

Bed Requirements for Acute Psychiatric Units

—The Concept of a Norm

STEVEN HIRSCH (Chairman of the Norms Working Party of the Social and Community Psychiatry Section),
Professor of Psychiatry, Charing Cross Hospital Medical School

The Department of Health's 1971 Circular (HM (71) 97) and the White Paper, *Better Services for the Mentally Ill* (1975), had recommended the guideline of 0.5 acute beds per 1,000 population as an average for District General Hospital units. Patients with stays of more than one year, the elderly severely mentally infirm (ESMI), children, adolescents, and certain specialized units were not included. Unfortunately, planners have tended to stick to this figure, despite the fact that the recommendation was only meant as a general guideline based on known bed usage up to 1974, and some more recent downward trends in newer smaller community-based units. The suggestion that bed requirements should be modified according to local circumstances had largely been ignored, and this is not surprising as there is little information which can help planners determine the factors or their weighting which any local authority should take into account to adapt the norm for 'local circumstances'. This led to the setting up of a working party of the College's Social and Community Psychiatry Section to make recommendations on bed norms for acute psychiatric units.

A recent Department of Health draft discussion paper by G. Robertson (1981) of their Operational Research Section, has made a useful contribution to the debate. It used figures drawn from existing national averages of bed use analysed by different age and diagnostic groups to show how bed requirements vary depending on whether the service accommodates short, medium or long-stay patients and whether it includes beds for the ESMI. We will draw on this work below.

Why do we need norms?

The problems of planning how many hospital beds should be provided is reflected in the variations and rapid changes which have occurred in bed use in recent years. For example, although there are no indications that psychiatric morbidity has appreciably altered in recent years, the use of hospital beds changed dramatically between 1954 and 1970. Apart from alcohol abuse and parasuicide, first admissions rose 40 per cent, from 98 to 137 per 100,000 population, and total admissions rose 125 per cent, from 162 to 374 per 100,000. These increases are generally thought to be due to changes in admission and treatment practice with multiple short admissions replacing fewer longer ones, and to an increase in the number of people making use of a service they now find more acceptable. Between 1970 and 1979 the total admission rate remained constant, although first admissions fell and readmissions increased. As well as these general trends in admission policy over time, bed usage varies widely from

one area to another, presumably because of differences in practice as well as need. Some London Boroughs have twice the admission rate of others. Even larger population groups based on Regional Health Authorities show gross differences. In 1978, Mersey, with the highest national bed per population usage, had twice as many short-stay beds and three times the number of long-stay patients as Oxford which used fewer beds than any other region (Table I).

TABLE I
*Beds used in different regions per 1,000 population (1978)**

	Short-stay 1 year	New long-stay	Total	Add in old long-stay
Oxford	0.36	0.24	0.60	0.97
Mersey	0.70	0.73	1.43	2.31

* From Robertson, 1981. Table I has been calculated on the basis of the statutory population without corrections for cross boundary flow which reduce the differences described above.

Given these variations, how can authorities decide how to plan for the future? Our working party was set up to reconsider existing guidelines because they do not seem to provide an adequate planning tool. In fact individual health authorities have already begun to take matters into their own hands and adopt planning figures of their own, based on limited local experience. Thus some hospitals and catchment areas were found to be operating apparently successful services with much smaller bed provisions—even less than 0.2 beds per 1,000 population and the Wessex Region has adopted a norm of 0.35 beds per 1,000 population. The working party also aimed to elaborate an improved general planning tool which could take account of local differences and offer a range of 'bed norms' suitable for different circumstances and identify those factors which influence the need to opt for a particular bed provision within that range.

What is a norm?

