HOSPITAL ACCOMMODATION FOR AN AGING POPULATION

Thomas McKEOWN

From the Department of Social Medicine, University of Birmingham

This paper on the planning of hospital accommodation for an aging population is divided into three parts. The first examines the profound change which has occurred in the pattern of mortality and morbidity during the past century. This change has enormously increased the burden on the hospital services, particularly in respect of older patients. The second part is concerned with the significance of age in relation to the contemporary pattern of hospital admission. It is shown that in the United Kingdom age has now replaced destitution as an important influence determining the kind of hospital—acute, mental or chronic—to which patients are admitted. The last part considers the planning of hospital accommodation with particular reference to the needs of elderly patients. These can best be met in a balanced hospital community in which all patients, irrespective of their age and the nature of their illness, are cared for at a common site.

Although the data referred to are derived from the United Kingdom, they are believed to be representative of other developed countries in which the problem of infectious disease has largely been brought under control.

1. The Age Pattern of Morbidity

Fig. 1 shows the effect of the achievements of the past hundred years on the age pattern of mortality. For the two periods 1838-54 and 1950-52 it gives numbers of deaths per 1000 conceptions for four periods: pre-natal and neonatal; pre-reproductive (from one month to fourteen years of age); reproductive (fifteen to forty-four years of age); and post-reproductive (forty-five years of age and over). The only doubt concerns the deaths in the pre-natal period, since it has been necessary to guess at the level of abortions. All other estimates are based on national rates or on life-tables.

Fig. 1

The striking features of Fig. 1 are the relatively small reduction of the number of deaths in the pre-natal and neonatal periods, the marked reduction of deaths in the pre-reproductive and reproductive periods and the increase in deaths in the post-reproductive period. It seems probable that the future will see the virtual disappearance of deaths between birth and the end of reproductive life and that most deaths will occur either before birth or after reproduction is complete. (Indeed, this is more or less the present position.) In the pre-natal period the problem is largely environmental, which is to say, not that genes are unimportant, but that if the environment could be controlled it would to a considerable extent be possible to prevent their lethal effect. (The circumstances are the same as those formerly obtaining in infectious disease: heredity has undoubtedly had a profound effect on response to infection, and hence on mortality, and yet control was established by environmental change.) Success in preventing pre-natal mortality will turn both upon ability to discover the nature of

pre-natal environmental influences and upon whether they prove amenable to control.

The problems associated with mortality after the reproductive period are entirely different. Although there is unquestionably further scope for reduction in incidence (chronic bronchitis, coronary-artery disease and cancer of the lung are examples of diseases susceptible to preventive measures), it seems unlikely that most deaths attributable to the so-called degenerative diseases can be prevented. If this is so we will continue to face the problems of care that these diseases impose.

Because adequate records of past trends are not available we can speak with even less confidence about morbidity. Even today there is no wholly satisfactory index of morbidity, and the discussion that follows relies upon an examination of numbers of patients in hospitals. This is probably the most satisfactory single index of the burden imposed by morbidity—certainly upon the medical services, and probably also, when account is taken of severity as well as frequency, upon the individual.

The data are derived from an investigation of the location of all Birmingham residents in hospitals, conducted during 1958–59. Table 1 gives their distribution according to age between the three major divisions of the hospital service: general and special; chronic sick; and mental.

In relation to the total, numbers of patients in hospitals during the pre-reproductive period are relatively small (Fig. 2). If mental defectives (who are not included in the table) are excluded almost all of them are in general

Fig. 2

LOCATION OF ALL BIRMINGHAM RESIDENTS IN HOSPITAL

and special hospitals. Nearly half of these admissions are attributable to infectious disease, and about a tenth to congenital malformations. Numbers of patients in hospital in the reproductive period are considerably higher but still much lower than those in the post-reproductive period. Approximately half of them are in mental hospitals, and a small number in chronic-disease hospitals (Table 1). Nearly two-thirds of all hospital beds are now occupied by patients in the post-reproductive period. Most of them are in hospitals for mental or chronic disease.

