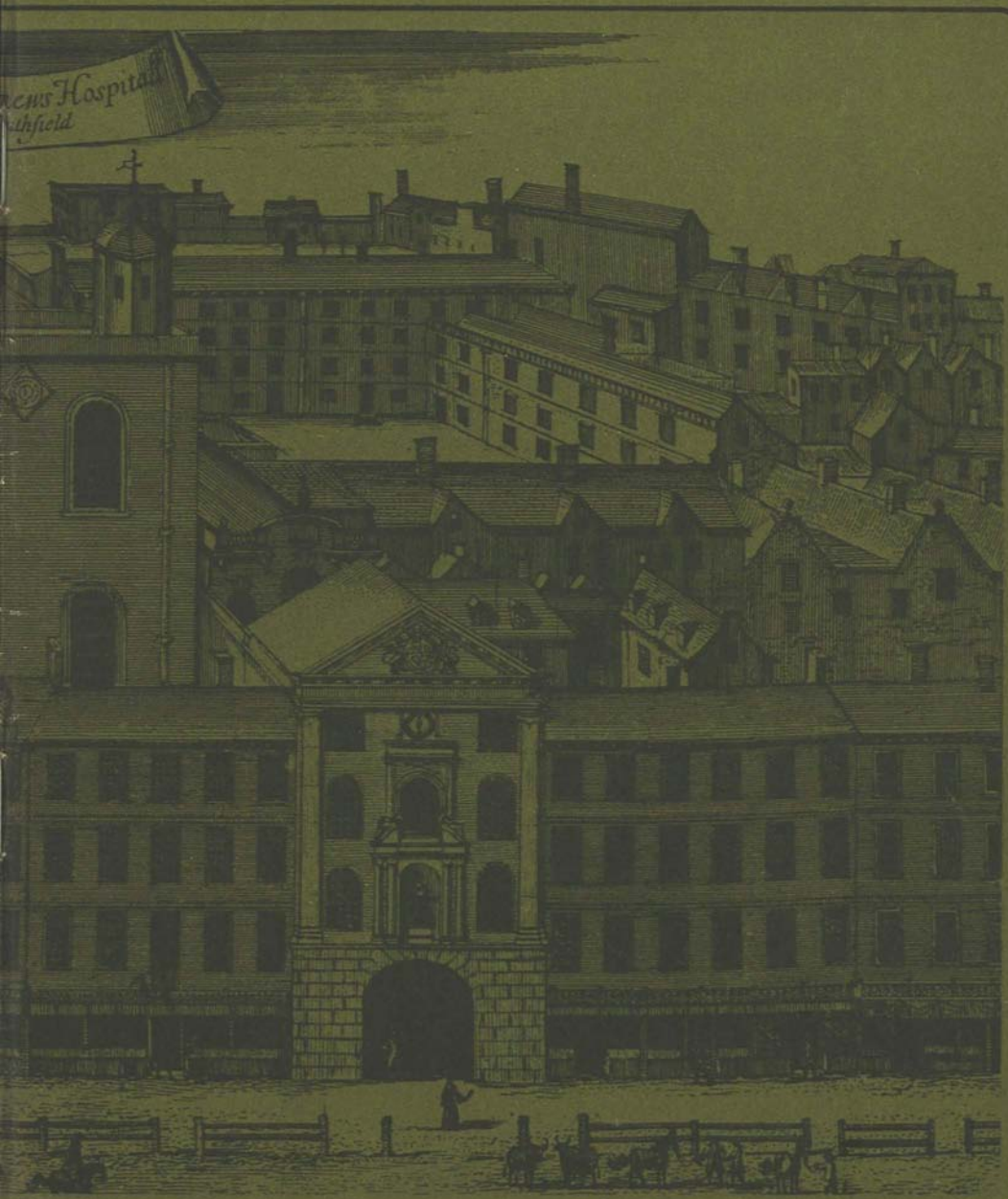
BUILDING FOR HEALTH



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Cover A mid-18th century engraving of St. Bartholomew's Hospital.

Introduction

In 1948 the newly created National Health Service inherited a stock of buildings which varied very widely in both quality and quantity from area to area. Hospitals formed the major part of the existing health services' physical capital stock. With some exceptions, such as private nursing homes, these had been in the hands of either local authorities or voluntary bodies with the status of charitable institutions.

The voluntary hospitals concentrated largely on the provision of beds for acute illness. Some had been founded as early as the middle ages and they included the prestigious teaching hospitals in London and other large cities. However, they also included cottage hospitals many of which were by modern standards understaffed and which often had to cope with work for which they were inadequately equipped. Many voluntary hospitals, particularly the smaller ones, confined their activities to a single speciality. The service which each area enjoyed depended largely on historical accident and the generosity of individual benefactors.

Among local authority hospitals too, standards and level of provision varied very widely from area to area and from hospital to hospital. The local authorities provided most of the hospital beds for conditions such as mental illness, tuberculosis and other infectious diseases, all of which had significant public health implications. Lunatic asylums and isolation hospitals had been publicly provided long before there were any public hospitals for general illness. The development of these institutions was hampered by their relatively low status in the medical world and many of the buildings, particularly for the treatment of mental illness, were old and unsuited to the practice of modern medicine even in 1948. Most of the mental institutions in use today were built in the nineteenth century, when the emphasis was on housing the greatest number at the lowest possible cost. Since the Local Government Act of 1929, the county and county borough councils had also been empowered to provide hospital services for general illness. These services had previously been provided in the poor law infirmaries, some of which offered medical care of a high standard by the 1920s, but most of which suffered from a shortage of resources. After 1929, progressive authorities spent a good deal of money on upgrading wards to provide services of a high quality and some built new hospitals. Other authorities, however, failed to remove their institutions from the shadow of the Poor Law.

Nearly all of the country's hospitals, including those essentially temporary structures erected under the emergency medical service during the second world war, were transferred to the Ministry of Health in 1948 to be administered locally by newly created Regional Hospital Boards and Hospital Management Committees. Out of over

2,000 hospitals, only about 300, mainly small and belonging to religious orders, remained outside the national scheme.

The local authorities, however, retained responsibility for the provision of various other services, including clinics for the care of mothers and young children, some facilities for the mentally ill and subnormal, and the provision of residential accommodation for the elderly and infirm. Facilities for mothers and young children were the best developed of these, but premises were rarely purpose-built and varied in quality and quantity from area to area. Facilities for the mentally ill and subnormal were underdeveloped while the accommodation provided for the elderly and infirm in 1948 was largely in buildings which had formerly housed the destitute under the Poor Law.

Other buildings from which health services were provided included premises used by general practitioners, dentists and opticians. These practitioners retained their independence under contract to the executive councils, and they retained responsibility for their own premises. In general practice the norm was a single-handed practitioner or a partnership of two working from an adapted private house.

The intention of the Ministry of Health in 1948 was to replace old and outdated buildings with new hospitals which were to be the focal point of the new National Health Service. However, in the immediate post-war period the health services suffered along with most other sectors of the economy, not only from a shortage of finance, but also from an acute shortage of building materials. Housing and education were the government's first priorities and although continuing support was still received from charities in the form of finance for ward extensions, expensive equipment and patient amenities, there was virtually no building of new hospitals until after the publication of the Hospital Plan (HMSO 1962) in 1962. Even now, after the hospital building programme has been under way for nearly a decade, about three-quarters of beds are in hospitals designed before the first world war and the mean age of buildings is about 70 years (HMSO 1969a). There are still far too few purpose-built premises for general practice while very wide variations remain in the quantity and quality of buildings from which local authority services are provided.

