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# Better hospitals for the County Palatine

A MANAGEMENT EXERCISE  
PREPARED FOR THE LIVERPOOL  
REGIONAL HOSPITAL BOARD

THE MANAGEMENT of no organisation is static: changes, new ideas and concepts are mooted which have to be understood and evaluated. The ways in which change can be introduced are also developing, and as some management problems become more complex, methods are sought to make them more easily understood. Management games are one such attempt to present current issues more clearly. They are exercises which depict real life management problems and in which several teams compete against one another. Decisions are taken period by period to contribute to the achievement of a pre-determined objective. Teams are helped in these decisions by being given relevant information, including the effect, or results, of decisions made by their team in a previous period. The decisions to be taken are usually clearly defined, and the period of the exercise is so compressed that the activity of years is experienced in a few hours.

As with case studies, management games are widely used in management training and development. In this respect, care must be taken when translating the lessons of any game into a real life situation, because its design may well have exaggerated particular aspects of management. In that games are simulation exercises, they are also useful for research into decision making, and into the psychology of group behaviour. Many exercises of this type give an appreciation of the role played by various functional heads of a company and their problems.

Management games may be production orientated or sales and marketing orientated; the objectives in business games are often profit maximisation or cost reduction. Some games feature stock control, research, advertising effort, or personnel functions. A classical game situation is one where the team is asked to develop a market for a new product and can influence sales by price manipulation or advertising. In this type of game the team decision may interact, that is each team competes for a share of total market. In a non-interacting game, each team is given an independent situation such as managing a factory and introducing a research programme into product improvement and a mechanisation programme to improve output and reduce unit costs.

In both these types of games, the teams are in keen competition with each other, because the results of their decisions can be well defined. They can be judged by some pre-determined set of rules or relationships, and the participants are aware of the general nature of these. The precise details have to be learnt during the play by relating results to decisions. Often scoring is by computer. The results will usually be displayed at the end of the game period, so that the different approaches to the game can be discussed.

This article describes the use made of a management

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game to highlight problems in hospital planning, particularly the re-allocation of resources and the concentration of specialist medical services to provide a more effective service to the patient. Although this game has a competitive element, it is primarily designed to be instructive by providing a simulated setting in which hospital staff may examine their own approach to hospital planning in conjunction with others.

## The Liverpool Exercise

In 1965 the Liverpool Regional Hospital Board and the United Liverpool Hospitals, supported by the Ministry of Health and the Nuffield Provincial Hospitals Trust, sponsored a four year study into the need for medical care in the Liverpool Region. In November, 1968, some of the research findings were presented at a conference held for senior administrative, medical and nursing staff in the region. This exercise was devised as one of the ways in which suggestions arising out of the research project could be presented to the audience. As it raises questions that have to be considered when any hospital planning is undertaken, we feel it will be of interest to a wider audience. This exercise had to be carried out within one conference session of three to four hours. The time included a briefing period to describe the general purposes and format of the exercise, and a discussion period after the exercise to review some of the results. The latter period is usually very interesting and important, though in this case it was less crucial as the game's content was part of the general theme of the conference.

The exercise had to be designed to be completed without the aid of calculating equipment, though slide rules were in evidence, and had to be capable of quick assessment. The mathematics, therefore, had to be relatively simple and factors such as revenue expenditure were deliberately omitted to ensure that the exercise could be completed. Some revenue effects could be part of the exercise if there was more time for playing it. Perhaps the greatest limitation was the simplification into one period of play only, as the syndicates, on being given the results of their decisions and recommendations, were not given an opportunity of a second decision



period to improve on the results. Usually second and subsequent decision periods are more easily completed because the teams are then familiar with the exercise and the inevitable form-filling that is involved.

### Description of the Area Served and its Hospitals

The narrative which follows gives a sketch of an imaginary Palatine County and the nature and background of its hospital provision. Given this situation, the emphasis of the exercise is on the planning and the re-organisation of the service by concentration and specialisation. For this, seven detailed statistical information tables are provided as well as the descriptive narrative. Table 1 is an extract from three of these.

The county is large with a considerable amount of urbanisation and mixed industry. It still retains large areas of its rural character with medium-sized market towns. Only part of the county is involved in this game, which has a population of 200,000, rather more than half of whom live in or around Mossborough, an industrial town, with two hospitals, Mossborough Infirmary and Mossborough General. There is also, in the same area, a cottage hospital at Crank, which supplements these acute hospital facilities. The remainder of the population is centred upon Market Woodchurch, an agricultural market town, within easy travelling distance of Mossborough. The County Hospital serves the whole of this part of the area. The acute facilities are supplemented by Seascale Hospital, a pre-convalescent unit equally accessible to the three major units. There are also two long-stay hospitals and a general practitioner maternity unit which are not included in the exercise. By and large, the ex-local authority hospitals have been upgraded and provided with new departments since the second world war, whilst the ex-voluntary hospitals which were relatively well off in 1948 now have facilities which are not completely satisfactory as less money has been available for improvements.

