Evasion and lies could be resented: "I must know the truth—I want to see the x-rays and so on. If they don't tell me I'll think the worst and I won't trust the doctors. I watch their expressions." "You're left guessing. When doctor says we're going to cure you—you wonder when. . . . I've often wondered if I'd wake up next morning. You feel like this and want to talk about it, but you can't. They said they'd manage without surgery—how will I manage without surgery. They don't say." "If they'd told me the truth I'd have gone abroad for two months." "You can't speak to these people, they're so important. I don't think I could talk sense to any one now. Matron tries to brighten me up. I ask my husband; Am I going to die; if I'm going to die, why don't they let me die?"

White lies might do little but establish the nature of the doctor's attitude to the patient: "The first surgeon told me I'd be all right but said to my husband it would only be twelve months." "The first time they said it wasn't anything but wouldn't let me go. But then they told my husband and he told me it was a form of cancer, but a form they could treat. Apart from my husband and mother no-one will talk about it. It seems funny to me."

Knowledge, although painful, usually became acceptable: "Doctor's said it's in God's hands. It's natural to keep hoping, though. I asked my doctor, I wanted to know and she

told me it was in the liver." "They were doing a lot of hedging and I didn't like it. I asked the doctor here and she said it was a cancer and really I felt better. I'd got the ideas you see, and I wanted it straight out. Now I can talk about it to people; before they whispered and you knew what they were whispering about." "The breast operation and then trouble. A great shock when I was jaundiced. So I said that's it. Mr. G was so good, so determined—told me the honest truth." "I told doctor it was cancer; it shook him. You have to face up to these things. I said to my daughter: I shall have to go one day. I know it's coming and I keep my courage up. How it'll be when it actually comes I don't know."

It is apparent how much is owed to those, no longer alive, who gave such generous co-operation. I also wish to thank the relatives and the staff at the three places of care for their willing assistance.

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Hospital Topics

A More Efficient Use of Hospital Beds?

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British Medical Journal, 1974, 3, 27-30

Summary

Faced with a shortage of trained nursing staff and a high wastage rate among learners the management of a district general hospital decided to close some of its acute beds. A beds committee attempted to minimize the effects of these closures by introducing a bed bureau, "pooling," and a simple system for forecasting waiting list admissions.

The figures for recruitment and wastage of nurses improved, and a very high turnover per available bed was achieved. This increased efficiency in numerical terms was not mirrored by an improvement in the morale of the doctors and nurses working on the wards, who were subjected to new pressures and considered that at times the standard of patient care deteriorated.

Introduction

Northampton is an expanding town in a county with the fastest population growth rate in England and Wales. It was already

considered to be short of acute beds by management and medical staff yet it was still deemed advisable to close acute beds owing to a shortage of nursing staff. This decision made us take a more critical look at the use of the remaining beds, and we believe our approach to the difficulties resulting from closure might interest others in a similar position.

Nursing Shortage

During 1972 the hospital experienced a shortage of trained nursing staff, and in 1971 it had the high wastage rate of 58% a year for student nurses (national average 28%). Committees to survey nursing problems were set up to look into these difficulties and to recommend steps to improve nursing services. The following reasons emerged for this high wastage rate among learners: (a) inadequate cover by trained staff, particularly at night; (b) insufficient teaching in the wards, which in any case was often contrary to what was taught in the school of nursing; (c) an unduly heavy work load at the district general hospital as a considerable amount of minor and intermediate surgery was undertaken at satellite hospitals. Similarly, pre-convalescent beds were at satellite hospitals; (d) The much increased extent and complexity of medical and surgical treatment, particularly of the elderly; (e) the hospital geography and architecture. Wards and departments were scattered over a large site and some buildings were pre-1905 including the main acute medical and surgical wards which are of the Nightingale pattern and still contained "centre" beds. The more commonly quoted reasons for the national shortage of nurses, particularly inadequate pay and unsocial working hours, also applied.

The General Hospital, Northampton

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Closures of Beds

At the end of 1972 the committee that had been surveying nursing problems clearly established a need to provide more cover by trained nurses and support for learners as quickly as possible. This view was corroborated by the medical executive committee (M.E.C.) in January 1973, and the hospital management committee (H.M.C.) accepted in the same month that enough beds should be closed to ensure adequate nurse staffing in numbers and experience for those remaining in use. If junior nurses were to receive adequate support, particularly at night, it was necessary to close wards to reduce the number of areas to be manned, rather than simply reduce the number of beds in each ward. A total of 89 beds (including an acute medical ward, the ear, nose, and throat ward, and the remaining centre beds on the Nightingale wards) were withdrawn from use. In agreeing to this fairly substantial reduction the H.M.C. emphasized the need to make maximum use of the remaining beds.

