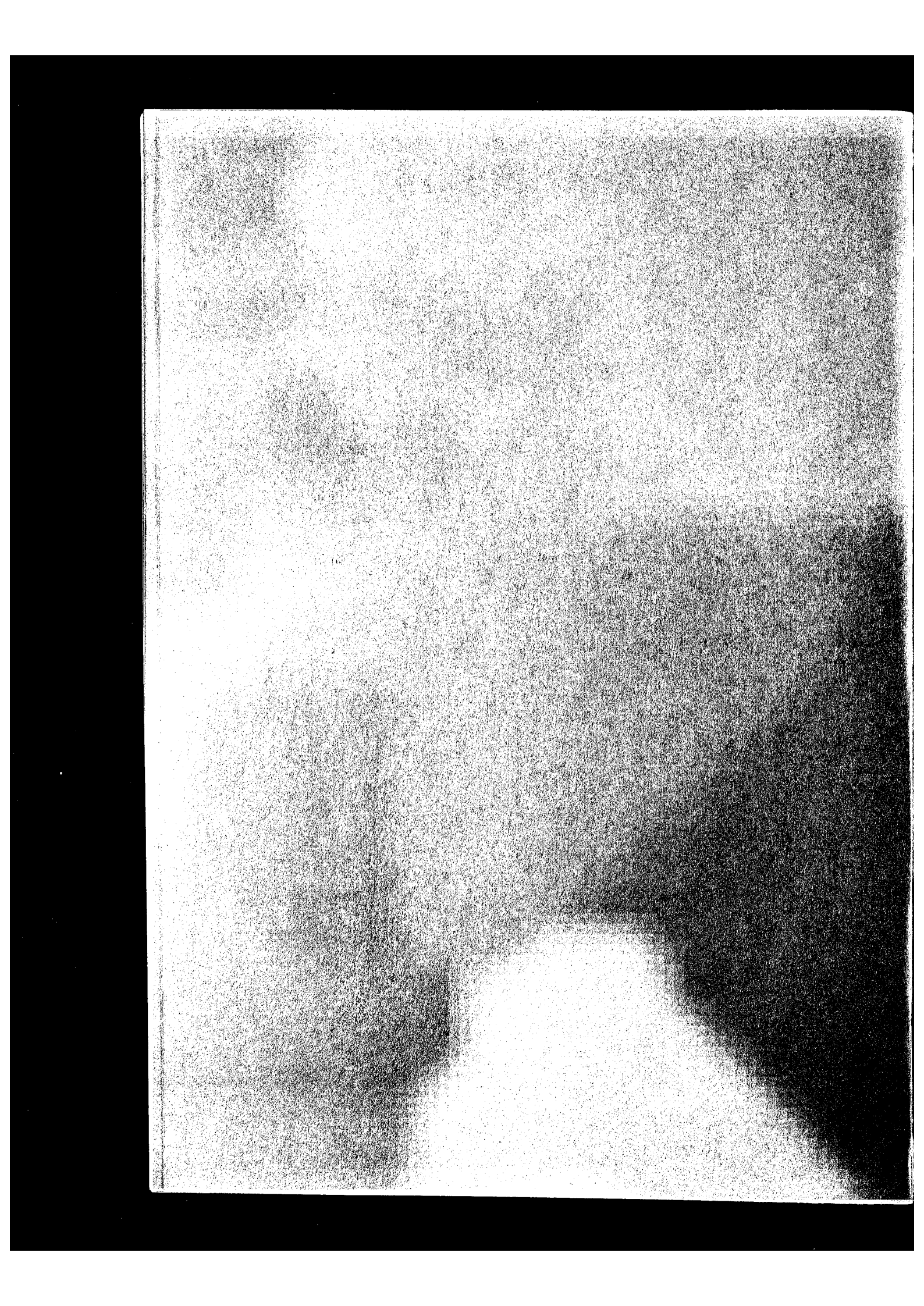

Introduction

W W Holland MD BSc

Professor, Department of Clinical Epidemiology and Social Medicine, St Thomas's Hospital Medical School

More than twenty years after the National Health Service began it has become apparent that we must investigate the aims, needs and methods of our medical care system more thoroughly. Up to now decisions have usually been made on the basis of demand rather than need. For instance, numerous studies have demonstrated variation in the utilisation of general practitioner, hospital and local authority health services, and many have questioned the reasons for these differences. Nobody has yet tried to assess the optimal uses of any of these services. In addition, with the increasing costs of health services, it is gradually becoming apparent that it is necessary to consider priorities. It is unlikely that any health system can ever satisfy all needs at all times.

Over recent years the proportion of the gross national product (GNP) spent on health services in this country has increased. In 1948 it was 3·7 per cent[4] and by 1967 it had risen to 4·86 per cent.[5] It would be unrealistic, however, to assume that this rate of increase could continue, and figures for 1968 show that such expenditure accounted for only 4·75 per cent of the GNP.[5] The amount of money and manpower available for social services is not unlimited, unless we are prepared to pay unlimited taxes. Health must compete with other social services for its share of the national cake. It is probable that the health and welfare of individuals per unit of expenditure is improved more by spending money on housing or education than on, say, hospital buildings. Therefore, it is important to consider how we can best use those resources we have, and how we can best redeploy them.

In view of these necessities it is apparent that the average clinician must understand the information on which health planning is based. If he does not, or if he considers that it is none of his business, it is quite possible that decisions will be taken for the wrong reasons. A variety of factors influence the observed variations in the utilisation of medical services. For example, in areas with many old people, such as towns on the south coast, it is likely that the demand for geriatric services in hospital, general practice and in the local health and welfare departments will be much greater than in areas where there are relatively few older persons. In areas where there are many single individuals the demand for hospital beds will be much greater than in areas where most of the population is married. This is particularly apparent in London and other urban centres. Obviously, if there are many single individuals in the community there are few people to

care for them when they are ill and there will consequently be a greater demand for admission to hospital. Another factor that may influence hospital utilisation is social class, which may have a bearing not only on the numbers of individuals using hospital or other services but also on factors such as duration of stay.

It is thus important when considering the planning of health services in an area to plan for the population in that area. This principle is well recognised in the planning of maternity services but the approach adopted in *A Hospital Plan for England and Wales*[6] was to set an arbitrary figure of 3·3 acute beds per 1,000 population, calculated on the basis of the total population. It is essential that such a figure should only be taken as the norm and that adjustments should be made, taking into account the characteristics of the local population.

In deciding the allocation of priorities for available resources the first step is to determine the effect of a particular service. It is all too easy to assume that by introducing a particular service it will 'do good'. Probably any new service will achieve something but there is a need to assess whether the achievement justifies the effort and expenditure.

For example, despite considerable popular demand for screening procedures, the evidence of their beneficial effects is equivocal. Cervical screening has been used in British Columbia for a number of years. If it were to have had an effect one would expect that by now there would be a drop in the female mortality rate from cancer of the cervix, yet no such change in mortality from this condition has yet been demonstrated. It therefore appears that cervical screening is not as beneficial as its proponents may suppose.

The same criticism may be made of multiphasic screening. Many public health medical officers consider this to be an effective means of practising preventive medicine, yet no evidence has been presented to show that multiphasic screening has any influence on morbidity or survival. In the Department of Clinical Epidemiology and Social Medicine, St Thomas's Hospital Medical School we are, in fact, doing an experiment in a group of general practices in which the population on the list of a general practitioner has been allocated at random to treatment and control groups, the treatment group being screened and the control group being left alone. We are measuring the influence of multiphasic screening on both morbidity and mortality by comparing the subsequent medical experience of the two groups. In addition, we are comparing the costs of screening and of not screening in order to assess the economic benefits, if any, of this service.

The value of computers in hospital administration is similarly over-emphasised. We are continually being urged to use computers on the grounds of economy, yet in the United States they have been introduced for billing patients in hospital and it has been clearly shown that costs are, in fact, increased rather than reduced. Having a computer may mean that we shall have less humdrum and repetitive work to do and we may be able to use scarce manpower resources

for activities which are more beneficial. Before reaching a decision one way or the other it is important to explore in more detail how and for what purpose computers can best be used.

One of the difficulties in such studies is evaluation. How can we assess whether a particular form of action is better than another? How can we assess whether one form of treatment does more good than another? This is relatively simple when we are doing investigations on the uses of single drugs. Controlled trials of drugs have been frequently used. When, however, we are attempting to investigate and assess the influence of patterns of service the problem is more difficult.

One example of such an attempt is our recent study on the care of old people in Kent.[7] We assumed that if old people were well cared for they would experience lower rates of morbidity, as measured by hospital admission rate, mortality and fractures. We compared the experience of old people cared for in their own homes by domestic and other health authority services with the experience of old people admitted to various types of old people's homes. It is not perhaps surprising that we found individuals cared for in their own homes to be suffering from fewer fractures, having fewer admissions to hospital and dying less rapidly than those admitted to old people's homes. There was a further gradient amongst those admitted to the residential homes. In those homes where staffing ratios were generous fewer fractures occurred and morbidity and mortality were lower than in the homes with fewer staff.

This analysis can, however, only give us some presumptive findings since we were unable to allocate at random the care of old people. It is possible that the fittest remained at home and the less fit were admitted to residential care.

It is thus obvious that if we are to draw any valid conclusion as to the different influences or effects of different forms of care we must plan a prospective study rather than assess retrospectively.

It is important at this time to consider the potential benefits of greater coordination between the three branches of the health service. It should be remembered that hospital care is only one end of the spectrum of total care and that the hospital is in the community to serve that community. We could perhaps make better use of scarce and expensive hospital beds by coordination with local general practitioners and with local health authorities. At the same time any plan for an increase in the number of hospital beds must take into account the availability of other facilities such as theatres and laboratories.

It is useless, however, to plan elaborate schemes of coordination between the hospital and general practitioner, if the latter works in an under-doctored area and has more patients on his list than he can deal with. But it should never be forgotten that there are usually untapped resources within the community. We had, for example, no difficulty in finding twelve nurses to work for us part time in a clinic – merely by

asking a general practitioner if he had any married nurses on his list.

In trying to assess the need for service and the need for care we must have an efficient organisational structure with adequate manpower, and consider proper methods of assessment and evaluation before introducing new techniques. We must also remember that demand and need are not necessarily synonymous and it is for the latter that we are attempting to provide.

1 Sources of Data

A E Bennett MB BS DIH

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DATA ARE REQUIRED IN ORDER TO ASSESS THE FUNCTIONING OF MEDICAL care services and to plan the adequacy of these services to meet the demands and needs of the community. The purposes of this paper are to review briefly the data that are routinely available on the hospital services and to discuss how such data may be used.

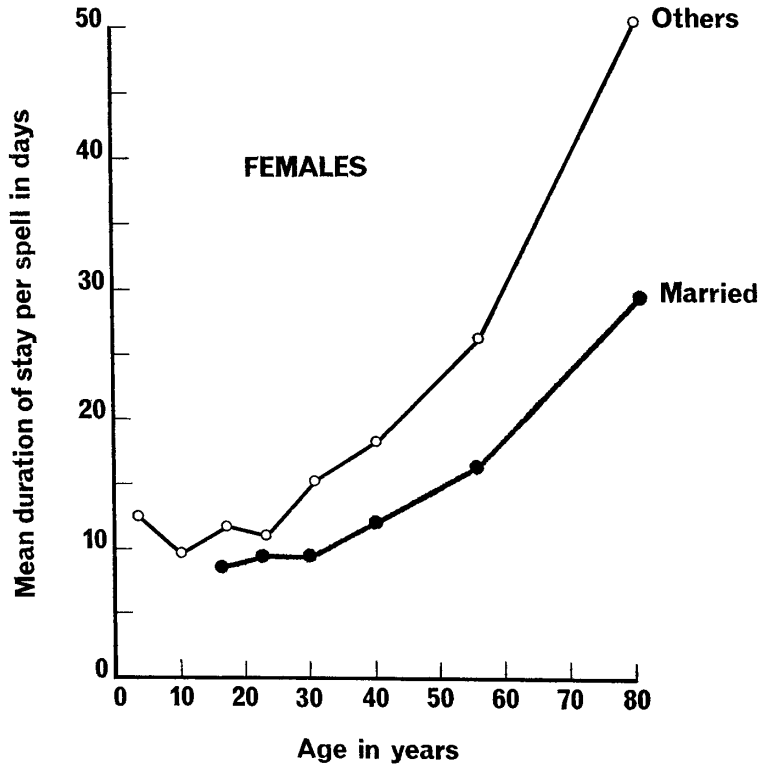
In-patient Services The major source of data generally available on in-patient services is still the Hospital In-Patient Enquiry (HIPE).* Collection of data was started on a voluntary basis in 1949 and since 1958 all hospitals have been included, except psychiatric hospitals and departments for which data are collected and published separately.† The investigation, organised jointly by the Department of Health and Social Security and the General Register Office, is based on a ten per cent sample of all hospital discharges. It has two purposes: 'to provide administrative data for the hospital services in terms of disease treated and the characteristics of patients treated; and to provide information which can be of assistance in assessing the amount, distribution and effect of illness in the community.' Annual reports, published after considerable delay, include information on age/sex discharge rates for conditions and groups of conditions, and some reports include information on bed usage per million population and average duration of stay. Another source of data is the information from the SH3 form† which, for in-patients, is based on daily ward returns. However, SH3 figures suffer from a number of deficiencies which greatly reduce their usefulness. Discrepancies, sometimes of considerable importance, may exist between SH3 figures and HIPE data due to difficulties in allocating patients to particular classes of beds or departments. Comparisons between hospital groups for admissions and durations of stay are invalid as no allowance can be made for transfers between hospitals in the same group. Thus, average stays may be shorter in a group with separate hospitals for acute, recovery and convalescent stages than in a group in which all stages are under one roof.[8] As SH3 figures take no account of age or diagnosis of patients, comparisons over time or between groups are invalid and their usefulness in almost all respects is extremely limited.