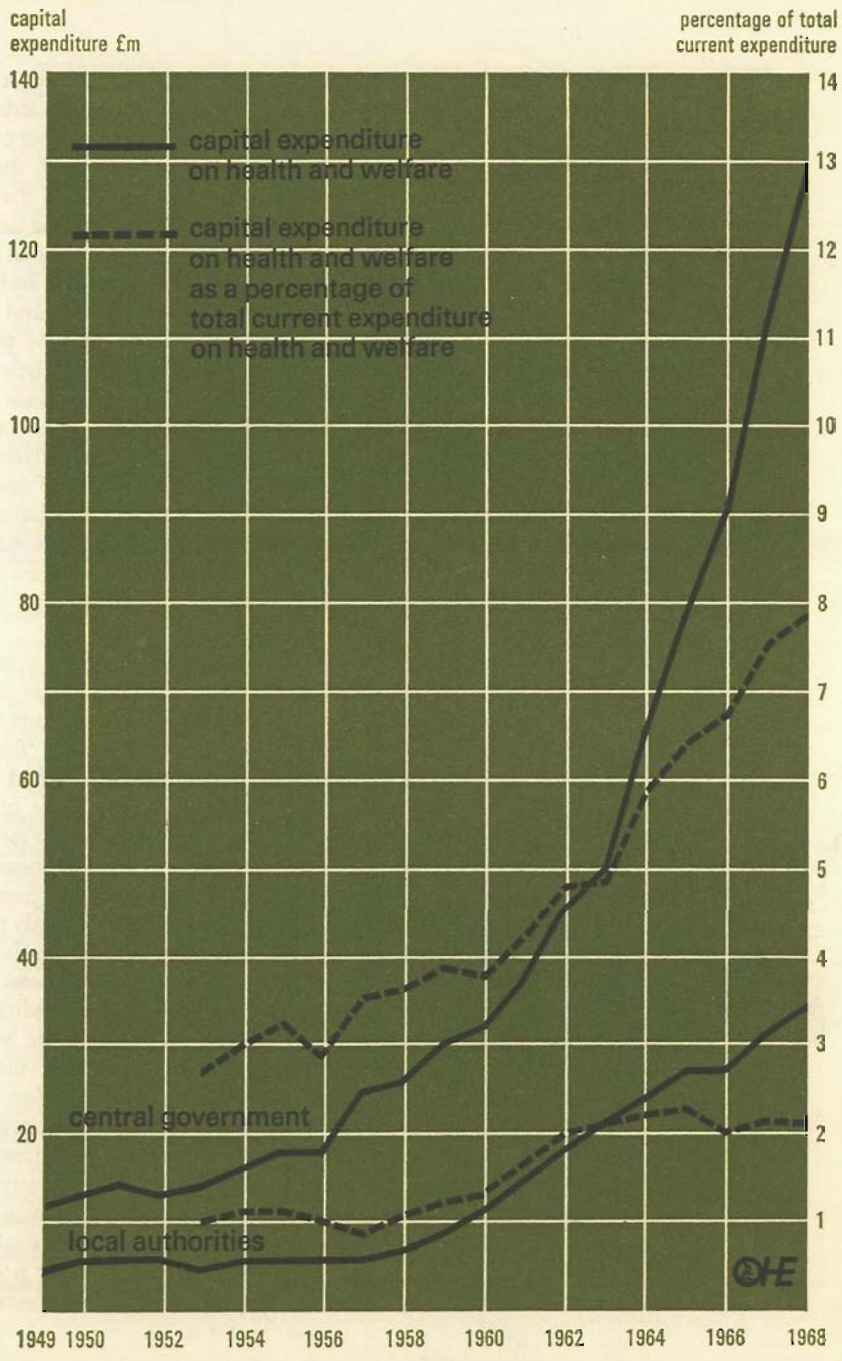
In this situation it may appear surprising not to welcome wholeheartedly the massive increase in expenditure on the construction of new hospitals over the last few years and the further projected increases in expenditure in the future. It is certainly clear that there is an urgent need for new buildings from which to provide medical services. However, planners at both national and local level should be fully aware of the doubts as to whether the new hospitals, some of which have only just come into commission and more of which have

reached an advanced stage of planning and construction, represent the optimal solution to the problem of providing the best medical care within the context of limited resources. To this end this paper considers the implications of the present direction of expenditure on the capital account, and points out the possible alternative directions that capital expenditure, and current expenditure to which it is often the key, could take. In particular it looks at the concept of the district general hospital in relation to the complementary community-based health and welfare services largely provided at present by local authorities and general practitioners. Most, but by no means all, of the present projected hospital capital expenditure is directed towards building new district general hospitals or developing existing hospitals to provide the full range of services on one site. Although some of the most expensive projects involve teaching hospitals, their special problems relating to the advancement and teaching of medical knowledge do not form part of the subject matter of this paper. However, since they also have district responsibilities in a planned hospital service and since the dividing line between the two functions is indistinct, no attempt has been made in the discussion to separate capital expenditure on teaching hospitals from the overall total.

Expenditure on the capital account cannot be considered in isolation. The distinction between capital and current expenditure is arbitrary. Physical investment in buildings and equipment must be considered in relation to the immense investment in recent decades in 'intangible' capital assets which does not generally enter into the capital account of the National Health Service. The most important of these intangible assets are the knowledge and products derived from investment in research and development, and the education and training necessary to enable manpower to make use of them. Britain benefits from world wide investment in research and development which not only provides new methods of prevention, diagnosis and cure, but also leads to rapid obsolescence and a continuing need for investment in new physical capital assets. For example, with the development of medicines and other means of combatting tuberculosis, the old sanitoria are no longer necessary. The success of poliomyelitis vaccination has meant the obsolescence of iron lungs. In other cases the application of new technology has necessitated highly expensive investment programmes as in the case of intermittent dialysis units or other intensive care facilities. With the probability of an increasingly capital intensive health service, the optimal building programme for the future must provide a framework which will encourage the fullest possible exploitation of technological advances, and which will allow the most productive combination of the resources at the disposal of the health services.

Figure 1 *Capital expenditure on health and welfare, United Kingdom, 1949 to 1968*

Source National Income and Expenditure Blue Books, various years.



The pattern of capital expenditure on health and welfare services

Investment in hospitals was low in the first years of the National Health Service. It has been estimated (NIESR 1956) that hospital capital expenditure in the early nineteen fifties, as a proportion of total hospital expenditure, was only one-fifth of the rate in the immediate pre-war years. Investment in local health authority and general practitioner services also suffered from financial stringency in the early years of the National Health Service. Figure 1 shows the broad pattern of capital expenditure on health and welfare between 1949 and 1968 by the central government and by the local authorities.

Virtually all of the central government capital expenditure is accounted for by hospitals. Capital expenditure through local authorities covers a number of items under the broad heading of health and welfare. Throughout the period about half of the local authorities' total has been spent on welfare services under the National Assistance Act. Nearly all of this represents expenditure on residential accommodation for the elderly and incapacitated. Though these services do not come under the National Health Service, the level of provision can have a considerable bearing on the need for hospital beds and other medical care facilities. The other half of capital expenditure through local authorities comes under the National Health Service Act. It has been used to provide facilities for training and treatment of the mentally ill and subnormal, ambulance stations, maternity and child welfare clinics, health centres and accommodation for nurses and midwives. Apart from the provision of health centres by local authorities, capital investment in general practice premises over the period was the responsibility of the individual practitioner. The amount involved cannot be accurately estimated but is very small in relation to the total capital expenditure shown in Figure 1. Much of it was derived from the general practitioner's gross remuneration and therefore did not enter into the capital account at all.

The total level of expenditure is controlled by the central government, directly in the case of hospitals, and indirectly in the case of local authority schemes. Over 80 per cent of local authority capital expenditure on health and welfare services is financed by loans which are provided or sanctioned by the central government in the light of competing demands for finance from other sectors of the economy.

