

Cost and Effectiveness of a Geriatric Day Hospital

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A purpose-built Geriatric Day Hospital was opened at Maesgwyn Hospital, Bridgend, in 1964 and its running cost and effectiveness were assessed two years later[1]. The hospital served a population of 150,000 within a radius of 14 miles, although most resided within six miles. The average daily attendance was 27 people, and the majority of patients came twice a week. New patients were accepted direct from general practitioners, who had previously been circulated regarding the types of patients who would be suitable. In addition, open days were held to familiarise the GPs with what could be achieved. It was realised that many patients would have social difficulties and information on these was collected, but home visits by the Geriatric Unit staff to verify the data were not carried out. The GPs' judgment was relied upon, and reports from social workers and health visitors were obtained only when necessary. It was stressed that, however disturbing the social circumstances might be, physical disability had to be present before the patient was accepted at the day hospital.

Many types of diseases were seen, but the reason for referral was often more complex than that suggested by physical examination. It was summarised thus: 'The overall picture was one of multiple disabilities with a precipitating factor such as a stroke, accentuation of pain in a joint, increase of dyspnoea or the development of a domestic upheaval.'

We did not intend in 1966[1] merely to describe the workings of the day hospital, but to question the need for one and to collect information which could be used as a basis for comparison with facts obtained at a later date.

One of our tasks was to define 'effectiveness'. We were dealing with old people in whom accurate clinical measurements could rarely be made. Their illnesses varied in

nature and severity and were also often multiple and compounded by mental abnormalities, limitation of mobility, and social difficulties. To overcome these problems we decided to equate 'purpose' with 'effectiveness' and to note: (1) the number of patients whose in-patient hospital stay had been shortened; (2) the number of admissions to hospital that had been avoided; (3) the number whose admission had been delayed for over three months; (4) the number for whom hospital out-patient services would otherwise have been used.

Such an approach enabled us to avoid following-up patients to a specific endpoint. We attempted to assess the impact of the day hospital on quality of life by combining our own judgment with those of the patients, and, where possible, their relatives. We decided that 69 per cent of patients had benefited: but 78 per cent of patients and 100 per cent of relatives believed the service to have been beneficial. We, however, thought that the patients' and relatives' views were too subjective and emotive to be used as a measure of effectiveness.

Another problem in 1966 was that we advocated only one regime, which has been continued, so that the effectiveness of one regime cannot be compared with that of another. Nevertheless, it seemed possible that we would be able to compare the running costs in 1966 with those obtained at a later date, provided our chosen criteria for effectiveness were reasonably constant. Thus we would be able to pinpoint the impact of inflation and salary increases.

An opportunity for the envisaged comparison came in 1976 when a DHSS-financed research project, based at University College, Cardiff, was developing a procedure for a continuous system of specialty costing within the acute hospital sector. Figures showing the cost per specialty at Bridgend General Hospital were produced. The Geriatric Day Hospital was costed as a separate entity. In view of this, and the comparability of effectiveness as shown by a preliminary survey (Table 1), we decided that we were justified in comparing the cost-effectiveness of 1976 with that of 1966.

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Table 1. Preliminary survey of effects of attendance at Maesgwyn Day Hospital on use made of Bridgend General Hospital (1966 and 1976).

Effects	No. of patients	
	1966	1976
No effect	57	17
Shortened in-patient stay	8	9
Delayed admission	18	13
Prevented admission	21	38
Relief of OPD services	13	42
Total patients surveyed	117	119

Method

For the purpose of comparison clinical and financial data were abstracted in the same way as they had been in 1966.

Findings

One hundred and nineteen new cases attended in 1976. Sixty-five (55 per cent) were females, of whom 46 were widows. Thirty-one of the males lived with their spouses. Most of the patients were in the age group 71-80 years and 32 lived alone. Only 36 (30 per cent) were ambulant. Sixty-one were partially dependent in daily living activities. The majority (70 per cent) were mentally normal. Most of the patients (109; 92 per cent) attended twice a week.

Discussion

A comparison of the present clinical findings with those reported in 1966 shows several similarities. Most of those attending were in the age group 71-80 years (38 per cent in 1976; 35 per cent in 1966): females predominated (55 per cent in 1976; 61 per cent in 1966); most of them were widows (71 per cent in 1976; 62 per cent in 1966); physical dependency was common (51 per cent in 1976; 49 per cent in 1966); a significant proportion had mental and emotional abnormalities (30 per cent in 1976; 50 per cent in 1966); the majority came direct from general practitioners (50 per cent in 1976; 61 per cent in 1966) (Table 2) and the usual reason for referral was a stroke (44 per cent in 1976; 50 per cent in 1966) (Table 3). Social factors played an important part (66 per cent in 1976; 54 per cent in 1966).

Table 2. Sources of referral to day hospital, 1976.

General Practitioner	Geriatric Department	Other Departments
59	56	4

Table 3. Reason for referral, 1976.

