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# **Costs of Alternative Forms of NHS Care for Mentally Handicapped Persons**

by

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## **DISCUSSION PAPER 7**



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DHSS Health Economics Research Programme

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## ABSTRACT

The main purpose of this paper is to measure the costs of small (i.e. less than 50 beds) N.H.S. units for the care of mentally handicapped persons in the community and to compare these costs with those of hospital care standardising wherever possible for resident characteristics such as age and dependency. Other factors apart from size which are associated with variations in costs are also examined.

Accordingly, this paper sets out the results of three main costing exercises:

1. The ward costs of the Royal Albert Hospital, Lancaster
2. The costs of small NHS units in the South Western, Trent and West Midlands R.H.A.s
3. An estimate of the cost consequences of transferring residents from hospital to community care in NHS units.

Although capital costs are deliberately excluded from the analysis, the hospital and the small unit costs include the costs of Education and Social Services as well as NHS costs.

The major factors associated with the variations in costs between wards in the hospital and between NHS units in the community were, so far as above average costs were concerned, the age of residents (usually care of the youngest or oldest patients), dependency characteristics (proportion of residents physically handicapped and/or behaviourally disordered), low capacity usage and uncertainty about the future use. The main factor associated with lower than average costs was resource deployment which appeared to be low compared with the apparent demands for care.

The resource consequences of shifting care from hospital to NHS based community units were divided between short-term and long-term effects. The short-term effects were based on resources which would be released if one ward closed and the long term effects were based on the closure of all wards. With several reservations the short term cost increases of this shift in the balance of care within the NHS was estimated at around 98% of existing hospital ward costs for the care of children and 75% for the care of adults. The longer term cost differences estimated at 28% for children's units and 22% for adult units.

Costs of Alternative Forms of NHS Care for  
Mentally Handicapped Persons

A Objectives of the paper

The main aim of this paper is to compare the costs of caring for mentally handicapped persons in different types of NHS units. Attention is mainly concentrated on the comparison of costs between a large hospital and different types of small (i.e less than 50 beds) units in the community, but an attempt is also made to explain variations in costs between units in the community and between wards in the large hospital.

B Costs of the large hospital

Section 1 Background

The work on the costs of large hospitals was concentrated on the Royal Albert Hospital in Lancaster because the District Finance Officer had initiated a ward costing exercise before the researcher started and because the organisation of the wards on the basis of residents' ages and degree of disability facilitate the comparison of costs both with the hospital and with other units. Additionally, this hospital had a cost per patient day which was very close to the national average and was, therefore, held to be a better focus of comparison with smaller units than hospitals which were at the extremes of costs per patient day for the whole country.

## Section 2 Hospital cost allocation to ward level

### 2.1 Costs to the N.H.S.

The finance department of the Local Health Authority undertook, during the financial year 1981/2, a ward costing exercise covering the period 1st October 1981 to 31st March 1982. Although during this period 76.5% of total hospital expenditure was directly traced to ward level the difficulty of tracing certain costs meant that in some cases a different procedure had to be used to relate hospital costs to wards. Where cost allocations became necessary (for example with 'administration') then an 'appropriate' method of allocating central hospital costs was used. Cost allocations were not made to wards which were known not to use the particular service being allocated.

The aim of the ward costing exercise was to trace as high a proportion of hospital cost as possible to the individual ward concerned in order to minimize any possible distortion which may be introduced into the ward costings by the use of allocation procedures. In addition by tracing costs over such a lengthy period of time it is believed that any possible distortions introduced by the exceptionally heavy short-term utilization of any service by any particular ward will be evened out. The methodologies used in tracing/allocating different costs to ward level are given below.

Given the dominant role of nursing staff in determining total hospital cost, a great deal of effort was undertaken to accurately relate nursing costs to ward level. Time sheets were filled in weekly by all nursing staff covering a period of approximately five months. Thus it became possible to relate the cost of nursing staff directly to the wards on which they were working by allocating the total nursing expenditure of the hospital in proportion to the time spent by the nursing staff upon each ward.

A similar methodology of asking staff to quantify their input into each ward used for Domestic, Physiotherapists, Psychologists, Occupational Therapists, Industrial Therapists and Chiropractors. The cost of laundry and linen service was traced to ward level on the basis of an analysis supplied by the hospital laundry concerning the weight of articles laundered from each ward.

Porters were in part directly traced and in part allocated. Where a porter was based solely upon one ward then the cost was allocated to that ward. Porters, with more general duties, were allocated equally to each ward in the belief that each ward would require the same number of visits/deliveries irrespective of its size. The same assumption of a constant number of deliveries irrespective of ward size was behind the equal division of expenditure on transport between all the wards.