Beds Committee

The M.E.C., charged by the H.M.C. with putting its recommendations into practice, set up a beds committee at the beginning of February 1973 and at the same time decided to "pool" many of the remaining beds, so altering the traditional method of specific allocations of beds to specific consultants. The beds committee comprised eight doctors, four nurses, and two administrators, many of whom had served on the committees surveying nursing problems. This was somewhat larger and more comprehensive than was originally envisaged. The medical members included the chairman (consultant anaesthetist) and three junior doctors, one of whom was the senior registrar in general surgery who played a vital part in the day to day control of the bed state. The nursing representatives included a ward sister, who was a later addition, elected by her colleagues and included at the request of the medical members.

The objectives set for the beds committee were: to supervise the closure of beds due to the shortage of nursing staff; to ensure the most effective use of the beds remaining; to monitor the effectiveness of these arrangements; and to recommend when the reinstatement of beds was practicable.

The committee made arrangements to reduce the number of available beds in use at the district general hospital by 89 beds as quickly as possible. This reduced the number of beds by 20% if midwifery and paediatrics were excluded. The main brunt of this reduction fell on general surgery as virtually all accident and medical admissions were emergencies. A total of 223 beds normally allocated to general surgery, general medicine, accident surgery, gynaecology, dental surgery, and radiotherapy formed the main pool. Ophthalmology beds, which had only recently been dramatically reduced, were excluded, as were maternity, paediatric, and special care baby unit beds. The beds committee held its first meeting at the beginning of February 1973 and by the end of the year had met 10 times. The chairman and the hospital secretary had several additional meetings with other small groups of staff who were concerned and also attended a meeting of all nursing officers and ward sisters where the new system was explained.

After the first meeting consultants who aimed to give a precise admission date to patients when put on the waiting list were asked to discontinue this practice as the forecasting method about to be introduced debarred such a policy. Every effort was made to ensure that patients who had been sent for at short notice should not have their admissions cancelled and, indeed, very few were. The committee was also determined to prevent an insidious reappearance of extra or centre beds as these were unpleasant for patients and most unsatisfactory from a medical and nursing aspect. In fact only one centre bed was ever erected once the bed bureau had been established and that for only one night. The need for brief early morning ward rounds by re-

gistrars to indicate patients who might be discharged or transferred during that day was emphasized on several occasions.

The committee was anxious to receive a regular statistical review of the nurse staffing position. This compared the number of nurses on duty against a target which the principal nursing officer considered reasonable after taking account of the type and severity of illness of the patients in the hospital. Actual numbers and status of nurses on duty were recorded, rather than numbers of nurses on establishment as the two are not necessarily the same, particularly at weekends and public holidays. At all meetings the committee considered the effects of the new arrangements on nursing morale. Unquestionably, the initial weeks caused the nurses considerable anxiety and stress and this continued, though at a lower level, throughout the year.

The higher average occupancy and the increased turnover per bed coupled with a reduction in the turnover interval (table I) was thought by some to be detrimental to the standard of patient care. This was exacerbated by too many consultants with patients on the same ward, resulting in more variety in methods of care and an increased number of ward rounds. Nevertheless, the increased pressure on the nursing staff owing to the rise in occupancy and turnover could not be considered unreasonable when compared with occupancy figures of other district general hospitals in the region.

TABLE I—Northampton General Hospital Statistics for 1972 and 1973

	1972	1973
No. of deaths and discharges	23,518	21,971
Average occupancy (%)	74.1	79.2
Average length of stay (days)	6.9	6.8
Average turnover interval (days)	2.4	1.8
Turnover per bed per year (patients)	39.1	42.7

Over the course of the year the number of beds in the main pool fluctuated. When the ear, nose, and throat ward was reopened, another ward had to be closed as any improvement in the staffing position was about to be offset by the holiday season. In the autumn, after continued improvement in the numbers of both trained nurses and entrants to the school of nursing, the ward that had been closed for the summer holiday period was reopened. This enabled most wards to revert to patients of one specialty, which reduced "lodging" from 12% to 7%.