Stroke	Bone Joint Disease	Other
53	29	37

The initial fear that the hospital might become largely valueless because of blockage of places has not been supported. The annual return showed that approximately the same number of new patients attended. A steady state seems to have been reached. Nevertheless, 25 patients (21 per cent of those seen in 1976) attended for longer than a year (Table 4).

Table 4. Duration of attendance and reason for discharge.

Duration of attendance (months)	No. of patients
< 3	45
3-6	28
6-12	21
> 12	25

Reason for discharge	No. of patients
Recovered	26
Self-discharge	10
Too ill to attend, admitted to hospital, or died	16

The cost of running the day hospital (Table 5) has increased considerably, mainly owing to inflation and the pay awards granted by Whitley Councils. These have had

Table 5. Running costs per week, Maesgwyn Day Hospital, 1966 and 1977.

1966				1977	
£		(a) Staff (excluding travel expenses)		£	
19.00	1 F/T	Sister	1 F/T	90.13	
6.85	1 P/T	SEN	1 F/T	62.14	
26.00	3 F/T	Nursing auxiliaries	1 F/T	54.41	
7.30	1 P/T	Nursing auxiliaries	1½ P/T	56.50	
12.63	1 P/T	Senior physiotherapist	1 P/T	44.51	
7.50	4 Sessions	Speech therapist	1 Session	9.65	
9.50	2 Sessions	Medical assistant	1½ ,,	20.46	
4.50	3 Sessions	Social worker	—	—	
		Occupational therapist	6 Sessions	44.47	
16.05	3 P/T	Domestic	3 P/T	83.78	
16.00	1½	Clerical	1½	52.27	
125.33				518.32	
		(b) Meals*			
16.15	25 @ 13p	per day-27 @ 75p		99.87	
		(c) Ambulance Transport			
93.75	Excess mileage per week (calculated after a survey of ambulance journeys taking patients to day hospital)			459.78	
13.00		(d) Fuel and electricity		51.86	
£248.23				£1,129.83	

*1966—cost of food only. 1977—an element of catering staff salaries included.

the effect of increasing salary costs to $4\frac{1}{2}$ times what they were in 1966, while other expenditure has risen to three times the 1966 level. But, despite this increased expenditure, Table 5 shows that resources have changed very little; the number of nursing and paramedical staff has fallen slightly, while the number of meals has remained reasonably static, as have ambulance transport, fuel and electricity.

Our comparison of the cost per attendance at the day hospital with that of the cost per in-patient day at the acute and geriatric hospitals (Table 6) shows that the former is somewhat cheaper, as it was in 1966.

Table 6. A comparison of costs for different forms of treatment, Bridgend General and Maesgwyn Hospitals.

Hospital	Cost		
	per in-patient day (24 hrs)	per day hospital attendance (6 hrs)	per patient hour
Bridgend General (acute)	£27.68	—	£1.15
Bridgend General (Geriatric unit)	£22.79	—	£0.95
Maesgwyn (Geriatric unit)	£10.55	—	£0.44
Maesgwyn Day (excluding ambulance costs)	—	£6.04	£1.01
Maesgwyn Day (including ambulance costs)	—	£8.43	£1.41

This is because the length of time for which resources are made available at the day hospital is only six hours, as opposed to the 24 hour cover of the other hospitals. When we compare the cost per patient hour (Table 6), the cost for the day hospital is higher than for an in-patient day because of this concentration of resources into a shorter time span. Furthermore, when we cost total patient care, we also have to add the costs of care at home, as well as home help, community nursing and, where necessary, meals on wheels on the days the patient does not attend. However, the inclusion of such costs (about £13 per week[2]), is unlikely to make attendance at the day hospital more expensive than a stay as an in-patient.

The conclusion that the cost of day hospital care is lower than the cost of in-patient care has also been reached in other studies[3,4], and MacFarlane *et al.*[2] found that the cost of attendance at day hospital (£47 per week including community costs) compared favourably with the cost of in-patient treatment (£129.8 per week). This study also demonstrated that the cost of day hospital care was much higher than had previously been thought. Table 7 shows the cost per attendance at the Glasgow and Maesgwyn Day Hospitals.

The conclusion reached in these studies was that day hospitals can be effectively used to prevent admission and/or shorten in-patient stay. A comparison of the two day hospitals (Table 7) indicates that the provision of

Table 7. Cost per attendance at Glasgow and Maesgwyn Day Hospitals.

	Cost per attendance	
	Maesgwyn	Glasgow
	£	£
Medical staff*	0.37	1.16
Nursing staff	1.96	2.80
Medical and paramedical supporting services*	0.98	3.34
Domestic	0.63	0.31
Catering	0.75	1.04
Other general services	0.78	2.73
Ambulance transport	3.43	2.22
	8.90†	13.60

*Not included in Table 5 calculations but included here for comparative purposes.

