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The authors are, of course, solely responsible for any errors, omissions and obscurities in the final version.

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GENERAL SUMMARY

Motivation and Approach of the Study

Over more than 20 years in Ireland, public policy has emphasised the importance of ensuring that, where possible, dependent elderly people are cared for at home rather than in long-stay institutions. The belief has been that it is better, and probably cheaper, to help elderly people to live in the community rather than to provide for them in long-stay institutions. There has, however, been almost no information provided or analysis made of the costs of caring for elderly people in different settings. This provides the motivation for this study, which aims to estimate the costs of caring in long-stay institutions by comparison with care in the community. A comprehensive approach is taken to the estimation of costs, including the various implicit costs that fall on households where elderly persons are being cared for. The dependency levels of the elderly people in these various settings are estimated. In this way, it is possible to estimate how costs change as the level of dependency changes.

The Setting in Which Care Takes Place

Care of the elderly occurs in three broad settings – in long-stay institutions, in short-stay institutions, and in the community where the main resource is the capacity and willingness of the family to provide care. Within the formal community care services, there are five main elements: domiciliary services, day (care centre or hospital) services, sheltered accommodation, boarding out and assessment services. Marked differences in levels of provision of some community care services are observed across Health Board areas. Informal care comprises care in the home, backed up by health and personal social services provided by statutory or voluntary agencies. However, the main burden falls on the family, and in turn, the majority of carers are women.

Measuring Costs of Caring and Dependency

The two key issues from the point of view of methodology are how to estimate costs and how to estimate dependency levels. On the costs side, a fundamental distinction is that between financial or "out-of-pocket" costs, and opportunity costs. When estimating financial costs, the question which is being asked, in effect, is: if this activity is not pursued, how much

expenditure, especially for the central Exchequer, would be saved? By contrast, when opportunity costs are estimated, the question being asked is implicitly: if this activity is not engaged in, what opportunities are released, or what real resources are saved? These real resources consist in particular of labour and capital that could be put to other uses. The main difficulty that arises when estimating the cost of care in the home is how to estimate the costs of the time that is contributed by carers. This is where there can be a marked divergence between financial costs and opportunity costs. From the point of view of the Exchequer, informal care in the home may be seen as "free". Yet estimates of opportunity costs can yield quite different results if, for instance, they are based on estimates of earnings forgone because opportunities for work in the market are given up.

Most of the methods of estimating dependency levels are focused on physical dependency, mainly taking account of mobility and the activities of daily living. However, there has been recognition of the need to take account also of the mental and emotional aspects, even if this is not done in a formal way through the construction of scales.

Methodology of the Study

The study is based on three surveys of the dependency levels of elderly persons and of the nature and level of services provided in three different settings. These settings are, first, 4 selected geriatric hospitals providing in-patient care. Second, a national random sample of some 250 households in which there was at least one elderly person in need of care. Third, a day hospital, an institution which can be seen as a bridge between the services of long-stay geriatric hospitals and care in the community. Unlike the community side of the study, which is based on a random sample permitting inferences to be drawn about the population sampled, the hospital side consists of a series of case studies. Here, the intention is to illustrate the range of situations that can be found within the geriatric hospital sector. The hospitals provide a range of approaches to service provision, in particular with regard to the degree to which assessment and rehabilitation are used in an active way with the aim of returning patients to live in the community, where possible.

For the community survey, households where there was at least one elderly person in need of care comprised the sample. Within these bounds, the study focuses on those cases where the carers and the elderly persons lived in the same household, and on the caring activities undertaken for the principal recipient of care.

Dependency Profile of Elderly People

As a prelude to the analysis of costs in the different settings, the profile of dependency is examined. It would be expected that a relatively high percentage of the people in the hospitals would be in the higher dependency categories. While this is observed, a little over a fifth of them are either free from disability or have only one disability, that of not being able to bathe without help. Moreover, there is quite a large variation in the distribution of the elderly by category of dependency in the different hospitals.

There are a number of elements which can explain the presence of low-dependency people in hospital. First, it would be expected that geriatric hospitals with more formal assessment and more rigorous procedures for admission would have a low proportion of less-dependent people. This expectation is borne out. Second, if a hospital has a rehabilitation programme and an active policy on discharge, one would also expect it to have a low proportion of less-dependent people. This expectation is also borne out. Third, the quantity and quality of community support to an active discharge policy can make a difference. It was expected that most of the elderly in the community sample would be in the low dependency groups, and this is also found.

Care and Service Usage in Institutions

The nature of service provision in the institutions and the levels of service provided are now considered. The most important form of service provided, in terms of the amount of resources used and their implications for costs, is nursing and attendant care. Other elements of resource use are paramedical services involving physiotherapists, occupational therapists, chiropodists and speech therapists, together with physician services. In addition, medicines are consumed as are services such as pathology. It was expected that people with higher levels of dependency would receive more hours of care from nurses and attendants, and this is indeed found. What is surprising is that there is quite a variation in the number of hours of care provided, on average, across the 4 hospitals, having taken account of dependency category. This variation cannot be explained fully by introducing health indicators additional to physical dependency, such as mental health and degree of co-operation. It is more likely that some of the variation in the number of hours of care across hospitals can be explained by differences between hospitals in how the process of caring is seen and reported. For example; bed-ridden patients may be seen as requiring constant supervision in some hospitals, but not in others.

The expectations were that the usage of resources would increase with the level of dependency. This is not found as a general pattern. This may reflect the decisions of providers to concentrate most resources on those people who are likely to benefit most from treatment.

The Costs of Institutional Care

Based on the foregoing estimates of hours of service use in the hospitals, together with budget data from the hospitals, the costs of care can be estimated and related to the levels of dependency. The cost of care per occupied bed increases as disability increases. However, the degree to which costs increase is not uniform as one moves up the dependency scale. The costs of care reflect, to an important degree, the number of nursing and attendant hours. Patients in the assessment/rehabilitation unit of Hospital 2 receive more care than those in long-stay beds, and, as a result, the average cost per occupied bed in the assessment unit is significantly higher than in the long-stay unit. If costs are estimated on a per patient rather than on a per bed basis, allowing for the turnover of patients, this has a marked effect on the cost estimates for the assessment/rehabilitation unit of Hospital 2. Given the high turnover of patients through that unit, the costs per patient treated are a fraction of costs per bed.

It is evident that the two broad elements that determine the level of care given to people with different levels of dependency, and hence that determine the costs of provision, are the needs of patients and the availability of facilities. Some of the cost differences between hospitals reflect the fact that some of the hospitals have a greater level of facilities than others.

Provision of Care in the Community

The community survey enables a picture to be built up of the usage of services by the dependent elderly who are being cared for at home. An important factor turns out to be episodes of hospitalisation. Some 29 per cent of the sample have been hospitalised at least once in the previous year. For those who spent time in hospital, the average length of stay in most cases was over 21 days. Even among those of low dependency, the average length of stay (for those hospitalised at least once) is not notably different from that for the sample as a whole. A low level of usage of formal community care services was found, which was almost entirely confined to GPs, public health nurses and home helps. This low usage reflects low levels of provision of services, a lack of information about services on the part of households, and a lack of accessibility of services to those who could use them.

Taking up informal care in the home, three-quarters of the principal caregivers were female and the average age of those giving care was 52. On average, they spent 47 hours a week on providing care, a number which increases considerably as the level of dependency increases. For the elderly people with lower levels of dependency, most of the caring involves providing help with activities such as housekeeping, shopping, preparing meals, washing and ironing clothes, and providing supervision. For those with greater degrees of dependency, some two to four hours a day, on average, are spent providing help with physical activities such as washing, dressing and feeding. One question which relates to opportunity costs is the extent to which the carers remain at work and the degree to which they have reduced working hours outside the home. One-fifth of the carers are in paid employment, a further 15 per cent either gave up paid employment or reduced their working hours in order to care for the elderly person.

Costs of Care in the Community

The estimates of costs of care in the community are based on the levels of usage of services which are estimated in the community survey. Unit prices (costs) for each type of activity are applied to the levels of service delivery for each of these activities. A key cost item is the amount of hours of informal care given within the home. In estimating the costs of informal care, the main emphasis is on the estimation based on opportunity costs. The alternative way of putting a value on a caring hour, by using the price per hour of a public service which could substitute at the margin for at least some of the informal care hours is also used to generate cost estimates. The latter is in essence an approach based on public expenditure. While the alternative opportunities for work of the carers are limited, the large amount of hours devoted to caring means that the opportunity costs of labour are a significant part of total costs. The average costs increase as the level of dependency increases. However, the increase is less than might have been expected.

These estimates of costs do not reflect the psychic costs of caring that fall on individuals and families. Given the modest use of formal community care services which is evident from the survey, and the limited role played by informal social networks, much of the burden of community care falls on the principal caregiver. It is clear from research that substantial psychic costs are imposed on the caregivers, which can take the form of stresses and strains that lead to marital and family conflicts. Groups upon whom such burdens particularly fall are those caring for the highly dependent elderly, carers who – because of low incomes or other reasons – lack the

economic or social resources which would enable them to obtain support or relief and women subject to social pressures to give up paid employment or else put their paid work second to the task of caring. The results of the community survey show a very high level of psychological distress among the carers. Moreover, such psychic costs have implications for economic costs. High levels of stress are likely to mean that over time the health of the carers deteriorates and their utilisation of health services increases.

Service Usage and Costs in a Day Hospital

Day hospitals provide an alternative to in-patient services; they investigate, treat and rehabilitate people without the necessity for an overnight stay in hospital. The costs of day hospital services reflect a complex mixture of resource uses. This mixture comprises service provision within the hospital, transport provision, formal community care services, informal care within the home and episodes of acute hospital services. The approach to cost estimation adopted assumes that the day hospital services are complementary with both community care services (formal and informal) and acute hospital services.

Most of the day hospital patients are in the relatively low dependency groups, compared with the pattern for hospital in-inpatients. This is to be expected. Aside from nursing and attendant time, significant contributions of time come from physicians, physiotherapists, and occupational therapists. In broad terms, the higher the level of dependency, the greater the amount of time that is given.

There is a marked difference between the day hospital group and the community sample in that the day hospital group receives many more hours of public health nursing and home help services. This is likely to be related, in part at least, to differences in the availability of services between the two groups. The largest single item in the cost estimates is that of nursing and attendant care. The general pattern is that per capita costs rise with dependency level, although there is not much difference in costs between the two highest dependency levels. Turning to the components of total costs, the costs of the day hospital itself are the largest single component. However, the estimated opportunity costs of informal care in the home are not far behind, at about four-fifths of the costs of day hospital services.

Conclusions

The estimates of costs, for each of the settings, are heavily influenced by certain key services. In the hospitals and in the day hospital, the most important single element which affects costs is the provision of nursing

and attendant hours. In home care, the two largest elements in costs are the opportunity costs of the hours given by informal carers in the home, and the personal consumption of elderly people. There is a relatively low level of usage of the community care services which are provided through the Health Boards, and hence these services do not comprise a significant part of costs for the community sample. The use of acute hospital care for episodes turns out to be more important as a cost for the community sample than these formal community care services. Acute hospital care is also an important cost item for those who use the day hospital.

Turning to the relationship between costs and the level of dependency, in the institutions it is found that the per capita costs of care increase as the level of dependency increases. This increase in cost is not the same over the entire range of dependency levels. One reason which could explain the finding that, between some dependency levels, costs do not increase as much as might have been expected, is the way in which resources are put into assessment, at least in some hospitals. Assessment, and efforts at rehabilitation, are often targeted on lower-dependency patients. The assessment and rehabilitation services are labour-intensive and involve highly skilled staff. They can thus add considerably to costs.

For the community sample, total costs increase steadily as the level of dependency increases. However, the increase in average cost across the range of dependency is less than might have been expected. A number of factors can explain this. First, even for those with relatively low dependency levels, a considerable number of caring hours is given by carers in the home. There seems to be a minimum critical mass of hours which is involved in care in the home. Second, in the case of both high and low dependency levels, there is a considerable usage of hospital services.

Turning now to the costs of home care relative to institutional care for those with low dependency levels, in 3 of the 4 hospitals the costs per capita are of the same broad order of magnitude as for the community sample. There are a number of likely explanations for this pattern and in particular for the key finding that there are relatively high resource costs of caring in the community at low dependency levels. First, there is the feature, already noted, that even for elderly people with low dependency levels, there seems to be a substantial number of hours of care which are required and given. Second, even for the low-dependency group, there is a considerable usage of hospital services for episodes of care. Third, the costs of personal consumption and the costs of housing are assumed constant across dependency levels.

Looking at the cost differences across the hospitals, some of the results reflect differences in the philosophy and style of care while others reflect a

more generous availability of facilities in some hospitals than in others. Not all of the differences in costs between the hospitals can be explained by differences in levels of disability. In turn, this reflects in part the fact that budgets to the hospitals are not allocated on the basis of need, and that little is known about the degree of disability of elderly people in the hospitals or about the nature of care given within them.

The cost estimates reflect the actual, not the optimal, consumption of services. Hence, the calculated costs can be lower than if the optimal amount of service provision was observed. Resource inadequacies are especially evident for paramedical services, both in the community and in some institutions.

The fact that the resource costs of community care are higher than is generally thought, and in some cases higher than for the alternatives, does not mean that more elderly people should be looked after in institutions. In general, older people prefer living in their own homes and these wishes should be respected and facilitated whenever possible. What the results here highlight is the weakness of any argument that tries to promote community care simply on the basis that it costs less than the alternatives. A transfer of the burden of care from the Exchequer to families would be unacceptable, given the paucity of community care services throughout the country and the lack of recognition which informal carers have traditionally received from the statutory sector.

One policy issue that arises is how the allocation of public resources to the hospitals could be more reflective of need. Currently, the allocation is a rather *ad hoc* process, based in part on historical patterns of provision and incremental allocations over time. Dependency scales, such as those used here, can provide a starting point for the refinement of methods of resource allocation through which public funding of long-term care would reflect needs in a more systematic way.

The analysis here has shown the important role that assessment and rehabilitation plays – both in ensuring that hospital services concentrate on the higher-dependency patients, and in returning patients to the community where that is possible. A number of policy measures could strengthen the role of assessment and rehabilitation. These include increasing the supply of consultant geriatricians, and making public subsidies to long-stay care bills conditional on the elderly recipients having been assessed as in need of such care. However, assessment will be truly effective only if adequate resources are available in the community to make possible a genuine choice between hospital and community. Ideally, whatever subsidy is paid towards the care of older people in long-stay institutions should also be available to finance a package of community

care services for these people. Within this context, assessment would take place on a continuous basis. One other implication arises from the key role played by nurses in carrying the main burden of care in hospitals: the allocation of additional resources towards training and professional development for long-term care nurses could help significantly to improve the quality of care.

There are some other policy implications. One way in which the diversity of older people could be addressed would be through the development of individually-tailored packages of care for vulnerable older people and their carers. For this to happen, there would need to be a member of the community care team with specific responsibility for the care of vulnerable older people. This approach could concentrate resources on those who otherwise would be in institutional care.

In the provision of formal community care services, public health nurses play a crucial role, with a third of the sample saying that more PHN support would help them. Currently, there is an absence of social workers involved in the care of the elderly, yet social workers potentially have an important role to play and an increase in service provision by them could help families in a number of ways. Public health nurses and social workers are the leading candidates for the role of liaising between the elderly and the carer on the one hand, and medical and professional services on the other hand.

There are a number of ways in which a greater degree of support could be given to informal care in the home. First, the support most frequently sought by the carers themselves is direct payment for services. The restrictions which govern the Carers' Allowance could be relaxed. Second, outreach programmes could give information about the supports that are available, and about health, social work and welfare services. Linked to this, there could be improved liaison between the different providers of care. Third, the most frequently cited stress of caring is the fact that the carer must constantly remain in the home. Thus, carers could benefit from the provision of a variety of respite options such as short-term relief care and night-sitting.

Chapter 1

INTRODUCTION

Introduction

This chapter sets out the background to, and rationale for, this study. There follows an outline of the structure of this report.

Care of the Elderly in Different Settings

Since the late 1960s in Ireland, public policy has placed a growing emphasis on the desirability of ensuring that dependent elderly people are cared for at home, where possible, rather than in long-stay institutions. (The evolution of policy towards the elderly is outlined briefly in Chapter 2.) In particular, policy was informed by the belief that it was better, and probably cheaper, to assist elderly people to live in the community rather than to provide for them in long-stay institutions. In this way the elderly would remain in contact with family and friends, would have access to community resources, and would receive care either in small-scale local residential units or in their homes from family and neighbours backed up by community-based services and by those of voluntary organisations. Community care was seen as not merely a less costly form of care, but also of better quality. It was assumed that living in the community involved closer contact with kin and friends, and increased independence.

Questions Arising and Focus of this Study

The belief, that community care is better and cheaper than institutional care, implicitly raises a number of questions:

- What is meant by saying that care in the community is "cheaper", and in particular does this simply mean that there are savings in public expenditure if elderly people are cared for in the community?
- Does a shift from institutional to community care mean that there is a shift in burden from public agencies to unpaid care given within the home, and does this shift imply economic and social costs borne by households?
- Do the comparative costs of institutional and community care differ according to the nature of formal community services, mostly

provided through Health Boards, and the provision of day hospital services?

The lack of knowledge about the costs of caring for elderly people in different settings (at home compared with in a long-stay hospital or nursing home) was pointed up by the Working Party on Services for the Elderly (1988, pp. 182-183). The Working Party led to the initiation of this study, with the encouragement of the Department of Health. This study aims to compare the costs of hospital care and the costs of providing care in the community for a group of elderly people who are broadly equivalent in terms of their dependency.

Conceptual Issues

In addressing the aims of this study, a number of conceptual issues have to be faced.

First, a comprehensive estimate of costs has to take account of various implicit costs which are borne by those households where elderly persons are cared for. In turn, this requires an estimate of the sacrifices, both material and other, that these households bear.

Second, the provision of care to elderly people often involves a complex package of many different services. Within institutions, different types of service are provided; in cases where elderly people are cared for at home, familial care can be backed up by the provision of statutory services and by day hospital services; when building up estimates of costs, there is need to estimate the different levels of service offered by each of the providers. Within institutions, it can be difficult to allocate all the hours of service to individual patients, since in some cases there are hours of care which are jointly supplied to a number of different people.

Third, the dependency levels of the elderly in institutions and in the community need to be estimated. This is because (a) there is need to estimate to what extent the dependency levels of the elderly being cared for at home are similar to those who are in institutions, (b) one key question is the degree to which costs change as the level of dependency changes. However, there is no sacrosanct way of estimating dependency levels. Moreover, it can be difficult to combine physical measures of dependency (which involve, for example, mobility) with other health indicators such as state of mental health.

Fourth, costs and the provision of services deal in essence with the supply of services – in other words, with the inputs of different services. These inputs are not synonymous with the outputs – that is, the quantity and quality of service as received by the elderly people. In turn, this raises the question of cost effectiveness: the extent to which it is more cost

effective (taking into account the output of services) to care for an elderly person at home than in a long-stay institution.

This study addresses in effect these conceptual issues; with the exception of the fourth one which concerns the output of services and its quality. The extent to which cost differences could reflect (in part, at least) differences in quality of care is recognised in the study and is discussed within the limits set by the study design. That study design is now addressed.

A number of hospitals with long-stay patients were selected. Resource constraints on the study restricted this number to four. The selection was designed to ensure some variation on a number of key aspects of these institutions. First, there was a variety of locations, ranging from a large urban hospital with a day hospital on the site, to institutions in much more sparsely populated locations. Second, there are differences across the hospitals in the degree to which formal assessment of elderly people is used prior to admission as long-term patients. These four hospitals are to be regarded as case studies. They do not comprise a representative sample of all long-stay hospitals.