Out-patient Services For out-patient services the main source of data relating to case loads is SH3 figures. The data show the number of

*Published annually by the Department of Health and Social Security and General Register Office.

†*Digest of Health Statistics for England and Wales*, HMSO, 1969, explanatory note, page 104.

1.1 Mean duration of stay/ spell of hospitalisation (days) by age, sex and marital status. All diagnostic groups except deliveries and disorders of pregnancies, childbirth and puerperium. From *Hospital Inpatient Enquiry – England and Wales 1964.*



clinics held in each specialty, numbers of attendances and of new patients. Again, however, their usefulness is limited due to inaccuracies introduced by counting booked patients rather than patients actually attending, and by variations in interpretation of the term, 'new patient'.

Present Developments Because of the inadequacies of the present in-patient statistics, the DHSS, since 1963, has been promoting and encouraging experiments in *Hospital Activity Analysis*.[9] The object of this system is to provide the hospital management and the individual consultant with a rapid feedback of information about patients and the functioning of the hospital and individual departments. The procedure requires the completion for all patients of a special record form which includes the following minimum information: name; address; sex; date of birth; marital status; date and source of admission; date of entry to waiting list; type of bed; medical specialty; consultant; 'disposal'; date of discharge and diagnosis. With the use of modern data-processing facilities, detailed analyses of current bed usage may be obtained together with analyses of patient characteristics and diagnostic data.

Use of Statistics Such statistics may point out differences but they do not explain why these differences exist. The danger lies in making superficial comparisons which may be highly deceptive. An example is the method of comparing performance of the individual unit with some group or national average. Even comparison between similar units requires the most rigorous application of statistical techniques to allow for some of the important variables before conclusions can be reached. For example, average lengths of patient stay are often compared. However, Figure 1.1 shows the way in which average length of stay is influenced by sex, age and marital status for all diagnostic groups. Social class of patients is important for, whereas Barr[10] showed that the more affluent areas produced slightly more cases per head of population than the poorer areas, Newell[11] showed that, by having a longer duration of stay, the poorer areas used thirty per cent more bed days per head of population. Feldstein[12] showed the effect that mixtures of different types of cases treated had on the average length of stay. He found that the proportion of case loads accounted for by medical cases in 177 district general hospitals varied from less than one-tenth to more than one-third. The effect of this different 'case mix' on average length of stay when comparing hospitals was striking.

Heasman[13] compared length of stay in hospitals in England and Wales for tonsillectomy and herniorraphy. He found differences between hospital groups and also between hospital regions. The median length of stay for tonsillectomy varied between one and seven days and for herniorraphy between three and seventeen days. He pointed out how, quite apart from the policy of clinical management, administrative factors such as timing of consultant sessions and availability of theatre times could influence length of patient stay.

In spite of all the variation that has been shown to exist, there has

been a marked overall reduction in the average duration of patient stay during the last two decades. It is not perhaps widely realised that shortening the duration of patient stay is not conducive to high bed occupancy rates and the two cannot be considered as independent. In practice, more management effort is required to attain a given rate of occupancy when the average duration of stay is short than when it is long. This can be shown in bed utilisation figures for St Thomas' Hospital where there is a significant rank order correlation between average length of stay and percentage of beds occupied for all departments with patients on the waiting list.

Sources of Data

The use of routinely available statistics for planning purposes is open to a number of objections. The data reflect demand for services and considerable variation may exist. For example, Forsyth and Logan[14] point out that for every woman between fifteen and forty-four years of age in Wales whose varicose veins are treated in hospital, more than two are so treated in Wessex; for every three older women treated for pelvic prolapse in Birmingham, there are four in Leeds and five in Newcastle; for every man in late middle age treated for haemorrhoids in the South Western region, more than two are treated in each of five other regions. Within all regions across the country there are lower rates of discharge of patients from the rural areas; cancer of the breast and cervix in women, haemorrhoids in men, and strabismus in children are treated in hospital at twice the rate in the conurbations of the Newcastle region as in the rural areas, despite an equality in hospital facilities and in the age/sex distributions of the populations served. Roemer[15] first stated the proposition that the more hospital beds, the more they are used. Airth and Newell[16] considered that the differences in hospital usage between two study areas could only be attributed to a difference in availability of beds. Holland[17] pointed out that the two regions with the most beds, Liverpool and London, have the highest discharge rates for all causes and he also showed a great variation in the rank order of the various regions for mortality, hospital discharges and sickness disability. Klarman[18], in a guarded statement, said that most students of hospital care now believe that for the purpose of planning, account must be taken of the fact that the supply of beds influences use.

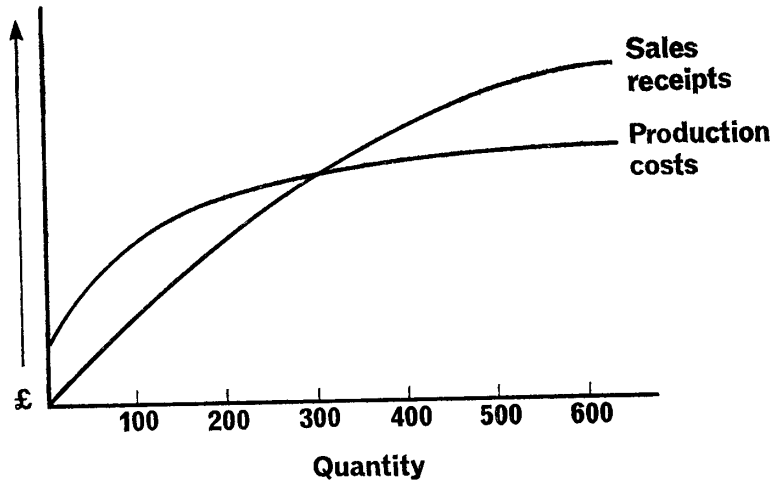
Need for Medical Care Present-day demands may not truly reflect the needs of a community for medical care. The needs of a community are often greater than the demands made. Several factors may account for this: for instance, an individual may be unaware of the value of medical care for a particular condition or symptom; services may not be available to him, or he may consider that such services as exist are ineffective or already overloaded, resulting in delays for treatment. Because of the recent changes which have seen the chronic diseases of insidious onset in middle and old age become the important problems in medicine, it is false to assume that medical need is always and immediately manifest as demand.

The problem remains, however, that if estimation of need for medical care is the important consideration for future planning – and some

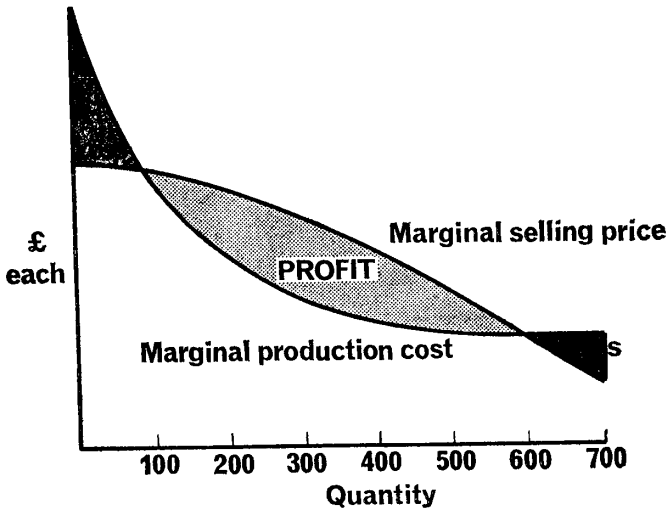
would dispute this and rely solely on demand forecasting, for example, Feldstein[19] – how should need be defined and measured? Both need and demand are relative concepts. Demand has been shown to be determined by many social and psychological factors which motivate the public to seek medical care. Need should be determined by medical criteria and measurement based on *ad hoc* studies.[20]

Thus, need for medical care may be defined as that care required by an individual when suffering from a condition of a nature and severity such that professional personnel consider treatment is desirable. The criteria to be used are obviously dependent on current knowledge and must, therefore, change with advances in scientific knowledge. The *ad hoc* research required to investigate and quantify this need, as so defined, can only be accomplished by conducting multi-disciplinary studies based on the individual and the community. Despite the fact that measurement of need and the size of the gap between need and satisfied demand is the ultimate test of effectiveness, few satisfactory studies have been made.[21] The obvious difficulties involved in such studies go a long way towards explaining this lack.

Future Developments Statistics are the essential tools in evaluation and planning. Routine statistics must be refined and analysed fully to be of use. Crude figures are often meaningless and even dangerous. Where differences are shown to exist, hypotheses can be constructed for testing by *ad hoc* studies in depth. In this way the study of health services and the use of resources can be developed for both the good of the community and the individual patient.



2.1 Example of production costs and sales receipts.



2.2 Example of marginal costs and prices.

2 Cost and Benefit Assessment in Medical Care

John Stringer MA

Director, Institute for Operational Research

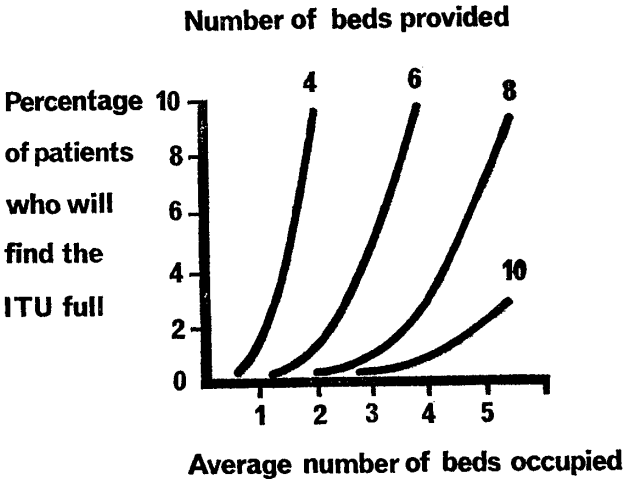
MEDICAL CARE IS BECOMING INCREASINGLY COSTLY AND, ONE HOPES, increasingly beneficial. Is there any way we can ensure that extra benefit is worth the extra cost?

The sorts of questions underlying the many problems of planning health services are: How can we be sure that the resources available to medical services are being deployed in the most beneficial ways? What resources can we afford to make available? The term, cost-benefit analysis (CBA), suggests that this technique should be capable of providing answers to them. It is not a straightforward matter of using a well developed technique, however, and the application of economic theory to health services planning raises some fundamental difficulties. Examination of the difficulties and the reason for them helps us to delineate the proper role of quantitative techniques in this field. It is important that we should neither seek panaceas nor ignore anything which would contribute to the making of better decisions.

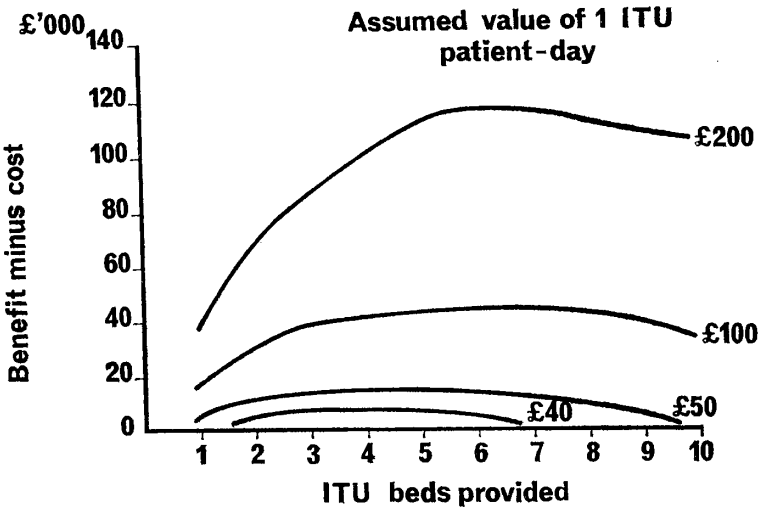
Economics is concerned with the scarcity of resources and their deployment between alternative uses. Whilst it is usual to consider such problems in terms of money, it is not absolutely necessary to do so. When we speak of 'cost' we do not necessarily mean that a quantity of money has changed hands, but that something has had to be foregone in order to 'pay for' something that was wanted. When we speak of 'benefit' we do not necessarily mean that its value can be expressed in pounds and pence. Money is simply a convenient unit of comparison.

Let us start with a very simple case of economic assessment, and consider a manufacturer faced with the problem of deciding how much of a particular product he ought to make. The more he makes the more it will cost him, although probably not proportionately. However, he may have to reduce his price to find buyers for the larger quantity, so his sales receipts will not be proportional to the quantity he makes. Figure 2.1 shows how his income and expenditure might be expected to vary according to the quantity he produces.