Planners regard a norm as a guide to what should be provided and use norms to decide what is provided. They often lose sight of the fact that historically, norms have been based on a 'best estimate', taking into account a combination of the average current provision which is taken up ('current met demand') plus a projection of recent trends skewed in favour of what philosophers call 'the normative values' of those setting the guidelines, i.e. what the policy makers want to prescribe. It is not sufficient merely to look at what the

uptake is in various regions, areas, or districts—norms are of their nature based on value judgements of what should be the service, but these value judgements can be informed and can, for example, be based on decisions about specific priorities, including available finances. The working party had to decide to what extent we would base our recommendations on existing practices, or choose exemplary services which make more efficient use of bed resources but are supplemented by generous alternative 'back up' provision which, in fact, is not usually under the control of the health authority doing the planning.

To the extent that norms reflect the average level of met demand, they do not necessarily indicate what is needed. The level of what is provided is not a measure of quality; for example, it does not reflect diagnostic accuracy or therapeutic efficacy, or the range of problems psychiatrists choose to deal with in their unit. Some have argued that one should dispense with norms and judge each situation on its merits, but such an approach begs the question—how does one judge merits? One could compare the merit (by whatever criteria) of one service against another, but in this case the average bed requirements of the other is, effectively, a norm, whatever weight one decides to give to such an indicator.

What factors determine bed norms?

Norms could be arrived at by looking at the number of beds in active use in different catchment areas and identifying epidemiological factors which contribute to high or low morbidity, as well as other factors such as the availability of support services. This would assume that the factors of morbidity and the extent of complementary services would explain why some services use a lot of beds, while others need relatively few. However, this can be misleading because the number of beds used may be as much a function of what is provided as what is needed. Yet planners tend to make the opposite assumption—that what is provided reflects need. More recently reality has taught us that psychiatrists can manage even when their beds are cut by 50 per cent (as sometimes occurs during a nursing shortage), but one has then to examine the effects of such change on the quality and kind of service provided. Thus the number of beds is not a dependent variable, as one may suppose, but is often the main determining one.

To overcome this problem and try to identify the factors which planners should take into account in deciding on bed requirements for a population, the working party accepted that they had to work with current concepts of what is an acceptable and comprehensive service. They could then look at the extent to which the presence or absence of elements of a comprehensive service accounted for differences in bed usage when comparing one service with another. Although this meant that the 'norms' under consideration would fall within the range of current practice, it should then be possible to identify the conditions under which a high or low planning figure should be adopted.

It is likely that the number of beds in use is influenced by a number of factors which fall into three groups:

1. *Inflow factors*: Alternative and supplementary services which reduce the need for admission, such as: (a) out-patient services; (b) community crisis intervention teams; (c) day hospitals; (d) community psychiatric nurses; (e) the policy of the service towards admitting alcoholics, drug addicts, mentally handicapped, forensic cases, chronic schizophrenics and the ESMI; and (f) social service facilities.
2. *Length of treatment factors, or the treatment facilities and policies of the unit*: Emphasis on psychotherapy, therapeutic community rehabilitation, and the use of physical treatments will, for example, each influence the average length of treatment.
3. *Outflow factors*: The availability of support and alternative facilities to enable rapid discharge or transfer of the chronic new long-stay, demented, homeless patients, etc to, say, a secondary level hospital for longer stay patients, boarding out schemes, hostels, group homes, housing associations and rehabilitation.

How bed needs are determined by admission and discharge policy

The factors listed above determine what happens in regard to admission policy and length of stay before discharge or transfer. The impact on bed requirements is well illustrated by the following tables, indicating the bed requirements under different admission and discharge policies, and based on Robertson's analysis (1981).

Table II (A) shows the average number of under 65-year-old admissions per 100,000 population in England with a stay in any one hospital of up to a year. For England and Wales the average number was 278, occupying 34 beds per 100,000 population, or six weeks per patient.

We can see the effect that a crisis intervention service could have on bed requirements if we assumed that all patients who stayed a week or less were not admitted to hospital because of the service. Fifty-five patients, or 20 per cent of patients, would not have been admitted to hospital, yet only 0.7 beds per 100,000 population would be saved—about 2 per cent of all beds. It is no wonder that the advocates of crisis intervention services are finding it difficult to demonstrate cost effectiveness in terms of a reduction of bed requirements. These figures would suggest that they have chosen the wrong basis to evaluate their service.