In 1950 central government capital expenditure on health and welfare was running at £13 million a year and local authority capital expenditure was £6 million. Between 1950 and 1958 central (i.e. hospital) expenditure rose to £26 million, but local expenditure had only risen to £7 million, and had thus declined in real terms. Successive cutbacks in public expenditure had forced local authorities to defer their plans but in 1958–59 the relaxation of the financial squeeze was followed by approval

for an increasing number of local authority projects. During the period 1958 to 1962, capital spending by local authorities rose from £7 million to £19 million a year, while central capital spending rose more slowly from £26 million in 1958 to £46 million in 1962. From 1962, however, the hospital building programme gathered momentum, surviving successive cutbacks in public expenditure which affected most other sectors of the economy. Local authority plans on the other hand have continued to be more susceptible to economic cutbacks and have had to be pruned during each financial squeeze in recent years. By 1968, local authorities' capital spending on health and welfare totalled £34 million, and central spending had reached £128 million.

Table 1 shows, in a rather different form, how capital spending is planned to develop up to 1971–72. The figures, in 1969 prices, show that expenditure on hospitals is expected to continue to grow more rapidly than expenditure on local authority health and welfare services. As a percentage of total current expenditure on health and welfare, capital expenditure on hospitals is expected to increase from 7.5 per cent in 1968–69 to 8.4 per cent in 1971–72. Capital expenditure by local authorities (including health centres) is expected to increase from 2.2 per cent to only 2.3 per cent of total health and welfare current expenditure in the same time period. The majority of hospital capital expenditure in the next few years will be on large projects costing over £1 million. In England and Wales at the end of September 1968, 66 schemes in progress, each costing over £1 million, accounted for £245 million out of a total value of all schemes in progress of £320 million. Six of these schemes will cost over £10 million by the time of completion. In no previous year have large schemes accounted for most of the projected capital expenditure.

Local authority health and welfare services are provided under both the National Health Service and the National Assistance Act. A breakdown of local authority capital expenditure in Table 1 is not available, but figures for loan sanctions authorised for England and Wales indicate that in 1969–70 56 per cent of the United Kingdom expenditure of £35.8 million was for the provision of welfare services such as residential accommodation for the elderly and handicapped under the National Assistance Act. The other 44 per cent was to be spent under the National Health Services Act, including 21 per cent for facilities for training the subnormal and accommodation for the mentally disordered and 13 per cent for health centres. The remaining 10 per cent included capital expenditure on ambulances, clinics, and nurses' and midwives' accommodation. The main growth points in the future are expected to be the development of services which meet the needs of the mentally disordered, the elderly and the handicapped

Table 1 *Planned capital expenditure on health and welfare, United Kingdom*

	£ million at 1969 prices			
	1968–69 provisional	*1969–70 estimate*	*1970–71 estimate*	*1971–72 estimate*
Capital expenditure				
Hospitals (including teaching hospitals)	121.7	127.8	135.5	151.9
Other central services and grants* departmental administration	3.9	4.2	4.3	4.9
Local authority health and welfare services and family practitioner services	35.5	35.8	34.8	41.8
	161.1	167.8	174.6	198.6
Current expenditure	1629.3	1685.6	1745.4	1803.7
Capital expenditure as a percentage of current expenditure	9.9	10.0	10.0	11.0

* Other central services include such items as capital expenditure by the Public Health Laboratory Service Board, and NHS administrative buildings.

Source Public Expenditure 1968–69 to 1973–74, HMSO 1969, Cmnd 4234.

(through the National Assistance Act), and in particular the building of health centres. The last is an aspect of local authority investment which has been expanding very rapidly in the recent past. Between 1967–68 and 1969–70, the share of local authority capital expenditure on health and welfare devoted to health centres in England and Wales increased from 5 per cent to 13 per cent. This would indicate a total United Kingdom expenditure on health centres in 1969–70 of £4.7 million. Their share of local authority capital expenditure is expected to grow further in the next few years. By the end of April 1970 there were 160 health centres in operation in England and Wales. 67 of these had been opened since January 1969. A further 124 were in the process of being built, with another 58 approved by the Department. However, they are very unevenly spread through the country and even these 342 centres would serve only about 5 per cent of general practitioners in the country. In addition to investment in health centres, general practice benefits from expenditure by practitioners themselves either on their own account or with the assistance of improvement grants or loans from the General Practice Finance Corporation. In the year ending March 1969, general practice loans totalling £2.3 million were approved. However, the total amount of capital expenditure on general practice from all sources is unknown.

The Hospital Plan and the development of the concept of the district general hospital

The concept of the district general hospital, upon which the major part of the health services capital expenditure is based, can be traced back to the second world war. At that time, as now, many hospitals provided for only one or two specialities. By the early 1960s, when the Hospital Plan was being prepared, it was generally considered that the geographical separation of specialities had become increasingly inappropriate to the practice of modern medicine in hospitals. A trend towards greater interdependence between the various specialities had been noted (Ministry of Health building note No. 3, 1961), particularly in relation to the rapidly expanding diagnostic, therapeutic and supporting services needed in common for all specialities. Duplication of these would be wasteful. Furthermore, the belief had developed that separation of specialities led to professional isolation. Since hospitals were staffed by salaried doctors under the National Health Service, and since these doctors were becoming increasingly specialised, there was less scope left for the common pre 1948 practice of holding multiple appointments at various hospitals.

The solution proposed in the Hospital Plan of 1962 (HMSO 1962) was the district general hospital. This type of hospital would normally contain 600 to 800 beds serving a population of 100,000 to 150,000. Most district general hospitals were to contain provision for all the ordinary acute specialities, accident services, a full range of out-patient services, some mental illness beds and a geriatric unit. Services provided outside the district general hospital were to include some geriatric care, some mental illness care (mainly long term), mental subnormality care, and treatment in a few remaining small hospitals for some maternity cases, some long term geriatric cases and some simpler medical cases. The plan also provided for the possibility of out-patient clinics outside the grounds of the district hospital. The 'super-specialities' such as radiotherapy and neuro-surgery were to be provided only at selected district general hospitals. This general blueprint for the hospitals of the future was accompanied by norms indicating target levels of provision of hospitals beds in terms of numbers of beds per unit of population (Table 2). These norms were not intended to be applicable to all areas regardless of local circumstances, but were to serve as guidelines. The levels of requirements for acute beds, the largest and by far the most expensive category was set at 3.3 per 1000 population as compared with the average in England and Wales in 1960 of 3.9 per 1,000. Reductions in the length of stay in hospitals and falling demand for beds allocated to the diseases of the chest were seen to justify a reduction in existing levels of bed provision.[1]

1 Pre National Health Service studies had indicated a need for acute beds ranging up to 8 per 1,000 population.

Table 2 *Estimated bed needs in 1975*

Bed type	*Beds per 1,000 population*
Acute	3.3
Maternity	0.58
Geriatric	1.4
Mental illness	1.8
Mental subnormality	1.3

Source A Hospital Plan for England and Wales, 1962, Cmnd 1604.

It was also noted that various studies had indicated that fewer beds than 3.3 per 1000 appeared to be needed in various parts of the country, 2.0 per 1000 population in Norwich and Northampton (OUP 1955), about two per 1,000 in Reading (Barr 1957) and 2.9 in Barrow (Forsyth and Logan 1960). However, the Plan stated that these figures would have to be treated with some caution.

The revision of the Hospital Plan in 1966 recognised that earlier costings and estimates of time required for planning and building of new hospitals had been optimistic, but it did not find any substantial evidence that the norms set out in 1962 needed revision. However, in 1969 the report on 'The Functions of the District General Hospital' (HMSO 1969b) made some far-reaching proposals. The report suggested, inter alia, that all psychiatric (including subnormality) and geriatric beds should be based on district general hospitals. It recommended that most district general hospitals should serve a population of at least 200,000 and up to 300,000 or more[1]. These recommendations were based largely on two premises. Firstly, that specialised and inter-dependent services can most economically and most effectively be provided together at one central site, and secondly, that it is not desirable for any consultant to work single-handed in his speciality. He should instead have frequent contact with another consultant who would also provide cover when he is off duty. Given the number of consultants in the country in each speciality, the latter premise leads directly to the recommendation that the district general hospital should serve a population of at least 200,000. Below this population there are at present insufficient consultants in most specialities to provide at least two per hospital.