### Details of the Exercise

There are many constraints in planning but only a few can be introduced into a simple management exercise. It is possible to make valid generalised comments more easily about the surgical specialties, which also have the additional planning constraint in the allocation of surgical sessions. For these reasons the exercise concentrates on the specialties: general, orthopaedic, E.N.T. and gynaecology. Table I gives the distribution of beds and theatre sessions at the beginning of the exercise period. In addition participants are given information about the number of patients being treated in each bed per year (throughput).

In each specialty there are good, medium and bad throughputs, and each hospital achieves differing levels of throughput in each specialty. Throughput incorporates both length of stay and bed occupancy, though both these statistics are given separately in the full version of the exercise. The throughput figures are affected by the ratio of theatres sessions to beds and by the quality of resources other than beds, the ones included in the exercise being theatres, pathology and x-ray departments.

For the purpose of the exercise each specialty is assumed to contain similar and homogeneous patients. Also in any re-organisation staff is assumed to be available and interchangeable and each hospital is accessible to the whole population. If the exercise was played over a longer period, variations could be designed to include any of these features which would then be made part of the constraints of the problem instead of being removed to simplify it.

### Other Information

Apart from the information in Table I, the discharges per specialty per hospital are given, together with lengths of stay. A table shows the use made of the pre-convalescent care and another table gives the waiting lists and

TABLE I  
Allocation of Beds and Theatre Sessions: Unit Throughput: Total Discharges: Throughput standards

Hospital	General Surgery		Gynaecology		Orthopaedic		E.N.T.		Sub-total		Other Beds
	Beds	Theatre Sessions	Beds	Theatre Sessions	Beds	Theatre Sessions	Beds	Theatre Sessions	Beds	Theatre Sessions	
County .. .. .	60	10	26	5	30	2	12	1	128	18	402
Mossborough Infirmary ..	M 50	7	M 9	1	G 21	2	M —	—	80	10	80
Mossborough General ..	B 60	9	B 15	3	M 30	2	10	1	115	15	205
Crank Cottage .. .. .	B 10	1	M 4	1	G —	—	B 5	1	19	3	31
	G		B				B				
Sub-total .. .. .	180	27	54	10	81	6	27	3	342	46	718
Seascale .. .. .	9	—	4	—	3	—	—	—	25*		25
Total .. .. .	189	27	58	10	84	6	27	3	367	46	743

\*Available but not all used.

Total discharges .. .. .	4900	2030	1515	780
<i>Throughput per bed per annum</i>				
Good = G .. .. .	35	50	20	60
Medium = M .. .. .	30	40	15	40
Bad = B .. .. .	25	30	10	20
<i>Recommended ratio of beds per theatre session per week</i>				
	8 : 1	6 : 1	15 : 1	6 : 1



the current increases or decreases. An assessment of the quality of each of the main diagnostic departments in each hospital is given, together with the cost of making improvements in them. Finally, for information and discussion, the consultant staffing and their allocation of sessions is shown.

### Decisions to be Taken and Rationale of the Exercise

Each team is asked to record whether they intend to reduce waiting lists and/or reduce beds. Then having assessed the total number of discharges required in one year to achieve this, they are asked to decide the target turnover figure, re-allocate the beds and improve the resources as necessary within a total capital allocation given. Table 1 shows the recommended number of beds per theatre session which should be provided for optimum results. Teams are also told that two operating sessions per week per specialty is desirable and that hospitals already achieving a good throughput in any specialty will maintain this even if allocated more resources to achieve more discharges.

The general object of the exercise is summarised as providing experience in the thought processes of planning, the information required, and, through discussion during the exercise, an understanding of the problems and difficulties that hinder the re-allocation of resources to achieve improvements. It also introduces to some the concept of throughput as a broader measure of activity, and an assessment of the number of weekly theatre sessions required, based upon activity rather than beds.

### Playing the Game

The exercise has been used three times so far; once by the multi-disciplinary group for whom it was designed; once by a group of national administrative trainees during their three month course at Manchester University, and once by regional board medical officers on a short management orientation course at the London

School of Hygiene and Tropical Medicine. Table II shows part of the decision table that teams are asked to complete after about two hours' play. For obvious reasons this is only completed in one specialty.

Various ideas on broad intent have been put forward. Several teams attempted to reduce waiting lists and reduce beds heavily, whereas others more modestly contented themselves with a slight reduction of beds and hoped to reduce waiting lists eventually. The differences between the two groups depended largely on the confidence of a team in its ability to achieve maximum throughput. Some felt this could not reasonably be achieved within one year. Some felt it wrong to concentrate specialties, whilst others did this ruthlessly. Although a sum of £100,000 was provided for capital expenditure to improve the supporting facilities such as x-ray and laboratory services to meet increased demands, only three out of eight of the multi-disciplinary teams spent over £50,000. How this money should be spent illustrated a long-standing hospital service conflict. A few teams felt that the larger voluntary hospital, having received no major capital moneys, should now be upgraded, but only one team then decided that the acute surgical beds could then be allocated in large units between three major acute hospitals. The others decided more or less, that, having provided good facilities, there was no need to disturb the existing pattern of working. The majority of teams, however, decided that having developed two good hospitals, as much acute work as possible should be concentrated there and specialties making less demands on diagnostic and theatre facilities should use the third acute unit.