By contrast, Table II (B) shows the cumulative effect of bringing forward the discharge rate of different patient groups by focusing on the small number of patients who stay in hospital a long time. If (reading down the table) patients who normally stay a year are discharged or transferred to less expensive treatment centres at 6 months, the number of beds required would be reduced to 30 and 4 beds would be saved, yet only eight patients would be affected. If, in addition, those staying 6 to 12 months left the unit at 6

TABLE II
Number of admissions and beds per 100,000 population of stays up to one year

	0-64 age group			
	Admissions		Beds	
	Number of patients affected	% of admissions affected	No. required	% change in beds needed (cumulative)
A.				
Total for 1 year	278	—	34.1	—
If all admissions with stays of less than 1 week were not admitted to hospital	55	(20)	33.4	(-2)
B.				
If stays of 12 months were reduced to 6 months	8	(3)	30.1	(-12)
If, in addition, stays of 6 to 12 months were reduced to 6 months	15	(5)	28.7	(-16)
If, in addition, stays of 3 to 6 months were reduced to 3 months	31	(11)	27.1	(-21)
C.				
If stays of 12 months stayed 18 months	8		38.1	(+12)

This shows the average number of admissions and beds in use in England per 100,000 population by patients with a hospital stay up to one year divided into groups according to their total length of stay. The right hand columns show the number and percentage of beds which would be required if the different assumptions in the left-hand column (A, B, C, alternatively) were in force. Patients aged 65 or older are excluded, therefore most ESMI (elderly severely mentally infirm) would be excluded from these figures (based on data from Robertson, 1981).

TABLE III
Number of admissions and beds per 100,000 population of stays up to one year

	Admissions		Beds	
	No.	%	No.	%
Total for 1 year	370	—	56.5	—
If all admissions with stays less than 1 week were not admitted to hospital	62	(17)	56.1	(-1)
If stays of 12 months were reduced to 6 months	19	(5)	47.0	(-17)
If, in addition, stays of 6 to 12 months were reduced to 6 months	31	(8)	44.5	(-21)
If, in addition, stays of 3 to 6 months were reduced to 3 months	55	(15)	42.1	(-25)
If stays of 12 months stayed 18 months	19	(5)	66.1	(+17)

As Table II, but including all age groups. The main differences are due to the inclusion of the elderly, and therefore the ESMI.

months, over 5 beds would be saved. If, as well, those staying 3 to 6 months left at 3 months, the total saving would be 6.3 beds or a 21 per cent reduction in bed requirements, yet only 31 patients would be affected.

In a randomized trial of brief hospitalization, it was found that once patients stayed more than 70 days the impetus

from staff to discharge patients as soon as possible quickly waned (Hirsch *et al*, 1979). If this happened to patients who remained in hospital for 12 months, so that they were not discharged until 18 months, bed requirements would increase by 12 per cent (Table II (C)).

When one considers these factors for a unit which also

looks after the elderly and the ESMI, the effects which have been described produce even more dramatic reductions in bed requirements (Table III). Bringing forward the discharge date of those staying 12 months to 6 months, 6 to 12 months to 6 months and 3 to 6 months to 3 months would cumulatively *reduce* the beds requirements by 17 per cent, 21 per cent and 25 per cent respectively; allowing those in for a year to stay on for 18 months would *increase* the bed requirements by 10 beds (17 per cent). The difference between the maximum brief care approach (42.1 beds/100,000) and the most relaxed discharge policy (66.1 beds/100,000) is 24 beds/100,000 or a 36 per cent difference in bed requirements. These different illustrations of bed requirements reflect how the policy for admissions and discharge will drastically affect the number of beds required. The number of long-stay patients kept on the ward is far more important in affecting the number of beds required than any other factor. The service is so arranged as to keep only acute patients in hospital, say, up to 3 months, and transfer longer staying patients to a more residential type facility elsewhere. Far fewer beds are required than when the service keeps patients for longer periods.