Within each of these hospitals, the capacities of a selected number of elderly patients were examined, and the levels of the various services given to these patients recorded. In turn, these data are used to compare the costs of hospital inpatient care with those of community care for a roughly equivalent group of elderly people. The implications of costing all the elements of community care – including the forgone opportunities of those who engage in care in the home – are brought out. So also is the extent to which community care depends on the formal services such as are available under community care programmes of Health Boards.

In addition to the two contrasted regimes of care, the study examines service usage and costs in a particular day hospital – where services are provided from an institution but to a group of elderly people who remain in the community. The extent of the complementarity between this provision and "community care", as hitherto envisaged, is explored.

Structure of the Report

The report begins with an outline of the demographic and economic background to the care of the elderly, and an outline of the current provision of services for the elderly (Chapter 2). Chapters 3 and 4 are concerned with the study design: with the possible methods of estimating costs of care and dependency levels, and the methods adopted for collecting data in hospitals and in the community. As a prelude to the analysis of service provision, Chapter 5 examines the dependency profile

of those being cared for across hospitals and in the community. Chapter 6 analyses the forms of service provision within the hospitals; based upon this analysis, the costs of these services are estimated in Chapter 7. Similarly, in the case of care in the community, quantification of the levels of care that are given (Chapter 8) is the basis for the estimation of costs (Chapter 9). Chapter 10 is concerned with service usage and costs in a day hospital. A concluding chapter draws together the threads of the discussion and reviews the implications of the results.

Chapter 2

CARING FOR THE ELDERLY IN IRELAND

Introduction

This chapter outlines the demographic and economic background to care of the elderly in Ireland. In addition, it outlines the current patterns of care for the elderly. There is a group of elements which strongly influence the demand and the need for services for the elderly. First, there is the elderly population, its composition by age, the number living in private households, and the composition of those households. Second, there is the number of people in the labour force, which in part can determine the number of those who are in a position to devote a considerable amount of time to relatives. The first part of this chapter is concerned with these two elements, in turn.

Care of the elderly occurs in three broad forms – in long-stay institutions, in short-stay institutions, and in the community where the primary resource is the capacity of the family to provide care. Those who care within the home can make intermittent use of institutional services – sometimes for episodes of acute care. The chapter concludes with an outline of the current provision of care for the elderly. It begins with the provision of services in institutions, goes on to consider the services (mainly through public bodies) given in community care, and then outlines the nature of care in the home. The level of usage of services is described in these different cases.

Demographic Background

In 1986 there were 384,400 persons aged 65 years and over in the Republic of Ireland. This represented 10.9 per cent of the entire population. Fifty-six per cent of the elderly are women – reflecting the longer life expectancy of women compared with that of men. There were 143,900 persons aged 75 years and over, representing 4.1 per cent of the entire population. Of these more elderly persons, 61 per cent are women.

It is projected that in 2006 there will be 394,900 persons aged 65 years and over in the country, representing 11.6 per cent of the total population, of which 58 per cent will be women (Central Statistics Office, 1988). In the period up to 2006 the elderly population is itself expected to age. It is

projected that those aged 75 years or over will increase by 13.6 per cent to 163,400. In comparison, the population as a whole is projected to *decline* by 3.5 per cent while those aged 65 years and over are projected to increase by 2.7 per cent.

Implications of Numbers of the "Most Elderly"

The distinction between the elderly as a whole and those aged 75-80 or over is important. While there can be marked differences between individuals, there is a divide in general between the "most elderly" and the "young elderly" in terms of overall demand for services and the types of services demanded. These differences relate to health, mobility and ability to care for oneself.

For instance, a survey in England in 1976 found, in terms of mobility that at the time of the interviews at least 90 per cent of those under 75 years of age had no difficulty in getting out and about without any assistance, but that this ability then declined steadily with increasing age. Among those aged 80 or over, less than two-thirds were able to get out without any assistance; over 15 per cent were either permanently bedfast or house-bound (Abrams, 1981). For the United States, it has been estimated that the elderly aged 75 or over are 20 times more likely to require assistance with activities of daily living (such as bathing, dressing, eating, moving about) than are persons aged under 65 (Doty, Liu and Wiener, 1985).

Those in Private Households and Numbers Living Alone

Of all elderly persons, 91.5 per cent are in private households (351,500 out of a total of 384,400 in 1986). Of those persons in private households, 82,300 or 23 per cent lived alone. Those who live alone are identified as a group since they can be in need of particular support services. In addition, as shown by the only but dated survey (Power, 1980), their housing conditions have been relatively bad. Some alleviation of these poor housing conditions is likely to have occurred since the early 1980s as a result of the repair and renewal activities of the Task Force on housing for the elderly, which has operated through the Health Boards.

Demographic and Labour Force Influences on Family Care

Changes in family formation and in labour force participation can have an impact on the willingness and ability of families to engage in care, in a number of different ways. A number of different elements could be expected to have reduced the preparedness and capacity of families to care for elderly people.

First, the decline in average family size in Ireland – from 4.0 children born per woman in 1981 to 2.3 in 1987 – might at first sight seem to connote a decrease in the number of children who are available for a future pool of potential carers.

Second, there has been a rise in the labour force participation among married women. The labour force participation rate for married women (that is, the proportion of married women in the labour force) increased from 7.5 per cent in 1971 to 19.5 per cent in 1984 and to 23.3 per cent in 1989 (source for 1989 data: Central Statistics Office, 1990). This rise has a number of implications. Women have done most of the informal care in the home. If more women are involved in "market" work, this means that fewer women are available during the day to care for elderly relatives. Moreover, a rise in labour force participation means that opportunities for "market" work at a certain wage are being substituted for "home duties". In turn, this means that the "opportunity cost" (that is the sacrificed opportunity) of engaging in home care is likely to have increased. That should lead – other things being equal – to a diminution in the amount of informal care within the home.

Third, urbanisation and increased mobility mean that people tend to live further apart from their elderly relatives than was previously the case. This can have an impact on the ability of families to engage in informal care. There is some evidence that mobility has increased from Census of Population data. In 1971, 5.1 per cent of persons aged one year and over had changed their address in the previous year. By 1981, 6.1 per cent of persons aged one year and over had changed their address.

Fourth, increases in the earnings of women relative to those of men can increase the opportunity cost of care in the home. In fact, following equal pay and employment equality legislation of the mid-1970s, the relative earnings of women relative to those of men increased for a few years but have been more or less static since the early 1980s. Moreover, opportunities in the market remain limited, with women comprising 62 per cent of the low paid – those earning under £130 a week by comparison with average male industrial earnings (adult rates) of £230 in 1987 (Blackwell and Nolan, 1990).

However, there are other elements which could compensate for these adverse influences on the amount of informal care that is given.

(a) More children now survive than was formerly the case, and this increase in longevity means that more children are likely to survive to an age when caring is possible.

(b) Many of the carers have come from the ranks of single women and their labour force participation rates are declining. The labour force participation rates of single women fell from 60.2 per cent in 1971 to 56.1 per cent in 1984 and to 50.5 per cent in 1989.

(c) Some of the increase in the number of married women who work has reflected increased part-time working. The number of women who are engaged in regular part-time working increased from 27,000 in 1977 to 39,000 in 1984 and to 50,100 in 1988; of the latter, 36,000 are married (Source: Special tabulations by Central Statistics Office from Labour Force Survey). For some of these women, work outside the home may not greatly impede their willingness and ability to engage in caring.

(d) The greater amount of independent financial resources which is available to women as a result of the rise in labour force participation may ease the caring burden. For instance, it may enable them to purchase help for elderly relatives, to adapt a dwelling in order to facilitate the "staying put" option in the case of elderly relatives, or to purchase labour-saving devices.

Evolution of Policies Towards the Elderly

Over a period of 20 years of more, policies towards the elderly in Ireland were heavily influenced by the *Care of the Aged* report (Department of Health, 1968). The Interdepartmental Committee that prepared that report had the belief "that it is better, and probably much cheaper, to help the aged to live in the community than to provide for them in hospitals or other institutions" (p. 13). That report presented objectives for services for the elderly which at the time were quite radical, given the institution-centred character of prevailing policies which had their origins in the Poor Law of the nineteenth century. These objectives were:

(a) to enable the aged who can do so to continue to live in their own homes;

(b) to enable the aged who cannot live in their own homes to live in other similar accommodation;

(c) to provide substitutes for normal homes for those who cannot be dealt with as at (a) or(b);

(d) to provide hospital services for those who cannot be dealt with as at (a), (b) or (c).

In order to bring about the achievement of these objectives, the Committee recommended the close integration of housing, financial help, health and welfare services. This approach was more or less adopted in the years following the publication of the report. Improvements in income maintenance, housing, health service and organisation have been outlined by the Working Party on Services for the Elderly (1988) in its report *The Years Ahead*. In the sphere of community health services, among the improvements have been:

- an expansion of the public health nursing service in the 1970s and the extension of domiciliary visiting by nurses to all part of the country,
- the development of home help, meals and daycare services for elderly people by voluntary bodies and health boards,
- increases in financial support given by health boards to voluntary bodies that provide services for the elderly.

Among the main development in institutional and hospital care of the elderly have been:

- the appointment of physicians in geriatric medicine in a number of general hospitals,
- the development of geriatric assessment and rehabilitation units,
- the gradual reduction of the number of elderly patients in former county homes, now known as geriatric hospitals,
- the provision of some 30 welfare homes for elderly people who do not need care in a hospital but cannot cope at home,
- the appointment of "long-stay admissions"committees in some areas, that help to ensure that elderly people are assessed.
- the development of an active approach to the care and rehabilitation of elderly people in some hospitals, with a view to restoring them to independence.

A further step in the shift away from long-stay institutional care came with *Health – The Wider Dimensions,* a consultative statement on health policy published by the Department of Health (1986). This statement pointed to the large supply of long-stay beds for the elderly, inferring that these made it all too easy for elderly people to be admitted to institutions when they found it difficult to manage at home. The statement said that "for the future, Primary Health Care will be regarded as the central component of the health care system supported by well organised and efficient secondary

and continuing care sectors" (p. 29). In future, primary care will "incorporate a comprehensive, integrated, multi-disciplinary provision of care for individuals, families and communities. It is not confined to medical care and curing but also encompasses prevention, health promotion, rehabilitation and a range of personal social services" (p. 30).

Despite changes in philosophy and improvements in services, deficiencies remain, as noted by the Working Party. Among these are the following:

- there has been a relative lack of progress in developing some aspects of community health, including the provision of physiotherapy and chiropody, social work services for the elderly and the boarding out of elderly persons,
- many elderly people still have to seek admission to institutions, reflecting their inability to live at home due to insufficient support being available,
- the appointment of physicians in geriatric medicine and the development of assessment and rehabilitation units has been slow,
- insufficient support is available for the thousands of people who care at home for their elderly relatives, many of whom have severe disabilities.

Within institutional provision, the number of beds in long-stay geriatric units have tended to decline over time. At the same time, admission committees were appointed in some areas, to provide a more rigorous evaluation than previously of elderly people before their admission to institutional care. In addition, the number of institutional nursing staff has increased. A small but significant number of consultant geriatricians have been appointed in a few hospitals. Taken together with the advent of admission committees, this means that there has been an increase in the amount of assessment of elderly people prior to their admission to institutions.

Care in Institutions

The following types of institution provide care in long-stay geriatric units.
1. *Health Board Geriatric Hospitals or Homes* provide predominantly geriatric care. Included here are long-stay geriatric units within hospitals. These institutions employ nurses, attendants, medical officers and paramedics. The total number of beds at December 1988 was 7,005 with 6,488 patients (Table 2.1). There has been a decrease in the number of beds from the 7,541 total of 1980. The number of patients was 6,500. Of the elderly, 70 per cent are 75 years and older, 59 per cent are female (Table 2.2) and 60 per

cent are chronically sick (Table 2.3). Seventeen per cent of those in Health Board geriatric hospitals have been admitted for social rather than medical reasons, that is due to an inability to continue living independently in the community.

Table 2.1: *Long-stay Geriatric Unit and District Hospital Beds in 1988*

Category of Unit	*Number of Beds*
Health Board geriatric hospitals or homes	7,005
Health Board welfare homes	1,589
Voluntary hospitals and homes	3,509
Other private nursing homes	5,552
District hospitals	1,465
Total	19,120

Sources: Revised estimates of O'Shea, *et al.*, (1991) in which information from the Department of Health, *Long-stay Geriatric Statistics* 1988, is supplemented (a) by the use of a more complete listing of nursing homes based on a search of Health Boards by the Department of Health, conducted in November, 1989, in the context of new legislation and (b) by an estimate of the number of beds in District Hospitals which are, in effect, long-stay geriatric beds.

Table 2.2: *Age Distribution and Distribution by Sex of Patients in Long-stay Geriatric Units at end-December 1988*

Category of Unit / *Age*	*Health Board Geriatric Hospitals/ Homes*	*Health Board Welfare*	*Voluntary Nursing Homes*	*Other Private Nursing Homes*	*Total*
			Per cent		
Under 40 years	0.6	0.1	0.2	0.2	0.4
40-64 years	7.6	5.8	3.5	2.7	5.5
65-74 years	21.4	18.3	16.3	12.3	18.0
75 years and over	70.4	75.7	79.6	84.4	75.9
Not stated	–	–	0.5	0.6	0.2
Total (per cent)	100.0	99.9	100.1	100.1	100.0
(number)	6,555	1,368	2,965	2,960	13,848
Male	41.0	40.6	25.1	23.9	33.9
Female	59.0	59.4	74.9	76.1	66.1

Sources: Department of Health, *Long-stay Geriatric Statistics*, 1988.

Table 2.3: *Medical/Social Status of Patients Resident in Long-Stay Geriatric Units at end-December 1988*

Category of Unit / *Patients*	*Health Board Geriatric Hospitals/ Homes*	*Health Board Welfare*	*Voluntary Nursing Homes*	*Other Private Nursing Homes*	*Total*
			Per cent		
Social	17.3	63.9	34.2	57.1	34.0
Acute illness	4.5	1.2	5.9	3.5	4.2
Chronic sick	59.9	21.7	45.2	28.5	46.3
Terminal	3.4	0.2	4.8	2.2	3.1
Mental handicap	3.2	2.0	0.8	1.5	2.2
Chronic psychiatric	7.2	9.6	5.5	4.1	6.4
Other	4.4	1.3	1.2	1.2	2.7
Not stated	0.1	–	2.5	1.8	1.0
Total (Per cent)	100.0	99.9	100.1	99.0	99.9
(Number)	6,555	1,368	2,965	2,960	13,848

Source: Department of Health, *Long Stay Geriatric Statistics*, 1988.

2. *Health Board Welfare Homes* can be distinguished from other institutions for the elderly by the fact that the main criterion for qualification for placement in them is that patients must be ambulant – capable of looking after themselves. The elderly in these cases require a level of support that cannot be given at home, but they are not in need of extended nursing care. Reflecting this, there is a relatively low rate of staffing. Usually there are 40 beds in a welfare home, with a staff complement of some 5 or 6 persons. It is not a requirement that any qualified nurses should be part of the staff. Attendants, nurses and part-time medical officers are employed. At end-December 1988 there were 1,589 beds in welfare homes.

3. *Private Nursing Homes* are (a) voluntary or charitable nursing homes, (b) other private nursing homes, that is commercial homes. The staff consist of nurses, nursing aides and cleaners/ housekeepers.

As outlined in O'Shea, *et al.*, (1991), there is a real problem in establishing how many nursing homes (in either of these categories) there are at any given time. In this report we cite the 1988 data of O'Shea, *et al.*, 1991, Table 3.9 since these comprise revised estimates of the number of private long-stay beds (excluding acute care and psychiatric) in the country for that year. While 1989 data are available in Department of

Health (1991), there seem to be problems of discontinuity with earlier series and of boundary definitions in the 1989 data.

In 1988 there were 9,061 beds in the private nursing home sector, of which 3,509 were in voluntary homes and 5,552 were in other private nursing homes.

4. *District Hospitals* also contain what are in effect geriatric beds, in addition to the long-stay geriatric unit beds included in Department of Health statistics. These should be counted. On the assumption that any bed occupied for more than 30 days is a long-stay geriatric bed, it is estimated that there were 1,465 of these beds in 30 district hospitals in 1988 (O'Shea, *et al.*, 1991, Table 3.10).

In total, at December 1988 there were 19,120 long-stay beds. Of these, 37 per cent were in health board geriatric hospitals/homes. These data do not include those in the acute sector – there are elderly people in acute hospital beds, not for medical reasons but because either suitable accommodation is not available or adequate support in the community is not provided. Nor do these data include elderly persons in psychiatric institutions for more than one year: around 3,600 in number.

About a third of those in long-stay geriatric beds have been admitted for social reasons.

Care in the Community

It has been estimated by the National Council for the Elderly that around 66,000 or 20 per cent of elderly persons in the community require some level of care. Of these around 50,000 are looked after by members of the same household. We now go on to describe informal care in the wider community and the main services which are available to back up and complement that care in the home.

Beyond the family there is the wider community which can give care. Following Tinker (1984), three distinct groups can be identified: voluntary organisations, volunteers, and friends and neighbours.

The functions of voluntary bodies can be manifold, such as:

- providing services which the State does not provide, or filling gaps in existing State services; an example of this would be meals-on-wheels services;

- giving a choice to elderly people in cases where the State dominates the provision of services:cases such as private nursing homes, old people's homes and hostels would arise here;

- giving advice to elderly people on matters such as social security.

Volunteers can provide many different types of help, ranging from practical support and advice to the provision of specialist services.

Support Services

For those families or persons who care for elderly people, there are a number of ways in which, in principle, support can be provided, such as:

- making it easier for families to move closer together;
- making it easier for households to enlarge or to adapt dwellings, thus making the "staying put"option easier;
- giving professional support to families.

In turn, the latter professional services can consist of the following:

- domiciliary and day-care services, which could range from conventional services such as home help,district nursing or incontinence services to care attendant and intensive domiciliary care schemes.The latter can have as their objective the shortening of hospital stays and keeping dependent people out of hospital or long-stay residential care;
- short-stay residential care, used to give short periods of service to dependent people and to give breaks and holiday relief to their carers;
- cash benefits;
- sitting services which provide relief to carers by the taking over of care in the home.

Community Care Programmes

Following NESC (1987), community care services can be divided into five groups: domiciliary services, day services, accommodation, boarding out, assessment services. These are now outlined, in turn.

(i) Domiciliary Services

Public Health Nursing: The largest proportion of the resources of the community care programmes of health boards goes on the public health

nursing services. The role of public health nursing combines preventive health and domiciliary nursing.

The most recent information on the workload of public health nurses (PHNs) – for 1986 – shows that the nursing of the elderly sick and geriatric surveillance occupied a significant proportion of the time spent by nurses (Burke, 1986, Table 3.1). Nearly half of all the visits made were to elderly people, and on average 50 per cent of the time of PHNs was devoted to elderly people.

There is no clear empirical evidence on the adequacy of the public health nursing services. However, the St. Vincent de Paul Society survey of the *Old and Alone in Ireland* (Power, 1980) indicates that only 19 per cent of the elderly who live alone were being visited regularly, i.e., at least once a month, by nurses.

Home Help Service: Home help services provide assistance with the tasks of everyday living. Health boards, although not legally bound to provide the service, employ about half the home helps providing care. The other half are provided by voluntary organisations with some funding from health boards. In some cases, elderly persons receiving the service are asked to pay a small charge. Provision of home help services depends on the availability of resources to fund either a full-time or part-time service. In recent years these have been affected by cutbacks in public expenditure. Between 1980 and 1984, estimated expenditures on home help services declined by 30 per cent.