In all of the official publications on the Hospital Plan it has been emphasised that the implementation of the Plan must be considered

1 In fact most district hospitals now being planned will serve a population nearer to this figure than to the 100,000 to 150,000 suggested in the original Hospital Plan and they will generally contain more beds than the 600 to 800 suggested in 1962.

in relation to the complementary community-based health services. Indeed side by side with the Hospital Plan, a plan for the Development of Community Care (HMSO 1963) was published in 1963, with two revisions (HMSO 1964, HMSO 1966).

However, the norms suggested in the plans for both hospitals and community care have largely been based on present usage of services, or expressed demand, tempered by general assessments of the direction that usage might take in the future. In practical planning terms these norms provide a benchmark against which to measure progress, but they do not incorporate any thorough-going assessment of need for medical services of different types, or how usage of the service might change if the balance between the supply of hospital beds and the supply of complementary community-based facilities (those provided by local authorities and general practitioners) were altered. In effect these norms elevate existing expressed demands to the status of projected needs for the future.

The balance between hospital and community care

Jones H. (1959) commented ten years ago 'diagnosis has become more precise and treatment more effective and dangerous. Both depend on special techniques available only in hospitals. The centre of gravity of medical practice is shifting from the doctor's surgery to the out-patient department'. The same general point could be applied to in-patient services too. The development of modern medicine has been seen to necessitate a concentration of physical capital investment in the hospital sector which is often considered uniquely capable of exploiting sophisticated modern medical techniques. However this trend, which is likely to be strengthened by the present concentration of capital expenditure on hospital building, has been associated with a decline in the status of the general practitioner vis a vis the hospital specialist, and a decline in attractiveness of general practice as a career. A continued shift in the centre of gravity from general practice to the hospital is not necessarily appropriate, first in view of the costliness of hospital treatment, and second in view of the changing nature of morbidity in the community. Since the conquest of many of the infectious diseases which in the past required isolation and intensive nursing care, what mainly remains are the degenerative diseases which generally require long-term attention and many of which do not require in-

patient treatment at most stages. Much more stress is now being laid on the inter-relationship between the patient's condition and his physical and social environment. This has been taken as justification for bringing as much medical care as possible to the patient in his normal environment. In addition, health education, screening and preventive medicine generally are activities which may be expected to grow rapidly in importance in the future. In these areas, where the objective is to prevent people from becoming ill enough to need the sort of treatment available in hospital, there are particularly strong reasons for maintaining close and regular contact between the health services and the patient. The improvement in housing conditions in recent decades may be seen as further justifying the movement of treatment to the patient's own home. However, any return of the centre of gravity of medicine towards the community must not be seen as a step backwards from the sophistication of the comprehensive hospital to the basic service that can be provided by the single-handed practitioner. Any further structural reorganisation of medical care resources must provide adequate facilities at an intermediate level, as represented by the health centre or similar unit. Such units must not be so large as to be depersonalised and isolated from the communities they serve, yet they must be large enough to justify in economic terms the provision of all the equipment necessary for the treatment of a large proportion of cases now filtered through to hospitals.

Are present policies likely to result in an optimal balance between investment in hospitals and investment in community-based services? With information at present available, the question cannot be answered with any certainty. However, available evidence does suggest that the present policy of concentrating investment on district general hospitals will be open to serious criticism if continued in the future. For instance, the planned level of bed provision may prove to be excessive and may cause too much work to be drawn into hospitals.

Feldstein M. S. (1967) makes the point that estimates of needs for hospital beds which are based (as all British studies have been) on manifest demand as reflected in admissions and size of waiting lists, have little meaning. He found overwhelming evidence in a statistical analysis of data from 177 large acute hospitals in 1960–61 that demand for hospital beds is not an independent variable, but a function of the supply of hospital beds and the length of waiting lists. He found the number of beds per unit of population varied considerably from area to area in England and Wales, and that both admissions and length of stay increased with available supply. In total, the number of 'bed-days' demanded rose proportionately with supply and there was no indication of the level at which the demand for beds would be satiated. These

findings, which suggest that something closely akin to 'Parkinsons's Law' is operating in hospitals, clearly have implications for the hospital building programme.

The empirical evidence also indicates that the distribution of the workload between the hospital and the community may be out of balance. Different studies have produced conflicting results, but some suggest that a large proportion of hospital work may be more appropriately done outside the hospital grounds. For convenience, the discussion can be divided between in-patient services and out-patient services.

In-patient services

In-patient services accounted for an estimated £609 million or 82 per cent of current hospital costs in 1967–68 (OHE 1969). Partly because of the expense of maintaining patients in hospital, there has been a large number of studies on the operational aspects of hospital treatment. Crombie and Cross (1959) in a study of a ten per cent sample of 5,400 medical patients in a Birmingham hospital estimated that 25 per cent of patients had no need of in-patient services for therapeutic or diagnostic reasons. Forsyth and Logan (1960) in a study of acute beds in Barrow concluded that as many as 25 per cent of men and 40 per cent of women had no need of in-patient treatment on clinical grounds. However, MacKintosh, McKeown and Garratt (1961), in a survey of Birmingham hospitals found that on the hospital physicians' assessment only 1.6 per cent of patients in acute wards need not be there. Restricting their attention to medical beds in three general hospitals for comparison with Crombie's results they found that four per cent of patients had no need of in-patient treatment. However, after a re-analysis according to Crombie's criteria the proportion rose to 22 per cent. Eventually, after further discussion of cases, MacKintosh *et al.* eventually reached a figure of 13 per cent, but commented that because non-medical needs were complex, only 4 per cent could have been prevented from going into hospital by augmented domiciliary and social services. Other results suggested that it was mainly among the mentally ill and the chronic sick that improvements in domiciliary medical and social care could make an impact on the pattern of admission.

The major point to emerge from these studies is not the size of the hospital population that does not need in-patient care; rather it is the point that the wide variations in estimates of the size of the problem are largely a result of different views on the necessity for admission or continued in-patient treatment. In each case the criteria used depended on clinical judgements, which, though well-founded in experience,

are inevitably subjective in the last resort. Subjectivity is further strengthened by the hypothetical nature of the clincian's choice in the cases where alternative facilities do not exist. A hard core of cases will always have an urgent need for specialised hospital facilities, and with few exceptions the hospital machinery allows them to be admitted rapidly. The majority of cases are, however, routine and non-urgent and it is among these that there exists a grey area where the appropriateness of in-patient treatment is in question and where admission and discharge depend largely on such factors as the practice of the individual consultant, the pressure on beds, or the availability of alternative treatment facilities.

Without a scientific assessment of the effectiveness of in-patient treatment as compared with other regimes in the doubtful cases, and a good deal more research into the medical and nursing needs of patients, no reliable conclusions can be drawn from the studies noted. However, there would be scope for considerable savings if a large proportion of hospitalised cases could, without detriment to the patient, be treated outside hospital. If that were the case, higher priority for investment in community-based facilities such as health centres and residential accommodation for the elderly would be indicated on both economic and social grounds.

In the case of mental illness and subnormality the need for small 'half-way houses' to bridge the gap between the hospital and the outside world is becoming widely accepted. McKeown and Leck (1967) argued that only about half the patients in hospitals for the mentally subnormal in the Birmingham area needed the kind of care which made it necessary for them to be in hospital. Clearly the availability of these facilities together with an active discharge policy could substantially reduce the population of existing mental illness and subnormality hospitals to the advantage of the patients.