This is illustrated by a study of a recently opened catchment area DGH service where 25 per cent of all admissions are found to stay in hospital four days or less (Hirsch *et al*, 1979). In any one year, one bed could therefore accommodate 90 such patients. However, one patient staying one year took that bed for a year. Thus, small changes in the number of longer staying patients have an enormous effect on the number of beds used and the potential turnover capability of the unit. It follows that if an authority wishes to save money by providing fewer acute beds they could only do so by providing the rest of the package required to enable rapid discharge.

Beds, not costs

A reduction in dependence on hospital-based beds may be useful in itself but it does not necessarily lead to financial or even staff savings. Costing patient care on the basis of the average cost per patient in hospital can be misleading. The running costs of beds vary according to the function they fulfil. Though short-stay patients take up relatively few beds, the cost per patient per week of treatment is likely to be much higher than that of patients still resident in hospital at the end of a year—these patients normally require much less nursing and medical care. The input of doctors, nurses and other professionals is likely to be much higher during the first few weeks than later, as is the cost of medication and medical investigation. An exception to this rule could be special wards for highly disturbed patients who require high staffing levels. On the other hand, the deployment of extra resources in the community to enable rapid discharge of the relatively inexpensive longer-stay patients may also be high. The financial consequence of preventing brief, but expensive,

acute admissions or reducing long-stay low cost chronic beds has not been fully investigated, but it must be clear that the process of reducing beds does not necessarily reduce costs, unless the quality of the service is cut back as well. This observation may be more important for those planning a new hospital or complex of medical and surgical services for a population than those planning discrete changes within an established medical service, where the options are already constrained by such factors as available space for an in-patient unit, and limits on the form and extent of other resources which can be deployed.

Future work

To obtain empirical data about the relative importance of the various factors outlined in this report in determining bed needs, the working party is carrying out a comparative survey of twenty-one psychiatric services—a third with high, medium and low bed turnover respectively.

Hospitals have been chosen on the basis of bed turnover (the number of patients per bed per year). This is probably a better indicator of how beds are actually used when comparing bed usage in different units. The statistics available to calculate bed turnover are more accurate because they do not depend on estimates of population size, and they more immediately reflect the clinical practice of a particular unit. Since most planning is for District General Hospital (DGH) units, this field study is confined to DGH units with 50–150 beds, which have more than 350 admissions per year and look after all the patients from their catchment area. Information will be gathered with the help of the Health Advisory Service from hospital statistics. Case notes will be examined and psychiatrists and administrators in the Health and Social Services will be interviewed to identify the policies and components of each service. This, it is hoped, will help explain why the unit has a high or low bed turnover. Information will be sought from the local social services about facilities they and the voluntary side provide for the mentally ill. In part the study will test the assumptions derived from national figures which are illustrated by Tables II and III. The DHSS has welcomed this venture and their observers participate in the discussions of the working party.

If one cannot explain why the bed turnover varies from one hospital to the next, one cannot advise planners on how to estimate. It may be that most of the differences are due to who is or is not accepted for treatment, and what the arrangements are for discharge or transfer when it is felt that the patient will no longer benefit from treatment in the DGH. In this case, differences between units in bed requirements will simply be a function of where the facilities are located and who is accepted for treatment. However, interesting extremes of practice are likely to emerge. In the end it will be up to local planners to decide what form of service they value and wish to implement. Perhaps the most we can hope for are some clear guidelines which will indicate what effect their decisions will have on bed requirements.

ACKNOWLEDGEMENTS

This paper is based on a talk given at a meeting of the Social and Community Psychiatry Section in February 1982, but represents the work and ideas of the Working Party. We are indebted to Mr Gil Robertson for Tables II and III.

REFERENCES

DEPARTMENT OF HEALTH AND SOCIAL SECURITY (1975) *Better Services for the Mentally Ill*. Cmnd 6233. London: HMSO.