The home help service was providing help to over 10,000 households in 1981 (NESC, 1987, p. 91). Currently there are some 12,000 beneficiaries of home help services, of whom 9,500 are elderly, and some 100 home help organisers. Information on the service is both dated and inadequate, with no data on waiting lists, number of visits per week, or length of visit. The percentage of the population aged 65 and over in receipt of home help service in 1981 was 2.8 per cent. There is a good deal of regional variability. The range of service provision to the elderly varied from 4.2 per cent of the population aged 65 and over in the North West to 1.5 per cent in the North East regions (NESC, 1987, p. 91). Whelan and Vaughan (1982) reported that just over 1 per cent of urban elderly living alone and just over 5 per cent of rural elderly living alone, were getting a home help service.

Paramedical Care: Paramedical care provided to elderly persons in the community includes physiotherapy, chiropody, speech therapy and occupational therapy. There are differences among the health boards in the provision of paramedical community services.

(ii) *Day Services*

The main day services are day care centres and day hospitals. The key difference between day centres and day hospitals is that no medical care or investigation is carried out in the former. The degree of provision of day centres differs markedly across Health Boards, and in some Health Board areas there are no day centres at all.

Day hospitals give ongoing evaluation and other services to the elderly. This can be regarded as a back-up to other community services. The day hospitals provide investigation, treatment and rehabilitation of elderly patients without an overnight stay in hospital. Consultant geriatricians, nurses and paramedics form the core staff. In 1988 there were 6 such hospitals in the Republic, 4 of these being located in Dublin.

(iii) *Accommodation*

Sheltered Housing: In Ireland in recent years an increasing amount of purpose-built housing has been provided for elderly persons, both by local authorities and voluntary organisations. Sheltered housing may be seen as operating on a continuum. At one end there are little or no special facilities. At the other end is what might be termed very sheltered and extra care housing where there is provision of meals or staff such as domiciliary carers. In sheltered housing, services can include resident care persons, communal rooms, alarm systems and medical care. In a certain proportion of the voluntary housing, there is assisted independent living, where elderly people are assisted but essentially maintain independent lives.

By 1989, there were 3,504 sheltered housing units being provided, of which 2,515 were by local authorities and 666 by voluntary organisations (O'Connor, Ruddle and O'Gallagher, 1989). A further 332 units were out for tender. These data cover cases where the occupancy is mainly restricted to elderly persons and where there is a resident warden and/or an alarm system connected to each dwelling. Of the 117 schemes, 61 per cent provided a warden service. The majority (64 per cent) of schemes were one-bedroomed flats with communal lounge/dining room and laundry.

(iv) *Boarding Out*

A relatively recent service is boarding out. This is the placement of elderly people with persons willing to care for them when they can no longer live at home. This entails placement of an old person, usually with a non-relative, in a private household. The carer receives some reward for his/her care of the person placed. In 1988, carers received approximately £20 a week from the Health Board towards the cost of placement, while the elderly persons pay around the same amount to the carers, that is, half of

the elderly person's pension is paid to the carer. Currently the capacity is some 120 places in these schemes.

(v) *Assessment Services*

Geriatric assessment units are units of general hospitals which engage in investigation, assessment and short-term treatment and rehabilitation of elderly people who are evidently not in need of acute treatment. In cases where it is not possible to achieve rehabilitation, the elderly persons would be assigned to the most appropriate type of accommodation for those who need long-term care. In 1984, there were only some 400 assessment beds in Health Board accommodation out of a total of some 11,000 beds, in long-stay, welfare and assessment units (National Council for the Aged, 1985, p. 118).

Public Expenditure

An itemisation of a good proportion of the public expenditure on institutional care of the elderly is possible. In 1990, non-capital expenditure on services in Health Board long-stay hospitals was £67.7m., to which should be added a proportion of the £28.8 expenditure on services in district hospitals (Department of Health, 1991, Table J1). A deduction should be made for retentions from pensions, which could be some £17m. In addition, there was £8.7m expenditure on welfare homes for the aged. These data exclude expenditure on acute care for the elderly and subvention towards private nursing homes. The data also exclude expenditure under the community care programmes of the Health Boards.

The home help services and day care centres are public and non-profit organisations. The meal distribution is usually run voluntarily. The community services of nursing, paramedical and home help care are provided within the framework of the community care programmes of Health Boards. Finances to operate these services are ultimately provided by the central government. The latter also provides part of the finances required to operate day centres as well as financial assistance to voluntary organisations involved in meal distribution.

The Provision of Informal Care

It is often assumed that care in the community is provided by a network of family members, friends and neighbours. Most elderly can be seen as having access to a viable informal support system, with family members being the main providers (and receivers) of support (Matthews and Rosner, 1988; Noether and Wallace, 1985).

However, research on social networks and social support highlights the limitations of informal support by friends and neighbours. In particular, it

shows that such support is available on an occasional basis, and that informal caring networks cannot be relied on to provide ongoing care of the kind required by a policy of community care (Bulmer, 1986; Stoller and Earl, 1983; Willmott, 1986).

Informal care, that is care in the home by an individual, involves the performance of a wide range of activities, many of them labour-intensive, as well as an emotional relationship of some complexity. What are usually referred to as caring activities involve at least three components:

(i) physical labour, usually on a daily basis, such as feeding, washing, lifting, dressing and helping with mobility, as well as less physically intense labour such as shopping, cooking and doing laundry; this has been referred to as "tending" (Parker, 1981);

(ii) material support such as handling of finance, lending of equipment, and practical assistance around the house;

(iii) emotional support such as affection, reassurance, enquiries about health, advice and concern.

Caring can involve handling medication, incontinence, confusion and/or dementia. Research on community care shows consistently that carers spend at least 30 hours a week on these activities, even with the less dependent elderly, and highlights the amount of *physical* labour that is often involved, and equally often overlooked (Bayley, 1973; Bulmer, 1986; Graham, 1983; O'Connor and Ruddle 1988; Parker, 1981). In cases where carers live in the same household as the cared-for person, the hours per week were in the 28-49 range in half of the cases (O'Connor and Ruddle 1988).

Informal care usually, if not always, involves an emotional involvement also, since it is most often spouse or offspring who is providing care. There are a number of implications following from this. First, the "mere" provision of hours of caring by relatives cannot be reduced to practical task performance – it involves affection, sensitivity, commitment, and a willingness to be depended upon. Graham (1983), and Finch and Groves (1983) use the very apt term "labour of love" to describe caring. The very presence of these qualities of affection and sensitivity, as Graham points out, differentiates "caring" from substitute services, and therefore makes carers and dependants unwilling to use substitute care.

Second, caring activities are difficult to separate from other relational activities such as companionship and nurturance. Third, caring takes place within the context of a complex relationship which may involve not just love and affection, but also interdependence, guilt, mutual obligation, domination-subordination, and ambivalence.

The fact that informal care may be considered a labour of love suggests that carers derive emotional satisfaction from their caring activities, and that they therefore benefit from caring. Research shows that most carers express a preference to keep the dependent person in the home, and to perform caring activities themselves, precisely because of their bonds with him or her. Nevertheless, carers, especially of highly dependent individuals, experience caring as a tremendous burden, with considerable personal costs.

The extent of the caring activities required obviously increases as level of dependency increases. At the most dependent level, the elderly person will require help with mobility, getting in and our of bed, eating, washing, dressing, and using the toilet; and will also need to be shopped for, cooked for and otherwise assisted with the tasks of living (Lingsom, 1985; O'Connor and Ruddle, 1988; O'Mahoney, 1985; Parker, 1985; Opit, 1977; Stephens and Christianson, 1986; Wenger, 1990). These studies show consistently that in the majority of cases, these services are provided almost entirely by a principal caregiver who is usually living in the same household as the recipient, and who is most likely to be a female relative.

Many carers are also elderly themselves, a point highlighted particularly by Wenger (1990). O'Connor *et al.* (1988) found that 25 per cent of carers in their national sample were over 65, and other studies have found that the proportion of elderly carers is similar to the proportion of elderly in the population (Wenger, 1990). She notes that elderly carers are more likely to be involved in terminal care of a spouse. They may therefore experience more physical strain from caring, are more likely to have a high level of commitment to caring, to be negative about hospitalisation, and to have more positive attitudes to caring (Motenko, 1989). Elderly carers are even less likely than younger carers to receive help with caring (Green, 1988), and are more often involved in personal care.

Carers living in the same home as the cared for person are also more likely to be in the lower socio-economic groups. O'Connor and Ruddle (1988) found for example that the highest percentage (36 per cent) of carers were from semi-skilled manual backgrounds, whereas the lowest percentage were from higher professional and managerial backgrounds (2.1 per cent). A similar pattern is found in Britain, where Evandrou (1990) reports that the largest percentage of carers within households are in the lower quintile groups based on income. Evandrou reports that 82 per cent of carers who are not in paid employment and who are caring for an individual within their own home are in or on the margins of poverty, where poverty is defined as an income of 140 per cent of the Supplementary Benefit (now replaced by Income Support) level. Glendinning (1990) notes that where the carer and

the recipient of care are receiving Supplementary Benefit, the financial burden of caring can be intolerable. She also finds that caring often has the effect of rendering the caregiver financially dependent on the care recipient, and therefore financially vulnerable following termination of care.

The Informal Helping Network

Other members of the social networks of the caregiver and the recipient of care are involved in caring, but to a much more limited degree. O'Connor and Ruddle found that while 52 per cent of carers received practical help from others with caring, this help is most likely to be given with shopping (32 per cent) and supervising (29 per cent). Less than 1 per cent of other helpers provide help with physical activities such as washing or dressing. This is in agreement with other studies which found that friends and neighbours were more likely to provide help by doing errands and being available in times of crisis (Stoller and Earl, 1983; Evandrou, 1990; Wenger, 1990). Carers also receive support from relatives and friends in the form of advice and reassurance, transport and emergency relief – O'Connor and Ruddle found that 80 per cent of carers felt able to call on a relative, neighbour or friend for help with such problems as needing a lift, practical assistance, or advice. However, this figure fell to 40 per cent for more long-term help such as provision of a place to stay for an extended period. Again this is in agreement with other studies, many of which are reviewed by Stoller and Earl, who conclude:

> Although friends and neighbours may provide intermittent, supplementary assistance, the informal helping network is apparently unable to cope with impaired and disabled individuals on a long-term continuing basis (Stoller and Earl, 1983, p. 64).

The limited involvement of the broader social network, or of "the community", is also highlighted by findings on the provision of care by those living outside the home of the cared-for person. O'Connor and Ruddle found that a much higher proportion of those giving care to someone living outside the home are non-relatives (40 per cent), they are younger than those giving care in the home (presumably in part because they would not include spouses), and the type of care given is different. Specifically, care given from outside the home is more likely to be instrumental care – keeping company, shopping, collecting pensions, and transport are the most frequently mentioned (by 86 per cent, 57 per cent, 57 per cent and 50 per cent, respectively). Numbers who provide within-household assistance, such as cooking or making fires, were considerably lower (24 per cent), while less than 10 per cent provided help with physical activities such as dressing and bathing.

The Provision of Care by Statutory and Voluntary Services

How important are back-up services to care in the home? Research consistently finds that the elderly person's use of statutory and voluntary services is almost completely confined to GPs and PHNs. In the O'Connor and Ruddle study, these involved almost exclusively GP (80 per cent) and PHN (47 per cent) services. Other studies have also found fairly extensive use of medical services and rather small scale use of other services such as home help among the dependent elderly in general (Mindel *et al.*, 1986; Scott and Roberto, 1985). More extensive use of home helps and meals-on-wheels are reported in more dependent samples (Wager, 1972; Wright, *et al.*, 1981).

O'Connor and Ruddle, found that carers indicate a need for more advice (64 per cent), short-term relief care (60-66 per cent), more medical care for themselves (26 per cent), with other needs which were difficult to ascertain from the study. A study by Oliver (1982) listed the following requests by carers: 24 hour access to community nursing services; care attendant schemes; respite care; day-centre care; extension of invalid care allowance.

These findings regarding the use of services and the desire for services further substantiate the conclusion above that as currently implemented, care in the community is provided almost exclusively by the principal caregiver.

Summary and Conclusions

The proportion of elderly people in the population is increasing over time. Different groups within the elderly population have different levels of needs for care, the greatest needs being found among those aged 75 and over. The proportion of elderly people living alone is also tending to increase and this too may have implications for care services, whether formally or informally provided.

Given the importance of informal care in the home, the influences on family care were reviewed. The main influences are: family size, the labour force participation rates of women, and the opportunities offered to women by market work. This is within the context of the current division of labour within the home, where caring has been seen mainly as the responsibility of women rather than men.

The current provision of formal care services to the elderly in institutions or in the community is outlined. Institutional provision has four main components: Health Board geriatric hospitals or homes, Health Board welfare homes, private nursing homes, district hospitals.

Within the formal community care services, five elements can be identified: domiciliary services, day services, accommodation, boarding out

and assessment services. There are marked differences in service provision across Health Boards; for instance, in the case of day centres (which together with day hospitals comprise day services) there are no services at all in some Health Board areas. Within the domiciliary services, the largest part of Health Board services comprise public health nursing. Another key part of these services comprises home help provision with some 12,000 beneficiaries of these services at present.

Informal care can be conceived of as involving the community as a whole. More narrowly, it can be seen as care in the home, backed up by voluntary, health and personal social services. The family is in fact the main provider of care in the community, and depends for support on voluntary, health and personal social services. The majority of carers are women. Caring involves at least three components: physical labour, material support; and emotional support.

In cases where informal support is available, people tend to make less use of formal services such as health care. By contrast, where there is little informal support, people are more likely to make use of formal services and to become institutionalised. This leaves open the question of the cause-effect relationship that is at work here. Is it the case that where there is a good level of formal services, people are enabled to reduce their commitments to informal care? Or does a lack of informal support lead to the development of formal services?

Irish research has shown that, in cases where carers live in the same household as the cared-for person, the hours per week were in the 28-49 range in half of the cases. A quarter of carers are themselves aged over 65. Many of the carers are likely to be in the lower socio-economic groups. One implication of this is that the financial burden of caring can be considerable for these people.

Looking beyond the immediate caregiver, those in the wider community give help but (a) only to a limited degree, and (b) where help is given from outside the home, it tends to be limited to instrumental care such as shopping and transport.

Turning to the usage of statutory and voluntary services, this is almost entirely confined to the use of GP and PHN services.

There is no doubt that the principal caregiver bears most of the burdens and costs of caregiving, especially where there is no support from others. This issue is taken up in Chapter 9.

Chapter 3

MEASURING COSTS OF CARING AND DEPENDENCY

Introduction

This chapter outlines the main issues that arise when estimating the costs of caring for the elderly. Particular attention is paid to the problems that arise and how they might be resolved. The main elements of costs are considered in turn.

As mentioned in Chapter 1, one of the aims of this study is to relate costs to the dependency levels of the elderly in different forms of care. The second half of this chapter is concerned with the measurement of dependency. Various types of measures that are used to measure physical dependency are reviewed. The extent to which such physical dependency relates to non-physical aspects of dependency is then explored. The reasons for the choice of the dependency measure used in this study are then set out.

Costs in Different Regimes

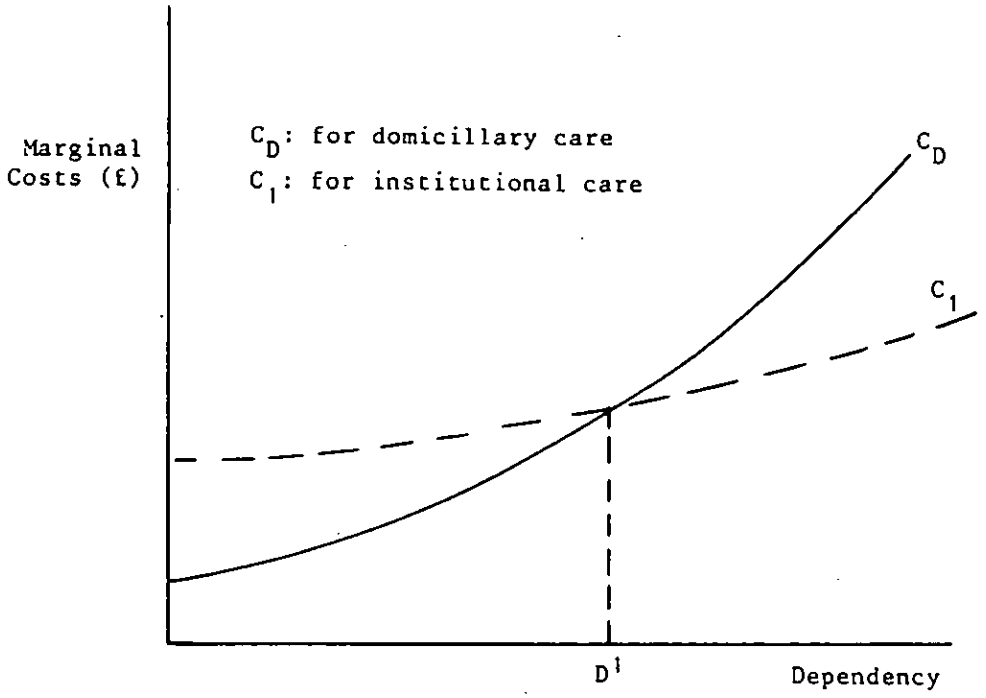
Much of the research done on costs in the case of the elderly has been concerned with relative costs in the community and in institutions. Different regimes of care can be identified such as hospitals, nursing homes and different forms of domiciliary care. A key question to which the research has been directed is the extent to which adjustments at the margin – involving more, or less, institutional care – would yield changes in costs.

Taking as an example, a comparison between institutional care and community domiciliary care, one can indicate some of the main issues of principle. A key element here is the marginal cost of care: that is the extra cost of care per unit of dependency. Figure 3.1 assumes, *ceteris paribus,* that the costs associated with caring for an elderly person increase as the level of dependency increases. Without going into detail at this stage, the cost per dependency category will depend, among other things, on the amount and nature of resources that go into the delivery of services.

It is a plausible assumption, *a priori,* that more resources are required to care for elderly people as the dependency level increases and hence that costs would increase in the manner depicted in Figure 3.1. *A priori,* it is not

clear whether, for any given dependency level, the costs of institutional care would be higher than in the case of domiciliary care. In part, the relative costs will depend on (a) whether there is a "minimum critical mass" of resources that have to be put into care, even of lightly- dependent people; (b) the implicit cost per unit that is assigned to the informal care given by members of the household. It is conceivable that the relativities in Figure 3.1 could be different; for instance, that at low levels of dependency, the costs of institutional care could be below those of domiciliary care. This figure assumes that marginal costs are cheaper for domiciliary care at low level of dependency but that above D^1 the institutional costs become cheaper.

Figure 3.1: *Likely Cost Patterns for Domicillary and Institutional Care*



From Theory to Estimation

In practice, a precise estimation of costs such as in Figure 3.1 is not possible, for the following reasons. First, all estimates are subject to a margin of error. Second, it is only possible to deal with broad classes of dependency, as outlined below in this chapter, for which costs can in principle be estimated. This means that a certain amount of "averaging" occurs. Third, particular difficulties arise when estimating the costs of informal care in the home, again as outlined below in this chapter.

Two different concepts of cost can arise – public expenditure and opportunity or resource costs. These are now discussed, in turn.

Public Expenditure

Public expenditure comprises the cash outlays that are involved in a programme. These may fall on central or local government or on a government agency. Costs that fall on firms or individuals or agencies outside the public sector are not picked up.

Opportunity Cost

Opportunity or resource costs are based on the fact that if a resource is to be deployed in a particular use, some other use is forgone. Opportunity cost is the value in the alternative use that is sacrificed. In other words, it is the benefit that would be got from the next best use to which the resource could be put. The distinctions between the opportunity cost and public expenditure approaches are now illustrated by taking the principal cases where differences can arise between the two approaches.