Figure 2.2 is derived from Figure 2.1 by considering marginal costs and marginal receipts. By this we mean how much extra it would cost and how much more he would receive if he were to make and sell just one more than the planned level of production. The profit or loss he would make are represented by the shaded areas in Figure 2.2 – a loss on the first 100, a profit on the next 500, and a loss again if he



2.3 Relation between size of Intensive Therapy Unit, demand and probability of being full.



2.4 Net benefit of ITU.

produces more than 600. The answer to his problem is to make 600, *unless* the loss on the first 100 exceeds the profit on the next 500. If it does he should not produce at all. There is a simple rule in economics that for maximum profit the marginal price should equal the marginal cost, which is the case where the curves in Figure 2.2 cross at a production of 600. Note, however, that this rule has to be cautiously applied since it is also true at 100 which is a point of maximum *loss*.

Can we apply these simple ideas to the problems of deciding the appropriate scale of a health care service? Can we make practical use of the marginal principle, namely, that services should be provided on such a scale that the benefits accruing from additional expenditure would just be insufficient to justify the additional cost?

In a public service we immediately face the problem that the costs and the benefits do not fall to the same people. The basis of cost-benefit analysis is the so-called 'welfare economics', a fundamental tenet of which is that public resources should be deployed in such a way that the net social benefit (the benefit minus the cost) is as large as possible regardless of who receives the benefit and who pays the costs. A good example is the analysis of the case for the building of the Victoria Line in London.[22] The time saved by road travellers due to the reduced congestion on the streets was included in the calculation although, of course, the value of this time saving will not appear in the accounts of London Transport. Some of the best current examples of the use of CBA are in transport and land use planning where benefits can be stated in terms such as 'savings of time' and 'changes in the value of property'.

There are a number of difficulties in the application of CBA to health planning; these are summarised below.

1 The need to quantify benefits and costs in the same terms. The principal question we are faced with here is: What are people prepared to pay to enjoy similar benefits? The basic process which enables us to answer this may be illustrated from a study concerned with the number of beds necessary in an intensive therapy unit (ITU) in a particular general hospital. A survey had been carried out to calculate how many patients could be expected to be undergoing intensive therapy at any time.[23] Figure 2.3 shows the relationship between the average number of beds occupied and the chance that it may not be possible to admit a patient because the unit is already full. This is based on a mathematical 'model'[24] which enables us to predict the effects (in terms of numbers of patients treated) of the number of beds provided. On the basis of the survey finding that there would be an average of two patients needing intensive therapy at any given time, our recommendation was that eight beds should be provided, giving a small chance of turning patients away.

This conclusion was not, in fact, reached on grounds of economics, but was based on a reasonable interpretation made jointly by the

doctors concerned and the operational research scientists who were working with them. Nevertheless, we may speculate what the result of an economic analysis would have been.

Table I shows the annual number of patient-days of treatment provided and the annual cost for various sizes of unit. In the assessment of cost a suitable adjustment has been made to include capital and revenue costs in the one figure.

Table I Effects of Various Sizes of Intensive Therapy Unit

Beds	Patient-days	Cost (£)
1	218	10,000
2	383	13,000
4	588	20,000
6	720	27,000
8	729	32,000
10	730	37,000

In order to proceed further, we would need to be able to put a figure to the value of nursing a patient in the ITU for a day instead of in normal wards. The effects of taking various values are given in Figure 2.4 which shows the net benefit of different sizes of unit. It will be seen that the size of unit to give maximum net benefit varies from four to six beds according to how we vary the value of a patient-day from £40 to £100 or more. If the value of a patient-day is taken at less than £40, the net benefit is negative; we would then say that the cost of an ITU would not be justified whatever its size.

Since the '£40 per day' curve is relatively flat, it makes little difference whether four or six beds are provided. Moreover, however high a value is placed on a patient-day of intensive therapy, it looks as though six beds would provide the maximum net benefit. In practice, therefore, the issue is: if we believe it is worth spending at least £40 to give one day of intensive therapy, we should provide six beds. If we believe the value to be less than £40, we should not provide an ITU of any size.

At least we have reduced the problem to a proposition around which a valid debate can take place: we cannot usually expect to be able to do more than this.

We are tacitly assuming, however, that the number of patients available to benefit from intensive therapy will remain as it was during the survey. What if there is a 50 per cent increase? It turns out that we still need to ask whether a day of intensive therapy is worth at least £40. If the answer is 'yes' we should still conclude that six beds should

be provided unless we think the value of a day is as much as £200, when it would just be preferable to increase the number of beds to eight. Our analysis has now not only helped define what is the right economic question to ask, but has also shown that the conclusion we should reach would still be a good one if there were an increase in demand. That is, the decision reached would be a 'robust' one'.*

Costs in the intensive therapy unit include the time and skill of doctors and nurses which not only cost money but are scarce. Only in the very long term could more money be translated into more doctors so that unless an extra 'scarcity cost' is attributed to them, there is a danger of reaching decisions on economic grounds which could not be implemented in practical manpower terms. This is a technical problem which can be handled, but in doing so the analyst may make his work that much more difficult for the layman to follow. Moreover, it means enlarging the scope of the problems in order to consider other possible uses of scarce resources.

2 The selection of appropriate costs and benefits for the calculation. This problem is rather more subtle than that of evaluating a benefit in the same terms as the cost. Definitions of 'social benefit' and 'social cost' are in terms of what somebody would be prepared to pay and what somebody (usually different) would have to forego. But there will always be someone who is prepared to pay for a thing which the rest of society would consider it undesirable for him to have – narcotic drugs, for example. No matter what individuals may think, society as a whole would not wish to allow infectious disease to go untreated, any more than pollution of the environment is acceptable to the majority. It is clear, therefore, that some selection is necessary in considering what costs and what benefits should come into our calculations.

3 The distribution of costs and benefits between groups. Society does not necessarily accept the implied distribution of costs and benefits between different kinds of people. Thus, policies which improve the health and working capacity of young people could be economically more attractive than policies to provide better care for the old. There would, nevertheless, be those who consider geriatric care to merit a more urgent priority than such an economic assessment would imply. Again, how are we to strike the balance between those things which provide care for people alive today, and those, such as research and long term developments, which are aimed at people of the future?

4 The prediction of the effect of changes in medical care. In speaking of a proposal for the future, we often tend to confuse ends with means and to imply that the provision of a service is an end in itself. It is, however, a big assumption that we can predict with reasonable certainty what will be the effects on health of adopting a particular policy or course of action, or even what a new facility will be used for. But if we are to apply cost-benefit principles we shall need

* See also page 28.

to be able to identify what effects on health will result from the provision of a particular service or facility.

These difficulties have been discussed at some length, not in order to suggest that costs and benefits should not be considered in health planning, and certainly not to decry the use of quantitative methods, but to underline that there is no absolute way of calculating whether a given proposal is worth what it will cost. At some stage arbitrary values will inevitably have to be placed on both the benefits and the costs of providing a service. In health planning we are concerned with choices which are exercised by certain people (doctors, planners, politicians) on behalf of others, and no two people would put the same value on any given outcome of health care. The term 'political choice' was used by Vickers[25] to make a useful distinction between such decisions and those in the area of 'market choice', where individuals make decisions on their own behalf. Only in the latter case is it completely reasonable to take as the value of a benefit to an individual the price of those things which he is personally prepared to give up in order to enjoy it.

To summarise my thesis so far, economic analysis does not provide a unique or automatic answer to health planning problems since the choices to be made are essentially political ones. Nevertheless, guidance can be obtained by analytical methods when they are undertaken in conjunction with an adequate process for reaching value judgments, by people who have been accorded the right to make them on the community's behalf. We have to reject any suggestion that quantitative methods of analysis can provide all the answers and instead see in what way they can improve the basis for decisions made in the traditional way by people in positions of responsibility.

One useful principle of decision-making in the conditions of uncertainty which surround medical problems, is the principle of robustness which was mentioned in connection with the ITU study. By robustness we mean that it is preferable to take those decisions which will not come to be regretted whatever the future may hold. The systematic application of this principle to problems of city planning has been explored by Friend and Jessop[26], and is a more realistic basis for the sorts of planning decisions which have to be taken in a public service than the pursuit of a narrowly defined economic optimum.

Another important principle is that of 'adaptiveness'. That is to say, we should not be concerned to see that plans are got right once and for all (which is impossible anyway), so much as to establish a continuous process of trying to ensure that resources are being used to the best purpose. For example, if we know that available hospital beds are always utilised in such a way that no net benefit would be obtained by changing the pattern of admissions, comparison of the cases of patients who experience delay in admission with those who do not would give a valid indication of the relative adequacy of the provision of resources. Table II demonstrates that the size of waiting lists does not give a valid basis for planning. It will be seen that whilst the number on

the waiting list has been *reduced*, the amount of hospital stay that those on the list will require (estimated from condition and proposed operation) has *increased*.

Table II Waiting Lists – A Gynaecological Unit

Date	Patients on list	Bed-days required to clear list
May 1968	777	4,020
June 1969	584	5,241

Waiting lists for elective surgery are often handled on the 'first come first served' basis or some other basis which takes little account of resource requirements and the relative value to patients of the outcome. If, however, it were possible to give a reasonable indication of the relative seriousness of cases then it would be possible to devise decision rules by which different patients travel up the waiting list at varying speeds, according to the seriousness of their condition and the resources required to treat them. When available resources are under great pressure in such a system, only the more serious cases would gain priority sufficiently rapidly to obtain admission; the less serious cases would be subject to a prolonged delay. Thus, by looking at the nature of those cases which are unable to obtain admission, it would be possible to form a judgment as to the need or otherwise for additional facilities. I emphasise it is a judgment – there is no absolute measure of value here. If, on the other hand, patients are selected from the waiting list either by the first come first served method or in some random way, then no observation of the types of cases which do and do not gain admission can give any valid indication of the relative adequacy of the service provided.

A description of a method of handling surgical waiting lists to achieve a consistent relationship between seriousness of condition and length of delay before admission, has been devised and is explained in detail elsewhere.[27]

The argument is now returning to the point from which it started, namely, that for efficiency* it is necessary to look at what happens at the margin, that is, how the last little bit of a resource is used and how that part of the demand which is only just being met, or not met, is handled. In allocating available hospital beds between specialties it would theoretically be desirable to ensure that the last bed allocated to specialty A is used for a purpose having similar priority to the use

* The term 'efficiency' may require some elaboration. It refers solely to the relationship between the input of resources and the output achieved thereby. A perfectly efficient undertaking would be one in which any alteration in the way its resources were used could only *reduce* the value of its output. Whether or not an undertaking is efficient says nothing about whether or not the quantity of resources available to it is too great or too small. One sometimes hears the phrase: 'We cannot be efficient unless we have more money.' It is not so. The speaker is confusing efficiency with effectiveness. Both are desirable, but they are different.

being made of the last bed allocated to specialty B. If this is not the case then clearly an overall improvement can be made by transferring the bed from one specialty to the other. But this still leaves us with the question: What do we mean by equal seriousness? The answer cannot be found in economics only, nor can there be an absolute answer. In the final analysis, in a public service the question as to whether A is more important than B and *vice versa* is one for the public itself to answer. This is simple enough to say but, of course, extremely difficult to achieve in practice because by 'the public' one means a public with adequate information and understanding, and faced with the right questions. Nevertheless, it is in this direction that we may look for any improvements in the efficiency of the use of the resources of the National Health Service. The role of quantitative analysis in health planning is to ensure that the right questions are asked.

In conclusion, therefore, I summarise by posing a series of questions which should be asked about any project or proposal designed to add to or change the facilities provided for health care. They are:

1 To what extent can equivalent services be provided more economically by other arms of the health service, by alternative forms of hospital provision, or by changes in other public services, for example, housing, clear air?

2 Are the capacities of the various facilities, existing and proposed, in such balance that all can be efficiently utilised? For example, are beds, theatres, and laboratory facilities in correct ratio for the case load?

3 Has the scale, design, or cost of any facility been distorted by the way in which 'norms' or other considerations have been applied?

4 Is the project so designed that it will be capable of adaptation to any reasonably likely future changes in medical practice and technique, in morbidity, or population structure?

5 Could all or part of the capital revenue and human resources committed to the project be utilised to give a greater benefit, an earlier effect, or a saving of resources, by being applied to other projects?

6 Is the timing of the project optimal? Capital which is spent earlier than need be, for example, on projects which cannot be staffed at the outset, may be capable of more profitable deployment; on the other hand, delay in a capital project may cause expensive makeshifts or undue hardship.

7 Is a project, which has a low priority on the normal criteria applied to health benefits, delayed due to lack of finance despite its economic benefits to industry in terms of reduced loss of working time?

3 Methods of Assessing Quality of Medical Care

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IN DEVISING METHODS FOR MEASURING THE QUALITY OF MEDICAL CARE IT IS important to be aware of some of the difficulties likely to be encountered. Undoubtedly one of the greatest problems is presented by the emotional involvement of those concerned with the provision of care. There is a very real tendency for the doctors concerned to personalise the problem, without appearing able to stand back and view it objectively. This is a serious handicap in organising studies into the quality of medical care.

Another difficulty, that of determining criteria of quality, is due largely to the problem of identifying the objectives of medical care in a total community sense. When community care *is* seen in its totality, a new difficulty is found in integrating the individual processes of care into the total system.

In looking at the morbidity experience of a community it is apparent that more than two-thirds of all illness does not bring the patient to the doctor.[28] To consider medical care in a community in a meaningful way it is necessary first to measure the prevalence of illness in that community, and then to try to identify some of the factors which determine the point at which a patient will seek medical aid. At present very little is known about this, though it is clearly vital to the diagnostic process and to the assessment of the quality of the care provided.

General practitioner care can be related to the hospital services by assessing the appropriateness or otherwise of the use of hospital facilities. Referral rates from general practice vary from 0·5 per cent to 25 per cent of consultations.[29] Very little is known about the factors which determine these differences and no objective measurements are available to make comparisons of quality.