With a rising standard of living and continued improvement in methods of preventing and treating infectious disease, it is not too optimistic to expect that there will be a further reduction of morbidity from this cause. If this occurs the predominant problems of morbidity in early and middle life will then be mental defect and mental illness, with

Table 1 Location of all Birmingham Residents in Hospital

Type of hospital	Age (years)						Total
	<15	15—	45—	65—	75—	85—	
General and special	98.4 (601)	52.9 (960)	36.1 (867)	24.7 (322)	12.8 (163)	5.5 (23)	37.5 (2936)
Chronic sick	1.6 (10)	1.2 (21)	6.2 (148)	22.1 (288)	46.2 (589)	67.1 (282)	17.1 (1338)
Mental	— —	46.0 (834)	57.8 (1388)	53.3 (695)	41.0 (523)	27.4 (115)	45.4 (3555)
Total	100% (611)	100% (1815)	100% (2403)	100% (1305)	100% (1275)	100% (420)	100% (7829)

which hitherto there has been no substantial advance in methods of prevention or treatment. And for reasons considered above in discussion of mortality, in an aging population the level of morbidity and disability in the post-reproductive period will undoubtedly remain very high.

It is concluded that in future the predominant problems with which medicine will be confronted are: pre-natal mortality, malformation and mental defect; mental illness; and the disease and disability associated with aging. This conclusion is most significant in relation to the planning of medical services, and particularly hospital services, for an aging population.

2. Age and Hospital Admission

Elsewhere¹⁾ it has been suggested that many difficulties associated with hospitals are due to the traditional separation of mental, chronic and acute hospitals. The separation is attributable to historical circumstances. Because the mentally ill and destitute sick presented to society at different times and as different problems, they were segregated from general hospital patients, and their care was assigned to separate staffs and administrations.

Since 1948 all hospitals in the United Kingdom have been brought under common administration and finance and it might be thought that this would have led to regrouping of patients according to their needs. In fact there has been remarkably little change. The main difference is that whereas the common feature of patients in chronic hospitals was formerly their destitution, it is now their advanced age.

This point is illustrated by results of a recent assessment of the needs of all Birmingham patients in hospital. They were classified according to whether they needed: (a) the full facilities of a modern hospital; (b) limited hospital facilities without mental supervision; and (c) limited hospital facilities with mental supervision.

Fig. 3 shows the location of patients needing full hospital facilities. At ages under 15

nearly all were in general and special (including paediatric) hospitals, but this proportion fell to 4 in 5 at ages 15-44 and to 1 in 5 at ages 85 and over. The most striking feature of the data is the high proportion of elderly patients needing full hospital facilities who were cared for in chronic hospitals (approximately 4 in 5 at ages 85 and over).

Fig. 4 shows the location of patients needing limited facilities without mental supervision. These are the patients usually referred to as chronic sick; most of them were bedfast and needed simple nursing care—washing, dressing, feeding, lifting, attention to bladder and bowel, &c.—but were not under active investigation or treatment. They were distributed quite arbitrarily between mental and chronic hospitals according to age (Fig. 4).

Fig. 3
FULL-CARE PATIENTS' LOCATION

Fig. 4

1) McKeown, T. (1963). Paper to the Japan Medical Congress.

A considerable proportion of the youngest patients of this type were in general and special hospitals, but their contribution to the total (all ages) is of course small.

The most striking trend in relation to age is, however, in the distribution between mental and chronic hospitals of patients needing limited facilities with some supervision because of their mental state (Fig. 5). At ages under 65 almost all them were in mental hospitals, but above this age the proportion in chronic hospitals rose steeply, and at 85 and over it was higher than in mental hospitals.

These results indicate that age has become a predominant influence which determines the type of hospital to which a patient is admitted. Irrespective of their needs for care, physically ill patients are almost always in general and special hospitals if they are young and in chronic hospitals if they are old. Moreover, the effect of age on location of patients is not restricted to the physically ill. The distribution of mentally disturbed patients who do not need the full services of a modern hospital (Fig. 5) between mental and chronic hospitals is sharply related to age, and at ages 85 and over there are more of such patients in chronic than in mental hospitals.