(i) Social security payments and transfer payments are usually included in public expenditure approaches to measuring costs. However, not all cash payments imply resource costs. Transfer payments do not directly involve cost to the community since they do not involve productive resource usage. They merely represent transfer of income or wealth from one section of the community to another – there is no change in productive capacity as a result of receiving a transfer payment. (Admittedly, there can be resource costs arising indirectly, through the taxes which are levied to finance transfer payments.)

(ii) In some instances, a health board or local authority will not have to pay interest on certain items of capital expenditure. But this does not mean that the resource (in this case an item of capital equipment) is free. Usually, there is an alternative use for it.

(iii) Personal consumption of people can be an opportunity cost. People living in the community use up resources in personal consumption of items such as food, heating, lighting, clothing, etc. If the same people were being cared for in an institution such items would be included under direct costs of care by the institution. Hence, in comparing institutional and community care, personal consumption costs must be included under both forms of care. A public expenditure approach to costing would not include personal consumption in community care because such costs would not fall on the Exchequer.

(iv) Much of the care in the community is done by unpaid labour within the home. This does not involve public expenditure. There are a number of dimensions to the opportunity costs involved here: employment opportunities forgone, opportunities for leisure given up, emotional stress and psychic costs in general.

Choosing Between Public Expenditure and Opportunity Cost Approaches

The main differences between the public expenditure and opportunity cost approaches are shown in Figure 3.2. In practice, the main differences between accounting or financial costs and opportunity costs are likely to arise in relation to informal care in the home.

Figure 3.2: *Distinction between Classifications under Public Expenditure and Opportunity Cost Approaches to Estimating Costs of Care*

PUBLIC EXPENDITURE COSTS	
Community Care	*Institutional Care*
Social security payments	Social security payments
Public subsidies, e.g., towards housing rents	Interest on capital costs
Service costs	Running costs (less patient contribution)
ECONOMIC OPPORTUNITY COSTS	
Community Care	*Institutional Care*
Housing costs	Capital costs
Personal consumption	Personal consumption
Care services costs	Care services costs
Informal care costs	General services costs (e.g., heating, lighting, laundry, etc.)

The argument for using resource costs is that they provide a better guide to decision making about whether to put more (or less) resources in one activity rather than in another. Resources are scarce and choice should take account of the real costs to the economy of changing the allocation of resources. If resources are provided for care in the community from a number of sources (the family, personal social services, health and other services) they have a value, no matter what budget is affected. This is not to say that budgetary matters are irrelevant. They can matter, for instance from the point of view of organising particular types of service delivery. They can also have implications for the distribution of income: for instance, budgetary rules can mean that either central taxpayers or local taxpayers or consumers can end up paying for a service. The basic point remains, however: decisions about the allocation of resources to different modes of service delivery should be based on the resource or opportunity costs. In this study, the emphasis is on opportunity costs. At the same time, public expenditure estimates are given.

Valuation of Inputs

Conventionally, inputs are valued at market prices. In order to give an answer to most of the questions that arise about comparative costs, that is adequate. However, it should be noted that there is an issue of what type of value should be given to inputs. The market value of inputs is based on the judgement that individual preferences should count in the context of the existing distribution of income.

Ideally, account should be taken of what individuals would be willing to pay to receive benefits or avoid costs. Ideally, the consumer surplus (the difference between the marginal benefit or the maximum amount that the consumer would be prepared to pay, and the price actually paid) should be estimated.[1] A further qualification about the use of market prices is that

1. This refers to the area to the left of an individual's (Marshallian) demand curve (which shows quantity demanded against price) and between the relevant price horizontals. However, considerable controversy surrounds the measurement of consumer surplus. Simply taking the area under the demand curve takes no account of changes in income and the effects this has on utility. A compensated (Hicksian) demand curve can overcome this problem by measuring the area under the demand curve with income held constant. In this way utility varies with price but income is adjusted to keep the consumer on the same indifference curve. Whether much is lost through using uncompensated (Marshallian) demand curves to measure consumer surplus is the subject of debate, with arguments for and against resting on the significance of the error involved (Willig, 1976). Partly because of empirical difficulties and partly because of the view that errors are not very large, many analysts use simple uncompensated measures of surplus in cost-benefit work.

market imperfections may result in prices not reflecting the true value of commodities. Wager (1972) regarded fuel prices as overstating the true opportunity cost value because of the imposition of high taxes. Since fuel was an important part of home nursing costs in care of the elderly, he deducted the fuel tax from his estimate of home care costs so as not to inflate home care costs artificially relative to institutional care.

On balance, market prices should be a reasonable guide to relative scarcity unless there are marked distortions (e.g., reflecting monopoly power) in the market for an item that covers a significant proportion of total costs.

Average and Marginal Costs

Economic evaluation concentrates on the marginal costs of an activity (the change in costs associated with a change in the level of activity) rather than the average costs of the activity (cost per unit of output averaged over all units). This is because the key question is: if the activity is reduced (increased), how do resource costs change at the margin? Choices in health care are not usually couched in terms of whether or not any resources at all should be devoted to programmes. Rather, the choices arise in terms of whether, given the current mix of health care provision, one should devote more or less resources to a particular programme.

There can be marked differences between average cost and marginal cost, especially if resource use varies as a service expands or contracts. The costs of providing a service usually increase with increased dependency of the elderly. The problem of estimation becomes one of apportioning incremental caring costs to the different categories of dependency.

The variables most likely to contribute to marginal differences in cost among dependency groups is the nursing time spent helping the elderly with various activities and amount of caring hours of people within the home. There are major problems here in trying to estimate the marginal costs. A nurse may simultaneously help and supervise more than one resident. Furthermore, there may be differences in caring practices within and between institutions. Some institutions may provide intensive, "hands on", care. By contrast, the philosophy of others may be to allow the elderly to complete, independently, as many tasks as possible. Wright (1987a) was satisfied to allow the principal caring/nursing person to set out the hours of care given to the elderly in various dependency categories.

Some hospital resources (such as laundry, heating and lighting), are jointly consumed by many hospital departments. The approach favoured by economists to apportioning joint costs is to employ marginal analysis, though there is no unambiguously right way to apportion costs. The

degree to which one would need to worry about ensuring fine distinctions in allocating shared cost depends, of course, on their importance to the overall results. Sensitivity analysis can always be applied. Hull *et al.* (1982) suggest an intermediate approach in which the cost per day is purged of any items relating to health care costs, leaving just the "hotel" component of hospital expenditure. The latter are then allocated on the basis that all patients across all programmes incur average costs. The attributable health care costs are then added for the particular programme under review to give total costs of the programme.

Capital Costs

Capital costs arise in relation to land, buildings and equipment, and housing for those in the community. The appropriate notion of cost is the replacement value of the capital item. It is possible, for a given length of economic life and rate of interest, to annuitise the capital cost, expressing it in equivalent terms as an annual flow, which could then be added to other items of annual expenditure.

The other item of expenditure that comes under this heading is the annual depreciation. Here, the difficulty is that the concept of economic depreciation is at variance with accountancy conventions. Economic depreciation is the opportunity cost of keeping the capital item for another year and not realising its value in the second-hand market: essentially the difference between the second-hand values at the beginning of one year and the beginning of the next.

Institutional Costs

Having set out the main issues of principle, the main approaches used in the estimation of costs of services for the elderly in institutions are now outlined.

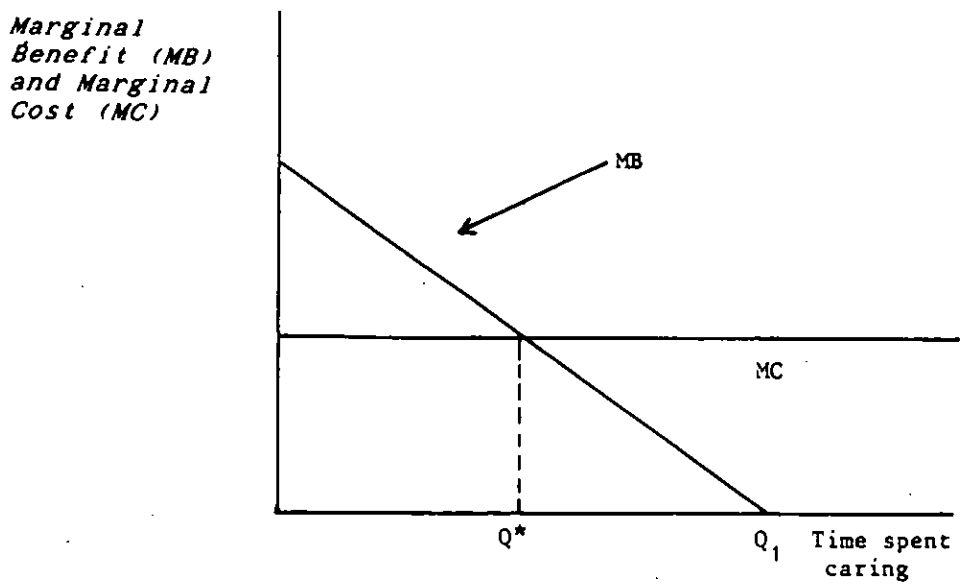
The institutional costs included in cost studies include in-patient care in hospitals, rehabilitation units, services provided by GPs, laundry services and transport. In the case of Wager (1972), capital and opportunity costs were estimated at average opportunity costs and a personal ("pocket-money") allowance was added. In the case of Plank (1977), the average operating costs of local authority services, net of charges, were added to the personal incomes (for instance, "pocket-money" or pensions) of residents. In the Avon (1980) study, gross and net costs were calculated for services such as residential care, meals on wheels, day care and day hospitals.

Opportunity Costs of Care in the Home

A number of difficulties arise in estimating the costs incurred by those who engage in informal care within the home. At the outset, some of these problems are outlined.

First, the carer can derive benefits from caring, the nature of which has been considered in some detail by Clifford (1990). There may be a quantity of informal care below which the marginal benefit of caring exceeds marginal cost for the carer. However, once the carer exceeds Q* caring hours (in Figure 3.3), marginal cost exceeds marginal benefit and the caring role becomes a burden. At the limit, above point Q^1 the caring role induces negative benefit or illness for the carer. The slope and position of these curves will, of course, depend on the particular circumstances of the carer and caree. Moreover, it is possible to complicate the valuation of informal care further by weighting each activity upon which time is expended. This weighting could reflect individual perceptions about the relative pleasantness of each caring activity.

Figure 3.3: *Subjective Benefits and Costs for the Carer*



Second, it can be difficult to assess the evidence from surveys taken at a particular time. Carers may push their current care well beyond the point where the marginal benefit from an hour of care is equal to the marginal cost – that is, to the point where the marginal benefit is far less than the marginal cost. Underlying this may be a complex trade-off, an inter-temporal one: "the trade-off between current disutility with the work and future utility arising from the contentment and pride carers might feel knowing that, despite the personal hardships and problems faced, they carried out their role to the very limits of their abilities" (Wright, 1987a, p. 9).

Third, while there may be psychic costs associated with caring at home similar costs may arise for some carers when relatives are admitted to long-term care. This may not just be guilt arising from giving up the caring function but may be associated with a loss in utility from not having the relative close at hand anymore. Some carers may, therefore, be willing to continue to look after their relatives at home because, even though this is stressful, it yields greater net benefit than seeing a relative admitted to hospital.

Individuals obtain both direct utility and indirect utility when caring for others. Direct utility incorporates the effects on the carers and relates to the satisfaction and pride associated with the work, or alternatively, the problems and the pain endured. For instance, some carers can find activities such as cooking, shopping, housework and personal care routines a pleasant use of leisure time. Others would find these tasks unpleasant and irksome.

Indirect utility is the set of benefits enjoyed by the elderly recipient (caree). These benefits are in terms of personal and domestic comfort. If the indirect utility of the caree augments the positive direct utility of the carer (or at the very least counteracts any negative direct utility), net positive utility is gained from caring. It is argued by Hawrylshyn (1977) that when valuing household work and other non-market activities, only indirect utility should be subject to money valuation. Thus, the benefits to the caree would be counted but the pleasure or pain of the carer not considered. If one accepts such an approach, informal care of the elderly can be valued using the opportunity cost of a carer paid to carry out the job of looking after an elderly person.

While this approach has some merit, it ignores the fact that the relevant opportunity cost for carers may not be market work forgone (Wright, 1982). Non-market work and leisure time may also be forgone by carers. The specific issues of estimation are now outlined succesively under employment, leisure time, psychic costs, and "out-of-pocket" expenditure.

Forgone Employment Opportunities

Opportunity costs can arise in a number of different ways:

- the giving up a job;
- reductions in hours of work;
- the acceptance of a lower paying job, compatible with the hours spent in the home;
- cessation of active search for work, hence formally dropping out of the labour force.

The lost employment opportunities should ideally be estimated by taking the expected wage in the alternative employment multiplied by the probability that the person finds a job. If someone recently gave up market work, a ready-made valuation of opportunity cost exists. It is more difficult to estimate the opportunity cost in cases where someone gave up market work a long time ago, or never worked. The employment opportunities for people like this may be relatively poor, especially in the case of the older people or people with little or no qualifications.

It is equally difficult to pick up the long-run consequences of caring. There is some evidence that caring is undertaken as a temporary commitment, and then carers find that they have entered into a long-term commitment (Wright, 1983). Over a period of years, there can be a cumulative impact from the years spent out of paid work: such as loss of promotion, of training opportunities, loss of pension rights and other fringe benefits.

Opportunities for Leisure Time Sacrificed

In the economic studies that have developed the estimation of money values of leisure time, "leisure" is any time not spent on market work. The most elaborate evaluations have been undertaken to estimate the value of time savings from transport investment. Commuters are asked to trade off time savings arising from specific forms of transport investment against the high cost of such investment. For instance, by-passes, bridges and link roads are expensive but they do reduce the time spent travelling, thereby making more time available for work and leisure. In the case of carers, many of whom are women, there is the complication that some of the "leisure" time would be spent on household tasks – conventionally not given a market value in estimates of national output. The non-work time of these people can be broken down into: caring, housework, and residual "leisure" time.

The pattern in the appraisals of transport investment has been to value an hour of non-work at some 25-40 per cent of the value put on work time. That is the approach used in this study.

Psychic and Related Costs

The literature on the emotional, psychic or psychological costs of caring distinguishes two types:

(a) more or less regular "background" anxieties;

(b) specific incidents which spark off episodes of anxiety and stress.

In this category may be counted the impacts on health. The physical tasks involved – not only the daily activities of caring but the increased housework which is induced (such as in laundry) and the interruptions to sleep – can have adverse effects on health. The difficulty lies in isolating these health impacts – made even more difficult by the fact that many carers are aged over 50.

Loss of employment can itself have psychological impacts. The work of Jahoda (1982) has shown the potential importance of employment in the psycho-social domain – for instance, through employment, people get opportunities to meet others socially and they get a chance to structure their time.

A further problem arises when one tries to take account of the non-economic or "psychic" costs of caring. Carers may have low expectations and extraordinarily high degrees of tolerance thresholds. This can be, in part, because many of them are relatively elderly and their expectations were formed a long time ago.

Additional Expenditure Due to Caring

Caring can involve the carer or the household in additional "out-of-pocket" expenditure on goods and services. For instance, incontinence can require additional or special expenditure. The extra expenditure can take a number of different forms. Regular expenditure on food (e.g., for special diets), clothing, fuel, transport, washing or heating can be involved. In addition, there can be irregular expenditure – on consumer durables, aids to mobility and special equipment or alterations to the house. In certain cases, services could be bought in to help the carer. One difficulty in estimating the additional expenditure is how to separate out the additional expenditure which is attributable to caring, especially in households which contain a number of people.

Costs that Fall on Carers in the Home

Having outlined the principles that apply, the main approaches used in estimates of community costs are now summarised.

Some of the estimates of the costs that fall on carers have used the cost to the State of providing this care. Henwood and Wicks (1984) take the number of cases multiplied by the average gross costs of home help services.

Nissel and Bonnerjea (1982) estimated the costs of caring for the handicapped elderly based on a non-random survey taken in 1980. In most cases, the household contained husband and wife and an elderly handicapped relative; in a small number of cases, the dependent relative did not live in the same house but in a nearby separate dwelling. They present one set of calculations of costs based on the cost of replacing informal care by some other means. This is based on the market rate for home and domestic helpers at the time of the survey. While this was done, they say:

> ... an estimate of the cost of care derived from applying an hourly rate to the work done, or the time spent, by the family on caring for a handicapped elderly relative is, of course, a nonsense in relation to reality. Most families are doing what no one else would come into their house to do and as such it is priceless. ... Moreover, ... most care is intermittent and spread over the day rather than concentrated in one particular period. Very often the only real substitute for family care for a relative who is severely handicapped is a housekeeper (pp. 50-51).

The alternative estimates of costs given by Nissel and Bonnerjea are based on the opportunities which the carer has to forgo. One of these opportunities is the possibility of doing paid work. The opportunity cost is calculated as the sum of (a) the earnings forgone of wives not in employment, taking the average weekly earnings in the jobs previously held, for those who would like to return to work, (b) the earnings forgone of wives in employment but working less than full-time. Adding together these two components of opportunity costs gives a much higher estimate of these indirect financial costs than the application of the home and domestic help rate: more than double the costs arising from the latter method. Nissel and Bonnerjea recognise that estimates of earnings loss are likely to underestimate the possible loss. This is because had the carers remained in their jobs, it is likely that, with age and experience, their real earnings and entitlements to pensions would have increased.

A different approach is made by Baldwin (1987) in estimating the financial consequences of caring for disabled children. The issues of principle that arise here are similar to those arising in cases where elderly people are being cared for. The actual earnings and expenditure patterns of families with and without disabled children were compared – simulating Family Expenditure Survey (FES) data for a sample of families with disabled children and identifying a control group from that Survey for the same period. The results showed that women with disabled children had lower earnings than their counterparts in the FES control group. Baldwin also takes account of the extra costs that fall on households due to disablement. Comparing the families with disabled children with their FES

counterparts, families with disabled children had a higher everyday expenditure, having allowed for the impacts of income differences on consumption. In addition, families with disabled children incurred expenditure on larger more intermittent items such as home adaptations and specially purchased consumer durables. Finally, many families also identified substantial costs associated with hospitalisation including transport, higher housekeeping costs and loss of their own earnings.

Wright (1987a), working with survey data collected in 1976-1978, estimated how different cost bases can affect calculations of the cost of care in the community. The three different bases were:

(a) Working and leisure time lost; the former is valued at the carer's reported wage rate and the latter at 36p per hour, as set out in the Leitch (1978) transport committee report of 1977, travel costs are also estimated using a National Health Service car allowance rate and/or appropriate bus fares.

(b) The cost of appropriate statutory services to the value of all the help given in cases where helper and helped live in separate households, and for help given with personal care routines where helper and helped are in the same household. This is on the premise that household duties would continue if the person being helped is transferred to another form of care. The hours of care were valued at a wage rate for nursing auxiliaries.

(c) An estimate of the type, quantity and cost of a level of service that would greatly reduce the strain on the carer. In some cases, the carer was able to state what was required. In many cases, it was assumed that 12 hours of home help could give a lot of relief of stress. The services used were home help (rate per hour), nursing auxiliaries (rate per hour plus per visit), and day care (rate per day).

The highest cost between these alternatives in most cases was found when the wage of a nursing auxiliary was applied to the hours of care given by the principal helper. In addition, even where the level of service was notionally granted on a scale that was generous compared with the actual provision, the costs of care rarely exceeded the costs of residential care and even more rarely exceeded the costs of hospital care.

There are few examples of cases where a value has been put on the forgone leisure time of carers. And there are virtually no cases where a value has been put on the psychic cost of caring.

An Irish study (O'Shea and Corcoran, 1989) applied an opportunity cost valuation to the time spent caring, in the case of a small survey of elderly people living in the community but on the margin of hospital care.