Study of the total medical care of a community immediately brings to light the close interaction between different parts of care. The preservation of life in acute illness leads to an increase in the prevalence of chronic illness. Longevity produced by high quality care may bring with it serious social problems. Preserving physical wrecks may create mental wrecks. This jungle of action and interaction is very difficult to explore. In a study of old people's homes Bennett and his colleagues[7] inferred that better quality care, as measured by a reduction in mortality and incidence of fractures, might be achieved by

a higher staff/patient ratio. The implication is that better staffing is needed for old people's homes. This, however, entails financial investment which must at the present time be made at the expense of some other sector. Should this economy be made in infant welfare services, mental health or district nursing and, if made, what would the overall effect be on the quality of care for the community?

Measurements of quality of care must, therefore, allow for the economic implications of any conclusions reached and must cover the whole spectrum of medical care for the community. In addition, any such study must allow for the fact that observing a situation will necessarily change it to some extent.

Methods of Assessing Quality of Medical Care

Having considered the general difficulties of measurement, it is possible to proceed to the particular and to describe various methods which have been employed in the past.

Outcome studies Perhaps the most common method of assessing quality is that which measures the outcome of care provided. The most simple criteria used are death or survival rates. One example of this is the measurement of perinatal mortality in response to different patterns of medical care in pregnancy. Such a study may be developed to provide a more sensitive index of quality by measuring other parameters such as maternal haemoglobin at term, duration of and blood loss during labour, birth weight and morbidity in the neonatal period. Obstetric care provides a relatively straightforward field for such studies because each episode is discrete and the criteria of success are fairly well defined. Some fields of surgery may be studied in this way with as little difficulty.

Many fields of medicine are, however, much less suitable for this type of study. When the criteria for success cease to be death or survival, or well defined health or disease, but shade into various stages of disability, measurement of results is less easy. When the diagnosis ceases to be pregnant or not pregnant, hernia or no hernia, and becomes a complex of chronic degenerative or psychosomatic disorders, comparative studies are more difficult to organise.

Many outcome studies in the past have been set up as 'before and after' situations in which the results of a particular method of providing care are measured; the method of provision is then changed and the effect of the change on the selected criteria estimated. A more satisfactory method is to plan such studies as controlled trials, patients being allocated at random to one or other method of medical care. This is now almost universally accepted in clinical trials. In studying a wider field of care, randomisation presents greater difficulties but should be attempted wherever possible.

Process studies A great deal of descriptive work has been carried out over the last two decades in which data have been collected and used to describe the process of medical care provision. The question implicit in this type of study is: Has good medical care been applied?

The sources of data may be clinical records or, less commonly, direct observation of the practising physician.

The essential prerequisite to this approach is the determination of criteria against which the medical care can be measured. The criteria may be detailed and highly specific, in which case there is a risk that the overall objectives of care may be missed because of over-emphasis on the minutiae, while at the other extreme the criteria may be so general that variation between different observers is excessive and it is impossible to repeat the study.

An example of the detailed approach is the 'chart conference'[30] in which a check list is prepared of those items regarded as forming an essential part of every first consultation at a hospital clinic. Further lists are prepared of the investigations which are considered appropriate when certain definite abnormalities are discovered. At regular meetings the medical records or charts are compared with the check lists and the medical care audited in this way. Such studies assume that it is possible to lay down standard procedures which should be undertaken in every case, and that the situation in which care is provided is one in which the physician does not have to select priorities in the use of his time. In certain fields of medical care, for example, general practice, these assumptions may not be valid.

A different method is that adopted by Jungfer and Last[31] in their survey of general practice in Australia. Once again a check list is used, covering different aspects of work such as history taking, physical examination and treatment. The practitioner is then observed as he carries out his work and is marked accordingly. While this method allows for a more liberal interpretation of the doctor's actions, it is nevertheless based on the same assumptions that were questioned above.

Attempts to study the process of medical care highlight the major problem presented by quality control, that of identifying the objectives of medical care. The difficulty is clearly greatest in those situations where the role of the doctor is least defined and where human behaviour dictates the actions which are appropriate in any specified situation. At the extremes, a morbid anatomist may have little difficulty in providing a check list of the actions which should always be taken in performing a post mortem examination, while the psychiatrist's interview must be largely conducted on the basis of the communication which is actually occurring at a particular consultation. The situation is well exemplified in general practice.

The objective of general practitioner care in the National Health Service may be defined as providing for the medical needs of a specified community. This community is composed of individuals registered with a particular doctor who has accepted medical responsibility for them. In achieving this objective the general practitioner will provide care both directly and by delegation to specialists in medical and social fields. In fulfilling his role, he will be subjected to medical demands. If he is to attain his objective he must respond to demand by identifying

need for care. If demand exceeds need he must attempt to discover the reason for it and, if necessary, curtail it in order to provide time to meet those needs of his population which are not expressed by demand. If medical need exceeds his time and resources he must select priorities, delegate where possible and at times consciously ignore the needs of one patient in favour of the greater needs of another.

Methods of Assessing Quality of Medical Care

An examination of the process of medical care in this situation may be useful in identifying the methods employed by the general practitioner in attaining his objective, but it is not entirely relevant to the role he is called upon to fulfil in the medical care system in this country. In order to answer questions about quality of care, it is necessary to measure the needs of the community and relate them to the extent to which the doctor is satisfying them. The important item to measure is the decision-making process. It is manifestly impossible and unnecessary to examine and investigate every patient attending the general practitioner. Does the doctor make the correct decision in selecting the patients to listen to, examine, or refer? This is an area of quality control which has not been seriously tackled.

Study of facilities A number of studies have been conducted into the facilities available for providing medical care, measured variously in terms of accommodation, equipment and ancillary help.[32, 33] On the negative side this method may be of some value in that it is difficult to envisage adequate care being provided in the absence of certain basic items of equipment and accommodation. The assumption, however, that good facilities inevitably reflect high quality care is highly suspect and can hardly be regarded as a valid measurement of quality.

Accessibility studies This method of studying the quality of medical care is concerned, firstly, with the resources of care within the community and, secondly, with the way in which they are used. The work of the United States Department of Health, Education and Welfare[34] is an example. On the basis of nation-wide sample surveys, such variables as illness experience, disability, consultations and hospital attendance are related to available resources. Holland[35] has developed more refined techniques in which the findings at clinical examinations of random samples of a population are related to the use of medical care services and the resources available. Studies of this kind audit medical care for an entire community and relate need to resources over a broad field in a way which will detect any imbalance in the deployment of resources. Areas of particular need may then become the starting points for outcome studies.

Acceptability Medical care is largely initiated by the patient. Unless the service provided is acceptable to the patient it is probable that the resources will not be used to the full. For example, the most excellent diagnostic screening in general practice will not produce good quality care if the doctor is so occupied with it that he cannot see the acutely ill patient. Similarly, good hospital care may not compensate for a day lost from work every time the patient attends for a consultation. Consumer opinion may not be a good measure of quality,

but it may indicate some of the variables which should be considered in planning more objective studies of medical care.

To measure the quality of medical care it is necessary to determine priorities on both a community and personal level, based on objective measurements of need. It is then necessary to define the role of the different parts of the medical care system and the processes of care relevant to these roles. From this, criteria can be established against which care can be measured in different fields. Before satisfactory studies can be carried out, it is necessary to develop more refined methods of measuring physical, mental and social disability, and methods which can be repeated by the same, or different, observers.

At present, medical care in Great Britain is shared between the three parts of the NHS and studies of the quality of care must cut across this tripartite administration. If, for instance, it is decided to measure the effect of discharging patients from hospital within 48 hours after some specified surgical procedure, the results cannot be measured simply by looking at the patients who have been discharged. The hospital work load and the alternative use of the vacated beds must be studied; and the effect of the latter on the hospital waiting list and on the time lost from work by patients awaiting admission. Early discharge will lead to an increased case load both for the domiciliary nursing team and the general practitioner and it is important to determine which items of medical care they must relinquish in order to undertake this new task. The second Green Paper[36] on reorganising the health service established the policy that a unified service should be administered by area health authorities, with responsibility for the present hospital, general practitioner and local authority services. If such a system were adopted, it should be easier to integrate the various medical aspects of studies of quality. Investigations of medical care must also consider the patient in the context of his family and social situation, thus involving the cooperation of workers in a variety of disciplines, and the final results must be viewed in the light of realistic economic and political assessments.

4 Planning: Priorities and Objectives

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MODERN MANAGEMENT JARGON HAS AN UNHAPPY KNACK OF CLOTHING the simplest truths in a mass of verbiage which offends some and deters others. In fact, all that teachers of modern management are attempting to do is to emphasise that the standards which we apply to the management of our own personal affairs are relevant to the efficient management of any organisation. Their reiteration of the need for dispassionate analysis and decision-making becomes monotonous, but is nevertheless necessary since neither is easy to achieve.

The fundamental difficulty involved in the organisation of health services is that of balancing limited resources against unlimited aspirations. It is 'the heart of the contemporary dilemma in health and medicine. Public expectations for health have been immeasurably heightened by the advance of bio-medical capability, public awareness of that advance and simultaneous social changes that have rejected for all time the notion of privilege. Access to good health care has been accepted as a right for everybody.'[37]

The resources available for health services are, as we are all too painfully aware, extremely limited. Expressed as a proportion of the gross national product they have grown in this country from 3·7 per cent in 1948 to 4·75 per cent in 1968, but in both Britain and the United States growth has still not kept pace with public expectations. There is no doubt that our best hope for making full use of the resources available is through radical and well informed planning.

Some who are pessimistic about their own or anyone else's ability to improve future prospects ask the question: Why plan? The answer is equally important whether resources are limited or unlimited. If they are unlimited, developments haphazardly instituted by individuals or communities may militate against a good standard of care. If resources are limited, planning will help to bring about decisions which are based upon a logical and clear assessment of alternatives.

The process of planning is primarily concerned with the selection of priorities and the setting of objectives. How many hospitals today in fact set themselves objectives? Even when this is done, how many of the hospital staff know what these objectives are? If questioned on this subject doctors, nurses and administrators will probably reply that their objective is to 'provide a high quality of care' or 'to treat all patients who come to the hospital in the best way we can'. These statements

are descriptive but are much too vague and ill defined to be true objectives.

The problem of defining objectives is complicated by the fact that different levels of administration within the hospital have different responsibilities and varying aims. The primary function of the hospital board is to see that the needs of the community are met; the hospital administrators have the responsibility of the efficient running of the hospital as a whole; those involved specifically in one department or sub-department are principally concerned with the standard of care within their own sections of the hospital. Nevertheless, there are four major areas in which the operation of the hospital should be planned and with which all administrative levels are directly or indirectly concerned.

Planning: Priorities and Objectives

1 Operational innovation (programmes for future accomplishments).

2 Production of day-to-day services.

3 Personnel (the organisation of staffing).

4 Finance (revenue and capital expenditure, and costing).

Objectives should be set in all these areas and standards established for the measurement of results; these standards should be both quantitative and qualitative.

In planning each year's programme the first task of the hospital administration is to review the purposes for which a department was created. If these purposes have remained unchanged the work done in the previous year should then be analysed, compared with that of earlier years, and possibly with that of similar departments elsewhere. In such a review special attention is paid to staffing, expenditure, services produced and used and the accomplishments of the department. Upon this examination projects are established for the future operation of the department.

It is this continuing process of evaluation which provides the information, statistics and knowledge of the operation of the hospital which are essential to the setting of objectives for the hospital as a whole. In time, the main objectives will interact with the objectives of the departments.

Some hospital staff may object to this method of work on the grounds that resources are extremely limited and that decisions about the priorities are not theirs. This is not so. Each hospital has an obligation to its patients and to its staff to set its objectives and sub-objectives within those which have been established by a higher authority. Moreover, if this process were followed thoroughly and logically it would not only reveal resources which have been hidden away, forgotten or misused, but would also give greater weight to representations to a higher authority for that hospital's share of the cake. A further advantage is that the doctor will have less reason to feel that his only means of gaining increased facilities is by threatening the administrator

with the possible death of a patient. This situation, which is conducive neither to good relations nor to good management, is often caused by the doctor not being given an opportunity to present his case for an increase in facilities in an orderly and logical manner.

Much of the information required for the process is available in the various returns that the hospital submits to the Department of Health and Social Security, and in the costing information. The routine output of statistics in every hospital should enable its medical, nursing and administrative staff to do simple and economic exercises as to the best way of achieving their aims. But available information should not be accepted without question. Information is only useful if it is understood, if the reasons for change are demonstrated and the meaning of this change is thought through. An increase in the number of new patients in a clinic may be a true increase or a transfer from another clinic due to reclassification of the patient. Appropriate action will depend upon which is the real situation.

Individual initiative in learning from the increasing number of published studies of the most efficient methods of working should be encouraged. An example is the study by the Nuffield Provincial Hospitals Trust in which a comparison was made between a hospital in Scotland and one in Maine, USA.[38] It is pointed out that the average stay for cases of appendicitis in the Scottish hospital was 10·3 days and in the American hospital 6·4 days. If the earlier discharge system were adopted in Britain it would free a minimum of £2 million which could be used for other purposes. It is not a case of telling a surgeon how long his patients should stay in hospital—only he can decide; but studies like this should lead him and his staff to review their performance.