Clearly the heterogeneity of patients within the same hospital has been little affected by replacement of destitution by age as a major influence on the location of patients. This suggests that it will be essential to regroup patients according to their needs for medical

and nursing care, rather than their age or the distinction between physical and mental illness. It is only in this way that patients with similar needs can be brought together in facilities designed and staffed in relation to their requirements. We have stressed the advantages of locating these varied facilities on a common site.

3. Hospital Facilities for Geriatric Patients

It was suggested that in future hospitals should be planned as multiple complementary buildings serving all types of patients rather than as single isolated buildings serving selected patients¹⁾. This proposal has a special significance for geriatric patients, who suffer most from the deficiencies consequent upon the present fragmented hospital service. Nevertheless the planning of facilities for geriatric patients in a balanced hospital community raises certain issues and we now refer to three of the most important of them.

a) Services for acutely-ill elderly patients

At the present time in the United Kingdom the division of work between acute and chronic hospitals is quite arbitrary. In the former a high proportion of patients are of advanced age and in the latter there are many patients who are acutely ill and indeed indistinguishable clinically from similar patients in the wards of general hospitals. With all patients at a common site this distinction would be even more anomalous. Irrespective of their age patients needing the facilities or services there provided should be in the acute unit.

However after investigation and treatment in the acute phase of illness many elderly patients are not ready to return home, but need rehabilitation or prolonged care. Clearly such patients should be moved to other buildings designed, equipped and staffed to meet these requirements. But the ready movement of patients between facilities is difficult to achieve unless there is a common staff concerned with all phases of illness. It is this consideration which has led to acceptance, reluctantly by some people, of the geriatric physician.

1) McKeown, T. (1963). Paper to the Japan Medical Congress.

It seems desirable that the work of the geriatric physician should not be restricted to rehabilitation and prolonged care, but should also be concerned with acute illness. His precise role in the acute unit is a matter for experiment and experience, but the object should be to make him responsible for patients who, on social or medical (other than psychiatric) grounds, are likely to require other hospital in-patient services after the acute phase of their illness.

b) The relationship between facilities for geriatric and psychiatric patients

It is often objected that mental hospitals are forced to care for considerable numbers of elderly patients who have no clinical reason for being there. A complementary complaint is that the chronic hospital is frequently responsible for patients who, because of their psychiatric state, should be in mental hospitals. The remedy for this situation lies of course in the free interchange of patients at a common hospital centre.

The planning of this centre, however, raises important questions about the relationship between psychiatric and geriatric facilities. At certain stages of illness the facilities required by both groups of patients—rehabilitation, workshops, hostel accommodation, day care—have a good deal in common. Should they be planned separately or can they be partially shared? The fact that it raises these questions reflects both the challenge and the opportunity provided by the balanced hospital community.

c) The relationship between hospital and domiciliary services

One of the most complex questions which

arises in respect of geriatric patients is the balance between services in and out of hospital. There is no difficulty in agreeing that those who are not ill should be kept out of hospital, and that those who are too ill to be cared for at home should be in hospital. The uncertainty arises because a considerable number of elderly persons are infirm and hence do not fall clearly into either of the two categories.

In general patients should be regarded as a hospital responsibility if they need a substantial amount of medical or nursing attention. Experience has shown that it is usually not possible to provide sufficient staff for patients with prolonged infirmity or illness if they are isolated from the main stream of medical work. Moreover the difficulties associated with isolation of this work can only increase, since numbers of patients seem likely to increase (in view of the rising age of the population) and numbers of staff—particularly of nurses—may decrease (in view of the attractions of alternative occupations). It therefore seems best that the geriatric patient who requires substantial nursing or medical care because of infirmity should be accepted as a medical rather than a welfare responsibility and, unless home circumstances are particularly favourable, for hospital rather than for domiciliary care. But even if this yardstick is used, it must be admitted that it is by no means easy to mark the limit of the hospital responsibility.