The drugs ledger was used to assess the actual cost of drugs used by patients from each ward the proportion of drugs expenditure on each ward was also used to allocate the medical staff input to each ward. This approach was necessary because the medical staff were not able to accurately disaggregate the proportion of their time spent with patients upon each ward. As such, expenditure on drugs (held to indicate medical 'need') was felt to be the best allocation procedure available. In turn expenditure on medical and surgical supplies was disaggregated to ward level in relation to each wards transfer points.

Building and Engineering maintenance was traced to ward level in accordance with a schedule of regular maintenance provided by the engineer at the hospital. 'General Estate Expenses', 'Energy and Utility', and 'Grounds and Gardens' were all allocated to ward level on the basis of ward volumes. Patient numbers were used to allocate hospital expenditure to ward level for Pathology, Dental Staff Services, Optical Services and Catering Services provided to patients. Staff catering costs were split in proportion to nursing expenditure. The expenditure on miscellaneous paramedical services (primarily dieticians) was split in proportion to the special diet sheet provided by the hospital dietician, and miscellaneous expenditure (including domestic repairs and renewals, shop and cafe expenditure) was traced to individual wards in the case of ward based staff. 'General' hospital staff in this category was allocated to ward level upon a patient day basis.

The individual cost categories, traced in the above manner, are given in Table 1. Table 2 provides a summary and assesses the total unit cost to the N.H.S. of providing care upon the wards of this hospital. The average annual cost to the N.H.S. of supporting a patient in this hospital, as given in table 2, is £8,800. The range of ward costs, however, varies from £19,754 to £5,479. Thus standardizing average hospital cost to an index of 100 the cost index of the most expensive ward is 225 and the cost index of the least expensive ward is only 62. This massive inter-ward



Table 1. Individual cost categories at Ward level I - 1981/82

	Medical Ward & Dental	Nursing	Med. & Surg.	Pharmacy	Physio.	Psycho- logy	Occ. & Ind. Misc. Therapy	Misc. Paramed.	Catering	Laundry & Linen	Admin.	Domestic/ Cleaning	Portering & Transport	Estate Management	Misc. Services and expenses
1	3121	110471	248	1925	49	6529	-	222	14319	15567	5484	7801	6061	14397	5036
2	2619	106984	326	1563	50	-	-	278	18393	16197	7212	19010	6061	14513	6477
3	2582	106081	352	1527	582	158	33	392	19756	6042	7789	12841	3241	14556	6959
4	674	97050	235	335	-	-	821	345	13477	11582	5193	14848	3241	15241	4742
5	1903	70036	117	1188	417	3216	57	129	6989	7882	2596	21897	4428	24796	2454
6	3511	64683	196	2202	296	226	-	146	11042	11582	4327	10918	4428	24796	3888
7	3703	73325	339	2263	-	51	1446	486	18689	11582	7501	12964	4428	13878	6590
8	5314	163442	895	3313	2070	-	-	442	19738	12372	7501	26953	4428	35095	6940
9	1736	45909	52	1068	6849	4286	-	100	8079	3731	3173	18343	4428	28674	2846
10	3522	114769	222	2198	898	-	854	329	12997	10781	4904	12726	4428	17540	4569
11	4060	164419	196	2560	1080	4685	796	172	12203	11582	4327	16337	4428	19135	4276
12	5087	154580	600	3049	17	-	6837	496	33354	11290	13274	9850	4428	26706	11655
13	866	53157	287	438	-	-	1735	188	15710	3854	6347	5449	4428	19827	5542
14	8604	113386	574	5354	-	-	5706	431	31502	11582	12694	21555	4428	34800	11111
15	13486	195196	365	8628	3638	689	2083	275	21479	15345	8078	27383	4428	32828	7548
16	3970	162027	326	2442	73	6855	538	239	19035	11582	7212	23441	5798	19880	6692
17	2409	53966	117	1518	4275	11	208	82	6802	3114	2596	17184	4428	17464	2392
18	4272	105098	470	2576	928	51	877	793	25918	8692	10386	15463	4428	22743	9138
19	4005	75054	352	2455	-	664	1288	345	19395	12985	7789	19793	4428	17329	6839
20	2357	159445	352	1380	16	1056	3485	392	20377	11583	7789	22324	4428	17822	7167
21	4652	115398	2154	2894	6353	51	-	218	17806	18466	6924	26252	8355	34526	6368
22	1239	161062	157	738	2540	51	1166	124	10106	8950	3462	21740	4428	14370	3536
23	1945	62070	248	1158	49	-	2241	618	13756	11582	5481	12010	4428	14262	4848
24	3627	135565	522	2133	8	921	5462	583	29016	3854	11540	17863	4428	60382	10227
25	2947	90049	261	1805	1467	-	4256	212	14767	11582	5770	9663	4428	21766	5200
26	3046	176534	378	1818	1272	1506	4620	341	21948	11582	8366	28069	4428	22061	7719
27	4208	116049	610	2471	1132	51	5160	569	33592	11322	13559	27005	4428	38552	11849
28	2605	109284	339	1547	1212	51	1905	426	19107	14746	7501	19605	4428	21466	6730
29	2346	167585	352	1373	1022	677	4775	502	20473	9896	7789	16529	4428	28175	7198
30	10768	221882	418	6835	469	5297	110	439	24533	11683	9231	36625	12284	66271	8622
total	115184	3544466	12060	70754	36762	37082	56459	10224	554358	322390	213795	552440	146885	754651	195158