So we come to the role of the medical staff in setting priorities – a role of cardinal importance, for the doctor is the sole interpreter of the therapeutic needs of the patient. It is the sum of the views of the medical staff which is essential to the setting of objectives for the hospital. In formulating their wishes, the medical staff will call upon the sources of information available to them both within and without the hospital. It is useless, however, for them to do this unless they have some idea of what resources are available; that is, beds, out-patient accommodation, staffing and so on. Without such information it is useless, for instance, to ask the medical staff to decide between a set of projects such as an intensive care unit, an isotope unit or new operating theatres.

The medical staff will need well documented information as to the commitment involved in each project. The originator of a medical project and the administrator must together consider staffing, accommodation and service commitments and the capital and revenue costs. How common it is for the unforeseen costs of a new project to escalate to an extent which would have jeopardised its adoption if they had been included in the original estimates. Either the project has to be abandoned or another project stopped to find the extra money and this leads to frustration and disappointment. A recent example

is that of a demand for a supply of sterile fluid in a haemo-dialysis unit which grossly increased the original estimated costs. The choice was between stopping the haemo-dialysis project, which was useless without the supply of sterile fluid, or postponing another project. A further issue was the effect of the demand on the whole of the pharmacy and its policy for operating, and this in turn had repercussions on the ward service. This demonstrates the fact, often overlooked, that all the functions of a hospital are directly or indirectly related.

In every hospital there are demands for the increase or improvement of its service to the community from particular individuals within the organisation, from pressure by the local community or other organisations outside the hospital. All these demands must be taken and evaluated one against another. The process of evaluating information and considering alternatives in relation to the resources available will set up a firm policy for the hospital. The interaction of the main objectives of the hospital with the sub-objectives, primarily arising from the improvement of the existing operation of departments, makes for a continuing process of updating the objectives for the hospital from month to month and from year to year.

It is the lack of such a practice which introduces uncertainty into the operation of our institutions. Decisions are made arbitrarily and are not seen against a common background. The medical staff and heads of departments do not know against what criteria their proposals are being evaluated. Sometimes it is merely a case of survival of the fittest. Those who shout the loudest and make the most nuisance of themselves are pacified by agreement to their proposals. This is no way to run a hospital. It leads to frustration and uncertainty and gives rise to a feeling of insecurity by the staff which, in turn, affects their service to the patient.

Those involved in the process of planning must be on their guard against a number of hazards. First is that of rigidity. It is possible that once a course of action has been chosen it will become fixed for all time. To be successful, objectives must be continually reviewed and updated in the light of latest events. This review should not be undertaken at the last minute when a decision on next year's financial programme is being made. Another hazard is that planning will become an end in itself, when the methodology and its validity are more important than the ends which the methodology is meant to serve. Thirdly, planning must not become divorced from the people who carry out the action and those who are affected by it.

Finally, we must ensure that warmth and humanity do not go out of the hospital as planning comes in. Economic criteria are not the sole standards to be applied to the allocation of resources nor does the analysis of data provide an instant decision-maker, replacing human judgment, common sense and compassion. These attributes are as indispensable as ever and the new style of planning seeks to give judgment and common sense a firmer base in truth and a firmer look at the consequences.

5

Care in the Community: Some Implications of Seebohm

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Present Situation OUR PATTERN OF MEDICAL AND SOCIAL SERVICES has three main lines of development, originating in the mediaeval church, private philanthropy which augmented services and pioneered new ones, and the Elizabethan Poor Law when society as a whole first accepted responsibility for its less fortunate members. At different periods in the last 300 years the main responsibility has rested successively with these three groups. At present the community as a whole provides the basic services, voluntary organisations identify new needs and pioneer methods of meeting them, and the churches, while contributing in a variety of fields, carry the main responsibility for the care of unmarried mothers and their children.

For these reasons the structure of community care services is sophisticated but their independent origins are reflected in their present organisation in which social work services are provided by five different departments of the local authority.

Department	*Area of responsibility*
Children's	Care of children deprived of a normal home life.
Education	Individuals whose education is adversely affected by social factors.
Welfare	Home care of the physically handicapped.
Public Health	Community care of the mentally handicapped and mentally ill.
Housing	Individuals whose accommodation adversely affects their social circumstances or medical condition.

The rapid expansion of the social services in 1948, following the interruption in the training of women during the war, resulted in the recruitment of large numbers of untrained personnel into the local authority social services. This is in direct contrast to the social services in hospitals where university and professional training is usually the basic requirement. Although the proportion is now higher as a result of the Younghusband report[39], the majority of local authority social workers have only an informal in-service training in the particular aspect of the service in which they are employed. Inflexibility of personnel accentuates administrative departmentalism and specialisation. It is possible for a social worker from any or all of the five departments to be involved in different aspects of one person's problem or to help different members of the same family at the same time, and in many

instances the different departments work in isolation from each other. In a recent case known to St Thomas' Hospital, fourteen professional people, including seven different social workers, were concurrently providing different aspects of medical and social care to one out-patient. This situation is not unusual.

Main findings of the Seebohm Committee[40]

1 Departments overlap, with duplication of some services, though at the same time there are needs not met by any department, and great variation in the availability, quantity and quality of services between different local authorities.

2 Specialisation of services is the result of administrative structure rather than an expression of the client's needs.

3 When so many departments may be involved with different aspects of one case, no one department may be ultimately responsible or held accountable.

Recommendations To remove these inadequacies, the committee made three main proposals.

1 The children's and welfare departments are both wholly concerned with social work. In the departments of education, public health and housing, social work is secondary to the principal responsibilities of these departments. The committee therefore recommended that one social service department be created by combining the first two departments with the social work elements of the other three.

2 Within this unified social service department it recommended that there be no administrative specialisation of services and, in general, no functional specialisation of social workers except for those in senior administrative, supervisory or teaching posts. Thus, one social worker would offer help to any member of a family regardless of the age group or how the social problem was manifest. In supporting the concept of a general family social worker, the committee expressed the opinion that this person should be a trained social worker, not a health visitor, thus supporting the Jameson report on health visiting[41] and the Younghusband report.[39]

3 Finally, the committee emphasised that to achieve this versatility it is essential for social workers in the local authority to be professionally trained.

Implications of the Report

Administrative As each local authority will have only one social service department providing all community social services, that department will be held accountable; it will be accessible both to clients and to other professional personnel; duplication of services will be avoided, thus enabling redeployment of resources to fill some of the gaps in services. Finally, a unified department would have the resources to undertake research to evaluate its services and assess future needs.

Referring to public health departments, the committee commented that implementation of its recommendations 'would remove half their staff and a substantial part of their budget, contacts and interest'.

Professional Seebohm emphasised the need for professional training of social workers to produce the desired versatility as this training enables them to apply general principles relevant to any social work situation. This approach is in line with the current philosophy of professional social work.

The recommended reorganisation would offer trained social workers greater opportunities for job satisfaction, a better career structure and the opportunity for employing authorities to rationalise the present salary structure.

Medical The creation of the new social service department would separate the social services from the present medical care services of the public health department, a suggestion generally welcomed by social workers and deplored by the medical profession. There is no evidence to substantiate the medical profession's fears that a separate social service department would be unable to provide the necessary integrated care. The committee could find no evidence that local authorities with public health and welfare departments combined under the medical officer of health provided a more effective service.

Social work in hospitals and general practice was technically outside the committee's terms of reference but the members felt obliged to consider the implications of their recommendations. The report implied that, as the patient has his roots in the community and as the greater part of his illness is treated there, his social care should be primarily the responsibility of the local authority social service department. The recommendation is not worked out in detail but the principles are established that, in general, the hospital social service departments should be staffed by secondment from the local authority and that social workers should be attached to general practice as are health visitors. Under such an arrangement problems of administration and communication in hospitals would be very great; and most social workers consider that a small, permanent team of hospital-based staff is needed with community-based social workers having ready access to their clients in hospital.

Philosophical Current thinking about the relation between the individual and his community emphasises mutual responsibility and interdependence. This is derived from our cultural attitudes towards illness which is seen largely as a threat to a man's status as an acceptable member of society. Illness, especially chronic illness, sets him apart, so that treatment is directed towards reintegrating him as quickly and as fully as possible. The sick person is expected to do all he can to get well and this includes seeking and following medical advice: in return the community allows him to hold in temporary abeyance his social responsibilities, while providing help of many kinds to speed the processes of recovery, reintegration and resumption of personal responsibility.

The Seebohm committee carried this one stage further by recommending that individuals, not just the community as a whole, should participate in community care. This could be effected by representatives of local voluntary bodies becoming members of planning committees, thus effecting a kind of consumers' participation, as in the nationalised industries. The committee felt that the involvement of individuals in the provision of care should be encouraged. The last few years have seen the re-emergence of voluntary effort and the committee considered that this would have two very desirable effects. First, it would help to foster a real sense of community identity which is easily lost in an industrial society and they pointed out that delinquency and other symptoms of social pathology were higher in areas of poor cohesion with little social identity. Secondly, it would help to reduce the distinction between the givers and receivers of social services. Interestingly, it is fully acknowledged that anyone may become ill and that it is quite acceptable to seek the help of the medical services, but something of their Poor Law origin still adheres to the social services. We are, however, all potential users, particularly of social services related to medical care. A mentally retarded child, a disabled adult or a senile grandparent causes practical and emotional difficulties in families in all walks of life.

In conclusion, Seebohm summarised the aims of the community care services as being 'to prevent human deterioration, improve the lives of the most vulnerable in our population and mobilise goodwill and voluntary effort within the community.'

6

The Salmon Report: Effect on the Organisation and Recruitment of Nurses

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THE SALMON REPORT[42] IS CENTRED ON THE PREMISE THAT NURSING – THE function of caring – is a profession in itself, complementary rather than ancillary to the profession of medicine. In practice, however, the Salmon committee found that nursing occupied a subordinate position and was not represented officially at meetings of governing bodies as were the medical staff and hospital administrators. Nursing administration appeared incoherent, the organisational pattern illogical and the resultant career structure unattractive. The committee has sought to achieve 'the assertion of the professional status of nurses... by assuming the right of the profession to be heard (sapiential authority as it is called) on all matters concerning nursing that are controlled by governing bodies; to present to those governing bodies the profession's concept of nursing policy; and, as far as possible... to decide the policy.'

To achieve this professionalisation of nursing, the committee recognised the need to utilise nursing resources fully by eliminating non-nursing duties, by better management and by positive development of scarce skills through a structure of training, specialisation and promotion. The prevailing structure failed to do this; delegation and decentralisation were rarely practised by senior administrative staff, consequently assistant matrons had no properly defined sphere of authority and carried out many non-nursing duties. The variety of grades and disparity of functions made efficient management, specialisation and logical promotion impossible, with the result that frustrated nurses left and many competent nurses were not attracted into administration.

Twenty years ago Bullock, investigating nurses' attitudes in America, found that the vital characteristics associated with satisfaction in the profession were those relating to independence of action and self-direction – 'nurses seek recognition as professionals, worthy of trust and responsibility.'[43] Recognition of professional status is necessary if nursing is to attract and retain able people. This scarce resource can be used elsewhere; social work, research and administration are increasingly attracting women who want a career. Demographic trends indicate that most of them will marry, and marry early, and that they will be mobile. To recruit and retain enough of them as nurses, the structure must be flexible enough to utilise fully part-time, short-term nursing staff as well as those able to make nursing a full-time career.

The structure Salmon recommends is based on three levels of

management, each of two ranks. Top management decides policy, middle management programmes it and first-line management controls its execution. Each rank has a clearly defined sphere of authority: the chief nursing officer controls a group of hospitals; the principal nursing officer controls a division within the group such as teaching, general nursing, midwifery; the senior nursing officer controls an area – surgery, medicine, out-patients; the nursing officer is responsible for a unit composed of sections individually the sphere of authority of the charge nurse and staff nurse.

The Salmon Report: Effect on the Organisation and Recruitment of Nurses

Job descriptions have played an important part in aiding the more appropriate use of skills. Tasks are described as 'professional' if depending almost entirely upon knowledge of nursing; as 'administrative' if concerned with the ordering and coordination of jobs and people, that is, management; and as 'personnel' if concerned with the welfare and morale of staff. The principles of delegation and decentralisation have been used throughout: the nurse in each grade knows her sphere of authority, to whom she is responsible and the role she is expected to play. This in itself affords security and job-satisfaction and means that the nurse is more aware of the responsibilities and opportunities of the senior grades. Job descriptions provide a visual career ladder both to those wondering whether to become nurses and to those wondering how their acquired skills could be used.

An important outcome of job-analysis and description is the elimination of non-nursing skills. In many hospitals all non-nursing duties are now under the care of the group secretary, but Salmon pilot schemes show there is often more to be done. One report of a pilot scheme showed eighteen and a half new non-nursing posts, with the number of nursing posts reduced from sixty-four to fifty.[44] This 'tightening up' allows better deployment of specific nursing skills, particularly in the assistant matron grade where misuse of trained nurses has been greatest.

How does Salmon develop these conserved skills? The new structure allows the qualified nurse to specialise in clinical nursing, nursing administration or teaching, and provides training for promotion through a common system of first-line, middle and top management courses with a systematic development of managerial ability. This rationalised method of linked training and promotion enables the competent nurse to develop and demonstrate her skills and be rewarded accordingly: hopefully, it will also provide the extra intellectual stimulus to retain the nurse who previously would have left the profession.