Another set of studies concerns the concept of 'progressive patient care' in which patients are grouped according to their dependence on specialised or intensive treatment rather than their disease category. Much of the literature available on the subject is from America, where precise costings for individual cases are used as a basis for charging patients. However, a number of studies relating to Britain have been undertaken, and their results are shown in Table 3.

These surveys are summarised elsewhere (Meredith *et al.* 1968). The distribution between the three categories depends largely on the definitions used for intensive, intermediate and minimal care categories. However, it is noticeable that eleven results out of twelve show the minimal care category as over 20 per cent of the total. The majority tend to lie in the intermediate care category, while the highest intensive

Table 3 *Distribution by percentage of patients in different categories of care*

	Intensive care	*Intermediate care*	*Minimal or self-care*
Preston (1)	10	49	29
Oxford RHB	7	60	33
MacKenzie			
Hospital A	2	70	28
Hospital B	4	73	23
Hospital C	4	85	11
Fisher			
Surgical wards	6	33	61
Medical wards	8	48	44
Lees			
Study team assessment	1	72	27
Hospital assessment	2	76	22
Meredith *et al.* (medical classification) (2)			
Teaching hospitals	2	50	31
District non-teaching hospitals	4	49	36
Small general hospitals	(0.4)	25	39

1 Preston had three additional categories, long-term care 8 per cent, observation and ward care 1 per cent, and overnight care 3 per cent.

2 Meredith *et al.* had additional categories including '5 day ward patients', 'terminal care', 'awaiting operation or under investigation', and those classified as being more appropriately accommodated in either a geriatric hospital or local authority residential accommodation. Together these categories amounted to 17 per cent of teaching hospital patients surveyed, 11 per cent of district non-teaching hospital patients surveyed and 36 per cent of small general hospital patients. Included under the 'minimal care' heading are those who could have benefited from hostel accommodation and others including patients with a particular need for rehabilitation.

Source Meredith J S, Anderson M A, Price A C and Leithead J, Scottish Hospital Centre, 'Hostels in Hospitals?', OUP 1968.

care figure is 10 per cent. The first relevant point is that intensive care facilities, which can only be economically sited in a hospital with a large catchment area, are only necessary in a small proportion of cases. Although treatment involving intensive care is likely to be a growth area in the future, it is never likely to cover more than a small proportion of episodes of illness. The second relevant point is the possibility that some of the patients in the minimal care category could be allowed to return home or remain at home. Lees' study for instance defined the minimal care category which included 27 per cent of cases as 'patients

between the ages of 12 and 75 who are up for at least four hours in total during the day, ambulatory, able to feed, wash and go to the toilet by themselves'. Although inconclusive in themselves, these figures and the studies on bed usage noted above may be justification for a large-scale inquiry into the relative effectiveness of home and hospital treatment for certain classes of patient in the minimal care category, and perhaps even in the intermediate care category in cases where efficacy of treatment in hospital is not proven. Some minimal care and intermediate care patients could possibly be treated at home through better organisation of hospital admissions and discharges, improvements in domiciliary medical services, and better liaison between the three branches of the health service. If there were little or no difference in the effectiveness of domiciliary and hospital in-patient or out-patient treatment, then the economic criterion might be the crucial factor. Average in-patient costs in 1968–69 for large non-teaching acute hospitals amounted to £50 5s per week or £76 15s per case. The transfer of some 'minimal care' patients to domiciliary care would leave the in-patient department with patients who were on average more costly than this, and increased domiciliary services would have to be paid for, but nevertheless there would be an overall saving in costs from the transfer if only because the 'hotel' costs of in-patient treatment are, at £20 per week in 1968–69, much higher than the extra weekly cost to the patient of living and eating in his own home while under treatment. The work of a large number of domestic, industrial and even nursing staff could in effect be replaced by the patient's family at a small marginal cost. There are other factors which must be considered such as loss of the wife's income while nursing her husband at home, and the possibility of home care keeping the patient away from work longer than hospital care. However, no work has been done in this country to quantify precisely the overall costs and benefits of home care as against hospital care.

Out-patient services

Out-patient departments accounted for an estimated £106 million or 14 per cent of current hospital costs in 1967–68 (OHE 1969)[1], and in 1968–69 the average cost of a visit to an out-patient clinic was £2 4s (Hospital Costing Returns, HMSO 1970). The present out-patient services of hospitals can be divided into four categories. First there is the traditional role of the specialist doctor as a consultant to the

1 The addition of in-patient and out-patient costs does not cover the whole of hospital current expenditure. Such other services as blood transfusion and mass miniature radiography, etc., make up 4 per cent of hospital current expenditure.

general practitioner. Nearly all consultations take place on the premises of hospitals. The domiciliary consultant service, though it grew during the first decade of the National Health Service, has not expanded since, and in 1968 it accounted for one per cent of all out-patient consultations. A second function of out-patient departments is the provision of a minor accident or casualty service. The third covers diagnostic services which are largely provided from hospitals, though probably the majority of tests are on patients outside the hospital wards themselves. Finally, the out-patient departments have a service function which is discussed below.

To the consumer of medical care, the advantages of access to specialist advice and modern medical equipment are obvious. The disadvantages, however, of travelling perhaps long distances and being treated in unfamiliar surroundings can be equally obvious. The continued policy of concentrating resources within the grounds of the District General Hospital will increase the size of the institution visited by out-patients, the time spent in travelling, and probably the number of cases dealt with there. In large conurbations, any extra distance should not present the patient with any greater difficulties, but in more sparsely populated areas the problems may be considerable. In East Anglia, for instance, it has been calculated that hospitals serving 300,000 people would be more than 20 miles away from 20 per cent of the population ('The Hospital', November 1969), as against 3 per cent of the population in the existing plans of 1969. There are feasible alternative approaches which could reduce inconvenience to the patient without detriment to the quality of medical care received and a number of studies have indicated a maldistribution of work at present between hospital out-patient clinics on the one hand, and general practice and health centres on the other.

Scott and Gilmore (1966) point out in a study in Edinburgh that one half of all patients who attended an out-patient clinic three times or more had been referred by the general practitioner for opinion only. The contention that hospitals often do work that could be performed in general practice is supported by Forsyth and Logan (1968) in a comprehensive statistical study of hospital out-patient departments. Both Forsyth and Logan and Scott and Gilmore found that a large proportion of cases referred to out-patient clinics could be termed minor conditions, particularly in surgical departments. Thus it is clear that out-patient departments perform not only a consultative function, they also perform, for example, the sort of minor operations that do not need specialised hospital equipment and expertise and which Logan and Forsyth claim could be done more cheaply by general practitioners, if they had the facilities available, and if, as Scott and

Gilmore suggest, general practitioners did not see their role primarily as referers to other parts of the health services. A change in hospital doctors' concept of their role may also be required. The problem of allocation of resources is similar to that noted in respect of in-patient services. Demand, in this case in the form of general practitioner referrals, probably responds to the supply of out-patient facilities. The more resources are concentrated within hospitals the more cases are likely to be treated there. It must be recognised, however, that general practitioners are not necessarily in a position to take on extra work. Their ability to do so must depend on either better organisation of general practice work, including better use of non-medical personnel, or greatly expanded investment in new general practice premises, especially health centres. The interrelation between investment in buildings and investment in manpower and current expenditure can be highlighted in this context. A minor operating suite in a health centre could probably deal as effectively and more cheaply with minor cases than the hospital out-patient department, at least if the very real costs of patients' time and convenience are taken into consideration. However, under the present organisation it is very much quicker and easier for a doctor to refer a case to hospital rather than perform the operation himself. If new facilities were to be utilised, and patients sent to the branch of the health service best suited to their condition, then greatly expanded investment in education and training is likely to be necessary. There would also have to be further remuneration for the extra work performed by general practitioners and, in particular, their ancillary staff.