In this study the time spent caring by informal carers was valued differently according to whether carers gave up paid work, unpaid work, or leisure time. Hours of paid work was valued at the average industrial wage; unpaid work was valued at the hourly home help rate, and leisure time was valued, following the literature on transport appraisal, at 25 per cent of work time. The estimated informal care cost of looking after elderly persons in their study was £103. When this estimate is disaggregated to reveal constituent differences in opportunity costs, £16 can be allocated to paid work forgone, £61 to unpaid work forgone, and £26 to leisure time forgone. The findings are that, when informal care is valued, the cost of community care is not significantly different from that of institutional care. The small size of the survey (64 domiciliary elderly) and the narrowness of the geographical site mean that the results cannot be generalised without qualification.

Marginal Analysis

Mooney (1981) applied a marginal analysis in Aberdeen, by asking health visitors which of their clients they would recommend for residential homes if more places were available, and which they would recommend for hospital if more beds were available. The focus was on the "marginal" clients, that is those who were seen as being on the verge of institutional care. For those in residential homes, the matrons were asked about marginal care at both ends of the dependency range. The characteristics of those on the margin were examined, in terms of the nature of dependency. Data on frequency of visiting were used to estimate the costs of support services for those on the residential home margin, those on the hospital margin, and non-marginal cases. To these service costs were added living costs (such as food and light) and housing costs. The cost that was being incurred for those in the community and on the residential home margin was £1,800, while the residential home cost of someone on the community margin was £2,500.

Cost Differences Between Community and Institutional Care and Their Implications

One approach used has taken the cost differential estimated between formal community care and institutional care and asked what this difference would "buy" in terms of services. Wright *et al.* (1981) indicate that the cost of residential care is higher than that of domiciliary care for people living alone by £30 per week (1977 prices). Much of the subsequent analysis in this case is centred on calculating the community care services that this money differential could buy in order to keep elderly persons of agreed dependency at home. Similarly, Wager (1972) estimates the amount

by which the resource costs of institutional care exceed those of domiciliary care under various circumstances. The differential sets an upper limit to the amount of resources that can be ascribed to additional domiciliary care in an effort to maintain a standard equivalent to that provided by residential care.

Very much within this framework, the Kent Community Care experiment has taken an integrated approach to service provision for community care elderly (e.g., Challis and Davies, 1986; Challis and Davies, 1988). Within an agreed budget, social workers are empowered to demand and allocate diverse resources on behalf of the elderly person with the objective of keeping elderly people out of institutional care.

Some research work suggests that the relative attractiveness of community care is confined to particular categories of elderly. Gibbins et al. (1982) suggest that augmented home care is cheaper for selected chronic elderly invalids. Patients are suitable for home care only if they can be left unsupervised at night or if a relative is available to provide supervision.

Actual Compared with Optimal Provision of Community Care

The valuation of formal community care has also posed problems. The cost is usually estimated on the basis of the actual provision of formal services with back up care carried out within the home. There may, however, be differences between actual and optimal provision. The cost of community care may be low because the care provided is inadequate and not because such care is more cost-effective. The choice, therefore, is to estimate the costs and outcomes of existing services, ignoring standards of care; or to analyse resource allocation at the highest standard of provision. One of the main difficulties with the latter option is how one defines optimality.

Some support can be found in the literature for following the optimal approach to service measurement and valuation. Sinclair (1986) indicates that about one-third of applicants for places in local authority residential care could be maintained at home with a guaranteed delivery of intensive domiciliary care. Hakansson (1986) has estimated that, for two study areas in Sweden, a number of people could be discharged to domiciliary care if appropriate services were available. Similarly, the Avon Study (1980) considers the implications for placement of failing to provide even an adequate level of community care. Service improvements are set out which might be expected to enable approximately one-third of all current long-stay admissions to homes for the elderly to be delayed or prevented in the region under investigation.

Issues Linked to Cost Estimates

There are a number of issues which are linked to the estimation of costs, and should be borne in mind even if they lie outside the scope of many of the cost studies.

First, a major issue is the identification of factors crucial to the placement of elderly persons. Mooney (1978) finds that living alone and not being able to walk outdoors are important influences on the decision to transfer elderly from community care to institutional care. O'Shea and Corcoran (1989) tentatively suggest that the following variables influenced the placement of elderly persons: sex of elderly persons (given that women live longer than men, on average, and that ageing and hospitalisation are correlated), living alone (on the basis that, other things equal, the ability of an elderly person to live in the community is enhanced if he or she lives with others), public health nurse care, general practitioner care, home help care, immobility outside the home, inability to bathe all over, and living conditions.

Support for the importance of living alone as an influence on placement comes from Darton (1986). Wager (1972) considers incapacity as only one of the problems which affects an application for a residential home place. Other factors such as accommodation problems, difficulties with household relationships and loneliness were also important, giving rise to almost half of all applications.

Second, one weakness of much research in care of the elderly is that the levels of satisfaction of elderly people are seldom taken into account. Consumer satisfaction, if included at all, is measured by proxy. Either carers or health professionals are asked about caring alternatives. Rarely, if ever, is the elderly person consulted. Some evidence is available, related to the quality of life of the elderly in institutions (Kellaher, 1986) that residents are more satisfied with those care arrangements which allow them a measure of control over their life; and that they appear to be happier when they have been able to exercise a degree of control over the decision to enter care.

Third, and related to the former point, there is the problem that elderly people may change their attitudes to institutional care as a result of "institutionalisation". If one surveys a group of elderly people in institutions, who have entered at different times, the potential influence of this element needs to be borne in mind. This influence can only be estimated by following a group of elderly patients over time (in a longitudinal or cohort study) and little or no work has been done in this area.

Fourth, one of the most intractable problems is the absence of an acceptable measure of benefit. Measures of outcome used in the past have focused on mortality or rates of throughput. This approach is restrictively

narrow, ignoring quality aspects of care, and fails to recognise that for many groups of elderly people, extension to life is not an appropriate objective. Challis (1981) has sought to overcome these problems by defining outcome measurement as follows: nurture, compensations for disability, independence, morale, social integration, family relationships and community development. While these measures are useful and thought-provoking, it is difficult to translate them into a multidimensional index of outcome.

A concentration on costs could be most limiting if the relative benefits of different forms of care were markedly different from the relative costs (Wright, 1987b, p. 4). That is, if people can be cared for at home relatively cheaply until they reach a high level of dependency, they may be cared for at home until their level of dependency is so high that they find it difficult to adjust to a different type of care.

Dependency

Dependency is concerned with the ability of people to look after themselves in a basic, physical sense and to move around. The concept does not encompass every aspect of the health levels of people. However, it can be expected to have a close relationship with the state of health in its widest sense (physical, mental and social). Moreover, as discussed below, it is possible to combine physical dependency with some measure of people's mental state.

Different Types of Dependency Measure

Dependency is usually estimated across mobility and the activities of daily living, that is those activities that are frequently required and engaged in. The different abilities of the individual to perform the various functions inquired into are combined by constructing a scale. The main approaches to scaling dependency that have been used are now outlined.

Dependency measurement has often been carried out primarily with planning of service or placement in mind and its use in this fashion has usually been associated with what is methodologically a fairly limited and crude approach. In such studies, dependency is measured in some rank order across a range of distinct elements which are then treated independently throughout the exercise in question. Moreover, no attempt is usually made to quantify the magnitude of the interval between the items in the disability classifications constructed. Mobility and activities of daily living are usually confined to a limited set of characteristics.

Turning to these basic dependency scales, it is possible to order mobility in a way that would command a good deal of support. For

instance, mobility outside the house could be at one end of a range – with bedfast being at another end, conveying a relatively low degree of mobility. Along this continuum it is plausible that a regular loss of mobility can be observed, increasing in severity over time. However, it is more difficult to arrive at an order that is intuitively appealing in the case of activities of daily living. For instance, washing, bathing, feeding, housework would all comprise activities of daily living but it could be difficult to order them. A common approach adopted in the face of this difficulty has been to sidestep the question of ordering and to base the assessment of dependency on counting. This involves saying that someone is more disabled (that is, more than previously, or more than somebody else) if he or she is unable to carry out a larger number of activities.

The Avon Study (1980) exemplifies many of the characteristics just described. Its analysis of disability was confined to five characteristics. Individuals were assessed on the following abilities:

- to move around inside without help
- to get into and out of bed without help
- to dress without major assistance
- to make a cup of tea
- to shop or manage small errands.

These categories were chosen primarily because it proved possible, given the number of abilities, to forecast which abilities these were with a good degree of accuracy. For example, if a person had three abilities, these were likely to be movement inside house, getting in/out of bed and ability to dress. This was relevant to the decision by a social worker on whether an alternative to residential care was appropriate for the elderly person. The number of abilities was also related to costs. Persons with less abilities required more services or more expensive services than more able elderly persons. An important point emerges here. Even though the scale used in the study was confined to five characteristics, it was none the less sufficient to answer the questions being posed by the researchers.

Mooney (1978) acknowledges the importance of this point in his planning balance of care study. He did not attempt to identify fine or scaleable degrees of differences in dependency among elderly clients in community, residential and hospital care. Instead he used criteria which the nursing staff themselves used daily to characterise risk or dependency. Patients were classified as being on/not on the margin of care between the following regimes:

- domiciliary and residential home;
- domiciliary and hospital;
- residential home and hospital.

Judgements on marginal cases were made by matrons and health visitors and district nurses based on the following characteristics of the elderly:

- age;
- living alone;
- acute illness in last month;
- incontinence;
- instability (frequent falls);
- night confusion;
- locomotive difficulties;
- mental impairment;
- self neglect;
- tendency to isolation;
- unable to be alone without personal care;
- mobility (incorporating the ability to get out of bed, move around the house, climb stairs, and move out of doors).

Where decisions about possible movements across regimes of care were simulated within this study, four factors turned out to be particularly important. These were living alone, presence of stairs within the dwelling, age and mobility.

Other studies have, however, stood back from the more immediate concerns of placement or planning in order to explore the question of dependency ordering through the repeated empirical testing and refinement of measures. This approach is exemplified by the development of the index of ability in the activities of daily living and by the Guttman scale of disability. These are now discussed in turn.

Index of Activities of Daily Living

The index of the activities of daily living was developed by Katz *et al.* (1963). They found that in several illnesses, people tended to lose functions in a given order and to regain them in the reverse order on recovery from illness. Patients were assessed on the basis of six attributes: bathing, dressing, transferring, toileting, continence and feeding. They were graded ordinally on the basis of the ability to carry out these activities. Eight categories of ability were outlined as follows:

(a) Independent in feeding, continence, transferring, going to the toilet, dressing and bathing;
(b) Independent in all but one of these functions;
(c) Independent in all but bathing and one additional function;
(d) Independent in all but bathing, dressing and one additional function;

(e) Independent in all but bathing, dressing, going to the toilet, and one additional function;
(f) Independent in all but bathing, dressing, going to the toilet, transferring and one additional function;
(g) Dependent in all six functions

Other: Dependent in at least two functions, but not classifiable as (c), (d), (e) or (f).

Further work was done on this scale (Kaplan *et al.*, 1976) where it was called the Index of Well-being. They found that there was a good correlation between the scores on this index and self-assessed health status. There were also the expected negative correlations between this index and age, number of chronic medical conditions, number of reported symptoms or problems and number of physician contacts.

Guttman Scale

One intuitive hypothesis is that disability progresses in regular, cumulative patterns (Williams *et al.*, 1976). This pattern is observed in many kinds of growth and decay, with new handicaps being added to the old in a degenerative illness. Such a cumulative pattern is the feature of the Guttman scale (see Guttman 1950a,b,c,). People are assigned to positions between the lowest and highest points of the scale, depending on their cumulative loss of function.

The basic principle of the Guttman method is that a set of abilities can be put in a hierarchy of severity. Guttman scaling asserts that X + 1 number of disabilities are always worse than X number of disabilities as long as two assumptions hold:

(i) each disability is regarded as a disadvantage;
(ii) the items of activity are representative of the disability.

When people are assigned to a cumulative scale such as the Guttman one, implicit comparisons between different disabilities can be avoided. Instead, when a more severe disability occurs, it will be in addition to lighter ones. Hence, the order of disadvantage can be observed merely by counting the number of disabilities.

The abilities to pursue activities of daily living, like bathing, walking, dressing, etc., should be in a predictable order if an elderly person is to conform to the scale. For example, consider the following abbreviated set of activities which are set out in increasing order of difficulty:

(a) able to bathe
(b) able to walk
(c) able to dress.

If these items form part of a Guttman scale, one would expect that those

individuals able to perform (c), that is, able to dress, would also be able to perform (b) and (a). It would be expected that those individuals able to perform (b) but not able to perform (c) should be able to perform (a). Those individuals not able to perform (a) should not be able to perform either (b) or (c). For this particular example, there are eight different response patterns as shown in Table 3.1

The scale responses shown on the left-hand side of Table 3.1 are consistent with the hypothesis that the data form a cumulative unidimensional scale. The error responses, shown on the right-hand side of Table 3.1, characterise a non-scale type. The latter, although not conforming to the Guttman scale, may have particular characteristics which allow them to be scaled independently. Alternatively – as outlined below – there are procedures which allow non-scale types to be assigned to the scale pattern which is most similar to their own.

Work on the application of such a scale to the elderly has been done by Wright (1974; 1978). He developed an assessment schedule comprising three dimensions: mobility, capacity for self-care and mental state, each graded along four categories labelled high, medium, slight and low. Wright found that mobility and self-care were correlated significantly enough to justify merger and to develop a revised ordering for measuring dependence. This new ordering closely resembled that used by Katz *et al.* (1963). In later work, Wright *et al.* (1981) developed this approach further by more closely aligning the scale to fit the rationale developed by Guttman and by concentrating exclusively on an elderly population.

Table 3.1: *Potential Response for a Three Item Scale*

Activity	*Scale Response*				*Error Response*			
	1	2	3	4	1	2	3	4
Able to bathe	No	Yes	Yes	Yes	No	No	No	Yes
Walking	No	No	Yes	Yes	Yes	Yes	No	No
Dressing	No	No	No	Yes	No	Yes	Yes	Yes

Source: Wright *et al.* (1981).

Guttman scaling had been used by Williams *et al.* (1976) in their study of disability of handicapped persons in Lambeth and seemed to work well when applied separately for men and women (Table 3.2). Both sides of Table 3.2 indicate that there is an order about disability, similar in principle to that outlined for Table 3.1.

Table 3.2: *Guttman Scales from the Lambeth Survey*

MEN	*WOMEN*
Grade Item of Disability Added at Each Grade (Number of Items of Disability)	*Grade Item of Disability Added at at Each Grade (Number of Items of Disability)*
1. Cannot use bus or train unaccompanied	1. Cannot do all own washing clothes, cleaning, shopping
2. Does not use transport unaccompanied	2. Does not use transport unaccompanied
3. Does not walk out of doors unaccompanied	3. Does not walk out of doors unaccompanied
4. Cannot dress without help	4. Cannot do all own cooking
5. Cannot wash without help	5. Cannot wash without help
6. Cannot undress without help	6. Cannot dress without help
7. Cannot sit and stand without help	7. Cannot undress without help
8. Cannot use WC or commode without help	8. Cannot use WC or commode without help
9. Cannot get out of bed without help	9. Cannot sit and stand without help
10. Cannot eat without personal help	10. Cannot eat without personal help.

Source: Wright (1978)

Wright developed a Guttman Scaling technique based on the Lambeth experience but applicable across different forms of care for both men and women in the community, residential care and hospitals. This is shown in Table 3.3. Here point zero does not necessarily mean total independence as some disability, e.g., capacity to do light housework, laundry, etc., is excluded from the scale shown in the table. This was done so that the scale could be used in an institutional as well as in a community setting.

Two measures are used to test the suitability of a Guttman scale. How many error responses can be obtained before rejecting the hypothesis that a set of items form a Guttman scale? The coefficient of reproducibility is a measure of the number of error responses in the scale. In other words, it gives the proportion of all items of disability that are correctly predicted from a knowledge of the number of each respondent's disabilities. The coefficient of scaleability relates the number of errors which are possible, by taking into account the marginal totals. Levels of significance of 0.9 and 0.6 respectively are conventionally accepted although they are not based on an underlying statistical theory.

When tested empirically the Wright scale produced coefficients which exceeded these levels for both men and women and across community, residential care and hospital settings.

Table 3.3: *Guttman Scale from the York Survey*

Grade (Number of Items of Disability)	*Item of Disability Added at Each Grade*
1.	Cannot bathe without help
2.	Cannot walk outdoors without help
3.	Cannot dress without help
4.	Cannot get out of bed without help
5.	Cannot sit or stand without help
6.	Cannot wash without help
7.	Cannot feed without help

Source: Wright *et al.* (1981).

Cardinal Scales

Yet another approach to dependency scaling is represented by the development of cardinal or point scales. Here, different categories of incapacity within disability groups are given points. For instance, several studies have allocated points for the ability to perform daily living tasks, and for elements such as mental state and physical mobility. In principle, this holds out the promise that scores can be added across a number of different disabilities. An average score across the different types of disability can be obtained. The hypothesis is that, if the score increases, the level of disability increases.

Early work on the development of cardinal scales to measure health states was done by Fanshal and Bush (1970). In their model, the severity of 11 states of health, ranging from the theoretical state of perfect health to death, can be scaled. Combinations of physical activity, mobility and social activity were chosen to define the state of health together with a range of symptoms and problem complexes. This model was developed further in Kaplan *et al.* (1976) who reported positively on the scale under what they now called an Index of Well-being.

In another variant of the cardinal or point scaling approach, Torrance *et al.* (1982) produced a classification system of health states. There, four attributes were delineated: physical function and mobility (6 levels), self-care and role activity (5 levels), emotional well-being and social activity (4 levels), and health problems (8 levels). Each of the levels was ordinally determined.

A cardinal scale which focuses specifically on the health and independence of elderly people is the modified Crichton Royal scale (Table 3.4). As used by Wilkin and Jolley (1979), this has ten dimensions (mobility, orientation, communication, co-operation, restlessness, dressing, feeding, continence, memory and bathing). Compared with a more general index of health states through assessments of elderly people in long-stay accommodation 3 months, 6 months and 15 months after entry to a research study, the Crichton Royal scale proved more sensitive in detecting changes over time (Donaldson, *et al.*, 1988).

In building up a cardinal scale, Gibbins, *et al.* (1982) used a modified version of the form used by local social workers in assessing suitability of old people for admission to residential homes. The criteria used under this procedure were as follows: mobility, dressing, feeding, use of lavatory, bathing, continence, medication, communication, orientation, co-operation and temperament. For the purpose of assessment, the criteria were "clustered" to give three groups – physical score, mental score and medication score.

Table 3.4: *Modified Crichton Royal Behavioural Rating Scale*

DIMENSION		
A MOBILITY	Fully ambulant including stairs	0
	Usually independent	1
	Walks with supervision	2
	Walks with aids or under careful supervision	3
	Bedfast or chairfast	4
B ORIENTATION	Complete	0
	Orientated in ward, identifies persons correctly	1
	Misidentifies persons but can find way about	2
	Cannot find way to bed/toilet without assistance	3
	Completely lost	4
C COMMUNICATION	Always clear, retains information	0
	Can indicate needs, understands simple verbal directions, can deal with simple information.	1
	Understands simple information, cannot indicate needs.	2
	Cannot understand information, retains some expressive ability	3
	No effective contact	4
D CO-OPERATION	Actively co-operative	0
	Passively co-operative	1
	Requires frequent encouragement or persuasion	2
	Rejects assistance, shows independent but ill-directed activity	3
	Completely resistive or withdrawn	4
E RESTLESSNESS	None	0
	Intermittent	1
	Persistent by day	2
	Ditto, with frequent nocturnal restlessness	3
	Constant	4
F DRESSING	Correct	0
	Imperfect but adequate	1
	Adequate with minimum supervision	2
	Inadequate unless continually supervised	3
	Unable to dress or retain clothing	4
G FEEDING	Correct, unaided at appropriate times	0
	Adequate, with minimum supervision	1
	Inadequate unless continually supervised	2
	Constant	3

Continued

Table 3.4: *Modified Crichton Royal Behavioural Rating Scale (Continued)*

DIMENSION		
H CONTINENCE	Full control	0
	Occasional accidents at night unless toileted	1
	Continent by day only if regularly toileted	2
	Urinary incontinence in spite of regular toileting	3
	Regular or frequent double incontinence	4
I MEMORY	Complete	0
	Occasionally forgetful	1
	Short-term loss	2
	Short and long-term loss	3
J BATHING	Washes and bathes without assistance	0
	Minimal supervision without bathing	1
	Close supervision with bathing	2
	Inadequate unless continually supervised	3
	Requires washing and bathing	4

Source: Wilkin and Jolley (1979).