The exercise provided an occasion for wide ranging discussions about the principles that should be followed in hospital planning and as such was very useful. However, its full value is hard to assess; the extent to which attitudes are changed or new perceptions are acquired can only be guessed.

Teams discussed the limiting factors that must be taken into account—manpower resources, adequate facilities to support medical and nursing training, the need for a balanced allocation of consultant sessions not only in the surgical specialties but in anaesthetics. These questions were not specifically included in the exercise. Other limiting factors were essential to the play. In a population of 200,000 should there be two accident and emergency departments? Do gynaecological beds have to be associated with maternity beds—if so, should a comparatively small unit be split? What quality of supporting services are necessary? Should it be assumed that some specialties will always make less use of pathology and x-ray services than others? The effect of the surgical load on nursing dependency patterns can be taken into account. Increasing throughputs are likely to increase the acute work load. Can this be met by rationalising the nursing service and what sort of service should be provided by intensive care or recovery units? What adverse reactions are likely to be forthcoming if closures are recommended and how should these best be tackled?

TABLE II

Extract from Decisions Block Completed for E.N.T. Surgery only

FORM 1 DECISIONS BLOCK Team Number X

Statement of Intent (1) To reduce overall number of beds (2) To reduce waiting lists Yes Yes

TABLE A Proposed Number of Surgical Beds and Weekly Operating Theatre Sessions

Hospital	E.N.T.		Totals		Spare Beds
	Beds	Theatre Sessions	Beds	Theatre Sessions	
A	15	3	Figures for the four specialties would be inserted here		-3
B	—	—			10
C	—	—			5
D	—	—			—
E	—	—			—
Totals	15	3			12

TABLE B Target Throughput per bed per annum

Hospital	E.N.T.
A	60
B	—
C	—
D	—
E	—

TABLE C

Investment (Capital Works)

Specialty	Planned Waiting List Changes			Hospital	Theatre	Pathology	x-ray
	No Change	Increase	Decrease				
E.N.T.			-40		£	£	£
				A	—	17,000	—
				B	—	—	—
				C	—	—	—
				D	—	—	—
				E	—	—	—



It is instructive to consider the way in which teams worked. In the initial briefing it was suggested that by dividing a team into sub-committees to be responsible for different aspects of the exercise might enable trial solutions to be produced more quickly. Certainly amongst the national administrative trainees, who were most aggressive in insisting that each individual had an equal right to have his own view considered, decisions were not forthcoming until solutions were proposed by individuals who had been working out the effect of a change instead of arguing about principles. The lengthy discussion which produces no results because nobody is responsible for drawing together the elements of the discussion into a workable solution, is surely familiar to many planners. Having to reach decisions within a time limit led some teams to find a way of eliminating excessive discussion, whilst others, who found that time had run out on them, may have realised on reflection that they had not used their time most effectively.

In the conference situation it also provided an opportunity for doctors, nurses and administrators to discuss and agree changes in the allocation and use of facilities that would lead to an improved service for the patient. It was commented that such opportunities occur all too rarely in practice so that by providing an artificial situation in which co-operative discussion could take place, improvements in working relationships, where necessary, might have been stimulated.

The failure by many teams to spend more than half their capital allocation is interesting. The hospital service, suffering from under-investment between the wars and continually told that it is spending too much money since 1948, has developed an over-strong sense

of the need for economy, which must be ingrained in the thinking of those responsible for its management. The hospital service has become so conditioned to accepting inadequate conditions that only crises are overcome. The total hospital situation remains unexamined and benefits which could be achieved by improving adequate facilities are missed. Under the present system of financing the service, there is nothing to be gained by not spending money allocated; time and again regional hospital boards and management committees who have schemes prepared ready to commence, in addition to those which can be budgeted for immediately, have gained at the expense of those who do not.

In the exercise, teams were told that although the departmental facilities were adequate in some cases and poor in others, improved throughput could only be achieved if those facilities adequate for the present level of activity were improved, as well as upgrading poor facilities. Many teams left adequate facilities alone and did not spend their capital allowance.

As in revenue expenditure, a low cost per patient week often leads to a high cost per case, so in capital expenditure a lack of investment on diagnostic and treatment departments may well mean that beds cannot be used effectively.

Despite an initial shock at having to absorb what seemed an excessive amount of information, participants found that this simulated hospital situation provided a welcome challenge which they enjoyed both for itself and for the opportunity it gave to examine their own and other people's ideas. It would appear that there is more scope for this sort of training for senior staff in the hospital service.

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