It is possible, therefore, that the patient could benefit from a transfer of some hospital work to a more extensively trained and equipped general practice. Also even in cases where a specialist medical opinion is needed, there is often no economic reason why the consultation should not take place outside the hospital grounds and nearer the patient's home. Forsyth and Logan laid emphasis on the surprising finding that the proportion of out-patients discharged after only one consultation with neither x-ray nor pathological investigation was 38 per cent in medicine, 83 per cent in general surgery and 53 per cent in paediatrics. In other specialities it was often high too. They suggested that since much out-patient treatment appears not to depend on complex equipment which is too costly to provide other than in large hospitals, some consultants could bring their services closer to their patients' homes, perhaps by holding clinics in one or more health centres. Another finding of Forsyth and Logan is relevant in the context. Since about four-fifths of out-patients in their study were never admitted into the wards, there is not necessarily a strong reason why out-

patient services should operate from the same site as in-patient services, at least in relation to the 'screening for admission' function of out-patient departments. The low proportion of out-patients admitted to wards is confirmed by Scott and Gilmore's study where 3.4 per cent of out-patients gained immediate admission and 15.9 per cent were placed on the waiting list. The rest continued as out-patients or were discharged to general practitioners.

In common with the studies on in-patient services, the empirical evidence of out-patient services indicates that much of the medical care now given on hospital sites could be economically provided within easy reach of the patient. These studies, however, are in the last resort inconclusive for in this country no data are collected which would allow the evaluation of the cost-effectiveness of home as against hospital treatment for each type of case. One of the main conclusions must be that more research is needed, preferably in the form of practical experiments in selected areas.

Hospital size

In the health services of the future, one school of thought sees the comprehensive district hospital as the focal point of medical care, and another sees the community medical services as a more appropriate centre of gravity. This is in no sense a dichotomy, but rather a spectrum of opinion as to where the emphasis should be placed and where individual services can be best provided. The former school of thought has found expression, at least partially, in the hospital building programme, and as early as 1958 McKeown described a 'Balanced Hospital Community' in which all health services would be centred on a general hospital of about 1,000 beds on a single site (McKeown 1958). The Hospital Plan itself suggested a norm rather smaller than this, but some district general hospitals at present in the planning stage run to 1,500 beds, thus anticipating the recommendations of the Committee on the Functions of the District General Hospital.

Although the Department of Health may base its hospital building policies on totally different reasoning, it is nevertheless necessary to consider the Committee's arguments. On the question of economies of scale in hospitals, a good deal of research has been done, particularly in America. Berry (1967) found, among American hospitals, declining average costs as size increased. Carr and Feldstein, P. J. (1967), however, found that cost per patient/day in American hospitals fell initially

as size increased, but then probably rose at very large size levels owing to increased managerial problems of communication and control. Perhaps of greater relevance is M. S. Feldstein's (1967) analysis of the costs of 177 acute non-teaching hospitals in England and Wales, ranging in size from 72 beds to 1,064 beds. The evidence showed that on balance size had little effect on cost per case when the data were adjusted for casemix differences between hospitals. Feldstein considered there was some indication that minimum cost occured at about the 300 bed size, but costs per case in a 1000 bed hospital were less than 10 per cent higher. The slightly decreasing returns as scale increases for large hospitals may, however, be explained by the larger hospitals treating more complex cases within each case category. This factor cannot be quantified objectively. This is a cause of the longer length of stay in larger hospitals, and Feldstein does note that if length of stay could be reduced to that prevailing in 300 bed hospitals, then minimum average costs per case would be obtained in a 900 bed hospital. But Feldstein concludes that his results indicate that average sized hospitals, of about 300 to 500 beds, are at least as efficient at providing in-patient care as are larger hospitals. An analysis of the various input categories shows that some inputs, including diagnostic and therapeutic equipment have economies of scale, but others, especially the pure labour components, have diseconomies of scale which cancel the economies out. Thus the first premise upon which the recommendation for large hospitals is based, the expectation of increased returns from common use of expensive diagnostic and therapeutic equipment and facilities, is only in a limited sense borne out by Feldstein's results. The objective evidence that exists suggests that the building of large new hospitals on the basis of avoidance of duplicated facilities alone would represent suboptimisation.

Furthermore, it is not necessary to site all those services which have demonstrable economies of scale on hospital premises. At present pathological services, sterile supplies and laundry are often handled by central units which are not necessarily on hospital sites. For instance, the industrial zone at Hither Green has been designed to provide a central sterile supply department covering 3,500 beds in South London. It also includes a 150,000 article a week laundry. In the future, technological advances will make feasible the separation of many more common services from the hospital site, and increased economies of scale may even indicate their organisation on a regional level on a single site placed strategically in relation to the transport system. Even now, the development of automatic laboratory equipment has reached a stage at which economic usage requires a catchment area greater than can be provided even by a very large district general hospital.

The second major premise upon which the recommendations of the Committee on the Functions of the District General Hospital are based can be even more clearly criticised as representing sub-optimisation. There are probably considerable benefits to be derived from a two strong consultant team in each speciality, not least of which would be the mutual maintenance of standards. However, to determine the size of such expensive items as new district hospitals according to the available supply of consultants must be unjustified in view of the other alternative solutions to providing multiple consultant cover. Either the number of consultants could be increased (not impossible in the time period before many of the new district general hospitals actually come into operation) or consultants could travel between smaller hospitals, if smaller hospitals were considered more appropriate on other grounds. This may be seen as involving a waste of valuable consultant time, but against this can be set the greater amount of time that patients and relatives must waste travelling if fewer and larger hospitals are built. On the same theme, the suggestion that consultative clinics should be held at health centres or other buildings nearer to the patient's homes can be criticised as involving a waste of consultants' time. But there is, in economic terms, no justification for assuming that the patient's time is expendable and that he must always bear the inconvenience when seeking medical attention[1]. Slee (1968) has described the successful operation of such consultative clinics in the Nuffield Health Centre in Witney. However, Curwen and Brookes (1969) have pointed out that in 1969 only seven of the 229 health centres in operation or approved by the Department of Health had specific provision for regular hospital out-patient clinics, though others may have made *ad hoc* arrangements. Five of the seven were in hospital grounds.

Alternatives for investment

The expansion of community-based facilities in the large grey area where they represent an alternative to hospital facilities would have a number of advantages. They include the social benefits of small units, convenience for the patient, continuity of contact between health service personnel and the patient and between doctors and other

1 Unless the consultant's marginal productivity is greater than the sum of all his patients', the optimisation of the consultant's time is not identical to the maximisation of the community's resources.

medical care workers themselves. There would also be economies if the expansion of domiciliary care could reduce the amount of expensive in-patient care necessary. A number of commentators have described possible alternative organisational structures for the provision of medical care. Perhaps the most systematically worked out alternative structure has been suggested by Draper and Israel (1969). They describe a network of 'community care units' which would serve a population of about 25,000 to 50,000. A unit serving 50,000 could be staffed by 20 general practitioners with a roughly equal number of para-medical personnel, health visitors, home nurses and domiciliary midwives. Simple diagnostic equipment including provision for x-ray and some pathological services could be sited within the unit, as could facilities for minor surgery. Furthermore, hospital consultants and registrars could hold clinic sessions at the 'community care unit'. These, they suggest, would be more convenient for the patients and would bring the hospital doctor in touch with community medicine from which he may well be isolated if practising only in hospital. The improvement in community services would, they suggest, enable acute beds to be reduced to about two per 1,000 from the present norm of 3.3 per 1,000. The transfer of the out-patient load and supporting services would enable 'in-patient units' to replace the traditional hospital at a capital cost of about £4,000 per bed as against the present average in new hospitals of £8,500 per bed. In-patient units would need 500 beds at the most and would cost £2 million. In addition there would be 'special clinic units' organised regionally for the provision of 'super-speciality' services. Finally, the whole system would be supported by regional service units. Draper and Israel calculate that an average 'community care unit' would cost about £500,000 and about 1,000 of them would be needed. Thus, very roughly, the capital cost of building 1000 community care units plus the replacement of a smaller number of cheaper acute beds would be £900 million at present day prices. To replace a larger number of more costly beds in traditional hospitals would involve a capital expenditure of £1,400 million.