Salmon has been criticised for trying to turn nurses into managers. Training in management is seen as unnecessary; the skills of the nurses are learned, and should be used, at the bedside nursing the patient. Any nurse would agree with the sentiment, but at the same time she would acknowledge the vital influence of good nursing management on the happiness and morale of the patients and staff. Again, she will know, from her own or her senior ward sisters' experience, the very real dilemma which the present career structure presents. The position

of ward sister is reached early in the career and is one of the most satisfying positions in nursing, precisely because it offers the emotional reward of bedside nursing together with considerable responsibility and authority. At the same time, the ward sister is unable to achieve further promotion and training to develop new skills in preparation for the time when the physical demands of the ward become too much. The alternative, nursing administration, is unattractive because it takes her away from the patient, offers her less opportunity for involvement and responsibility and no formal training to develop the essential managerial skills.

Salmon recognises and attempts to resolve this dilemma. Perhaps one of the most important things in the report – and one which will satisfy and retain most nurses – is the acknowledgement 'that many nurses do not wish to exchange practical nursing for managerial posts and their particular skills must be recognised and used to the full.' Salmon, therefore, provides a full career in specialised nursing. The nursing officer in charge of a unit will act as a consultant in nursing practice. She will be a skilled clinical nurse, responsible for developing new ideas and methods; she will coordinate and rationalise patient care, train and counsel the staff and provide direct administrative support in the clinical areas. The post appears to be one of the most attractive in the Salmon structure and reports from the pilot schemes seem to confirm this.

Salmon also supports and trains those wishing to make a career in nursing administration and emphasises their contribution to the patient: 'If senior managerial positions are clearly seen to be of greater importance, in service to more patients rather than "to the patient", these positions become desirable to the nurse with a developed sense of vocation.' This emphasis on the contribution to the patient of the nurse administrator could, in the long term, be one of the main influences of Salmon in maturing and consolidating the nursing profession. It sometimes suffers now from a lack of role definition and a lack of understanding and appreciation of the different contributions to be made, in particular those of the nurse administrators. A certain amount of territory guarding and boundary picketing takes place but, as a senior nurse hopefully notes, 'the awkward people are often the frightened and insecure people and Salmon should achieve a reduction of these in time.'[45]

One of the main ways in which it seeks to use different contributions is to stress and provide for the use of sapiential authority at all levels: 'it is essential, if good decisions are to be made in any sphere by those whose duty it is to make them (structural authority), that those who can contribute to making them good through expertness (sapiential authority) should have an opportunity to be heard . . . In the ordering of all things which go towards the well-being of the patients nurses have a duty to make their requirements known and a right to be heard.' How difficult this often is under the present system! It is well known that junior nurses express their ideas and hopes about nursing only to each other in the sluice or linen room. Salmon remarks

upon: 'the incoherence of the nursing administration and a seeming inability on the part of the nurses to assert the rights of their emergent profession', and Menzies[46], in her psychoanalytical study of nursing organisation, finds the system eventually drives away the vocal and mature nurses.

In an important chapter on committees and conferences* the Salmon report recommends a reduction in the number of committees and greater use of informal consultation by senior nursing officers. It also recommends more conferences to enable all levels of staff to contribute their personal knowledge towards better nursing decisions.

The Salmon Report: Effect on the Organisation and Recruitment of Nurses

It is now four years since the Salmon report was published and three years since pilot schemes were begun. What is Salmon's effect in practice on the organisation and retainment of nurses? It is too early to see the final patterns that will emerge, and there are still problems of implementation; shortage of trained nursing staff and of supporting staff – a problem which emphasises the influence of Salmon on the whole hospital complex. The most experienced ward sisters are taken away from the wards to attend management courses – a move which often seems inappropriate to them and almost always to the medical staff and others who rely on them. It is feared that married women will not be prepared to take the required management training. There is a shortage of nurses able to teach on the management courses and a shortage of suitably trained staff to fill top management positions. Reorganisation brings insecurity to the nurses in post and fears that a chief nursing officer cannot adequately represent all interests, particularly those of specialised divisions such as psychiatry and midwifery. But an interesting and potentially radical development is the increased recruitment of men into top management posts in general hospitals; an indication of Salmon's potential to attract those with managerial talent who are also able to make nursing a long-term career.

In the future some of the criticisms of the Salmon recommendations will appear valid, but the situation is still too fluid to allow prediction and evaluation of all the report's implications. However, many of the doubts expressed about the report underline the very need for its implementation; they emphasise the crucial importance to everyone of the experienced ward sister, the specialised nurse; the lack of training facilities and the shortage of highly trained staff, and underestimate the willingness of married women to nurse, and to train, provided their professional skills are fully appreciated and used. Finally, the criticisms underline the profession's own uncertainty of its ability to obtain recognition and its fair share of resources at national level.

Where, it is asked, does the patient come in this scramble for professional status, for more training, management and pay? Nursing is the function of caring and 'the starting point is the patient whose cure or

* A *committee* is defined as a meeting at which decisions are taken and a *conference* a meeting at which views and information are exchanged and sometimes conclusions reached, but at which decisions are not made.

care is the object of the enterprise'; but, as Florence Nightingale, the founding-mother of nursing administration, emphasised, the 'patients' recovery depended very greatly on the quality of the nursing and that this in turn depended on the training and organisation of the nurses.'

Salmon seeks to organise the nurses more effectively, to define their work, to develop their skills through training and to attract and retain good nurses through involvement, specialisation and promotion and above all, to insist on the right of the profession to be heard, for there is no better advocate for the patient than the nurse.

7 Medical Staffing in the National Health Service

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In 1967 over 700,000 people were employed in the National Health Service in England and Wales. Of these, 45,000 were doctors, over 22,000 working in the hospital service, 20,000 in general practice and just under 3,000 in the public health service. There was one doctor working in the two major branches of the service – hospital and general practice – to every 1,134 of the population.

Although the number of doctors in the country and in the health service has never been higher, it has come to be accepted by the public, the political parties and the profession that there is a national shortage of doctors. Need and demand are different concepts, but whichever one we choose to take, it is certain that if more doctors were available they would be used. To suggest that not all would be used effectively is fair; every doctor represents a national investment of £10,000 at minimum and it is a misuse of irreplaceable and scarce resources to use any doctor on duties that could be performed by a machine or by a less highly trained person. The government has accepted that there is a real need for more doctors over and above any saving that can accrue from attempts to reduce medical emigration and to make more effective use of our present pool of medical talent, and has announced an expansion of medical school places to achieve an increase in intake from 2,700 students in 1969 to 3,700 by 1975. This figure was chosen primarily because the universities have demonstrated that it is not possible to expand the physical capacity of medical schools beyond this point in so short a period of time. There is a continuing debate on whether an intake of this number is enough to meet demand in the 1980s or whether a further programme of medical school expansion in the late 1970s is essential.

In the meantime we must accept that the expanding medical school programme offers no relief before the late 1980s. Manpower in the service can only expand by an increased dependence on doctors from overseas. Most of them come from under-developed countries and, while it is legitimate and fair for a country with a well developed pattern of postgraduate education to offer facilities for further in-service training to doctors from abroad, it is not ethical to use them as stop-gaps to fill the empty places resulting from errors of judgment in the past. We accept that a sudden withdrawal of young doctors from abroad or a cessation of the continuing flow of immigrant doctors would destroy the present form of the hospital service. Equally, we accept a moral obligation to provide these doctors with

opportunities to obtain the experience and training they came here to seek.

To staff the new district general hospitals and labour-intensive medical developments and maintain a comprehensive general practitioner service is possible only if there is retrenchment elsewhere in the service. As a profession we are accustomed by training and habit to respond to a demand for help by action, and the argument for intervention is always more compelling than that for curtailment. Where there are surplus resources available we can avoid unpleasant 'either/or' decisions. Where there are not, we are forced to accept that an increase in doctors in one part of the country or field of medical practice can only be paid for by a reduction elsewhere. But this raises a number of questions. How often is the value to the community of a new service weighed against the realisation that elsewhere there must be contraction? Has the recent growth of numbers in hospitals at the expense of general practice led to a better service for patients? Can we develop a system of priorities for the use of medical manpower acceptable to all parties, even when the going gets rough? Or should the use of doctors remain the result of a milliard of local decisions at board, HMC, hospital and firm level with gaps developing where those in need are least able to put their case – the old and the mentally sick?

While the debate continues we as a responsible profession must accept that by convincing the government of our case for an increase in numbers, whatever the cost, at a time of economic difficulty, there is a bargain to be kept on our side. We must study, and allow others to study, the way we work and the way we ask others to work, to identify areas where we can alter our working patterns to make them more effective. To do so we must master the tools of medical management and learn to audit medical activity to ensure that the resources at our disposal are used in the best possible way.

If little can be done, in the short term, to raise the quantity of doctors in the service, a lot can be done to enhance quality by ensuring that every doctor has access throughout his professional life to the latest information on medical developments. Information comes from books, organised discussion and courses, but above all from informal contact with other doctors. The isolated doctor cannot help but deteriorate into the ignorant doctor. The case for grouping general practitioners is as strong from the educational aspect as from that of efficiency. Physical proximity alone is not enough; regular times need to be set aside for hospital staff and general practitioners to meet and discuss individual cases and community need.

Hospital doctors are already grouped together in one place for work, but grouping does not automatically lead to communication between one firm and another or across the specialty barrier. A wider grouping of specialty groups into broadly based divisions of service would provide a foundation on which to build a continuing educational programme.

Negotiations for a new career structure are at present under way between the Department of Health and Social Security and the medical profession. They are based on the proposals put forward in the Lewin report[47] and *The Responsibilities of the Consultant Grade.*[48] Both sides have accepted as a basic principle that the postgraduate training of a young doctor should take only as long as the needs of that training require, and should lead to an established career post without undue delay. Twenty years of an increasingly unrealistic career structure for hospital doctors has made this country an exporter of relatively well trained surplus British doctors frustrated in the natural desire to obtain posts commensurate with their ability and experience, and at the same time an importer of newly qualified overseas doctors. The prospects of agreement on a new structure in which doctors move through a series of linked posts towards consultant appointments, as soon as they have the knowledge and experience to undertake consultant responsibilities, seem good at the time of writing. The motives for emigration of the 370 British doctors who leave this country every year and do not return cannot be presumed. It is likely, however, that any career structure that reduces the time spent in moving from one short-term training post to another, and the anxiety of junior hospital doctors over their uncertain future, should have a beneficial effect on the present rate of medical emigration.

Reorganisation of hospital medical staffing structure is already under way and it is hoped that this will attract back another group of doctors where wastage has also been heavy. Boards now go out of their way to design part-time posts, combined with training or retraining if necessary, at every level to bring married women doctors back into the hospital service. The royal colleges and specialty boards have been invited to reframe their training requirements for higher examinations to include part-time in-service training and exclude residency clauses. A fifth of doctors under 65 in the country are women and their numbers are increasing. Over 3,000 of them are not engaged in medical practice. It has been recognised, belatedly, that a pool of trained labour of such magnitude calls for special arrangements by the Government to enable women doctors to satisfy the demands of both family and profession.

Positive government action on the maldistribution of hospital doctors throughout the country is also under way. The Medical Practices Committee, an independent body with statutory powers, can prevent doctors from entering general practice in areas that are already well off and pay them to go where there is a shortage. The absence of a body with similar powers for the hospital service has made it easy for hospital authorities in popular areas to attract medical staff at the expense of the industrial Midlands. It would seem unfair that, for every 100,000 people, there are only eleven consultants in Sheffield as against twenty-two in the North West Metropolitan region and twenty-three in Scotland. A system of quotas to stimulate growth in the numbers of consultants in less well served areas, while restraining the demands of the metropolitan area, is now being designed. Another more subtle form of maldistribution can only be put right by young doctors

themselves. Deans of undergraduate medical schools and all others to whom young doctors and medical schools look for advice should be reminded that of every 100 medical students who graduate only two are required by the demands of the health service to make a career in general surgery, less than two in obstetrics and two in general medicine. These three specialties are heavily over-subscribed. Meanwhile, the less popular service specialties, radiology, pathology and anaesthetics, require three, five and four medical graduates respectively. Psychiatry requires four. Half of every medical school output is needed for the maintenance of general practice. When medical students are taught vital statistics they learn that they will be practising medicine in a community where increased expectation of life has led to a heavy demand for medical services for the elderly. Yet geriatrics, one of the most rapidly growing and challenging specialties, remains one of the least popular among our medical graduates. The medical schools teach medicine and general surgery as two basic clinical skills. Some students do not realise that these skills are basic to all medical practice but cannot, for everyone, be ends in themselves.

8

An Aspect of Hospital Management: The 'Cogwheel' Report

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THE TERMS OF REFERENCE OF THE WORKING PARTY SET UP IN 1966 BY the chief medical officer of the then Ministry of Health, with representatives from the Joint Consultants Committee, read as follows: 'To consider what developments in the hospital service are desirable in order to promote improved efficiency in the organisation of medical work.'[1]

The working party felt that it had three main questions to ask: How effective were the present administrative arrangements? What changes were desirable to increase medical productivity within the hospital? How could practising clinicians make the best contribution to this through management functions and administrative arrangements?

The administrative arrangements then in being were inherently suspect because they were designed at a time when the number of doctors working in hospital was approximately half the number now so engaged, and when medicine, although already becoming a highly complex subject, had not reached the degree of sophistication and specialisation achieved over the last twenty years or so.

The issues* which were put before hospital medical advisory committees in a memorandum circulated in 1953 were excellent and are relevant to the present situation. The passage of time has, however, resulted in the development of larger issues which should also be the concern of any medical advisory machinery, but which were not manifest at the time that the present system was evolved and are poorly served by it. The huge field of postgraduate education and staff training is an outstanding example.