Table 2 Summary of N.H.S. Costs

Ward	Total Direct Services £	Total Paramed. £	Total General £	Total Ward Cost to N.H.S. £	N.H.S. In-patient days £	N.H.S. Ward Cost/ I.P. day £	Annual Equivalent £
1	115765	6800	68665	191230	6935	27.57	10063
2	111402	328	87863	199593	9125	21.87	7983
3	110452	1132	71184	182858	9855	18.55	6771
4	98294	1166	68324	167784	6570	25.54	9322
5	73244	3762	71042	148048	3405	43.48	15870
6	70592	668	70981	142241	5475	25.98	9483
7	79630	1983	75632	157245	9370	16.78	6125
8	172964	2512	113027	288503	9428	30.60	11169
9	48765	11235	69274	129274	3895	33.19	12114
10	120711	2081	67945	190737	6205	30.74	11220
11	171235	6733	72288	250256	5355	46.73	17056
12	163316	7350	110557	281223	16910	16.63	6070
13	54748	1923	61157	117828	7848	15.01	5479
14	127918	6137	127672	261727	15878	16.48	6015
15	217675	6685	117089	341449	10220	33.41	12195
16	168765	7705	93640	270110	9005	30.00	10950
17	58010	4576	53980	116566	3285	35.48	12950
18	112416	2649	96768	211833	13260	15.98	5833
19	81866	2297	88558	172721	9855	17.53	6398
20	163534	4949	92930	260873	9975	26.15	9545
21	125098	6622	118697	250417	8760	28.59	10435
22	163196	3881	66592	233669	4318	54.12	19754
23	65421	2908	66367	134696	7055	19.09	6968
24	141847	6974	137310	286131	14538	19.68	7183
25	95062	5935	73176	174173	7420	23.47	8567
26	181776	7739	104173	293688	10523	27.91	10187
27	123339	6912	140207	270457	17035	15.88	5796
28	113775	3594	93583	210952	9490	22.23	8114
29	171656	6976	94488	273120	9673	28.24	10308
30	239903	6315	169248	415466	11680	35.57	12983
Total	3742464	140527	2741877	6624868	272346	24.33	8880

variation in cost emphasises the inherent dangers of analysing the costs of a large mental handicap hospital in the aggregate.

## 2.2 Costs to the Local Education Authority

The L.E.A. is involved in three forms of educational provision. The children resident at the hospital are provided with school places and adult provision may be in the form of either adult or further education. The costs, to the L.E.A. of these three sources of education are assessed in the following three sections.

### a) Costs of the ESN(S) School Serving the Hospital

The hospital has an attached ESN(S) School. During the period of study the School had 49 children on roll between the ages of 8 and 19. 32 of the pupils were boys, 17 were girls and all but four of the pupils lived at the hospital.

Although this school is primarily financed by the L.E.A. there exists a certain degree of cross subsidization from the N.H.S. The school uses N.H.S. stores, catering facilities and many other services which would need to be specifically provided in an ESN(S) school located in the community.

The cost to the L.E.A. of the hospital school is given in Table 3. All costs refer to the 1981/2 financial year and are broken down between premises cost (maintenance, heating, lighting, cleaning etc.), furnishings, capitation, teaching staff and non-teaching staff. The cost of the latter two elements is the total cost to the L.E.A. of employing these staff inclusive of all employers' costs such as national insurance. The total cost to the L.E.A. was allocated to wards in proportion to the number of pupils taken from each wards.

Table 3. Total cost to the ESN(S) School 1981/82 (£/year)

<u>Cost category</u>	£
premises	9900
furnishings	5
capitation	1159
teaching staff	107328
non-teaching staff	16187
Total	<u>134579</u>

b) The costs to the L.E.A. of providing Adult Education to residents at the Albert

Whereas the L.E.A. provides two teachers for Adult Education purposes at the Hospital, no other costs are incurred in the provision of Adult Education facilities. In respect of this study, the total cost to the L.E.A. of employing the senior teacher was £9267 (including superannuation etc.) while the junior teacher cost £7848.