Bed Bureau

The staff of the bed bureau comprised one full-time higher clerical officer supported by one of four hospital administrators on a rota basis. The bureau also received help from the nursing officers. A system of coloured discs on hooks was used to indicate occupied beds, booked beds, patients lodged in wards of another specialty, and vacant beds. All wards were telephoned or visited twice a day on weekdays and once a day at weekends, which ensured that the bed state of the hospital was regularly updated. During normal working hours emergency admissions were directed to a ward after consultation with the bed bureau. At other times details of empty beds were left with the admitting house officers. Figures were produced monthly to illustrate the occupancy of the pooled beds and to show the average occupancy of the whole hospital (fig. 1). The number of deaths and discharges each month were tabulated and compared with the same months of the previous year (fig. 2). This information was also broken down for the main specialties and communicated to them. The numbers of general surgical patients forecast for admission were notified to the waiting-list office three days before the day of admission. General surgeons had agreed that all urgent cases on the waiting lists of the five individual firms could be combined and that the senior registrar in surgery should be responsible for sending for appropriate patients for each firm. Gynaecology and ear, nose, and throat surgery were

FIG. 1—Percentage occupancy of beds in whole hospital 1972, whole hospital 1973, and main pool (established February 1973).

FIG. 2—Difference in numbers of deaths and discharges in 1973 compared with 1972.

given a predetermined figure for the next week's admissions. Specialties with relatively few admissions continued their previous pattern of admission.

Every possible effort was made to avoid patients waiting for a bed after their arrival at the hospital. Regrettably this did occur on occasions but as time went by less often. Whenever the beds in the main pool were under extreme pressure the registrars were asked to indicate patients suitable for transfer to the semi-acute beds in the supporting hospitals. Such action not only had the advantage of relieving pressure at the general hospital but also making greater use of the resources available at these hospitals. The surgical preconvalescent unit had a related increase in its average occupancy throughout this period. Senior nursing staff also helped by indicating patients of lesser nursing dependency who might be transferred to other areas in the hospital.

One of the main restraints limiting the successful operation of the bed bureau was its distance from both the admitting office and the waiting list office. There was no alternative to this at the time as space was unavailable near to these offices.

Forecasting Method

As time to design the new admissions policy was severely limited and mistakes were inevitable it seemed advisable to suggest a method with a means of adjustment so that as experience accumulated we could alter it without overshooting the targets too much. We asked the London Hospital, which has experience in operating a bed bureau, for advice on a reasonable target for percentage occupancy. They considered that in a district general hospital with an average length of stay of less

than seven days it would be injudicious to aim at an overall occupancy above 85%.

We decided to simulate the proposed initial pool of 223 acute beds. Two month's data of emergencies were collected giving the number of days on which there were 0, 1, 2, 3, etc., emergency admissions. By using tables of random numbers a set of 120 simulated days' work of emergency admissions was generated having the same statistical characteristics as the actual data. These sets of numbers together with the number of waiting list admissions proposed formed the input to the simulated pool. The output from the pool was the number of patients discharged or who had died. Since mean stay was known to be about seven days this output was clearly about one-seventh of the total number of cases in the pool and was variable. To allow for this 120 random numbers were generated with a variance which seemed plausible and were used to vary the output around a mean of one-seventh of the total.

The credibility of the simulation was tested by assuming a waiting list admission policy similar to that of 1972. The actual number of cases on the 271 beds in use in 1972 was known for each day—for example there were between 200 and 209 cases in the 271 beds for 21.29% of the days. In table II the actual data for 1972 are compared with the simulation. This acceptable similarity was taken to indicate that it was reasonable to use the simulation to test various waiting list admission policies.

We felt that a policy which made the number to be sent for in three days' time a consequence of the total number in the pool on the day of notification would be the easiest to use (table III). When fed into the simulation this particular policy suggested that it would give an occupancy of 90%, and more detailed work was done to suggest how best to allocate beds between the sexes. Further experiments with the simulation confirmed that such a scheme was practical. As the year went on the pool size fluctuated owing to ward closures and reopenings, but it was found possible to modify the policy as each occasion arose. This was achieved without prodigious calculation as the boundary points (170, 180, 210, 220, and 230) could easily be shifted upwards or downwards and the number of patients to be sent for was easily altered.

TABLE II—Comparison of Actual Data on Beds in Use for 1972 with Simulated Data

No. of Occupied Beds*	% of Days on which Beds were Occupied	
	Actual data 1972	Simulation
150-159	0.56	0
160-169	1.68	1.25
170-179	3.92	3.75
180-189	9.80	9.58
190-199	14.85	13.75
200-209	21.29	25.42
210-219	21.85	24.17
220-229	13.73	14.58
230-239	10.36	6.25
240-249	1.68	1.25
250-259	0.28	0

*Only pooled beds are included.

TABLE III—Forecast of Waiting List Admissions

No. of occupied beds*	<170	170-179	180-209	210-219	220-229	>230
No. of patients to send for	26	20	17	11	8	0

*Only pooled beds are included.

