

Economics of Health Care

Value for Money in the Health Service

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The prosperity of a nation depends less upon its size, geographical position, or natural resources than on the industry and resourcefulness of its people, which cannot be developed to their potential if they are handicapped by ill health. This is why the United Kingdom currently spends about £2,000 million per annum on the National Health Service (N.H.S.), roughly 5% of the gross national product, and, though some other countries devote proportionally more to health services, the differences among them in this proportion are small. It is the responsibility of everyone working in the health service to ensure that the country gets the best value for its money.

Clearly the aims of the N.H.S. are not confined to providing a service for sick people, but include the prevention of disease, the care of groups of people at particular risk, training of staff, and research into the cause and treatment of disease. The dramatic change in incidence and pattern of disease in the population over the last 30 years is a result more of rising standards of living and of preventive rather than of curative medicine. In the middle of the last century Sir Edwin Chadwick, a Poor Law Commissioner, concluding that poverty was a result of ill health and that ill health was a result of bad environmental conditions, succeeded in setting in train the systematic cleaning up of the environment, so that today we take for granted the provision of clean food and water, and the safe disposal of waste. His systematic inquiry into the physical state of the population, reinforced half a century later by the discovery (at the beginning of the Boer War) that a high proportion of volunteers for military service in South Africa were medically unfit, led to the setting up of the Interdepartmental Committee on Physical Deterioration, whose recommendations had far-reaching effects on the rapid growth of the personal health services.

The effect of other preventive measures such as immunization against infectious diseases on the health of the country needs no emphasis, but it is difficult to foresee that a similarly dramatic pay-off from prevention could occur over the next 50 years.

Services Provided

The services provided by the N.H.S. are the responsibility of three statutory authorities, each of them, in some measure, responsible for all the functions mentioned above.

As the hospital service costs more than twice the next most expensive branch of the service, and over half the total cost, it is here that the greatest savings might be made.

Authority	Service	Proportion of the Cost of the N.H.S.
Hospital boards	Hospital and specialist services	58%
Executive council	General medical, dental, pharmaceutical, and ophthalmic services	27%
Local health authority	Environmental control. Personal health services in the community	15%

The Hospital Service

The costs will be considered under two heads, capital—the provision of hospital facilities—and revenue—the running of the service.

Capital

The cost of hospital building is so high (£10,000 per bed in a new hospital) that to ensure that facilities are reasonably well distributed over the country the Department of Health and Social Services (D.H.S.S.) has laid down “norms of provision” for each hospital department in relation to the population served (for example, 2 acute beds per 1,000 population). These norms may be exceeded only in exceptional circumstances. In addition to this, cost limits have been laid down for each type of hospital building and costs must be contained within them. Thus both quantity and standard of provision are nationally controlled. It has been argued that the norms of provision are based largely on guess-work and that the cost limits are so low that sometimes facilities, omitted to achieve them, must later be installed at a greater overall cost. If there is little evidence to support the “norms” there is less to refute them, and cost limits—though irksome and time-consuming to the planners—are an essential tool in rationing the available capital. In the fair distribution of scarce resources it is difficult to fault the logic of these controls. If standards are too low, then the total amount of money available is inadequate.

If expensive hospital facilities are to be used to the full, to get a good return for capital, they must be planned on a national and regional basis to match the population they serve, both in size and in position. The basis of the district general hospital¹ concept is the concentration of all ordinary specialties on a single site, sharing service, diagnostic, and treatment departments and effecting economies in staff. Furthermore, some specialties are relatively rarely used and must be further concentrated in regional units. The use of skilled staff is often a more important reason for doing this than equipment or building, and the channelling of scarce clinical material to a

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few teams ensures the accumulation of skill and the maintenance of a high standard.

It is of great importance that the different departments of a hospital should be provided in the correct proportion. If, for example, the ratio of beds to operating theatres is wrong, delays will result in the inefficient use of facilities. The design of individual departments must also take into consideration economy in staffing.

Two further points in connexion with the hospital building plan should be mentioned. The use of standard plans would have the advantage of saving time and the cost of planning. The D.H.S.S. has designed a hospital (the "best buy"), which is being built in two locations now and will, with some modifications, be built in two further places in the next few years. Clearly this concept represents an enormous saving in planning time and money, but it is doubtful whether it can have very wide application (nor, indeed, was it intended to) because hospital sites—and the requirements of populations—vary so greatly that a single design cannot meet many situations. In any case, most hospitals are being provided by redevelopment. A principle of much greater practical value is that of a set of standard plans for individual departments which can be used in different situations, both for new hospitals and for redeveloping old ones. This does imply that there is little scope for the local hospital staff to participate in the detailed planning of departments—a sacrifice that must be, and is now being made in the interests of speed and economy.