Quite apart from the increase in the number and complexity of questions that require answering, the committee suggested that clinical management was tending to become more remote in people's minds from the general management of the hospital, with little thought being given to the administrative content of medical care. Nothing, it was felt, could be more damaging to the realisation of present aims than to allow this process to continue. No member of the committee needed persuading that virtually any action by the clinician in a hospital had not only an administrative content in it, but could affect the general

* These covered such matters as bed allocation, admission criteria, complaints procedures and control of infection in hospitals. Parts of the memorandum (RHB (53) 91, HMC (53) 85, BG (53) 87) are reproduced as Appendix II of the 'Cogwheel' report.

administration of the hospital; equally, any move by the general administration could have its repercussions on the clinical management of patients, and thus, however indirectly, on the cherished principle of clinical freedom.

The grouping of hospitals into larger and larger clinical staffs, for the most part a logical and desirable development, increases the unwieldiness of the full staff committee meeting, and makes it difficult for even the most skilful chairman to keep committee members constantly aware of the administrative results of their recommendations. The necessity for some form of preparatory bodies and sub-committees has become increasingly apparent throughout the years, and the publication of this report has, as the committee hoped, hastened the examination of the existing structure and its modification in the recommended direction.

Another weakness of the advisory structure is the lack of participation by junior hospital staff. But the numbers involved are so great as to make this defect difficult to remedy. The committee's conclusions were, firstly, that the mechanisms in use were not those best adapted to meeting the demands for widening representation in the context of increasingly complex responsibilities and, secondly, that the handling, as well as the acquiring, of precise information is of vital importance.

The committee, therefore, turned to their second and third questions: What changes could with advantage be recommended? How could practising clinicians best contribute?

The members felt that a structure was wanted that would allow all levels of medical staff to participate; would facilitate communication between other departments and sections of the service, both within and without the hospital; would not only receive but be able to make use of information; and could lead to the implementation of decisions reached after full discussion in the light of necessary information. Their recommendations were designed to meet these requirements.

Recommendations

1 Specialties falling into the same broad medical or surgical categories should be grouped together to form divisions. Each division should carry out constant appraisal of the services it provides, deploy clinical resources as effectively as possible, and cope with the problems of management that arise in its clinical fields. The junior hospital staff should be represented on these divisions, and each division should have a chairman acceptable to its members.

2 Recommendations and information from the divisions and from the general management of the hospital should be reported to a small executive committee composed of representatives from each division. The function of the executive committee would be to receive divisional reports, consider major medical policy and planning, coordinate hospital clinical activities, without limiting or controlling the clinical freedom of the individual, and consider the functions of the hospital in the light of community needs.

It was hoped that the chairman of the executive committee would ultimately serve for five or more years, but at first would be appointed from year to year. The divisions and the executive committee would require appropriate supporting staff and accommodation.

The working party recognised the difficulties connected with the appointment of chairmen of divisions and executive committee, and their return to full-time clinical practice. It was thought that the chairman of a division, although a consultant, would not necessarily be the most senior member of the division but would be someone interested and trained, or willing to be trained, in hospital organisation. It was considered important that he should continue to practise his clinical work.

Following discussions on the report with the profession, the Minister agreed that the medical staff of divisions and hospitals should be asked to choose one of their number as a suitable candidate for chairman, and to forward their nomination to the board, which would then make the appointment.

Chairman's Clinical Work When a consultant has to give up clinical time in order to undertake these duties it may be necessary, as has already happened in some cases, to appoint a locum consultant for some of his sessions; to make a temporary appointment at a more junior level; or to reorganise the department so that his work is covered. Whatever solution is reached, it has been agreed that where a contract has been amended to provide for sessions to be spent on administrative work, it should include an undertaking that on completion of his term of office as chairman, a consultant will be able to resume any clinical sessions that he may have given up in order to undertake such work.

There may be difficulties in finding the right man to be chairman but once the divisions are set up their very mechanism will assist in the rearrangement of his clinical duties, and his reabsorption into the clinical department concerned on his retirement from office. Furthermore, once divisions are seen to be efficient and result in a better service, it can be hoped that more capable men will be attracted to the work.

The training of such men will be of the first importance, so that they may become familiar with the application of the principles of management to their own individual divisions or executive committees.

Basis of a Division A division should monitor its activities, clinical and administrative, in an 'on-going' manner. This will enable the members to know what they are actually achieving and to compare their results with those of others. The main function – forward looking activities of the division – will result from the development of management by objectives, where the process of problem solving depends initially on identification of a problem that those concerned agree is worthy of solution, and then on its careful formulation.

Such formulation, if done properly, may itself produce a solution. When it does not, an answer may well be achieved by the proper evaluation of available statistics; a skill which doctors will have to be taught. When available statistics do not provide an answer it is necessary to turn to other sources for special information, and a knowledge of where to look for help of this kind is as essential to the administrator as is the use of a library to the scholar. Already there are some sources of information but they are still too few to meet the heavy demands that will certainly be placed upon them in the future. The need is for expansion and for regional research centres to study problems and analyse data. There will also have to be courses, which need not necessarily be full-time, to enable clinicians to learn the value of techniques such as the use of statistics, hospital activity analysis, the Oxford linkage system[49], and new community orientated information systems as they are devised. The potential and requirements of operational research will necessarily form part of the material for such courses.

A Federation of British Industries working party in 1963 listed the tasks of management as:

'to discern objectives in the environment in which management is being practised, and the ability to place these objectives in some order of importance;

to devise and implement means whereby these objectives may be attained;

to devise and implement means whereby the extent and efficiency of attainment of these objectives can be measured.'[50]

It is not difficult to see how these principles of management in industry are directly applicable to clinical management in hospitals. The importance to us all of clinical management is beyond question as, to quote Dr Edwin L Crosby[51]: 'Hospitals and doctors are not judged separately for their performance in health today, and they will not be judged separately tomorrow.'

9 Management of Medical Resources

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FIVE YEARS AGO, THIS BOOK WOULD PROBABLY NEVER HAVE BEEN conceived, much less written. Certainly, it would not have found a publisher. Since that time, there has been a remarkable increase in the interest of doctors and other health service workers in the management of medical resources, an interest illustrated, and in part stimulated, by such publications as the 'Cogwheel' report.[1] The purpose of this chapter is to bring together some of the developments discussed elsewhere in the book, to emphasise the importance of developing medical resource management and to suggest ways in which it might be brought about.

While the percentage of national income spent on health has risen for the third successive year* and annual expenditure on the health service is now almost £2,000 million, the complaint most often heard is lack of money. Similarly, shortages of staff are frequently lamented, yet in 1969 the numbers of staff in most professions in hospitals in England and Wales increased to establish new ceilings. These included 7,500 consultants; 14,250 other medical and dental staff; 245,000 nursing and midwifery staff.[52] While there appears to be no shortage of resources, their expansion has not kept pace with the increasing work load brought about in part by rising demands and standards. Consequently, there are growing problems in the deployment of resources to achieve the best results. These may partly be caused by the difficulty in deciding what is best in health care. As other contributors have indicated, it is not possible to use purely economic criteria in measuring the success of any particular health policy, and even assessment of the quality of care is proving difficult. All this underlines the necessity for efficient management of resources.

While resources are usually thought of in terms of finance, which provides a useful common denominator, medical resources are all those items used in the delivery of health care including buildings, equipment and staff. In the hospital sector, despite the rising capital investment in buildings and equipment and the frequently discussed high cost of drugs, the staff element amounts to 70 per cent of the total running cost of the service and it is here that priorities in the use of alternative resources have most often to be determined. Is it better to have additional staff in the intensive care unit or the geriatric ward? Just as different sorts of resources can be used to solve the same problem, for

* 1966–7, 1967–8, 1968–9.

example, automated laboratory equipment or more technical staff, so can they be applied to different aspects of health care. In broad terms resources can be applied to prevention, diagnosis, treatment and care, but within each category further choices emerge. It is this range of choice and the limit to the total resources available that provide a challenge to medical resource management. As medicine expands its capability, and people their expectations, the pressure on resources will intensify and management in medicine become more important.

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The determination of the use of limited resources in the best interests of the patients is one definition of health service management. It gives rise to one of the main tasks of management included in the Federation of British Industries' assessment referred to in chapter 8[50], namely, the setting and ordering of objectives. One of the weaknesses of the National Health Service is the failure to set appropriate objectives, a failure partly due to lack of collective medical involvement in the decision-making process of the whole organisation. Professional independence and clinical freedom may run counter to the efficient corporate management of medical resources, and efforts are now being made to bring the two closer together.

As well as setting objectives, the manager must devise and implement the means of achieving them; he must communicate them, and motivate and organise others to carry them out; finally, he must attempt to measure how far they have been achieved so that they can be updated.[53] Rosemary Stewart[54] has defined management as 'deciding what should be done and then getting other people to do it' and this emphasises the collective nature of the activity. The manager, by definition, cannot operate alone.

Brunel University, in its organisational studies of hospitals, has emphasised the need to see them as work-doing units which thrust managerial roles and relationships on to the staff working in them in addition to, and independent of, their roles as members of a particular profession. Membership of a profession does not confer any right to serve in a hospital, but is merely a qualification to carry out certain activities within defined constraints.[55] Nonetheless, professionals, particularly doctors, take decisions which commit the use of available resources and create demands for others. This is where their independent actions impinge on the organisation and their role becomes partly executive – they become accountable in some degree to a higher authority for their work and use of public funds. While recognising the need for clinical freedom, decisions must be taken, where possible, in the light of resources available and within the objectives agreed for the organisation as a whole. This is in order that the right balance can be struck between conflicting priorities and must be done through increased coordination, information and the proper assessment of alternative courses of action.

Although Stringer has pointed out (chapter 2) that medical resource management cannot be in purely economic terms, the difficulties of

measuring effectiveness in health care do not obviate the need for management decisions based on the best information available. A choice between expanding the number of transplant operations and developing a unit for the mentally handicapped may not be easy but it is important that the choices are properly considered. The distribution of beds – still one of the hospital's main resources – should not depend on the seniority of the consultants concerned or the number of sessions granted to an individual, perhaps many years earlier. Instead, it should take account of the current work load and be flexible enough to accommodate variation in pressure between specialties and age and sex groups. To achieve this there needs to be responsible medical participation in managing the use of beds. This example also illustrates the dynamic nature of the task which demands accurate forecasts of demand and a rapid feedback of information about use.

To the sociologist the health service and its constituent parts are organisational nightmares, with ultra-professionals set in a bureaucratic environment. It is hardly surprising that although there are boards, committees, working parties and administrators it is often not clear who, in fact, manages. Who controls? Who is accountable to whom and for what? In a medical firm the superior/subordinate relations are very clear and so they are within individual departments of a hospital, particularly the service departments such as catering, central sterile supply and engineering. At department head and consultant levels the accountability is less clear. Accountability can be defined as the duty of a person with executive authority, that is, the right to use resources within his own discretion, to be answerable to some higher authority for the proper discharge of that duty. It usually implies regular reporting so that effective comparison can be made between forecast and actual performance in terms of time, expenditure and resources used.

As with objective-setting, the definition of proper accountability is generally absent from the health service at present. This can mean the wasteful use of resources, particularly the costly one of staff, and confusion as to individual roles within the organisation. Decisions take longer and are passed further up the hierarchical ladder than they need be. Thus, while a doctor has a direct accountability for the prescribing of treatment for individual patients, he should not involve himself in the allocation of tasks for the execution of that prescription unless they are to be done by a member of his own staff or firm. Such allocation must be done by the executive superiors of the staff carrying out the treatment, for example, nursing staff. Equally, the consultant should act through the executive superiors, for example, the ward sister, if the treatment is not carried out according to the prescription.

With the lack of clarity in roles and accountability, there is still a tendency for the person who 'shouts the loudest' or 'shakes the shroud longest' to obtain a greater share of the available resources. It is weaknesses such as these that must be overcome if management in medicine is to become more effective. The discrepancy between resources

and demands is encouraging the better assessment of priorities, but it is essential to find ways of involving medical opinion in the managerial decisions required. There are encouraging signs that this may be happening as hospital medical staffs begin to organise themselves on 'Cogwheel' lines. It is not sufficient, however, merely to set up a divisional structure: efforts must be made to delegate real authority to the new divisions, perhaps in the allocation of beds, assessment of medical equipment priorities and monitoring drug use and cost. To enable this to happen the information system must be improved and adequate supporting facilities provided. The potential value of such organisation is already beginning to be shown, for example, at the United Manchester Hospitals where a decision-taking 'Cogwheel' structure has been implemented.

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There are other signs that the management of medical resources may improve substantially in the next few years. Not least is the increasing interest in management within the health service and the growing availability and application of management tools, some of which are described elsewhere in this book. Increasingly, the techniques of work study, and organisation and methods, are being used in clinical or para-clinical situations, where previously they were confined to the laundry and office. Operational research is proving valuable in a number of medical care areas and some of the applications were reviewed in a symposium published by the Nuffield Provincial Hospitals Trust.[56] The Institute for Operational Research has now completed a number of studies, including those for the new Walsgrave Hospital at Coventry, where scheduling of admissions using statistical data and predictions of discharge was one of the techniques introduced. Stringer, who has been involved in much of this work, also describes the way in which cost-benefit analysis can be applied to health problems (chapter 2) and this technique is likely to become increasingly important as alternative courses of action have to be considered and priorities determined. Another technique which should be mentioned in this context is network analysis – already used extensively for major building projects but equally applicable to other multi-activity projects such as medical research programmes.