†£8.90 = £8.43 (Table 6) + £0.37 medical staff + £0.10 medical support.

resources varies greatly, so the question of what level of expenditure is considered adequate must therefore be asked. One reason for the higher cost in Glasgow may be the location of the day hospital and its nature. Maesgwyn Day Hospital's record of reduction of in-patient stay and avoidance of admission compares favourably with that of Glasgow—though the Glasgow figures do not show clearly what impact the day hospital has had on other hospitals in the district. More detailed information would be required if a complete comparison were to be made.

We hope at a later date to be able to ascertain the cost of community care. Total home management, and home care with day hospital visits, could then be compared with the cost of in-patient stay. Medicine, however, is concerned with individuals whose requirements vary, consequently the type of management has to be modified. Moreover, projects to improve and extend patient care have to be evaluated both clinically and financially, as a balance between the two aspects is essential.

The Government's *Priorities for Health and Personal Social Services in England*[5] indicates that more money must be made available for geriatrics. In our view, one area in which this money could be used effectively would be in the wider provision of day hospitals. Brocklehurst and Tucker[6] suggest that 'a controlled trial is necessary, with random allocation of patients to day care or in-patient treatment combined with a detailed and uniform comparison of costs'. It is debatable, bearing in mind the age and clinical complexity of the patients, whether randomisation is feasible. It is also likely that ethical and practical considerations would make it unacceptable.

Modified randomisation of previously defined groups of patients might be possible, but, even then, comparison between day hospitals in different parts of the country would be open to the objection that social factors and clinical practices were not uniform. We believe that a way round these difficulties would be to formulate criteria for 'effectiveness'. Different regimes could then be assessed. The one we adopted, viz. 'Impact on the General Hospital' allows running costs to be compared, while simultaneously giving a reasonable measure of 'money saved' by delay or prevention of admission.

Conclusion

The service given by our Geriatric Day Hospital has been of benefit to a large number of patients, the geriatric unit and the general hospital. Nevertheless, the cost of the service cannot be ignored and, if further development is to take place, more research will have to be undertaken into the various ways of linking day hospital and community care.

References

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Book Review

The Making of the National Health Service by John E. Pater. King's Fund Books, London. 1981. Price £10.

There were giants in the earth in those days (Genesis vi.4 AV). Or so it seems. The grim days of the Second World War were not allowed to cloud the vision of peacetime possibilities nor to prevent the next steps in a sequence of events which begins when one cares to start, be it with Elizabethan Poor Laws, Lloyd George Acts, or the Dawson Report of 1920.

John Pater's book is a most comprehensive review of the origins of the National Health Service and a valuable study for all who believe that the distant mirror of history spreads light on the immediate path ahead. Certainly some of the concerns and conflicts of those days seem much less than four decades away and remain familiar territory now; centrist versus local responsibility for health services resolving in a regional solution, responsibility and accountability, the concern to retain freedom of choice for patient and doctor alike, anxiety over standards of patient care within a State service. Heightening the historical record is the occasional vignette; a comment on Bevan—'he could roar as gently as any sucking dove, "obviously clever and charming, with the cherubic outlook and manner of a boy" . . . by no means the ranting dogmatist of political caricature.'

The years 1939 to 1948 form the bulk of the book, with a brief opening chapter and two concluding chapters which I commend to all who read summaries and conclusions only. But they will be the poorer for thus limiting their study because by doing so they will not see the anatomy of the changes that had to come about and they will not appreciate the painstaking scholarship which has gone into this book.

The period of gestation of the NHS seemed to catch the medical profession on the wrong foot. While agreeing the principle of a health service freely available and equally accessible to all, no mechanism involving (as it had to) change in the existing pattern of medical practice seemed to be acceptable. Sections of the profession remained

deeply suspicious in spite of many assurances. Paranoia? Overriding self-interest? Not exactly. The State as the almost sole employer can present any profession with problems. The nebulous concept of clinical freedom is held dear not only by clinicians but by others who see how the profession could be forged into a tool for State purposes were government to cease to be democratic and benevolent. But, alas, the thrust of the professions' objections to many of the provisions in the NHS Act had the appearance of preserving old habits of practice at all costs without acknowledgment of the social changes which were even then affecting so strongly the practice of medicine.

Any impression that civil servants remain detached from their tasks and merely serve the political process without personal involvement would need to be revised. Reading between the lines of this account one cannot help but be impressed by the sheer industry, not just on the political front leading up to the passing of the Act, but also the efforts of those who played leading parts in devising the necessary machinery.

The penultimate chapter is entitled 'The End of the Beginning'. We are now in the run-up to the second reorganisation since 1948, which suggests that not all those who joined together to provide this far-reaching and enlightened service lived completely happily ever after. The mechanism requires adjustment from time to time; funding anxieties remain. As the governments of more and more nations shoulder an increasing proportion of the financial responsibilities for health care provision, the wisdom of the architects of the NHS seems even more far-reaching. This book's valuable insights on issues that are still current will commend it to those who are interested in the present and future of national provision for health.

I would have liked a list of the chief *dramatis personae*, with a thumbnail sketch for each. It is awkward to have to refer to the main index to discover what positions were held by whom and when. But that's a very small complaint.

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