HIRSCH, S. R., PLATT, S., KNIGHTS, A. & WEYMAN, A. (1979) Shortening hospital stay for psychiatric care: Effect on patients and their families. *British Medical Journal*, *1*, 442-46.

ROBERTSON, G. (1981) The provision of in-patient facilities for the mentally ill: A paper to assist the NHS planners. Operational Research Section, DHSS.

The DHSS Mental Illness Policy Paper: A Personal View

JOHN REED, Community Psychiatry Research Unit, Hackney Hospital, London

In November 1982, a conference on the provision of comprehensive, district based, psychiatric services was organized by the Community Psychiatry Research Unit of St Bartholomew's Hospital Medical College. At this conference, Lord Trefgarne, Parliamentary Under Secretary of State at the DHSS, reaffirmed the Department's policy of creating local district psychiatric services and closing those mental illness hospitals which are not well placed to provide a local service.

Dr Douglas Bennett, giving a final summary from the Chair, felt that the conference had established that the debate about the comprehensive district based services was finally over and that the need for a new pattern of service was accepted; the issues now were not whether, but how best to make the change. The point had come at which the strategies could begin to be implemented.

The new Mental Illness Policy Paper, *Mental Illness: Policies for Prevention, Treatment, Rehabilitation and Care*,* issued by the DHSS, must be considered against this background.

It is introduced as a 'note, prepared by DHSS Mental Health division, in consultation with professional colleagues as being intended to meet a request from Regions for a brief consolidated note on the mental illness policies advocated by the Department in various circulars and notes. It does not describe any new policies, nor does it seek to specify good practice or to prescribe an ideal arrangement for a psychiatric service.'

What it *does* do, and the DHSS is to be congratulated on this, is to present in brief compass the main provisions and policy decisions that have developed in relation to the development and organization of mental health service policy since *Better Services for the Mentally Ill* in 1975. While it does not act as a substitute for reading the original documents, it is certainly useful for all those involved in planning and in delivering psychiatric services to have available an up-to-date synopsis of policy and proposals.

The present move towards district based psychiatric services is conveniently considered from the time of publication of *Better Services for the Mentally Ill* in 1975 which envisaged 'local district network' as the new pattern of

service. In this pattern the DGH psychiatric unit was meant to serve not only as an in-patient department but as 'a centre providing facilities for treatments on both a day and in-patient basis and as a base from which the specialist therapeutic teams provided advice and consultation outside the hospital.' At that time the guidance relating to joint health and local authority planning was consigned to four paragraphs on the penultimate page of the text and discussion of the role of mental hospitals in the transition period was relegated to an appendix. As it turned out these two issues are the ones which have proved to be the greatest stumbling blocks to the development of a full range of local services for mental illness.

Subsequently, the DHSS has produced several papers; in 1976 came *Priorities for Health and Personal Social Services in England* which reiterated the *Better Services* strategy and suggested the priorities for a capital programme. *The Way Ahead*, in 1977, expanded the discussion based on *Priorities*, but was seen by many advocates of more locally based services to be less enthusiastic than previous documents.

A more optimistic view was promoted again in *Care in Action* (1981). In this the mentally ill are identified as one of the priority groups for improved services. The need for joint planning and collaboration is emphasized: 'Health and local authorities have a statutory duty to co-operate to secure the health and welfare of the population.' *Care in Action* identified three urgent tasks; one, the creation of locally based services; two, the provision of a full range of services for the elderly severely mentally infirm; and three, making arrangements over the next 10 years for the closure of mental hospitals which are not well placed to fit into a district service.

Care in the Community (1981) explored possible ways in which the patients and resources might be transferred from NHS services to alternative locally based services.

These DHSS publications form a part basis of the present document. Other publications that have had important influence in development of the policy include the DHSS-sponsored symposium 'Policy for Action: A symposium on the planning of a comprehensive District psychiatric service', held in 1973. Much in the new paper is, as is to be expected,

* Limited copies are available from the College.