In order to allocate expenditure the Adult Education teachers provided a list of the residents at the Albert who were provided with Adult Education. These pupils were then traced to their wards and the staff cost allocated to these wards.

c) The costs to the L.E.A. of providing further education to residents at the Hospital

Further education is undertaken by hospital residents at local colleges. The residents attend ordinary classes causing no additional staff requirements at any of the colleges. Although no specialist courses are provided for the mentally handicapped, the D.E.S. pays the college 90p per student hour for the type of non-vocational classes undertaken by the residents. In order to estimate the cost of education received at the local colleges the number of contact hours between residents from each ward was estimated.\*

In the ward level analysis it was assumed that each course undertaken by hospital residents lasted 30 weeks. This gave an estimated 5937 contact hours with local colleges which was costed at £0.90 per hour. In this way

\* This information was provided by the hospital administrator.

Table 4. Total L.E.A. cost at Ward level (£/year)

<u>Ward number</u>	<u>ESN(S)</u>	<u>Adult</u>	<u>Further</u>	<u>Total</u>
1	-	-	-	-
2	-	-	-	-
3	-	-	-	-
4	-	517	-	517
5	19245	86	-	19331
6	-	259	-	259
7	-	681	-	681
8	-	-	-	-
9	16419	-	-	16419
10	-	345	-	345
11	-	172	-	172
12	-	431	-	431
13	-	587	1350	1937
14	-	2184	445.5	2629.5
15	-	-	-	-
16	2692	-	-	2692
17	24763	-	-	24763
18	-	431	-	431
19	-	259	-	259
20	-	949	378	1327
21	2692	-	-	2692
22	-	86	-	86
23	-	-	-	-
24	-	1753	1012.5	2765.5
25	-	517	-	517
26	21936	673	108	22717
27	-	517	216	733
28	-	-	-	-
29	-	250	-	250
30	-	86	-	86
<b>Total</b>	<u>87747</u>	<u>10783</u>	<u>3510</u>	<u>102040</u>

a total estimated cost to the D.E.S. of providing further education facilities to the hospital residents was produced.

As before the allocation of this cost to ward level was based on the actual number of contact hours spent in further education by the residents of each ward.

### 2.3 Costs to the Social Services

The costs imposed by the residents of the hospital on the Social Services Department were of two kinds. Firstly, services (such as social work) which were geographically located at the hospital and secondly, services which were provided within the community but utilized by the residents of the hospital. The latter source was more difficult to evaluate as it became necessary to trace individual residents who used social service facilities into the community and then to allocate the cost of such utilization back to their wards at the hospital.

The only cost incurred at the hospital was that of social services staff providing social work support to residents. The total cost of this staff to the social services departments\* (including national insurance, superannuation and travel reimbursement) during 1981/2 was £36180.

The social work input provided at the hospital appeared to be very much of a support service. Social work help was supplied as and when it was required by residents and their families. Since each resident was seen as being equally likely to call upon the specialist skills of the social worker and given the general 'supportive' nature of such social work staff, it was decided to allocate expenditure equally between residents. As such the allocation made to each ward depended upon the total number of patient days care provided in each ward.

The hospital concerned provided 296,499 inpatient days to its residents over the year which implied a social work cost of 12.2p per patient day. This amount was multiplied by the number of patient days upon each ward in order to isolate a cost allocation for each ward.

\* As provided by the Director of Social Services.

As mentioned above, costing the utilization of community social service facilities was expected to be much more difficult to assess. Comprehensive statistics on the number and type of social services utilized by residents of the hospital were not available. However given the high level of provision of occupational/social therapy by the Health Services at the hospital, utilization of community social service facilities was assumed not to be high. Indeed the only cost which could be isolated was that of one resident who attended the Local Authority Training Centre - at the cost to the social services of £44.05 per week (1981/82 prices). This cost was allocated to the ward on which the patient was resident.

#### 2.4 Other potential sources of public sector cost incurred by the hospital

Only two potential cost centres not included in this analysis were mentioned by any of the N.H.S., L.E.A. or social service officials approached.

Firstly the L.E.A. provided an Autistic Centre which was used by mentally handicapped people in the local area. The utilization of this community facility by hospital residents was, however, very low (with only two residents using the centre over the past eight years). Given this low rate of utilization the cost of this facility was excluded from our analysis.

The second potential cost centre was an early diagnostic centre based in the community and used for the assessment of pre-school children. Given the very young age of the children involved very few of them were already residents of the hospital. For this reasons this facility was also excluded from our final analysis.