With spending on the hospital plan at its present level regional boards cannot expect to see the end of their programmes—including the replacement of all old buildings—before the second half of the 1980s. Inevitably this means that a good deal of money must also be spent maintaining the existing buildings. In theory, therefore, a great increase in capital allocation over the next 10 years would seem to be more economic; in practice it is doubtful whether the national capacity to plan and execute the work in a much shorter time exists.

Revenue

Just as it is necessary to set limits on the level of provision of hospital services, because of the great capital cost involved, it is necessary to make the best use of them because of the even greater running costs. The non-clinical services are more susceptible to cost-benefit analysis, but there are no measurable objective criteria of efficiency by which to judge the clinical services, and most attempts to do so have relied on measuring the intensity of use which, although useful, cannot be assumed to be the same. For example, surgeon A with the same facilities available to him as surgeon B may treat twice the number of patients in a year. If the case mix is identical, this is not to say that A is more efficient than B, because his patients may fare worse in the end.

However, the statistical analysis of hospital activities and its rapid communication to the staff at least point to areas that require further investigation; investigation that the staff will themselves undertake. Where a divisional organisation exists, discussion is easier, and action more likely to take place. This requires accurate records, and rapid data processing.

Because the most expensive service is hospital inpatient care, and because the cost of maintaining a hospital bed is much the same whether it is occupied or not, undue emphasis has been placed on bed occupancy. It can be shown that for acute beds the throughput of patients per bed is often in inverse proportion to occupancy, so that now a combination of indices is used to measure the intensity of use. Beds generally are less well used when they are rigidly allocated to individual consultants and specialties. Diagnostic procedures are now an important and rapidly growing component of the cost of hospital care. Variation in use of x-ray and pathology services among hospitals and between firms of up to 100% shows that this is an area in need of investigation.

Even though there are no acceptable criteria for a clinical audit of hospital care, there is a clear need for better management in hospitals. The planners aim at the correct proportion of beds, theatres, and diagnostic departments, and the managers need to ensure that the co-ordination between them is so good that they are used with the maximum efficiency. The patient's stay in hospital should be programmed to ensure that no time is wasted waiting for diagnostic or treatment procedures, and that his stay is as short as possible. This can be achieved only by good liaison with the general practitioner and the community services.

The cost of hospital care should be given close attention by all senior staff, to whom the facts should be made available, and opportunities taken to discuss them with the finance officer. The cost of maintaining a patient in various categories of hospital bed are: (1) acute £60-70; (2) geriatric £26; (3) psychiatric £20. There is, therefore, double reason for trying to contain a patient in primary medical care rather than to admit to hospital, and, if he must have inpatient treatment, this should be for as short a period as possible, through carefully planned management and the use of day care where appropriate. Two questions should be asked for every patient admitted to hospital: could not this illness have been prevented? and could not the patient have been treated at home?

Community Care

The shift in emphasis from hospital to community care applies to all specialties, but whereas in psychiatry and geriatrics the underlying philosophy is better patient care—what Kessel² called "the untested principle that it was better to be out of hospital than in"—in acute specialties it is mainly advocated on economic grounds.

Ideally the choice between hospital or community care should be made on the patient's needs, but of necessity economics will always have to be considered, particularly where the deployment of skilled staff is concerned. There comes a point beyond which it is so expensive in skilled staff time, if not in money, to keep a patient in the community, that admission to hospital becomes essential. Other factors, less easily quantifiable, have to be considered when placing and keeping a patient in his home: the effect on the family of the presence of a difficult patient, and any inroads into the earning capacity of its members that his care may impose.

If the time spent in hospital is to be significantly reduced, then all branches of the service need to co-operate closely together and with the social services departments of local authorities. The key figure in this is the general practitioner, who, if he is to play the part with distinction (as many already do) will require training, equipment, and supporting staff and services comparable to those enjoyed by his consultant colleagues. Trained on the lines recommended by the Todd report,³ working in groups from health centres or group practice premises, supported by ancillary staff—nursing, secretarial, and social workers—with access to diagnostic and treatment facilities, he will also need consultative services readily available with minimum delay (at the outpatient department and in the home).

The increasing complexity and specialization in medicine have made it increasingly difficult to practise in isolation. Team work must replace the lone doctor, and in general practice this is reflected in more general practitioners practising in groups, and in more practices employing ancillary help and having local authority personnel attached to them. More of the clinical work done by local authorities should be accepted as part of normal general practice. Some practices are now using transport to bring patients to the doctors' premises to save home visits, and patients are screened by nurses before being seen by the doctor. Possibly by these and other methods of conserving professional time general practitioners could accept more patients on their lists rather than fewer.

Prevention

The economic benefits of prevention go far beyond the saving of money on health services. They include the saving of loss of production and wages through sickness in industry and the production that would be lost by the death of a person still of working age. This cost to the country is impossible to calculate, except in very round figures, but could equal or exceed the £2,000 million spent each year on the N.H.S.