The need to set objectives at all levels in the health care system has already been mentioned, but management by objectives is a technique which is being introduced with success in individual medical care units. At hospital level this technique, properly applied, helps to bind and motivate staff across professional barriers and, providing the objectives are set by participation, helps to identify each manager's part in trying to achieve the aims of the organisation as a whole. This technique has been introduced in the East Birmingham group of hospitals with some beneficial results. It enables targets to be set periodically and their degree of achievement measured. While the targets are not inviolable, they help to prevent the last good idea or crisis becoming paramount in the determination of resource application without proper consideration.

Another area in which there has been a considerable advance is the

demand for, and growth of, medical care and management information in the form of statistics. As Bennett (chapter 1) has pointed out, there is still some way to go before the optimal amount of the right kind of information is routinely collected. However, such a relatively new innovation as hospital activity analysis is an improvement on earlier statistics, especially as specific information can be made available for research or planning purposes in addition to routine reports. Rapid feedback on the effect of using resources in a particular way is undoubtedly required for the proper assessment of priorities. The computer can assist this process, particularly if systems analysis first ensures that the right questions are being asked and that the information to be produced is not unreliable or superfluous. There is a danger, however, that the computer will merely aggravate the production of useless data and give further weight to the claim by Cross and Roberts[57] that 'ultimately justification for our statistics is probably that they are cheap and interesting although managerially useless.' More experiments like those to which the Nuffield Provincial Hospitals Trust has given impetus[58] are needed before any one form of computer-based system is adopted. Meanwhile, management must define its information requirements and ensure that relevant data are used in an effective manner.

Two further encouraging indications of the growing importance being attached to medical resource management are the increasing number of multi-disciplinary management courses and training programmes, and organisational studies and reports, some of which have been discussed in detail earlier in the book. Perhaps one danger is that management training is given haphazardly without relating it to existing organisational patterns. Stimulating a desire for change amongst some members of an organisation is useful if the organisation itself is ready for change; if not, frustration and a lowering of morale may result as the old concepts are challenged but nothing else is substituted.

One very real problem to be overcome is the hierarchical nature of health care systems, particularly the hospital service. Not only are there three higher tiers of authority – Department of Health and Social Security, regional hospital boards and hospital management committees – but within the hospital itself each profession has its own very clear hierarchy. Too many executive levels create severe communication problems and remove policy makers far from the point of contact with the patient. The Salmon committee proposals for the most patient-orientated profession of all, nursing, envisage four executive levels before direct contact with the patient is established.[42] It has been suggested that this will produce more executive levels in nursing than in General Motors! Rowbottom[55] suggests that four or five executive levels in all should be sufficient for hospital management committees or boards of governors and, in fact, interrelation between professional hierarchies would be easier to achieve with even fewer levels. The aim must be to create a team concept of management at all levels, just as, increasingly, clinicians are working in teams for the best care of the patient.

The team concept of management at the operational level seems to be missing from the second Green Paper[36] which fails to define adequately the roles to be performed at different levels in the health service hierarchy. For example, what is meant by 'the intention will . . . be . . . to place on area health authorities the responsibility of administering the health services to the maximum extent consistent with the objective . . . of providing effective central control'? This is surely open to the widest interpretation. There seems to be a further danger in the Green Paper's recommendations for the organisation of area health authorities themselves in that they would encourage professional hierarchies below chief officers at area level and make the communication lines still longer. This would be especially dangerous if the most able medical, nursing and professional administrators were attracted away from the operational units to the area authorities, by salary and status.

It is some comfort to find that the Green Paper itself suggests organisational experiments. A good deal of this kind of work is being carried out as health care units try to devise new ways of delivering medical care under different conditions. An example is the tendency towards more functional forms of administration in the new large, single site, district hospital complexes such as Northwick Park Hospital. It is certainly essential that none of the organisational changes proposed for medical, nursing or administrative staff proceed in isolation: ways must be found of knitting them together. For example, appropriate nursing and administrative officers should be members of, and participate in, meetings of the divisional organisation. 'Tripartite' concepts should be extended to the situations where care is delivered – on the ward, in out-patient departments and at health centres.

If medical resource management is to develop effectively it is essential to break away from the largely negative controls of the past – professional rules, fear of litigation, shortage of funds. It may be necessary to re-think the concept of autonomy and its use by professionals to release them from accountability in the health care executive system. Certainly, further organisational research and experiment will be necessary and it is encouraging to note that the DHSS has developed its capacity for financing this type of activity.[59] To sum up, the main requirements for establishing better management of medical resources seem to be: clearer identification of executive roles and accountability; clarification of organisational structures; and the setting of clear, interrelated objectives at each level in the service. Medical staff must be involved in each part of this process and it must be seen that their collective accountability for the best use of available resources is just as important as their professional responsibility for an individual patient. The current imbalance in medical care between the fast growing technical and clinical developments, and the managerial developments which have tended to lag behind, result in arbitrary decisions between alternative priorities. While striving for more resources, the best use must be made of those already available and this can only be done by their proper management and the involvement of all those with an executive role in the delivery of health care.

10 Uses of Resources in Medical Care: A Comment

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AMONG PROFESSIONAL PEOPLE RESPONSIBLE FOR THE ORGANISATION OF medical care, advocates of inefficiency probably do not exist. Everyone believes in efficiency, at least in principle, and is prepared to say a kind word for planning in the interest of achieving medical care objectives in an efficient and effective way. And the scarcer the society's resources, the more likely one is to hear testimonies for efficiency and planning.

When the National Health Service was created in Britain more than two decades ago, resources were scarce. The proposed reorganisation of medical resources was intended to facilitate rational coordination of services and to introduce regional and national planning in the interest of delivering adequate, free medical care to the British people in an efficient way. How efficient and effective the NHS has been in achieving its objectives are not questions to be answered lightly or briefly. However, in the balance, internal and external observers both tend to agree that, for money invested, the British people have received reasonably good medical care. This is not to say that all observers have been equally pleased with the performance of the NHS, least of all the internal observers. In the last few years a number of critical reports have raised basic questions about faults in the fundamental organisation of the service: the quality of care being offered; the adequacy and relevance of medical education; the efficiency and effectiveness of the hospital system. If one follows the comments of the internal observers alone, the impression is quickly gathered that the tripartite division of authority in the NHS structure has inexorably led to the inefficient and ineffective coordination of important health and welfare services.

The effectiveness and efficiency of the general practitioner as the physician of primary contact with the patient remain points of concern. The career structure of consultants in the hospital service seems to ensure impediments to the advancement of junior staff and, in turn, to ensure the emigration of too many young physicians and to encourage regional maldistribution within Britain. The British people continue to experience inordinately lengthy, costly and inexplicable hospitalisation, a fact which is frequently ignored. Regional variations in indices of medical care utilisation are striking; and, within regions, the care received in teaching and non-teaching hospitals varies remarkably. Group practice, health centres, and the use of ancillary personnel in support of general practitioners have a fitful history in Britain and interest in these innovations waxes and wanes quite

independently of any evidence that they do or do not make a difference in the cost and quality of care which the British people receive. The numerous reports of the Nuffield Provincial Hospitals Trust, of university research organisations, and of the Department of Health and Social Security make it increasingly apparent that the organisation of medical care within the NHS warrants a careful appraisal.

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The need for reappraisal seems obvious enough. Increasingly, the techniques which facilitate this appraisal are available. In the first place, new techniques for processing information by appropriately trained personnel make it obvious that the operation of medical care systems can be monitored in useful ways. The reports alluded to above amply illustrate how significant variations in the use of services by regions and within regions have been documented. Cost-efficiency analysis, which is a way of assessing the relative effectiveness of organisational performance, can be and is being applied to medical care and will become more and more common. Managers of medical organisations can be sure that sooner or later the performance of their organisation will be compared with an appropriately similar one.

In the second place, cost-benefit analysis, a variant of cost-efficiency analysis, raises larger and obviously more complex questions: What are the societal benefits which can potentially accrue from the investment in one type of activity as compared with another? Can one demonstrate, for example, that a given number of pounds sterling invested directly in medical services is as beneficial or more beneficial to the health and welfare of the population than the same investment in welfare services, pensions, housing, education or job training for the unskilled? Obviously, such grand analyses are in some ways impertinent, rarely lead to unambiguous conclusions, and inevitably carry a heavy emotional freight. This is so precisely because such analyses lay bare assumptions about value and suggest the necessity to choose one desirable objective at the expense of another. That is, cost-benefit analysis makes clear that when resources are limited the choice of one alternative costs one the opportunity to pursue other legitimate and desirable objectives. In an era of financial scarcity when many conscientious public servants with commendable programmes are all competing for the same scarce resources, it cannot be taken for granted that additional resources for medical care take precedence over all alternative investments. Thus, persons responsible for the development of medical care who have not thought or are unprepared to think in terms of cost-benefit are vulnerable in the public arena and run the risk of prejudicing the case for additional resources for medical care. In situations of economic scarcity, cost-efficiency and cost-benefit analyses are skills available to the alert manager of medical care organisations. At worst, this style of analysis can be a numbers game to be cynically played in self-defence. At best, it can be seen as an opportunity to understand how medical care organisations operate internally and in relation to the larger society managers presumably serve. Operations research in the interest of effective review of performance and of planning has elements of both necessity and opportunity.

If the necessity and opportunity of monitoring medical care operations were obvious to everyone, one might expect considerable enthusiasm for such activities. In fact, evidence of pronounced lack of enthusiasm for such activities is easy to find in medical organisations. Some of the reasons for this are not difficult to identify. In the first place, physicians are centrally involved, directly or indirectly, in the management of medical care organisations, and physicians are noticeably cool toward the language of efficiency. Their coolness is a reflection of both their training and their experience. Physicians are, and correctly perceive themselves to be, in the business of saving lives, at any cost, if necessary. They are beyond doubt busy people who probably do the best they can in a wide variety of trying situations. They do not routinely consider the full range of economic and social implications of their habits of prescribing, ordering laboratory tests, or deciding to hospitalise. Perhaps they should, although this is at least debatable, but the fact is, they do not.

The physician's trained disinclination to think of medical care for individual patients in terms of cost-efficiency is complicated further by the absence of market forces which emphasise the relevance of efficiency. Patients do not encourage the physician to keep efficiency uppermost in his mind when he contemplates their particular problems. The physician, particularly in Britain, is in a seller's market in which demand consistently outruns supply. His income is not tied very directly to his efficiency in organising medical care and the economic connection between patient and doctor is quite indirect. There is no simple way for the patient to calculate whether the care he receives could be as adequate but at lower cost if the physician were only more efficient. Moreover, there is no reason to assume that concern about efficient care is in any way related to the successful career of a consultant within the hospital service.

Even if a physician were, for some reason, concerned about the efficiency and effectiveness of alternative ways of organising medical care, two impressive impediments to sustaining that concern are apparent. The first is the logical problem of grasping how anything a single physician, group of physicians or medical care organisation does could make much difference to the way a system as complex as the NHS actually operates. The efficiency and effectiveness of a given hospital or hospital department depend not just on the decision of the personnel immediately involved but equally on factors which they do not control in any simple way: the referral habits of general practitioners; the attractiveness of the hospital to junior staff; the age and geographic location of the facility; the age composition of the population served; and the morale of staff. Moreover, how does one measure the productivity of a hospital, a clinic, or a physician? Can productivity be measured in a responsible way without due attention to the quality of care being offered? Until such questions are answered, enthusiasm for the assessment of efficiency and effectiveness of medical care organisations will be modest at best among physicians. And their feelings on this matter are crucial. To make the situation even more complex it is now reasonably clear, if it has not always been, that

decisions about medical care are rarely made on medical grounds alone. The political feasibility of alternative proposals for the organisation of medical care is an essential part of decisions about the organisation of the NHS generally; for instance, how physicians are paid; the degree of local participation in hospital management; the provision of health centres.

The factors which discourage sustained concern about the efficiency and effectiveness of medical care organisations are numerous and real. But monitoring performance and planning in the interest of improving efficiency and effectiveness are necessary and, moreover, definitely worth the effort if one's expectations concerning the results of this enterprise are appropriately modest.

Neither experience nor research leads one to expect that *the* optimal medical care organisation can be devised. The limits of human rationality are as real as the political environment in which decisions on medical care organisation have to be made. Moreover, monitoring the operations of organisations is itself costly and has practical limits. But perhaps even more important, sociological theory suggests the principle of equifinality. 60 Organisations with different internal structures can pursue the same objective in a different but equally efficient, effective, and politically acceptable fashion. This suggests further that, while the search for *the* optimal medical organisation is not profitable, organisations with certain characteristics maximise the probability of efficient, effective performance in the long run. The desirable characteristics include:

valuing alternative approaches to objectives within the organisation and the provision of opportunities for alternative procedures to be tried systematically;

systematic comparison of the performance of sub-groups within the organisation;

continual monitoring of the performance of the organisation as a whole;

identification of the most successful strategies in the pursuit of organisational objectives and the development of procedures to ensure that these successful strategies are known throughout the organisation.

Organisations with these characteristics are maximally adaptive in social situations characterised by rapid change. And such organisations have the highest probability of efficient and effective delivery of medical care when resources are scarce.

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Printed in England by Alabaster Passmore & Sons Ltd
and designed by Ken Baynes ARCA ASIA
Cover photograph by Chris Ridley