Table 5. Total public sector cost of large scale provision for the mentally Handicapped 1981/82

Ward	(£)N.H.S. Cost <u>Childrens Wards</u>	(£) L.E.A. cost	(£)S.S. cost	No. of I.P. Days	Total ward cost (£) per I.P. day
5	148048	19331	415	3405	49.28
9	129274	16419	475	3895	37.53
17	116566	24763	401	3285	43.14
<u>Adult Wards</u>					
1	191230	-	846	6935	27.70
2	199593	-	1113	9125	22.00
3	182858	-	1203	9855	18.68
4	167784	517	802	6570	25.75
6	142241	259	668	5475	26.15
10	190737	345	757	6205	30.92
11	250256	172	653	5355	46.89
12	281223	431	2063	16910	16.78
13	117828	1937	958	7848	15.38
14	261727	2629	4228	15878	16.92
15	341449	-	1247	10220	33.53
16	270110	2692	1099	9005	30.42
19	172721	259	1203	9855	17.67
20	260873	1327	1217	9975	26.41
21	250417	2692	1069	8760	29.02
22	233669	86	527	4318	54.26
24	286131	2765	1774	14538	19.99
26	293688	22717	1284	10523	30.19
27	270457	733	2079	17035	16.04
28	210952	-	1158	9490	22.35
29	273120	250	1180	9673	28.38
30	415466	86	1425	11680	35.70
<u>Wards for the elderly</u>					
7	157245	681	1143	9370	16.98
8	288503	-	1150	9428	30.72
18	211833	431	1618	13260	16.13
23	134696	-	861	7055	19.21
25	174173	517	905	7420	23.67
Total	<u>6624868</u>	<u>102039</u>	<u>35521</u>	<u>296499</u>	<u>22.81</u>



### Section 3 Variations in Ward Costs

#### 3.1 Introduction

The variation in ward costs was subject to several investigations using regression analysis. These analyses were reported in Discussion Paper No. 1 (Wright and Haycox 1984) and the main variable accounting for variation in costs was the ages of residents since children's wards tend to be more expensive than wards for adults. The analysis was also used to identify the six most costly and the six least costly wards. These wards are described in the next two sections.

#### 3.2 The six most costly wards

The six wards identified as being the costliest in the regression analysis did not have common factors which might have helped explain their ranking. Three of them housed fairly dependent residents but the other three had residents at a level of dependency around the average for the hospital. One of these wards was in the course of reducing its staffing levels.

#### 3.3 The six least costly wards

One common failure of five of the six least costly wards identified by the regression analysis was a worry about inadequate staffing levels which led in turn to a concern about the lack of training or social authorities for the residents of these wards.

Section 4 Estimated savings through ward closure

This section is concerned with attempting to estimate the marginal impact upon hospital resource use of closing any specified ward. What value of resources would be potentially released by the closure of a specified ward?

In this section the value of resources which can be directly traced to ward level is used as an estimate of the marginal value of resources released in the short term through ward closure. Resource use is dichotomised between directly tracable costs (assumed to approximate ward variable costs) and allocated central hospital cost, (assumed to approximate ward fixed costs). The allocated costs were assumed to be simply redirected to other wards in the event of ward closure. Given this assumption the estimated resource savings through closure of the wards in our sample are given in table 6. The table, emphasises the large variation in the potential 'recoverability' of resources which may arise from the closure of different wards.

Table 6 - Directly traced costs as an estimate of marginal savings through ward closure

Ward No.	No. of in-patient days	Total ward cost	% Directly traced	Total Estimated Savings	Estimated Savings/I.P.D.
1	6935	192692	80.4	154883	22.33
2	9125	201079	77.7	156274	17.13
3	9855	184356	74.1	126591	13.86
4	6570	168620	79.7	134431	20.46
5	3405	151300	77.4	117126	34.40
6	5475	145493	70.5	102553	18.73
7	9370	157306	71.4	112390	11.99
8	9428	292414	77.7	227090	24.09
9	3895	132121	69.5	91878	23.59
10	6205	189834	82.5	156563	25.23
11	5355	249435	87.0	217117	40.54
12	16910	277606	72.6	201576	11.92
13	7848	118009	65.6	77408	9.86
14	15878	261378	65.6	171544	10.80
15	10220	343774	77.9	267689	26.19
16	9005	271620	82.2	223141	24.78
17	3285	118214	75.3	88984	27.09
18	13260	213094	70.1	149376	11.27
19	9855	171029	73.2	125240	12.71
20	9975	256693	82.7	212321	21.29
21	8760	254812	73.1	186284	21.27
22	4318	233739	88.2	206247	47.76
23	7055	131166	74.2	97290	13.79
24	14538	281706	68.1	191937	13.20
25	7420	171638	78.5	134785	18.17
26	10523	290858	83.1	241720	22.97
27	17035	270540	66.6	180292	10.58
28	9490	208947	76.0	158733	16.72
29	9673	265516	80.4	213533	22.07
30	11680	422605	76.9	325036	27.83
<b>Total</b>	<b>296499</b>	<b>7270033</b>	<b>76.4</b>	<b>5552965</b>	<b>18.73</b>