In general, point scales can provide useful information and have the advantage that they may be more easily understood than ordinal scales. They can also be more sensitive than the ordinal scales in distinguishing between various degrees of ability (Wright, 1974).

However, there are a number of problems attaching to the cardinal scales. First, they are literally not cardinal – in the sense that if one person has twice as many points as another, this is not meant to imply that this person is twice as disabled as the other.

Second, different combinations of disability (for instance, physical and mental abilities) between two people could result in the same score. But in such a case the fundamental level of disability, however defined, between these two people, is likely to be different. In turn, the implications in terms of service delivery that is needed, and the costs of providing these services, could be quite different in the two cases.

Dealing with Multidimensional Disability

As indicated above, unidimensional scales have the disadvantage that they do not pick up all aspects of incapacity. Fillenbaum (1985) has outlined a range of functions for the elderly that should be included if the

dependency of the elderly is to be estimated in a comprehensive manner. These functions include: activities of daily living, mental health, physical health, social factors, economic factors, family relationships, and housing conditions.

The question arises whether it is possible to combine estimates of physical incapacity with measures on other dimensions. In order to do this, there would first have to be agreement on a scaling of emotional/behavioural problems. Assuming that there was such agreement, could such an index be combined with a scaling of physical dependency? In a case where one person was counted as more disabled than another on *both* physical and non-physical aspects, there would be no ambiguity. However, problems would arise in cases such as those where one person was more disabled than another on physical aspects and less disabled on the non-physical aspects. Moreover, without knowing how people would assess such changes as a loss of their behavioural facilities at the same time as a gain of physical capacity, one cannot determine whether overall health has improved or disimproved as a result of changes.

On balance, there can be no presumption that a multidimensional scale will be superior to a unidimensional one. The construction of scales involves a degree of simplification. The appropriateness of a physical scale such as Guttman will depend on the extent to which it can represent the various facets of dependency, physical and other.

The Choice of Scale

The use of the Guttman scale is appropriate if the implicit assumption is that disability is cumulative. This scale is particularly useful in economic evaluation where the costs of caring for the elderly, with similar degrees of incapacity, are being compared across different regimes. Other things being equal (and with the qualifications made below under Dependency and Need), if two people are on the same point on a scale, they should have the same need for care. This feature is more likely to be observed in a Guttman scale than in the case of cardinal scales. This is because, as mentioned above, with the latter scales, different combinations of disability could result in the same score.

Thus, using the Guttman scale, one is best placed to test (i) whether as the level of disability increases, there is a tendency for people to be observed in institutions rather than in the community, (ii) whether the level of resource use in institutions and in the community increases with the level of disability. For this reason, the approach to dependency measurement using a Guttman scale as developed by Wright was judged to be the most appropriate one for the present study. In order that the other

non-physical factors could also be kept in view, selective use was also made of some of the Crichton Royal scale components (for further details, see Chapter 4).

Dependency and Need

Implicitly, the notion of dependency, as used in studies of the care of the elderly, is linked to that of need. That is, the implicit assumption is that the higher the estimated level of dependency, the greater the need for care to be provided. However, it is clear from the above that, while dependency is a valuable construct for studies on care of the elderly, its limitations should be recognised. Even in cases where the concept embraces both physical and mental abilities, it does not provide an unfailing indicator of need. For that, account would have to be taken also of elements such as the social conditions in which people live and the availability of informal care within the home and through networks of family and friends.

Summary and Conclusions

There will inevitably be imprecision in cost estimates – to some extent, this can be tolerated, as long as the estimates are sufficient to enable broad conclusions to be drawn on the orders of magnitude of costs in different forms of care. It can be necessary to engage in a degree of averaging, especially where costs for different levels of dependency are estimated. It would be unrealistic to expect that cost differences could be discerned across fine categories of dependency.

There are two different concepts of cost – opportunity cost and financial or "out-of-pocket" cost. Underlying the former is the question: if this activity is not engaged in, how much resources would be saved? Underlying the second is the question: if this activity is not pursued, how much expenditure (typically, that which falls on the Exchequer) would be saved? The former question is the key one from the point of view of the allocation of resources. Hence, it is the one on which this study places emphasis. At the same time, public expenditure estimates are also given.

In estimating costs of care, a key element is the amount of nursing hours (in institutions) and the number of hours given by carers within the home. Within institutions, particular difficulties can arise in allocating nursing hours to specific residents, and in allowing for differences in styles of service across institutions.

The main difficulty that arises in the estimation of costs of care in the home is how to estimate the costs of time contributed by carers. In cases where the costs of informal care in the home have been estimated, two main methods have been used. One approach has estimated the

opportunity costs of care – essentially by estimating the earnings forgone because opportunities for work in the market has been given up. The other approach has estimated what replacement services would cost (in public expenditure terms).

Turning to the estimation of dependency levels, most of the work has concentrated on estimates of physical dependency, mainly taking account of mobility and the activities of daily living. There has been recognition of the need to take account also of mental and emotional aspects. This need not necessarily be done in a formal way, such as through the addition of points across a number of scales.

In principle, the estimation of dependency could be refined by adding more items to the list which underlies the estimation of capacity. The extent to which this is worthwhile depends on the questions being asked. In the context of this study, the question becomes: would the relationship between costs and dependency be put on such a firmer footing that it would justify the more detailed scale? In practice, there is a limit to the extent to which the number of items in a scale can be increased. Beyond a certain point, there will not be a sufficient number of people from a survey in each category.

Chapter 4

METHODOLOGY OF THE STUDY

Introduction

This chapter describes the main features of the survey data collected for this study. Although the opportunity was availed of to collect some other types of information, the survey data mainly reflected the focus of the study on the estimation of how costs vary as the level of dependency changes. Three distinct sets of surveys of the dependency of the elderly and of the nature and level of services given to those experiencing dependency were undertaken in three different care settings. These settings comprised, first, four selected geriatric hospitals providing in-patient care; second, a national random sample of about 250 households in which there was at least one elderly person in need of care; and, third, a day hospital, an institution that can be regarded as a bridge between long-stay geriatric hospital care and care in the community.

The chapter begins by describing how the four hospitals were selected, the procedures employed to sample these in-patient populations and the questionnaire-based method of data collection used. Then an account is given of the community survey, providing details of the sample and of the questionnaires. This is followed by a description of the organisation of the day hospital study.

Methodological choices made in the course of the project's development reflect an attempt to reconcile the objectives of the study with the particular constraints which affect both research into dependency and the reliable estimation of costs of care. Dependency does not exist in isolation but becomes defined within the context of relationships between people. It is desirable, therefore, that the perspectives of both the providers and the recipients of care should be taken into account. However, the incapacity of a significant section of the recipient population to take part in interviews is a major limitation on the use of social survey methods – and, indeed, of other research techniques – in this area. In seeking to measure costs, it is analytically desirable that the estimates should be based on a substantial number of individual cases. This requirement, however, limits the options practically available for the collection of the requisite data. Through an examination of these

constraining factors, the final part of the chapter sets the methodology employed in this study within its appropriate wider context.

The Hospitals

Unlike the community side of the study, which is based on a random sample permitting inferences to be drawn about the population from which the sample is taken, the hospital side consists of a series of case studies. From these data it is not possible to generalise via statistical tests to the "national population" of geriatric hospitals: the function of the data is rather to illustrate the range of different situations which is to be found within the geriatric hospital sector. This case study approach is well suited to a situation where the units being studies are large, complex institutions rather than households or individuals and, for this reason, it is frequently employed in research concerning organisational culture and behaviour.

In this particular instance the poles at either end of the range are those of the traditional long-stay geriatric hospitals, previously styled County Homes, and of a small number of innovative institutions which are explicitly geared towards the rehabilitation of elderly patients and their return to living in the community. In between lie institutions where, to a greater or lesser extent, and with varying levels of resource endowments, a rehabilitation ethos has taken root within what remains in many ways a traditionalist setting. This range is represented within the case studies as follows. Hospital 1 represents an intermediate situation between tradition and innovation: Hospital 2 is an exemplar of innovation, while Hospitals 3 and 4 are traditionalist institutions upon which innovative influences have only recently begun to make an impact. The four hospitals are spread across the country and each lies within a different Health Board region. The particular choices were made by the researchers following consultation with the expert Research Advisory Committee which was set up to assist the project's development (see Acknowledgements).

The sample of patients drawn from the four hospitals was divided into two categories: those patients who were defined as being on the boundary separating community from institutional care and the rest of the patient population. In Hospital 1, at the pilot stage of the project, the marginal group was defined as the last 40 admissions prior to the commencement of our study. Four of these cases turned out to be younger people for whom no alternative source of necessary care was available and they have been excluded from the analysis. Some of the elderly people in the pilot sample were, for similar reasons, acute medical rather than geriatric care cases. In the light of this experience a stricter definition of the marginal group was employed when the studies of Hospitals 2, 3 and 4 were undertaken. Here

the "community care margin" consisted of patients

- aged 65 years or over;
- admitted to the hospital within the two months prior to the beginning of our data collection;
- being considered for long-term geriatric care and not treated as acute medical cases.

In Hospitals 3 and 4 all the cases meeting these criteria were included in the sample. However, because of the much greater throughput of patients in Hospital 2, the size was reduced to a 2 in 3 sample.

Those patients who were not members of the marginal group were systematically sampled using a 1 in 3 sampling fraction across all 4 hospitals. The composition of the overall sample which resulted from following these procedures is set out in Table 4.1.

Table 4.1: *The Sample of those Receiving Institutional Care Broken Down by Hospital and Closeness to the Boundary Between Types of Care*

Hospital	*On Community Care Margin*	*Not on Community Care Margin*	*Total Number of Cases*
1	36	69	105
2	40	37	77
3	9	53	62
4	17	54	71
Total	102	213	315
	32.4%	67.6%	100%

Questionnaire Administration in Hospitals

Throughout the series of hospital case studies two questionnaires were used for each case in the sample, one administered (where this was possible) to the patient and the other to a ward sister or senior staff nurse responsible for providing that person's care. No patient interview was attempted where a firm nursing staff opinion of incapacity was stated. In other cases, patient interviews began with a slightly adapted version of the standard 10 point Abbreviated Mental Test (AMT). In this test, each correct answer scores 1 point. Interviewers were instructed to proceed with the rest of the interview where the respondent totalled 7 or higher, to use their own judgement to decide whether there was a reasonable chance of

successfully administering the rest of the questionnaire if the total score was 4, 5 or 6, and to terminate the interview if the total score was 3 or less. How the sample broke down as these procedures were applied is set out in Table 4.2.

Table 4.2: *Outcomes of Patient Interview*

Outcome	*Per cent*
Interview successfully completed	42.1
Failed mental status test	14.8
Staff-defined incapable	41.8
Other	1.3
Total	100.0

The remainder of the patient questionnaire dealt with the following:

- Patient's dependency characteristics
- Patient's morale
- Circumstances of patient's hospitalisation
- Patient's situation prior to hospitalisation
- Visits received by patient
- Interviewee's future expectations
- Patient's family, educational and work background
- Patient's health service entitlement
- Patient's income
- Patient's previous housing and household amenities.

The subjects covered by the questionnaire administered to members of the nursing staff were:

- Patient's dependency characteristics. As well as Guttman scale of physical dependency items, parts of the modified Crichton Royal Behavioural Rating scale which deal with communication, co-operation and restlessness were used to take into account non-physical aspects of dependency.
- Patient's hours of nursing/attendant care requirements. Sisters or senior staff nurses were asked to estimate the amount of nursing or attendant staff time spent helping this patient per week. Estimates were sought for total hours of care and also for the hours of care given under a number of specific activity headings.

- Patient's medical, paramedical and other service usage. This covered visits from doctor, physiotherapist, occupational therapist, speech therapist, chiropodist, priest or other religious and other agencies. Pathology tests received and medicines prescribed were also recorded.
- Visits received by patient.
- Background to patient's hospitalisation.
- Assessment of patient's potential to live a satisfactory life in the community.

The Community Survey: The Sample

The community sample for this study was obtained from the same source as that used in a previous study of carers – the EC Consumer Survey, based on a random representative national sample and conducted monthly by the ESRI and Teagasc (see O'Connor, *et al.*, 1988a, Chapter 1). During the months from February to May 1988, the EC survey included an additional question about whether the household contained one or more elderly person(s) (over the age of 65) in need of care. A total of 450 households in which there was at least one elderly person in need of care was identified from this survey, and constituted the sample for this study. These 450 households were surveyed using trained ESRI interviewers, and a total of 248 completed carer questionnaires were obtained from this sample, which is a response rate of 55 per cent. The reasons for non-response varied. Only 4.7 per cent refused to participate. Other reasons for non-response were that the elderly person was no longer dependent (10.8 per cent), had died (9.1 per cent), had moved (2.3 per cent), or had been institutionalised (4 per cent).

Of the 248 households surveyed, 207 (84 per cent) were households in which both the carer and one or more elderly persons lived together. Of the total surveyed, 39 (16 per cent) were households in which one or more elderly persons were cared for by carers who lived in a separate household. Data from this study and from previous work (O'Connor *et al.*, 1988a; 1988b) show that the caring activities of carers for elderly persons in separate households are quite different in scope and quantity from the activities of carers caring for elderly persons in the same households. Those cared for by carers outside the household tend to be disproportionately less dependent – 71 per cent of the present sample of those cared for by carers in separate households were fully independent or only needed help with bathing. Moreover, they receive fewer hours of help – 40 per cent of those cared for outside the home by carers received less than 10 hours of help per week, with an average of 19 hours, and help is

almost exclusively with instrumental activities of daily living. The two groups must therefore be treated separately, and this report focuses on the activities of carers caring for elderly persons living in the same household as their carers.

Of the 207 households in which the elderly person(s) and the principal carer lived in the same household, 30 (14.4 per cent) were households in which carers took care of two elderly persons, while one household (0.5 per cent) involved care being provided to a third elderly person. In all but six cases where there was a second elderly person, the second elderly person was fully independent on the Guttman scale of dependency, four cases needed help with bathing only, one case needed help with walking and dressing, and one case needed help with walking, dressing and getting out of bed. Thus, the second elderly person was usually (80 per cent of cases) fully independent, and was usually (83 per cent of cases) the spouse of the more dependent elderly person. The second and third elderly persons were therefore not included in the present study.

This report therefore focuses on the 207 households in which carer and elderly persons lived together, and on the caring activities undertaken for the principal recipient of care.

Questionnaire Administration in the Community

As in the hospitals, two questionnaires were administered – one (where this was possible) to the elderly person receiving care and one to the principal carer. Again, the questionnaire for the recipient of care began with an assessment of capacity to participate in an interview using AMT scores and the same cutoff criteria. Just over a quarter of principal recipients of care in the community could not be successfully interviewed: for those to whom the remainder of the questionnaire was administered, the subjects covered were:

- Dependency characteristics (including activities of daily living such as cooking and shopping as well as the basic physical abilities).
- Main sources of help with incapacities.
- Extent and depth of social network.
- Morale, well-being and rating of own health.
- Leisure and social activities.
- Family, educational and work background.
- Health Service eligibility.
- Income sources.

The questionnaire administered to the elderly people's carers covered the following:

- Socio-demographics and household composition: information obtained for each household member comprised age, sex, marital status, and employment status. The educational level and occupation or former occupation of the care-giver were also obtained.
- Elderly person's dependency characteristics: as well as the Guttman scale of physical dependency items, parts of the modified Crichton Royal scale which deal with communication, co-operation and restlessness were used to take into account non-physical aspects of dependency. An instrumental activities of daily living scale built up around items such as shopping and cooking was also deployed.
- Provision of informal care: this was measured by asking the carer, in relation to each of the physical and instrumental activities of daily living, the number of hours of help provided by him or her in a week; the number of other individuals who provide help; the hours of help per week provided by other helpers. The carer was then asked to indicate the number of hours spent supervising or keeping an eye on the elderly person. This total was presented to the carer who was asked to judge if this seemed to be the right figure. Ninety per cent of carers indicated that this figure was correct. Those who did not think the number of hours were correct were asked to adjust the number of hours. These adjustments involved 4 hours or less for 84 per cent of cases. The adjusted number of hours was taken as the total number of hours of care.
- Elderly person's service usage: this was ascertained by asking the carer for details of the number of visits and distance travelled monthly in relation to the following: GP, PHN, home help, meals on wheels, community welfare officer and/or social worker, chiropodist, occupational therapist, priest/religious, pharmacist, out-patient clinic, hospital day care centre, and day care centre unattached to any hospital. The number of hospitalisations and the lengths of hospital stays in the previous year were also obtained.
- Opportunity costs borne by carers: in order to estimate the opportunity costs related to employment, respondents were asked to indicate if they had given up or reduced paid work in order to care for the elderly person, and the details of the work forgone were obtained where relevant. Carers were also asked about changes in their work status that they would make if they were no longer caring for the elderly person. In order to estimate the opportunity costs in relation to unpaid work in the home, voluntary work, and leisure activities, respondents were asked to indicate how many hours of caring activity they would otherwise use on these activities.

Opportunity costs in relation to housing were obtained by asking respondents how the accommodation occupied by the elderly person would be used if the elderly person were no longer living there.

- Carer attitudes and experience of strain: carers were asked if they would prefer if caring activities were performed by an outside carer paid for by the health board or by an outside carer paid for by themselves. Carer strain was measured by the carer strain index (Robinson, 1983), and by the General Health Questionnaire (GHQ) (Goldberg, 1972), both of which are widely used instruments. Finally, carers' perceived support needs were measured by providing carers with a list of possible supports, which included payment, information/advice, medical services, and respite care options.

The Day Hospital

The day hospital study was carried out over a two-week period in late February and early March. Again, two questionnaires were used: one for nursing staff and one for the elderly or his/her principal caregiver. The decision whether to interview the elderly person or the caregiver was made on the basis of the elderly person's AMT score. If this was less than 8, the caregiver was interviewed: if it was 8 or higher, information was obtained directly from the elderly person.

The elderly person or carer questionnaire covered:

- Elderly person's family situation and household composition.
- Elderly person's housing and household amenities.
- Elderly person's dependency characteristics covering instrumental abilities, basic physical abilities and non-physical aspects.
- Elderly person's service usage. This information covered visits from and to GP, PHN, home help, meals on wheels, community welfare officer/social worker, chiropodist, occupational therapist, health centre/day care centre, hospital out-patient clinic, day hospital, priest/religious, other agencies and other visits.
- Elderly person's hospitalisation or receipt of other residential care within the past year.

The nursing staff questionnaire dealt with:

- Patient's dependency characteristics. Here again Guttman scale of physical dependency items were supplemented by others drawn from the Crichton Royal Behavioural Rating scale.
- Day hospital attendance and care requirements in terms of nursing and of input from doctors, physiotherapist, occupational therapist, speech therapist, social worker, dietician or other professionals.
- Patient's receipt of investigative procedures.

- Patient's consumption of pharmaceutical medicines.
- Patient's mode of transport and travel time.
- Source of patient reference and patient diagnosis.