Others have suggested that better use could be made of small hospitals, which, under the current hospital plan are gradually being closed down. A report on the Chipping Norton Cottage Hospital (Oxford Regional Hospital Board 1965) showed that a small 'homely' hospital had advantages in convenience and comfort to the patient provided that it did not attempt tasks beyond its capability. The doctors were generally the patients' own general practitioners and consultative facilities were good. Four-fifths of the acute medical cases in the area were covered by the hospital. A review of the report (*Lancet* 1966) suggested that many other cottage hospitals could serve useful functions

if, as at Chipping Norton, local authority services could be integrated with the in-patient work. Providing only suitable cases were admitted cottage hospitals could also be developed into such institutions as 'community hospitals'. This is the name given to a type of hospital unit suggested by the Oxford Regional Hospital Board as part of a policy of planned decentralisation through the development of certain hospital services outside the district general hospital. Patients not needing the full facilities of the district general hospital could thus be accommodated closer to their homes. Similarly Evans (1969) has suggested that in keeping with the principles of progressive patient care the small local hospital could accommodate those not needing intensive care. This would allow intensive use of district general hospital facilities by the remainder, thus exploiting more fully those economies of scale that exist. He also suggests 'Teaching Health Centres' to facilitate some of the recommendations of the Royal Commission on Medical Education (1968). Also Beresford *et al.* (1970) suggested that a mixture of high throughput hospitals serving very large catchment areas and small local hospitals performing limited functions would both reduce costs per case and reduce the accessibility problem to the minimum.

These alternatives to the present direction of the hospital building programme differ in detail but share the common characteristic of shifting many of the functions performed in large hospitals into less sophisticated but adequately equipped centres nearer to the community served. Any change of this nature must rely largely on an effective system of primary medical care which can filter patients through to the appropriate level. For this reason, one of the most promising alternative strategies may be to think in terms of planning the health services from the base upwards rather than from the district hospital downwards. The base may be health centres, or 'community care units' or any other similar units. The precise specification need not be so important as the acceptance of the possibility that considerable savings and considerable advantages to the patient may be derived from such a strategy. Lessons may be learned from consideration of one limited sector of the health services, the general dental service. Dentists normally work singly or in small groups and their surgeries are sited close to the community served. However, despite their decentralisation, they are able to perform, at a relatively small cost, the vast majority of dental treatment required. Well-equipped surgeries are geared to performing repetitive but often very delicate surgical work very rapidly. The sort of dental work that needs to be performed in hospitals is limited to complicated and difficult cases. A similar strategy in general practice could pay large dividends.

Other studies have concentrated on the potential for expanding local authority health and welfare services, particularly for persons over 65 who account for over 30 per cent of all hospital expenditure (OHE 1968). Townsend and Wedderburn (1965) have demonstrated that the provision of domiciliary health and welfare services for the over 65s is well below the need for services. In particular, they argue that five per cent of the elderly population should have 'sheltered housing', ten times as many as have sheltered housing at present. Their results also suggest that over 1½ million old people live in houses which lack certain basic amenities. Certainly, there is scope for preventing hospital admissions by improving home conditions, though the extent to which home care could be substituted for hospital care among the elderly is not clear.

Discussion

It is not the intention of this paper to specify the most effective 'mix' of medical care facilities which could then be rigidly applied throughout the country. Various studies have suggested alternatives to the Hospital Plan's universally applied concept of the comprehensive district general hospital. Of itself, the district hospital development involves the danger of divorcing the provision of hospital services from the broad spectrum of medical care under the National Health Service. The options suggested in studies of the feasibility of alternative structures have the merit of establishing the linkage between hospital and community medicine. They too, however, tend to have the defect of implying a single, universally applicable organisational structure.

Perhaps lessons can be learnt from each 'solution'. It would be as wrong to press for the construction of more community facilities, regardless of any special needs of each area, as it would to press exclusively for the construction of mammoth hospitals under all circumstances. A more valuable approach is to adopt the method current in the broader field of planning development of community services and to study the implications of the concept of a hierarchy of services. For example, the size, extent and function of community facilities such as services, shopping, recreation and entertainment in different town centres vary considerably from place to place. The differences in volume of services and the degree of specialisation makes it possible to rank and classify different centres in a hierarchical

system. Table 4 provides a schedule which typifies the hierarchical order of shopping or service centres existing in Great Britain. The functions of centres at each level reflect their hinterland, and each level includes all the functions of centres below it. The hierarchy is not rigid as social demands change. For example services like building society offices were once confined to regional centres but now are located at district level. Travel agents, originally confined to regional centres are expanding at district and now at neighbourhood level.

A similar hierarchical system can be used to rank the services provided by the National Health Service. Examples of the present typical deployment of the range of services are set out in Table 5. The weakness of the typical deployment in the area of general medical care is apparent. Despite the rapid expansion in numbers of health centres, services are concentrated either at local or at district and regional level without the refined differentiation which is normal among central area community facilities. The hospital services span the upper end of the hierarchy with general practice concentrated at the local level. Hospital services could be distinguished more exactly in relation to the hierarchy in terms of number of beds, although a more refined differentiation would be achieved by ranking in terms of specialities. Draper and Israel (1968) suggest specialities such as obstetrics at district and radiotherapy at regional levels. This, however, poses the crucial question of which services would be appropriate in any given area to any given level of the hierarchy.

Answers can only be found by systematic consideration of the nature of the hinterland so that health services are developed to meet community needs in ways similar to the broad run of community facilities. Judgement on the development plans for health services in any area requires review of the services existing at various levels in the hierarchy in relation to not only population size, where for example the special problems of rural areas must be considered. It must also take into account trends of future growth or decline in population and the area's age/sex structure, where for example a new town would differ markedly from an inner conurbation area. The epidemiological character of the population, where again heavy industry areas would differ from an office commuter dormitory area, must also be considered and finally its socio-economic resources including household structure, housing conditions, transport and car ownership. These variables bear upon domiciliary care, for instance where working wives may not be free to nurse their sick husbands, and also locational considerations and the convenience of patients' relatives and friends in visiting the sick. Consideration of these factors may indicate that services most appropriately provided on a hospital site in one area might be best

Table 4 *Hierarchy of services or shopping centres*

Type	*Function*	*Hinterland*
Local	Daily convenience shopping cleaning and repair services	1,000–5,000 persons drawn up to 1 mile
Neighbourhood	Daily and weekend convenience shopping, personal services; travels agents, hairdressing	5,000–40,000 persons drawn from 2–3 miles
District	Weekend food and standard consumer durables, financial services, eg building societies, insurance, cinemas and clubs	30,000 to 160,000 persons drawn from 3–5 miles
Regional	Important consumer durable goods shopping, professional services, eg legal and employment agencies	150,000 to 1 million persons drawn from 4–8 miles or 10–15 miles (upper level)
National/ metropolitan	Specialist shopping and professional, administrative services, eg barrister, consultant, broker	Over 1 million persons drawn from national and international hinterland

Source Donaldson and Sons

Table 5 *Hierarchy of National Health Services*

Type	*NHS Service*	*Hinterland*
Local	General practice, pharmaceutical services	1,000 to 5,000 persons drawn up to 1 mile
Neighbourhood	Group practices, health centres, local authority clinics and services, dental services, ophthalmic services	5,000 to 40,000 persons drawn from 2–3 miles
District	Hospital services, in- and out-patients	30,000 to 160,000 persons drawn from 3–5 miles
Regional	Specialist hospital services	150,000 to 1 million persons drawn from 4–8 or 10–15 miles
National/ metropolitan	Teaching hospitals	Over 1 million persons drawn from national or international hinterland

Source OHE

provided within a health centre in another.