## C Costs of Small NHS Units in the Community

### Section 1 General information

This part is concerned with the total cost of small (i.e less than 50 beds) units for the care of mentally handicapped persons. The costs are again meant to be public sector costs which comprise NHS costs and the costs of services provided by local education and social services department.

The costs to the NHS are calculated by taking the costs reported in the costing returns, subtracting the cost of services provided to non-residents and adding on the costs of external NHS services used by residents. Outreach services were the main services provided by clinical and nursing staff of the NHS units to non-residents and the costs of these were comprised mainly of the salaries of the relevant staff. The use of external NHS services was rare and formed a small (3%) part of cost.

The costs of local authority services were collected from the relevant Departments. As would be expected education was the major service used by children and training centres by adults. Social work support was used in almost every unit.

### Section 2 Results

The costs of the units were collected in different financial years. Those from South Western RHA refer to 1982-83 whereas those from Trent and West Midlands refer to 1983-84. The results are set out in Table 7.

There are a number of explanations for the cost variations between these units as set out below:

Table 7 Total Public Sector Cost of Small Scale NHS Units for the Care of Mentally Handicapped Persons

<u>Unit</u>	Total NHS Expenditure £	% of Total	Total LEA(f) Expenditure £	% of Total	Total Soc. Services Exp. £	% of Total	Total Exp. £	No. of In-Patient Days	(£) * Total Cost Per In-Patient Day
<u>SOUTH WESTERN</u>									
<u>RHA</u>									
<u>Children's</u>									
<u>Unit</u>									
Unit 1	383616	(82)	80399	(17)	5931	(1)	469946	6840	68.71
Unit 2	383669	(87)	48433	(11)	8987	(2)	441089	8007	55.09
Unit 3	233686	(91)	21532	(8)	2966	(1)	258184	4526	57.04
Unit 4	342629	(88)	41584	(11)	4493	(1)	388706	5657	68.71
Unit 5	353199	(90)	26845	(7)	10719	(3)	390763	7411	52.73
Unit 6	233720	(90)	18802	(8)	4493	(2)	257015	6090	42.20
Unit 7	200596	(84)	36350	(15)	1197	(1)	238143	3979	59.85
Unit 8	179489	(90)	14310	(8)	4493	(2)	198292	2665	7.41
<u>Adult Units</u>									
Unit 9	204361	(79)	2753	(1)	51977	(20)	259091	10197	25.41
Unit 10	176496	(88)			24270	(12)	200766	4891	41.05
Unit 11	70401	(96)			2966	(4)	73367	3541	20.72
Unit 12	148124	(88)	4733	(3)	14557	(9)	167414	4197	39.89
Unit 13	157948	(89)	185		19817	(11)	177950	4197	42.40
Unit 14	205909	(96)	5506	(3)	1785	(1)	213200	8740	24.39
Unit 15	172926	(91)	4523	(3)	11775	(6)	189224	9121	20.75
Unit 16	197785	(93)	-		15319	(7)	213104	5774	36.91
Unit 17	121147	(86)	-		19466	(14)	140613	2358	59.63
Unit 18	99855	(90)	-		10759	(10)	110614	5879	18.82
<u>Units for the Elderly</u>									
Unit 19	173204	(100)	-				173204	11021	15.72
Unit 20	156984	(92)	371	(1)	13588	(7)	170943	5913	28.91
Unit 21	232660	(98)	3540	(2)	137		236337	16180	14.61

\* At 1982-83 prices

Table 7 continued

Unit	Total NHS Expen- diture	% of Total	Social Services Exp.	% of Total	Local Educ. Exp.	% of Total	Total Expen- diture	No. of In- Patient Days	†
									Total Cost per In-patie day
	£		£		£		£		£
<u>Trent RHA</u>									
<u>Children's Units</u>									
Unit 22	266032	85	3774	1	43738	14	313534	5703	54.95
Unit 23	189311	76	288	-	61066	24	250665	4612	54.35
<u>Adult Units</u>									
Unit 24	220607	-	-	-	- *		220607	11092	19.89
Unit 25	154325	85	28259	15	-		182584	7353	24.83
Unit 26	126588	81	28259	18	1783	1	156630	8082	19.38
Unit 27	81315	92	7017	8	-		88332	3881	22.76
Unit 28	372796	85	63358	14	1950	1	438104	16307	26.87
Unit 29	228758		-		-		228758	13654	16.75
Unit 30	133266		-		-		133266	7753	17.19
<u>West Midlands Adult's Units</u>									
Unit 31	81793	84	4151	4	11596	12	97540	2142	45.53
Unit 32	112924	88	14824	12			127748	3227	39.59