Constraints Affecting the Study

The cost estimates presented in later chapters of this report are very largely derived from information supplied by nursing staff and/or informal carers. There were, however, reasons why it was felt that the elderly people should also be interviewed whenever possible.

In seeking to measure dependency, we are studying a construct of social relationships and not simply an individual attribute (Wilkin, 1987). For example, it may be the case that the nature of institutional care is such that it routinely produces or exacerbates dependency in an individual patient rather than responding to a state of physical and/or mental ability which already exists. The slowness of an elderly person in performing some activity may, for example, be seen as getting in the way of the efficient running of a ward or unit, and staff may insist on taking over the performance of that task. Pressured into passivity, the elderly person's ability to function independently gradually erodes within such an environment and his or her level of dependency will correspondingly increase.

Our study could only investigate dependency at a point in time rather than over a period of time. Processes such as institutionalisation were therefore outside its scope. But given that those providing care and those receiving care can have significantly different perceptions of what the actual extent of and need for care is (O'Connor, *et al.*, 1988a, pp. 41-51), we considered it important to investigate whether agreement or disagreement in dependency assessment prevailed between providers and recipients. A high degree of disagreement between the two sets of ratings would have called the validity of our measures into question but such disagreement did not emerge.

In the pilot phase of the study in Hospital 1, the 7-point scale developed by Wright was tested for its fit with both nurse and patient ratings. As noted in Table 3.3, this scale is constituted by the following order of items:

- Able to bathe
- Able to walk indoors
- Able to dress
- Able to get out of bed
- Able to sit or stand
- Able to wash
- Able to feed

For such a scale, a coefficient of reproducibility greater than .7 and a coefficient of scaleability greater than .6 are conventionally regarded as acceptable. Actual performance of the 7-item scale was as follows:

	Coefficient of Reproducibility	*Coefficient of Scaleability*
Nurse Rating	0.95	0.85
Patient Rating	0.93	0.75

In addition, a high correlation was observed between nursing and patient responses to questions on the dependency characteristics of individual patients. Inspection of how individual items had performed at this pilot stage prompted modifications which increased the number of items included in the scale from 7 to 9. When subsequently applied to the sample of elderly receiving care in the community, this 9-point scale performed in a satisfactory way, producing a coefficient of reproducibility greater than .9. When the ratings of home carers were compared with those of the elderly people receiving their care, a good level of agreement was also found to prevail. Such convergence between the two sets of rating led to the conclusion that a reliable scale could be built up by concentrating on just one set of responses.

Given the satisfactory indicators of reliability and validity just noted, the procedure of deriving cost estimates from information supplied by the providers rather than the recipients of care has the advantage of being much more comprehensive in its coverage. With a population of elderly people receiving care, the incapacity of a significant section of that population to participate creates a problem for the use of social survey methods. Results may be biased to a significant extent due to an over-representation of the more alert and less frail (Rockwood, *et al.*, 1989). The dimensions of this problem may be illustrated by a brief survey of recent Irish and British studies. In an Irish study, carried out in the early 1970s, three county homes were chosen for study and a 1-in-4 random sample drawn from their total population:

> The selection of old people for interview was based on the nurses' opinions of their capabilities ... In cases where those selected had died, become ill or left the home the selection of substitutes was again based on the nurses' estimation of the capabilities of a random sample of the remaining old people. (MacDevitt, *et al.*, 1975, p. 16)

Of the 152 projected interviews, 99 were completed. Thus (staff defined), incapables accounted for a third of this sample.

In a study of English local authority residential homes – broadly equivalent to the Irish Welfare Homes described in Chapter 2 – a systematic sample of 1,000 residents was drawn from 100 different homes (Wilcocks, *et al.*, 1982). Here, 70 per cent of the original sample were successfully interviewed and 30 per cent consisted of substitutes, the criteria for whose selection are not spelled out in the report. In just over half the cases, or 15 per cent of the original sample, it is stated, "substitution can be attributed to residents' mental infirmity".

Another English study (Wright, *et al.*, 1981) enlisted health and social service professionals' help to assemble in three case study areas a sample of elderly people straddling the boundaries between different kinds of care and service provision across the continuum from community to hospital. The research design provided for proxy interviews with a principal or professional carer where the elderly themselves could not be interviewed. A series of questions culled from mental status tests used in clinical practice were employed to screen for capacity to respond. Success in obtaining interviews with sample members ranged from over 80 per cent in the community to less than 25 per cent in hospital. For more than two-thirds of the residential home residents and almost three-quarters of the hospital patients, proxy interviews had to be resorted to.

By contrast, a feasibility study carried out by researchers from the Polytechnic of North London researchers (Peace, *et al.*, n.d.) deliberately set aside professional definitions of incapacity, specifically in order to test the success with which survey methods could be applied to a random sample of the institutionalised elderly. Attempting to interview all cases in a sample of 160 drawn from 16 residential homes, interviewers from a national opinion polling organisation achieved a response rate close to 90 per cent. Feedback from the interviewers who carried out this survey suggested that questions needed to be clear and concise, with interviewers speaking clearly and slowly, and being prepared to give examples or provide more explanation of their questions where necessary. This study cautions against simply assuming that elderly people will not be capable of conducting a questionnaire-based interview but, because it restricts itself to survey research methodology and offers no indication of the dependency and mental status characteristics of its elderly subjects, its findings are difficult to interpret.

What is clear, however, is that reliance, to a greater or lesser extent, on proxy interviews is inevitably a feature of surveys of dependent elderly populations, with care staff or informal carers acting as proxy informants where these are required. The procedures followed in the present study

attempted to keep care providers and care recipients as distinct groups, comparing the ratings between the two groups – in so far as it was possible to obtain them – for agreement or disagreement on the key issue of level of dependency.

Estimating Amounts of Care

In this study, cost estimates are based on the amount of caring time given in a normal week to specific individuals as reported by those with immediate responsibility for providing or co-ordinating the delivery of that care – principal informal caregivers in the community and sisters or senior staff nurses in hospitals. Asking people to estimate how much demand is placed on their time, or that of their colleagues and subordinates, by the care needs of a particular person or persons is admittedly a relatively uncontrolled way of eliciting data. Greater control might have been achieved by collecting information on time use through the keeping of time diaries or time budgets. Costs of family care for the handicapped elderly have been estimated on the basis of data collected in this way by Nissel and Bonnerjea (1982).

However, Nissel and Bonnerjea's study was undertaken primarily for the purpose of testing a methodology. The demands it was judged likely to make on carers' time led some health professionals to decline assistance to the researchers as they sought to draw their sample. The sample with which the study was undertaken was very small (22 households). In consequence, as the authors point out:

> Numbers in the sample were too small to carry out any sophisticated analysis, and even the rather simple statistical material presented in the paper is not statistically significant (Nissel and Bonnerjea, 1982, p. 4).

Hospitals, moreover, have a much more complex sociotemporal order than households (Zerubavel, 1979). In the former, caring is a matter of relationships between collectivities and occurs on the discontinuous basis of shift working. In the latter, caring most typically occurs on a one-to-one basis whose continuity is unbroken. Trying to use time budgets in a hospital setting with a sufficiently large sample for our other purposes would have demanded resources for data collection, processing and analysis which we did not possess. We judged that it would also have represented an unacceptable additional burden on the hospital staff whose co-operation was crucial to the collection of any data. As our fieldwork was taking place shortly after health budget cutbacks which had resulted in

hospital closures and the widespread laying off of part-time and temporary staff, this was a particularly sensitive issue.

Both questionnaire and budget or diary approaches to the issue of tracking time allocation within the care of the elderly have their advantages and disadvantages. The choice is between tighter measurement with a smaller sample, looser measurement with a larger number of cases, or avoiding quantification altogether. In the context within which the present study was carried out, the second of these options appeared, on balance, to be the best choice.

Chapter 5

DEPENDENCY PROFILE OF OLD PEOPLE IN HOSPITALS AND IN THE COMMUNITY

Introduction

As a prelude to the analysis of the levels of care given to old people at home and in hospitals, it is necessary to look at their dependency profile in both sectors. Variations in dependency between the two regimes of care are considered, as well as any differences which may arise among hospitals.

A priori, one would expect that a relatively high proportion of old people in hospital would be in the highest dependency categories. Nevertheless low-dependency elderly could be in hospital in the following cases: where there is a large supply of beds, little rehabilitation, inadequate community care, and if admission procedures accept low-dependency people. The extent to which these elements can explain the presence of low-dependency people in hospitals is considered.

In Chapter 3, the selection of a measure of dependency was outlined. One of the issues raised was the extent to which physical dependency should be supplemented by other aspects of health status such as mental clarity. This point is pursued in this chapter, with information on health indicators other than physical dependency being examined.

Profile of Dependency in the Hospital Sample

The distribution of elderly persons in the hospitals by scale category is shown in Table 5.1. One would expect, *a priori*, in a survey of hospital care, that a high proportion of elderly persons would be contained in the most severe categories of dependency. It is, therefore, reassuring to observe that 55 per cent of the elderly population surveyed can be assigned to the top two categories of dependency (categories 8 and 9). However, only 20 per cent of the elderly have disabilities that can be assigned between scale point 2 and scale point 7 inclusive. Most interestingly, 22 per cent of old people are either free from disability (as defined by the scale), or have only one disability, that of not being able to bathe without help.

If the original 9-item scale is used, an insufficient number of elderly persons are represented at some points of the scale, particularly between scale point 2 and scale point 7 inclusive. To overcome this problem, the

Table 5.1: *Distribution of Dependency in the Hospital Samples: Guttman Scale Points*

Guttman Scale Key Word	*Number*	*Percentage*
0. Independent	20	6.7
1. Bathe	45	15.1
2. Walk outdoors	8	2.7
3. Walk indoors	13	4.4
4. Dress	9	3.0
5. Bed	6	2.0
6. Sit or Stand	6	2.0
7. Use Toilet	18	6.0
8. Wash	48	16.1
9. Feed	117	39.3
10. Non-scale[2]	8	2.7
All	298*	100.0

* Seventeen cases have been dropped from the analysis either because they were less than 65 years of age or because they were acute rather than long stay.

scale is collapsed to one comprising 5 items. Only by doing this is it possible to compare, in a statistically meaningful way, the caring provision for elderly persons in each hospital by dependency category. Table 5.2 shows the new distribution of elderly persons by category of dependency when scale items are aggregated.

Collapsing scale points in this manner is likely to cause some problems. The cost of the simplification is that the scale is now less sensitive; there are fewer points representing a wider range of behaviour. Too much variation in dependency may now occur within categories, thereby reducing the benefits of classification in the first place. The decision to aggregate scale points depends on the objective of the study in question. If the aim is to use the classification to make marginal decisions about placement then it

[2] The number of elderly persons who are non-scale types has been significantly reduced (from 62) by the procedure of assigning old people without a perfect scale pattern to the rank associated with the perfect scale pattern most similar to their own. Assignment is made on the basis of error minimisation. In more complex cases old people are assigned to the relevant scale point which already contains the highest proportion of subjects (Henry, 1952).

would not be advisable to aggregate the scale to the extent shown in Table 5.2 – a more refined measurement would be required for this task. For the purposes of this study, however, a relatively broad and robust classification is required to facilitate the estimation of resource use and cost by category of dependency and between community and institutional care. For evaluative work of this kind a fine degree of disability measurement is not needed – broad based measures will suffice, though there is a delicate balance between the two.

Table 5.2: *Adjusted Guttman Scale Dependency: Number and Percentage of Hospital Samples Elderly by Category of Dependency*

Category of Dependency	*Number of Elderly*	*Percentage of Elderly*
A	65	21.8
B	21	7.0
C	39	13.1
D	48	16.1
E	117	39.3
Non-scale	8	2.7
	298	100

Notes: Category A covers elderly persons who are either zero disability on the original Guttman scale or at scale point 1.

Category B covers elderly persons who are on scale points 2 and 3 of the Guttman scale.

Category C covers elderly persons who are on scale points 4, 5, 6 or 7 of the Guttman scale.

Category D covers elderly persons on scale point 8 of the Guttman scale.

Category E covers elderly persons who are on scale point 9 of the Guttman scale.

Variations Across Hospitals

There is, as Table 5.3 shows, some variation across hospitals in the distribution of old people by dependency level. For instance, Hospital 4 has a much lower proportion of old people in the highest dependency category (29 per cent) than is the case with the other hospitals. At the other end of the scale, Hospital 2 stands out with only 7 per cent of old people in the lowest dependency category – markedly lower than the corresponding proportion in the other hospitals.

Table 5.3: *Distribution of Category of Dependency by Hospital*

Category of Dependency	*1*	*2*	*3*	*4*	*All*
			Per cent		
A	23.0	6.6	21.4	37.9	21.8
B	9.0	6.6	3.6	7.6	7.0
C	9.0	18.4	14.3	12.1	13.1
D	17.0	19.7	14.3	12.1	16.1
E	41.0	44.7	41.1	28.8	39.3
NS	1.0	3.9	5.4	1.5	2.7
	100	100	100	100	100
N:	100	76	56	66 =	298
(%)	(33.6)	(25.5)	(18.8)	(21.1)	

Pearson Chi-sqd. = 27.87; D. of F. = 15; Sig. $p < 5\%$

Reasons for Presence of Low-dependency People

A number of reasons could explain the presence of low-dependency people in hospital:

(i) the supply of available beds,
(ii) admission procedures,
(iii) extent to which there is a rehabilitation programme,
(iv) provision of community support.

These possible explanations are now taken up, in turn.

Supply of Beds

It is possible that the availability of long-stay beds in the area surrounding the hospital influences the number of elderly people in these beds. One would expect that the more long-stay beds are available, the greater the number of elderly people in institutions, with more low-dependency people than otherwise being in hospital. This hypothesis is explored with the help of Table 5.4. This table shows the number of beds per thousand persons aged 65 and over in the regions containing the respective hospitals.

One might expect that those hospitals, with a high proportion of their patients in low categories of dependency, would be located in regions having a relatively high bed to population ratio. This is not the case. For

example, Hospital 4 contains a relatively high proportion of low-dependent elderly persons. However, the overall bed to population ratio of the region containing this hospital is below that of the regions containing Hospital 2 and Hospital 3. Each of these hospitals contains relatively fewer low-dependent persons than Hospital 4. Furthermore, Hospital 1 is situated within the region having the lowest bed to population ratio but its proportion of low-dependent old people is much higher than Hospital 2 and slightly higher than Hospital 3.

Table 5.4: *All Long-stay Beds (Public, Private and Voluntary) in Relevant Regions Containing Chosen Hospitals*

Hospital	*Beds per 1000 Persons Aged 65+ in Relevant Region*
1	37.5
2	54.2
3	58.3
4	47.0
All Regions	49.7

Source: O'Shea, *et al.*, 1991, *The Role and Future Development of Nursing Homes in Ireland*, National Council for the Elderly, Table 3.11.

Two notes of caution should be entered regarding the interpretation of these ratios. First, it is not clear whether whole regions are actually the catchment areas served by these hospitals. Over most of the country such catchment areas are more likely to correspond in practice with the sub-regional Community Care Areas and/or the counties which, prior to reorganisation in the early 1970s, acted as health service providers. Second, whether at regional or other more localised level, the overall supply of long-stay beds amalgamates a whole variety of different provider organisations. Simply relating the characteristics of patients within one such organisation to an area's overall bed supply misses out the way interaction between institutions can influence patterns of placement.

Admissions Procedure

One would expect that geriatric hospitals with more formal entry procedures, particularly if directed by a consultant geriatrician, would have less low-dependent elderly in long-stay care than would otherwise be the case. The situation in of Hospital 2 seems to bear out this hypothesis. Only 13 per cent of old people in this hospital are in the two least dependent categories.

Procedure for admission to Hospital 2 is controlled by two consultant geriatricians who make use of assessment and rehabilitation beds (78 beds) before deciding on final admission into long-stay care. There is little difference between the proportion of long-stay and assessment/rehabilitation patients in the lowest category of dependency in Hospital 2 (Table 5.5). There is, however, a higher proportion of very dependent persons (Category E) in long-stay care. The presence of a day hospital on the site of this hospital also gives the consultants greater flexibility with respect to admission in the sense that an alternative to in-patient care is available for some persons.

Table 5.5: *Distribution of Category of Dependency in Hospital 2*

Category of Dependency	*All*	*Assessment/ Rehabilitation*	*Long-stay*
A	6.6	7.7	6.1
B	6.6	11.5	4.1
C	18.4	26.9	14.3
D	19.7	21.3	18.4
E	44.7	30.8	51.0
NS	3.9	0.0	6.0
	100.0 (n = 76)	100.0 (n = 26)	100.0 (n = 50)

Admission to Hospital 1 is governed by an assessment procedure[3] administered by an admissions committee which operates through a weekly case conference at which the three programmes – acute hospital, special hospital and community care – are represented. Medical referrals and public health nurses' reports are obtained on standard forms and this information is then scored to assess the degree of urgency attached to each case. Prior to the setting up of this procedure, there were very long waiting lists to get into Hospital 1. Resulting from an absence of assessment, once an old person entered the hospital, little was done about getting them back out again into the community.[4] Most of the referrals now come from the consultant physician/ geriatrician who works in the general hospital in the same town. This consultant handles the bulk of geriatric illness that comes into the acute hospital but would also see old people in Hospital 1 on a consultation basis, i.e., when required to by the medical officer in that hospital. There is, therefore, a degree of interaction between the local acute hospital and the long-stay institution mediated through this consultant's multifaceted responsibilities in the area.

Hospital 4 also has an admissions committee which, although not led by a consultant geriatrician, does seem to have well-defined criteria for entry. Information about potential patients comes mainly from GP referral and from the social history report supplied by a public health nurse. The committee scores information from these two sources under the following headings: social conditions (75 points maximum); medical condition (50 points maximum); nursing needs (50 points maximum); and length of time on waiting list (25 points maximum). It is difficult to reconcile the apparent rigour of the admissions procedure with the high proportion of patients (38 per cent) who are deemed to be in the lowest category of dependency. The most likely explanation for this is the high weighting given to the social conditions of the elderly person in the admissions procedure.

There is no formal pre-entry assessment of elderly persons in Hospital 3. Admissions are subject to some prior appraisal but arrangements to carry out formal assessments are not in place. The appraisal that is done is based primarily on background reports prepared by public health nurses. General practitioners are also asked to supply a covering letter for each person being considered for admission, but standardised information is not collected and there is no attempt to combine available data into a points scoring system.

[3] The assessment system was set up about ten years ago.

[4] It is very difficult to establish the true influence of date of admission on the current distribution of dependency in institutions. This is because ageing may result in increased dependency over time. In addition, institutionalisation may also cause increased dependency of people over time.

Admission procedure does appear less rigorous in Hospital 3 than in the other hospitals. Yet this is not reflected in any marked manner in the distribution of people by dependency class. For instance, the distribution of dependency in this hospital is not markedly different from that in Hospital 1. In addition, Hospital 3 has relatively fewer patients in the lowest category of dependency and relatively more in the highest category of dependency than in Hospital 4.

Rehabilitation and Discharge Policy

Admissions procedure is only one of the factors which may determine the distribution of dependency within an institution. The extent to which a hospital has a rehabilitation programme and an active discharge policy will also affect the number and type of elderly persons within an institution. Similarly, the motivation, determination, and overall philosophy of the professional staff of the hospital with regard to the discharge of elderly persons is crucial in determining rate of throughput. In particular, the lead given by the physician is especially important in influencing the attitude of carers towards returning the elderly persons to the community. This section considers the attitude to discharge in each of the hospitals and the consequent differences in throughput among the hospitals.

The most active discharge policy is found in Hospital 2, with emphasis on initial assessment, intensive level of service, rehabilitation and then, where possible, discharge. In cases where discharge is not possible, patients are transferred into long-stay care.