There are other savings, such as the pain, inconvenience, and anguish caused by sickness that confer enormous benefit, but cannot be expressed in terms of money. Some preventive measures result in actual increase in the cost of health services—such as those responsible for prolonging the life of the severely mentally subnormal; others may cost more than it would to treat the illness prevented. The importance of continuing the preventive measures in these cases is not, of course diminished.

But what new methods are open to the health authorities to extend prevention into other fields? For those conditions, basically degenerative, malignant, or traumatic, aggravated by the rising standard of living—obesity, coronary artery disease, carcinoma of the bronchus, and road accidents—have all proved resistant to health education, and no wonder. Constantly bombarded with high pressure salesmanship on every medium we develop a high sales resistance. What chance then have similar methods of persuading us *not* to do things we may want to do? Health screening has not so far repeated the success of mass miniature radiography. The results of cervical cytology have been disappointing, and screening for breast cancer is not yet a practical proposition—but with advances in our knowledge other methods may be developed which could give an economic return. The best value for money might be in research into the most serious disabling diseases. A breakthrough in the understanding of schizophrenia or chronic bronchitis could confer incalculable benefits on the community, financial and other.

Environmental Services

With regard to the services provided by the local authorities, the amount of money spent on them is so much smaller than the other branches of the service that there is less room for manoeuvre. The environmental services have largely become a matter of sound sanitary engineering, out of medical hands,

and are taken for granted. Nevertheless, the more complex our culture, the more vulnerable we become to breakdown of these services—and recent events have shown that new environmental hazards still occur.

The personal health services, being less immediate and less spectacular, tend to be ignored by the public and undervalued by the professions. But as the standard of living and health improves, the supervision of particular groups of the population which—through age, physiological state, or environmental stress—require special supervision even though not overtly ill, becomes of increasing importance. Such supervision is no luxury, but an essential part of a more positive approach to the health of the community, and should be given priority in accordance with their importance.

Who decides whether good value is being obtained for the money we spend? It should be the taxpayer, since the N.H.S. is almost wholly financed from taxes. But how can he judge? If he is not ill he may be getting the best value of all; but will he, when contemplating his income tax assessment, cry “what splendid value; for this tiny sum I am not suffering from polio, measles, tuberculosis, rabies, diphtheria, and food poisoning”? He will not. Of necessity, professional opinion will carry great weight in the councils of the N.H.S., but in many fields a compromise must be found between what is clinically and scientifically desirable, and what is publically acceptable. Very large hospitals may have great advantages in that they can be well staffed and equipped and give excellent training facilities for staff—but if they are situated at great distance from part of the population they serve they may not be tolerated by the public. In the final analysis the patient may well prefer to sacrifice some efficiency (if this must be) in exchange for easy accessibility and a human approach to his illness.

This article is based on a lecture given in the Birmingham course under the title “The Scientific Basis of Clinical Practice” (see B.M.J., 27 November 1971, p. 510).

References

- ¹ Department of Health and Social Security, Central Health Services Council. *The Functions of the District General Hospital*, London, H.M.S.O., 1969.
- ² Kessel, N., *Lancet*, 1966, 2, 1409.
- ³ Royal Commission on Medical Education, 1965-8, *Report*, London, H.M.S.O., 1968.

Any Questions?

We publish below a selection of questions and answers of general interest

Treatment of Endocrine Exophthalmos

Has radiotherapy a place in the treatment of endocrine exophthalmos?

Since the cause of endocrine exophthalmos is unknown treatment has remained empirical. Most of the published therapeutic trials have been uncontrolled and the results are difficult to interpret as the disorder is subject to spontaneous remissions and relapses. Irradiation of the orbit has been reported to be effective in reducing ocular proptosis in some patients.¹ There has been no recent confirmation of these results and spontaneous remissions may account for the success reported. There are also reports of improvement in endocrine exophthalmos after pituitary ablation.² Often, however, the improvement has only been subjective and the degree of

ablation achieved undocumented. Moreover, exophthalmos may appear in the other eye after hypophysectomy for the same condition in the first eye.³

Irradiation to the orbit is a relatively safe procedure which is not disturbing to the patient. It may therefore have a limited place in the management of endocrine exophthalmos. There is however no place for pituitary irradiation for the reasons mentioned. Time is on the patient's side with endocrine exophthalmos, and a conservative course should be pursued unless exposure keratitis or papilloedema constitutes a threat to vision, when a more radical approach to decompress the orbit is indicated.

- ¹ Jones, A., *British Journal of Radiology*, 1951, 24, 637.
- ² Albeaux-Fernet, M., Guiot, J., Braun, S., and Romani, J. D., *Journal of Clinical Endocrinology and Metabolism*, 1955, 15, 1239.
- ³ Furth, E. D., Becker, D. V., Ray, B. S., and Kane, J. W., *Journal of Clinical Endocrinology and Metabolism*, 1962, 22, 518.