\* = Marginal expenditure on adult education

† = At 1983-84 prices

### Section 3 Variations in Costs

#### (a) Children's Units

There is a wide variety of costs in the children's units ranging from £42 to £74 per patient day. The cost differences may be due to several reasons:

- (i) Under Capacity usage: Given that modern units often provide mixes of short and long stay care as well as day care, the occupancy figures are likely to vary with demand throughout the year. The higher costs of units 1 and 4 are caused by this factor. Units 1 and 2 are of almost the same size, have very similar total expenditure, but No. 2 provided 14.6% more patient days than No. 1. The occupancy (66%) at Unit 4 was the lowest in all of these children's units.
- (ii) Change in policies. The relatively low costs of unit 6 are due in part to the decision to move the residents to alternative accommodation and change the usage of the existing premises.
- (iii) Size of unit. The smallest unit has the highest average cost of all the eight units in this sample. However, there are 5 units with between 24 and 27 beds where the costs vary between £40 and £65 per patient week more for the reasons stated above than for size.

#### (b) Adult units

The cost per in-patient day for adult units varies from £12 to £57 per patient day. The most likely explanation appears to be:

##### (i) Differences in dependency states of residents

Generally the low cost units care for less dependent residents. Unit 12 cares for very dependent persons but its costs are lower than expected because of the uncertain future of the unit and the reluctance to commit more resources to a unit whose use may change in the near future.

(ii) Problems of resource deployment

As far as it is possible in a project of this nature to enter into issues about the level and use of resources, there was some concern expressed to us about the resource allocation to three units - No. 14, No. 9 and No. 16 - in so far as it was considered that these units were relatively under-provided for the care they had to give. On the other hand, Unit 17 seemed to have very generous staffing levels for the level of dependency of its residents.

(iii) Low occupancy

The cost per in-patient day of Unit 17 is partly caused by low occupancy as well as generous staffing.

(iv) Number of beds

The above factors appear to be more important than the size of the unit in accounting for variations in in-patient costs. Of course, the sample is small and units of similar size are often dealing with patients with markedly different characteristics, especially in terms of dependency state, as well as providing a quite different type of service e.g. mixed forms of care as against long-stay only care.

(c) General considerations

The results of this analysis show to some extent the effect on costs of different characteristics of patients, e.g. age and dependency, but a major factor in all these units was the type of care being offered e.g. long stay or mixed long, short and day care and the effects that the mixed type of care has on occupancy and therefore on cost per patient day.



D Comparing the Costs of Small Community-based Units with the Ward Costs at the Royal Albert Hospital

The aim of this part of the study was to compare costs of wards in a large hospital with those of the small community-based units in order to identify both the shorter term and long-term resource consequences of discharging patients from hospital to community care. This involved using the results of the ward costing exercise presented in Section 2 above (Tables 5 and 6) and matching wards as closely as possible with community-based units according to the main characteristics of patients such as age, dependency, presence/absence of physical handicap and degree of behavioural disorder.

The short-term cost differences are based on the costs of the community unit compared with the cost savings resulting from closing the particular comparable ward in the long-stay hospital which are set out in the "marginal savings" in Table 6 above. The development of community based units is likely to look very costly in these comparisons because resource savings in the long-stay hospital will remain at a relatively low level until several wards can be closed. The long-term cost comparisons are based on saving all the resources used by residents on the comparable ward. This reduced the relative costliness of the community units, although on average their costs are still above the hospital ward costs. The results are set out below in Table 8 and the general indications from this sampe are:

- (i) The long term costs of children's units are on average 28% greater than the costs of comparable wards in the long-stay hospital, but there is a wide variation in cost differences from 5% - 62.4%.
- (ii) The costs of the children's units in the community are on average 98% greater than the "marginal" savings expected from the closure of children's wards in the long stay hospital.
- (iii) The long-term costs in community units for adults are 22% greater than the costs of the matched wards in the long-stay hospital. Again this figure masks a large variation.