The ability to deploy facilities throughout the hierarchy depends primarily upon the economies of operation and scale of patient care necessary to obtain reasonable cost levels. The threshold varies considerably between the specialities, but the limits are not rigid. Technological change can radically alter the workloads needed to justify provision of a service and this requires flexibility in planning not only between one part of the hierarchy and another (which is not a feature of the present policy) but most important, flexibility in forward plans from year to year in case technological advance renders part of the capital stock obsolete. Probably the only way in which this sort of flexibility can be ensured is by building for short life. The lifetime of the district hospitals at present under construction is generally taken as about 60 years. In a rapidly changing world this may mean that many of them will become white elephants in the prime of life.

One of the major obstacles to comprehensive health service planning in the past has been the tripartite division of the health services, particularly in relation to the budgetary separation of the hospital services from the local authority health and welfare services. Although the Department of Health effectively controls the upper limit of local authority capital expenditure in addition to controlling directly hospital capital expenditure, co-ordination at the local level where it is really needed has been lacking in the past. Different areas are served and financial allocations reflect different priorities. In many cases *ad hoc* integration of health services has taken place, but as Butterfield (1968) pointed out in relation to the Thamesmead project, dependence on continuing co-operation of separate authorities is unsatisfactory in the long term and the need is for a medical planner with area responsibility for all health services. For these reasons the second green paper on the future structure of the National Health Service is to be welcomed. Even this, however, regrettably proposes the financial separation of local authority social services (which have a bearing on the level of need for health services) from the proposed area health authorities. Nor from a broader viewpoint was it necessarily desirable that it was so dependent upon the Maud report's proposed local government framework.

The optimal capital expenditure programme should involve not only the development of facilities at the district and regional level, but the balanced development of capital resources at all levels of the hierarchy in order to make the best use of existing resources.

However, knowledge of the effectiveness of various patterns of provision of medical care, and how area variables may affect usage, is very limited indeed. In view of the size and importance of the present

building programme there is every justification for really ambitious research projects designed to give a clearer picture of the implications of the major alternative programmes. This should be given high priority for in practical terms the investment programme, even if it is sub-optimal, cannot be expected to await the results of lengthy research. Also, as McKeown (1970) points out, the large and fully comprehensive district hospital is itself an experiment which has not yet been put into operation.

Perhaps the most ambitious experimental project that is taking place at present is the building of the 'best buy' hospitals at Bury St. Edmunds and Frimley. Here the use of industrial building techniques has helped to reduce the capital cost per bed from a national average of £8,500 to about £5,800, and the number of acute hospital beds per 1,000 population has, on official population projections for the area, been reduced to 2 per 1,000, from the national norm of 3.3 per 1,000, by 'applying really up-to-date concepts of community care and good medical management'. When the hospitals come into operation, by the end of 1972, useful information may become available on the degree to which expanded community care facilities are able to reduce the hospital workload in practice. Other projects which should provide useful information include those involving new towns. The Thamesmead project (Butterfield 1968) is an attempt to plan from scratch a fully integrated medical care system for a new community.

However, one vital element which is likely to be missing is a really sound set of techniques for evaluating the performance of alternative regimes of medical care. Also likely to be missing is the organisation necessary for collecting and interpreting the requisite data. If this were available, operational studies running concurrently with actual development programmes could approach more closely the status of controlled experiments. No such studies have been carried out in Britain, although a study in a 362 bed hospital in Milwaukee, USA provided some interesting results (JAMA 1968). A random group of 175 non-indigent patients were placed on home care and the results of their treatment were compared with a control group of 85 patients who remained in the hospital. Data for evaluation were obtained from hospital records and questionnaires completed by doctors and patients. In a three-year follow-up period the results of medical care for the two groups of patients were not significantly different. Patients and doctors, however, preferred home care, and its costs per patient were substantially lower. It is evidence from studies of this sort which is needed in Britain to raise the debate on the alternative directions for investment in the health services from the level of prejudice and supposition.

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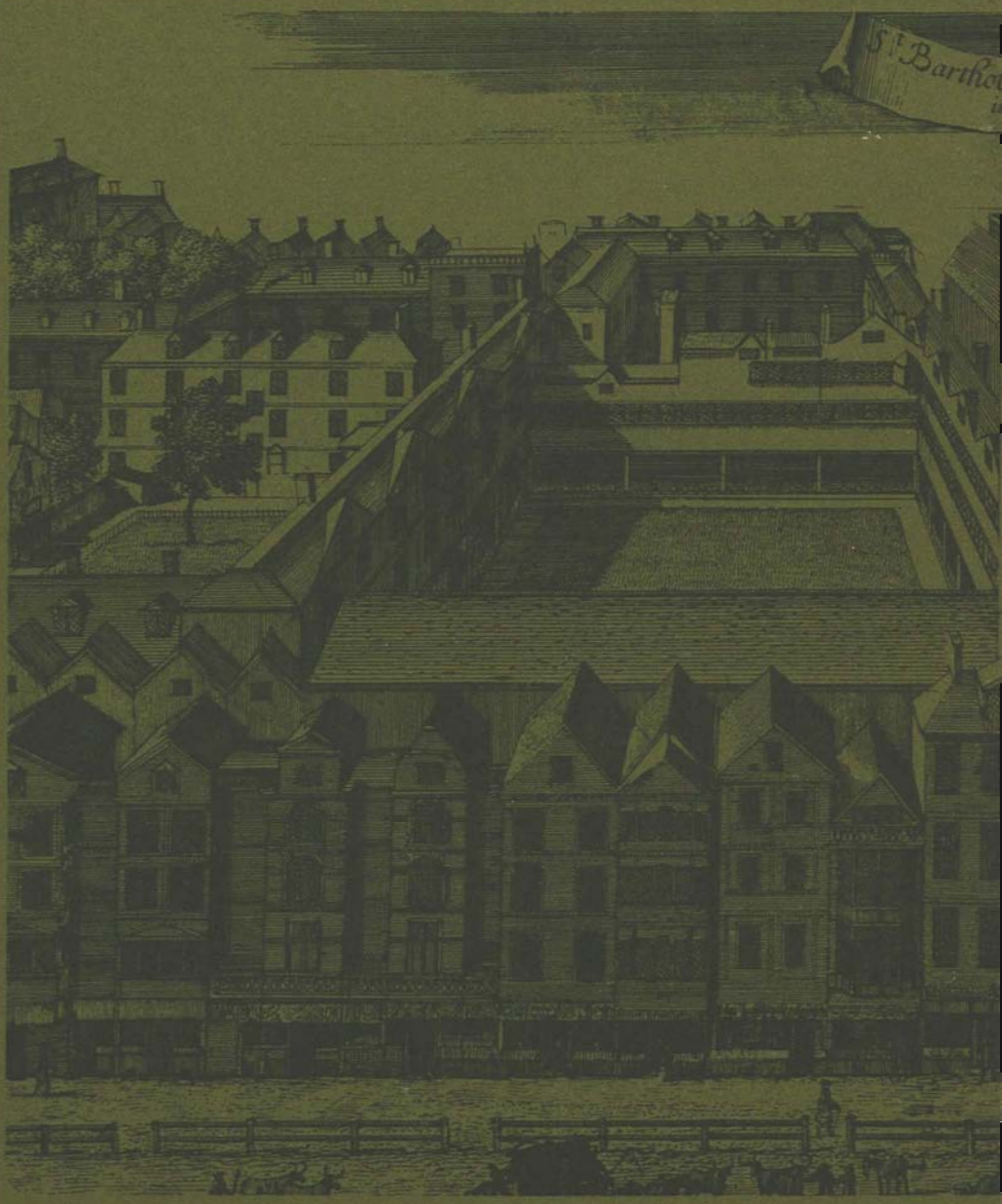
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