Discussion and Conclusions

From a management view the bed committee, the bed bureau, and the pooling of acute beds constituted a partial success. We used our available resources better: the percentage occupancy of available beds increased, and turnover of patients increased with a 25% reduction in turnover interval of those beds (table I). The use of all beds was observed far more care-

fully and where beds seemed under-used suggestions of transfer led to a dramatic increase in occupancy and turnover. Against these achievements the beds committee were conscious that their activities had resulted in an increase in the proportion of major cases in the hospital, which created an increase in nursing dependency. Our attempts to contain the surgical waiting list was a failure (table IV) and in particular the general surgical waiting list rose by some 40% over the year. Other factors adversely affecting the patient included a lack of reasonable notice of admission, a small possibility of waiting for a bed on arrival, and a risk of being lodged in an inappropriate ward.

TABLE IV—Numbers on Northampton General Hospital's Waiting Lists

Specialty	No. of Waiting List at:		
	31/12/71	30/6/73	31/12/73
General surgery* ..	827	935	1,214
Ear, nose, and throat ..	710	1,137	850
Gynaecology ..	335	411	444
Dental surgery ..	63	85	96
Ophthalmic surgery ..	60	68	78
General medicine ..	4	4	6
Paediatric medicine ..	5	11	2
Total	2,004	2,651	2,690

*General surgery waiting list includes children's surgical waiting list which stood at 169 on 31/12/72 and was reduced to 46 on 31/12/73.

The ratio of trained nurses to learners was improved by the reduction of the nursing areas, particularly at night. The improvement resulted in several benefits not least a reduction in wastage of first and second year student nurses. The pressures, however, on trained nurses were not relieved—though they seemed to have changed. Ward sisters complained of the rapid turnover, of being perpetually “on-take,” of lodging, of more seriously ill patients, of too many ward rounds, of too many doctors taking up too much of their time, and that not enough attention was paid to their own problems. Sometimes it was difficult to assess whether these problems were genuine or whether they were natural reactions to change. Certainly the ward sisters who had considered their life hectic enough before pooling was introduced found it much more hectic after pooling.

Nurses and medical staff were grateful to see the end of centre beds even if some patients had to be lodged in other wards. Apart from this many of the medical staff saw little good in pooling and in the activities of the bed bureau. Their patients were more scattered, making ward rounds very time-consuming and they considered lodging very unsatisfactory, believing that patients in inappropriate wards received less satisfactory care. This view was endorsed by the nursing staff. At the end of 1973 most general surgeons, who had suffered from a curtailment of waiting list admissions more consistently than any other group, favoured a return to the old system. In October and November of 1973 the whole hospital got closer to its target of an 85% occupancy, but the pooled beds had an occupancy of almost 90% (fig. 1) and it was evident that this created unreasonable strain on the staff in these wards, particularly in view of the patient turnover and short turnover interval.

It is impossible to equate the greater efficiency in the use of beds, which is quantitative, to the standard of care given to patients, which is qualitative. Similarly, it is difficult to measure the effect that the policies of the bed committee had on nurse morale and recruitment. Above all else it became quite apparent that to achieve greater efficiency in bed usage it is of paramount importance to increase the level of nurse and ancillary staffing to cope with the related pressure and ensure proper standards of care.

Beds were closed because of a shortage of nurses. The remaining beds were used more intensively and consequently required more nurses. It seemed we had turned full circle except there had been some gain in withdrawing beds as this reduced the areas to be manned. As a result there was less risk of junior nurses working without the support of their more senior colleagues, particularly at night. Lack of support for learners had been responsible for the high wastage rate in 1971 and only if this trend could be reversed would sufficient learners remain to complete their training. We feel the closure of beds was justified because it provided a breathing space during which recruitment improved and wastage fell.

We thank Dr. A. M. C. Jennings for writing the text describing his forecasting method, Mr. S. G. Hill for correcting the manuscript, Miss M. Bendall, department of medical illustration, who drew the figures, and Mrs. B. Fisher for secretarial help.

General Practice Observed

Extension of Family Planning Service in General Practice

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British Medical Journal, 1974, 3, 30-33

Summary

All general practitioners on the list of a single executive council were contacted and 91% were interviewed. They were asked about the type of family planning service cur-

rently provided and their willingness to extend the service. Only 3% said that they were not providing any service at the time of interview, but only 4% stated that they provided a complete range of techniques to all patients; almost two thirds of practitioners only provided advice and the “pill”. Lack of training in family planning techniques emerged as the most important factor in determining the type of service provided. At the time of interview 64% of doctors stated that they would like further training, and 35% of all doctors asked for a full course of clinical training. Many general practitioners (81%) were willing to extend their family planning services but 65% wanted financial reimbursement and 50% needed additional administrative support as pre-requisites.

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