Table 8 Costs of Small NHS Units and a "comparable" ward of the long-stay Hospital

Unit	<u>Cost per</u> <u>In-patient</u> <u>day</u>	<u>Comparable</u> <u>Ward</u>	<u>Cost per</u> <sup>*</sup> <u>In-patient</u> <u>day</u>	<u>%</u> <u>Difference</u>	<u>Marginal</u> <sup>*</sup> <u>Cost per</u> <u>In-</u> <u>Patient</u> <u>Day</u>	<u>%</u> <u>Difference</u>
<u>SOUTH WESTERN R.H.A.</u>						
Unit 1	68.71	5	52.48	+30.9	36.64	87.5
Unit 2	55.09	5	52.48	+ 5.0	36.64	50.4
Unit 3	57.04	9	40.06	+42.4	25.12	127.1
Unit 4	68.71	17	45.82	+50.0	28.96	137.3
Unit 5	52.73	17	45.82	+15.1	28.96	82.1
Unit 6	42.20	17	45.82	- 8.0	28.96	45.7
Unit 8	74.41	17	45.82	+62.4	28.96	156.9
Unit 9	25.41	24	21.22	+19.7	14.05	80.9
Unit 10	41.05	29	30.15	+36.2	23.50	74.7
Unit 11	20.72	13	16.40	+26.3	10.50	97.3
Unit 12	39.89	10	32.79	+21.7	26.87	48.5
Unit 13	42.40	29	30.15	+40.6	23.50	80.4
Unit 14	24.39	13	16.40	+48.7	10.50	132.2
Unit 15	20.75	13	16.40	+26.5	10.50	97.6
Unit 16	36.91	29	30.15	+22.4	23.50	57.1
Unit 18	18.82	13	16.40	+14.8	10.50	79.2
Unit 19	15.72	18	17.08	- 8.0	12.64	24.4
Unit 20	28.91	25	25.13	+15.0	19.35	49.4
Unit 21	14.61	18	17.08	-14.5	12.64	15.6

\* revalued from 1981-82 to 1982-83 price

Units 7 and 17 are not included because of the difficulty of matching.

Table 8 continued

	<u>Cost per In-</u> <u>Patient week</u> £	<u>Comparable</u> <u>Ward</u>	<u>Comparable</u> <u>Ward Cost</u> £	<u>%</u> <u>Difference</u>	<u>"Marginal"</u> <u>Ward Cost</u> £	<u>%</u> <u>Difference</u>
<u>TRENT R.H.A.</u>						
Unit 22	54.95	17	48.16	14.1	30.34	81.1
Unit 23	54.35	9	42.13	29.0	26.42	105.7
Unit 24	19.89	18	17.93	10.9	12.62	57.6
Unit 25	24.83	13	18.48	34.4	11.04	124.8
Unit 26	19.38	13	18.48	4.9	11.04	75.5
Unit 27	22.76	13	18.48	23.2	11.04	106.2
Unit 28	26.87	13	18.48	45.4	11.04	143.4
Unit 29	16.75	18	17.93	-6.6	12.62	32.7
Unit 30	17.19	13	18.48	-7.0	11.04	55.7
<u>WEST MIDLAND</u> <u>R.H.A.</u>						
Unit 32	39.57	20	29.61	33.6	23.84	66.0

\* adjusted to 1983-84 prices.

Unit 31 is not included because of the difficulty of matching.

- (iv) The costs of community units for adults are 75% above the expected "marginal" savings from the closure of comparable wards in the long-stay hospital.
- (v) The major cost differences are accounted for by the same reasons as set-out on pages 18 and 19 and it can be seen generally that the cost difference tends to be higher for units with low occupancy whether for children or adults and for units caring for more dependent or handicapped people.

However, several important reservations have to be made about these figures:

- (i) The sample is very small - one long-stay hospital and 29 community-based units.
- (ii) The choice of comparable wards is necessarily subjective. The main area of sensitivity is the choice of ward 13 instead of ward 15 as a comparison for the community units with a low dependency mix of patient. Both wards cater for low dependency patients, but the costs of ward 15 were exceptionally high for its classification according to the regression analysis set out in Discussion Paper No. 1.
- (iii) As stated at the outset capital costs have been deliberately excluded from the comparisons.
- (iv) All the units are provided by NHS authorities and it is possible that some hospital residents could be cared for in local authority homes, hostels or group homes where costs could well be below those of NHS units.
- (v) There appears to be general dissatisfaction with the larger community-based NHS units. Thus, the future of many of the units in this sample was uncertain as districts contemplated the development of much smaller (4 beds) units. The objective of "integration" with the local community and "normalisation" favour the development of much smaller units. If the people who are cared for in these smaller units need continuous care or supervision, then the costs of NHS care are likely to be above the costs of the units included in this sample.