The view taken by the consultant geriatricians in Hospital 2 is that unless comprehensive assessment and rehabilitation are available, programmes of care of the elderly will be ineffective. They hold that many patients will end up as long-stay patients because they do not receive the intensive rehabilitative care necessary to get them back into the community. The availability of a day hospital and out-patients' department on the hospital's grounds means that institutional support is available for old people who are returned to the community. Admission to long-stay facilities occurs, therefore, only for those for whom it is absolutely essential. One result of this approach is a very high rate of throughput for patients in the rehabilitation beds (23.4). Turnover (the number of discharges as a ratio of the number of beds) in the long-stay section at 1.39 is also above the national average for all long-stay beds (1.06) (see Table 5.6).

The rate of throughput for all patients in Hospital 1 is also high relative to the national average (1.57 compared with 1.06). This hospital contains a small number of short-stay beds (24 beds) which are used to

assess whether occupants need long-term nursing care or whether alternative forms of care are more suitable. Unfortunately, information is not available on the rate of turnover of these beds. Instead we had to make do with aggregate hospital statistics. The short-stay beds are also used to accommodate people referred from acute care who have been ill and need further physiotherapy, nursing care and rehabilitation time. Old people are also admitted to short-stay beds in order to provide relief for relatives who are caring for that person at home. Of all those admitted to short-stay beds the consultant geriatrician estimates that 60 per cent are discharged to either home, to boarding out, or to welfare home accommodation: the remainder need long-term nursing care and are transferred to a long-stay bed.

Table 5.6: *Rate of Throughput per Year by Hospital*

	Hosp. 1	*Hosp. 2 Assessment*	*Long-stay*	*Hosp. 3*	*Hosp. 4*	*National*
Number of Beds	316	78	137	202	204	16,577
Number of Discharges	495	1,823	190	190	181	17,487
Discharges per Bed	1.57	23.4	1.39	0.94	0.89	1.06

Sources: Long-Stay Geriatric Statistics, (1988), Department of Health.
Hospital Activity Statistics, Hospital 2.

Until the initiation of the short-stay beds, the ethos of Hospital 1 was primarily that of long-term care. In the beginning, hospital staff were somewhat resistant to the new policy, not deliberately or obstructively, according to the consultant associated with the hospital, but mainly because the concept of discharging geriatric patients was new and challenging. After all, up to this time, the procedure, according to the consultant, was to look after, protect and cosset people – even in cases where manifestly there was no difficulty about discharging.

In Hospital 3, the rate of throughput is 0.94, slightly below the national average. A number of "floating" short-stay beds have recently been introduced into this hospital. These beds are used to encourage flexibility and movement towards a higher level of discharge for less dependent patients. The end result should be an increase in turnover in the hospital. The problem, as the hospital matron sees it, is to educate people into accepting that the hospital is not a place where old people stay forever

once they enter. The main obstacle to discharging patients, according to the matron, arises not from within the hospital but from the families of the old people who are often reluctant to accept the discharged patient. Relatives are, however, now becoming more willing to take out elderly persons on a trial basis given the availability of the floating short-stay beds, should any problems arise.

There is little formal post-entry assessment or rehabilitation in Hospital 4. Neither is there a distinction made between short-stay and long-stay beds. The hospital administrator has been pushing the idea of ongoing assessment but, so far, without success. The hospital matron feels, however, that the work of the admissions committee and especially the availability of a day centre attached to the hospital means that – even without ongoing assessment – they are already doing what is being done in other non-consultant geriatric hospitals in the rest of the country. Nevertheless, the high proportion of old people in the lowest category of dependency in the hospital would lead one to conclude that some scope may exist to increase the rate of throughput from the present relatively low level of 0.89.

Community Support

Both the willingness and the ability of hospitals to discharge patients into the community will depend on the quantity and quality of community care that is available. In like manner, the preparedness of relatives to accept old people discharged into their care – on which hospitals rely if they are to pursue an active discharge policy – will depend in part on the adequacy of these same community facilities. While the issue of community care is explored later on in this study, the immediate links with dependency status of old people in hospital are taken up now.

Assessment is only useful in so far as adequate resources are available to allow meaningful action in the light of the judgement of providers. Social factors such as spatial isolation may, however, "prevent" an elderly person remaining in their own home even though assessment of physical dependency may have deemed this the most appropriate placement. Similarly, inadequate community care facilities may leave providers with no choice but hospitalisation, irrespective of the outcome of assessment. In that regard there is evidence of marked differences across the country in the levels of community care provision, with services being at a low level in sparsely populated rural areas (O'Mahony, 1986).

Remoteness, isolation, bad housing, and patchy community care services combine to complicate placement decision-making in and around Hospital 1. So does unbalanced demography exacerbated by high levels of emigration. For some old people there is only one choice – in-patient care.

To live at home may be to return to a sparsely populated area without a social network or an adequate community care service. In these circumstances an old person cannot be left to their own devices, isolated physically and emotionally from any social contact.

Staff in each of the hospitals surveyed were aware of the crucial relationship between discharge policy and the adequacy of community care provision. In Hospital 2, for example, a liaison nurse provides the informational link between institutional and community care. She discusses the needs of the patients with hospital and community staff before any decision on discharge is made. The patients' ongoing nursing care needs (e.g., for dressings, incontinence wear, infections), lifestyle, mobility, diet, availability of family support, needs for home help and for meals on wheels are the principal concerns of the liaison nurse when imminent discharge is under discussion.

A liaison public health nurse has also been operating for the past two years dealing with discharges from Hospital 3. The role of the liaison nurse is to bridge the information gap between community care and the institution, if on a less formal basis than in Hospital 2. One of the benefits of this approach is, according to the nurse, the encouragement of a change of attitude among informal carers in the community. This has led to an increased willingness to accept discharged elderly persons, thereby freeing beds within the institution.

In both Hospitals 1 and 4 it is left to the superintendent public health nurse to bridge the gap between what the public health nurses feel is feasible with regard to discharge and what the hospital would like to achieve with that policy. However, it is the policy of the geriatrician associated with Hospital 1 to meet the relatives of the elderly person (or whoever the main community carers may be) before discharge. In that way, if there is a resistance to home care which is considered insurmountable, an alternative placement can be investigated.

The transition between institution and community is made easier if day hospital facilities are available within, or close to, the long-stay institution. The issues of day hospital facilities are discussed more fully later in the report. There is general agreement among health care professionals in Hospital 2 that the provision of day hospital facilities on site makes an important contribution towards ensuring a successful admissions and discharge policy. Similarly, the presence of a day care centre on the site of Hospital 4 is perceived by staff in that hospital as providing an important link between community and institution. Conversely, the liaison public health nurse involved in the placement of elderly persons in Hospital 3 highlights the absence of a proper geriatric assessment unit with facilities

to treat out-patients as the major deficiency associated with care of the elderly in that hospital.

Profile of Dependency in the Community Sample

Table 5.7 shows the distribution of scores on the Guttman scale of dependency in the community sample. As expected *a priori*, the distribution of scores on the Guttman scale, and therefore the number of cases in each category of dependency, is quite different from that of the hospital sample. A much higher proportion is in the low-dependency groups. For the purposes of comparability, however, the individuals in the sample are categorised into the same categories as those in the hospital sample.

Fifteen per cent of the sample are considered independent physically, in that they can perform all activities listed without help. A further 30.0 per cent can do all except bath without help, making a total of 45.5 per cent who may be considered independent physically, and who are assigned to category A.

Table 5.7: *Distribution of Dependency of Community Sample Elderly Persons Living in Same Household as Carers: Guttman Scale Points and Category of Dependency*

Guttman Scale Key Word	*N*	%	*Category of Dependency*	*N*	%
0. Independent	30	15.2	A	90	45.5
1. Bathe	60	30.3			
2. Walk outdoors	28	14.1	B	39	19.7
3. Walk indoors	11	5.6			
4. Dress	6	3.0			
5. Bed	7	3.5	C	26	13.0
6. Sit or stand	6	3.0			
7. Use toilet	7	3.5			
8. Wash	18	9.1	D	18	9.1
9. Feed	11	5.6	E	11	5.6
10. Non-scale	14	7.1	Non-scale	14	7.1
Total	198			198	

Category B contains those who need help with bathing and with mobility in the sense of being unable to walk outdoors without help (14.1 per cent), as well as those who are unable to walk indoors without help (5.6 per cent), making a total of 19.7 per cent who are assigned to category B.

Category C (13 per cent) contains a fairly wide range of dependency, from those who are unable to bath, walk, or dress without help to those who are unable to bath, walk, dress, get in and out of bed, sit or stand, and use toilet without help.

Category D (9 per cent) contains all cases who cannot perform the activities of category C without help, and who additionally cannot wash without help.

Category E, which contains only 11 cases (5.6 per cent), includes those who cannot perform any of the physical activities of daily living without help. Statistics on this category must be treated with caution, given its small size. It is retained as a separate category primarily for comparability with the hospital sample.

Non-scale types (7 per cent), did not have a clear-cut pattern of dependency, but of the 14 who could not be scaled, the majority (61 per cent) were unable to perform at least 3 activities without help, and a further 27 per cent were unable to perform between 4 and 6 activities without help. If scaled using a Likert format, this would place the non-scale types in the third category of dependency (category C), requiring help with many of the physical activities of daily living. In relation to the Guttman Scale of dependency this category has in practice been excluded from statistical analyses. Although this procedure departs from that followed in the hospital analyses, the departure is too slight to distort the comparisons between the different care regimes.

The distribution of dependency in the community sample can be compared with that in the hospital sample (Table 5.2). In the hospital sample 55 per cent of the patients were classed in the top two categories of dependency, compared with 15 per cent of the community sample being classed in these two categories. At the other end of the scale, 22 per cent of the hospital sample are classed as physically independent (category A) – a higher percentage than would have been expected *a priori*. By contrast 45 per cent of the community sample are classed as physically independent.

It can also be noted that the distribution of dependency across the different hospitals shows that in some hospitals a considerable percentage (up to 37.9 per cent in Hospital 4) of the elderly were in the physically independent category A. While this variation in the distribution in hospitals has already been discussed, from the viewpoint of community care, it suggests that even individuals in low dependency categories are in

need of a care regime, and that the capacity for individuals to be cared for in the community is related to the presence or absence of an adequate community care programme.

The distribution of dependency in the community can also be compared with the distribution in the study of O'Connor *et al.* (1988) although any comparisons are tentative, since a different method of assessment was used by the latter. Forty-six per cent of the present community sample are categorised as physically independent (except for an inability to bathe), and 20 per cent are dependent only with regard to mobility. This may be compared with the sample of O'Connor *et al.*, where a total of 61 per cent were categorised into no dependency, low dependency, and medium dependency categories. In the present sample, 13 per cent may be regarded as highly dependant (category C), needing help with many physical activities of daily living. If this is combined with the non-scale types, as suggested above, this gives a figure of 20 per cent, which is comparable with the 22 per cent of the sample of O'Connor *et al.*, who were categorised as having a high level of dependency. Finally, 15 per cent of the present sample may be regarded as very highly dependent (categories D and E), needing help with all activities except feeding. Again, this can be compared with the 17 per cent in the sample of O'Connor *et al.*, who were regarded as having a very high level of dependency.

If there is a discrepancy between the distribution of dependency in the present sample and that of O'Connor *et al.*, the present sample seems to have higher percentages who are relatively independent. Thus 15 per cent of the present sample are considered to be fully independent (scoring zero on the Guttman scale of physical dependency), compared with 7.5 per cent of the sample of O'Connor *et al.*

Additional Measures of Dependency

As outlined in Chapter 3, physical dependency is but one aspect of the overall health status of people. Also that chapter has discussed the difficulties of combining measures of the different elements of health status. Nevertheless, information has been collected on additional health indicators, and instrumental activities of daily living and it is used now to augment the data used above.

Appendix A.5 (Tales A5.1 to A5.14) contains the details of the analysis of this information. The additional indicators cover incontinence, mental health, communication, co-operation and restlessness. The information contained in the Appendix allows us to examine whether differences emerge in the distribution of people by non-physical elements of

dependency similar to the differences in the physical dimension. In fact the distribution of additional ill-health across hospitals is not dissimilar from that observed using the Guttman scale. This suggests that the Guttman categorisation of dependency is a reasonable measure of disability in old people.

There is a significant positive relationship between severity on the Guttman Scale and the proportion of old people having difficulties with the additional indicators; continence, mental health, communication, co-operation and restlessness. This relationship holds for old people living at home and in institutions, but is stronger in the latter. The proportion of old people living at home needing help with instrumental activities of daily living such as using the telephone, taking medicine, handling money and using public transport also increases across categories of dependency. For more complex instrumental tasks as shopping, preparing meals, housekeeping and washing, most old people needed help, irrespective of category of dependency.

Conclusion

A priori, in a survey of institutional care one would expect to find a high proportion of old people in the most severe categories of dependency. This has been confirmed above, though there is quite a large variation in the distribution of old people by category of dependency across the institutions. Similarly, *ex ante* expectations with regard to the dependency profile of old people in the community are confirmed, with most old people belonging to low dependency groups. There is also evidence of a strong relationship (both in institutions and in the community) between Guttman category of dependency and incapacity on additional indicators such as continence, mental health, communication, co-operation and restlessness. At the very least, this is a reassuring sign of the robustness of the Guttman measurement.

The reasons for the variation in dependency among institutions have also been explored in this chapter. A number of possible explanations for this have been considered. One element which is important in explaining the distribution of patients by dependency level, is the admission procedures of the hospitals. The low proportion of low-dependency patients in Hospital 2 is evidently related to the rigorous procedures for admission, together with the use of assessment and rehabilitation beds before final decisions are made about final admission into long-stay care. In Hospitals 1 and 4, while there is an admission committee, there is also a relatively high proportion of patients in the lowest category of dependency. The most likely explanation for the striking pattern of dependency among

patients in both hospitals is the high weighting given to the social conditions of elderly persons in the admissions procedure.

The degree to which there is an active approach to the rehabilitation and discharge of patients in the hospitals can also affect the distribution of dependency. For instance, Hospital 2 uses an active approach both to rehabilitation and to discharge which is supported by a day hospital on the same site. Not surprisingly, there is a huge difference between throughput in the assessment and rehabilitation beds in Hospital 2 and in long-stay beds in the same hospital. Hospital 1 also has a higher rate of throughput than the national average. Throughput does, therefore, seem to be linked to the degree to which hospitals use "floating" short-stay beds.

Another element that can influence dependency levels and the rate of turnover in institutions is the nature and level of community care provision. The organisation of community care can also have an important influence on placement decision-making. One instance cited is the case where a liaison public health nurse works to bridge the information gap between community care and the institution. This task is, of course, made easier if day hospital facilities are available within, or close to, the long-stay institution and if community services are adequate for the task entrusted to them.

APPENDIX A.5

ADDITIONAL MEASURES OF DEPENDENCY IN INSTITUTIONS AND IN THE COMMUNITY

This Appendix summarises the nature of health status, in the community and across the hospitals, on dimensions other than physical dependency. The additional indicators cover incontinence, mental health, communication, co-operation, restlessness while a range of instrumental activities of daily living are also examined for old people living at home. In the first instance, the nature of disability on each of the additional indicators is considered for old people in institutions.[5]

Incontinence

Table A5.1 shows Hospital 4 has more patients who are always continent than any of the other hospitals. The differences across hospitals are statistically significant with a p value of less than .01. These results tend to confirm the distribution of physical dependency among hospitals. Hospital 2 (especially) and Hospital 3 contain relatively more patients who are doubly incontinent and relatively less patients who are always continent.

Table A5.1: *Incontinence of Elderly Persons by Hospital*

	Always Continent	*Occasionally Incontinent*	*Incontinent Urine Only*	*Doubly Incontinent*	*All*
			Per cent		
Hospital 1	34.3	16.2	34.3	15.2	34.4
Hospital 2	23.6	25.0	12.5	38.9	25.0
Hospital 3	23.1	44.2	1.9	30.8	18.1
Hospital 4	44.6	43.1	1.5	10.8	22.6
All N = 288	31.9	29.5	15.6	22.9	100

Pearson Chi-sqd. = 73.99; D. of F. = 9; Sig. p < 1%.

[5] Full information was not available for all patients for the dimensions of incontinence and mental health: (available N = 288). Information on communication, co-operation and restlessness was not collected in the initial pilot phase of the survey in Hospital 1: (available N = 234).

Mental Status

A similar picture emerges with regard to mental status (Table A5.2). Differences across hospitals are statistically significant with a p value of less than .01. Hospital 1 has relatively more patients who are mentally alert and less patients who are severely confused. The relatively poor mental status of patients in Hospital 3 more than likely reflects the fact that this hospital has, in recent years, had to accommodate patients transferred from a nearby psychiatric hospital.

Table A5.2: *Mental Status of Elderly Persons by Hospital*

	Mentally Alert	*Mild Confusion*	*More Serious Confusion*	*Severe Confusion*	*All*
			Per cent		
Hospital 1	51.0	17.3	16.3	15.3	34.0
Hospital 2	31.5	20.5	20.5	27.4	25.3
Hospital 3	23.1	17.3	21.2	38.5	18.1
Hospital 4	35.4	30.8	10.8	23.1	22.6
All	37.5	21.2	17.0	24.3	100
N = 288					

Pearson Chi-sqd. = 22.78; D. of F. = 9; Sig p < 1%.

Communication

On the dimension of communication, differences in the distribution of dependency among hospitals are less clear-cut though, once again, Hospital 3 contains significantly more patients (43 per cent) in the two least communicative categories (Table A5.3). Differences between hospitals are statistically significant with a p value of less than .05.

Co-operation

The distribution of dependency by co-operation by hospital is shown in Table A5.4. Differences across hospitals are not statistically significant. All hospitals have relatively few patients in the two highest categories of dependency for this indicator.

Table A5.3: *Communication of Elderly Persons by Hospital*

	Always Clear/Retains Information	*Understands Simple Information, Can Indicate Needs*	*Understands Simple Information, Cannot Indicate Needs*	*Cannot Understand Simple Information, Some Expressive Ability*	*No Effective Contact*	*All*
			Per cent			
Hospital 1	39.5	37.2	7.0	7.0	9.3	18.4
Hospital 2	28.3	37.0	15.1	13.7	11.0	31.2
Hospital 3	18.9	22.6	15.1	20.8	22.6	22.6
Hospital 4	33.8	30.8	10.8	4.6	20.0	27.8
All	28.2	32.1	12.4	11.5	15.8	100
N = 234						

Pearson Chi-sqd. = 21.45; D. of F. = 12; Sig p < 5%.

Table A5.4: *Co-operation of Elderly Persons by Hospital*

	Actively Co-operative	*Passively Co-operative*	*Requires Frequent Encouragement*	*Rejects Assistance, Shows Independent but ill-directed activity*	*Completely Resistive or Withdrawn*	*All*
			Per cent			
Hospital 1	39.5	16.3	32.6	2.3	9.3	18.4
Hospital 2	26.0	38.4	21.9	6.8	6.8	31.2
Hospital 3	22.0	37.7	24.5	5.7	9.4	22.6
Hospital 4	40.0	29.2	18.5	0.0	12.3	27.8
All	31.6	31.6	23.5	3.8	9.4	100
N = 234						

Pearson Chi-sqd. = 17.88; D. of F. = 12; Not significant

Restlessness

Restlessness in elderly persons by hospital is shown in Table A5.5. Hospital 4 contains a relatively high proportion of patients who are not restless and also a relatively high percentage of old people who are constantly restless. Almost one quarter of old people in Hospital 3 are persistently restless by day or worse. Once again this may reflect the relatively high proportion of psychiatric patients in the hospital.

Table A5.5: *Restlessness of Elderly Persons by Hospital*

	None	*Intermittent*	*Persistent by day*	*Persistent by day with frequent night restlessness*	*Constant*	*All*
			Per cent			
Hospital 1	66.7	22.2	0.0	8.9	2.2	18.3
Hospital 2	27.6	53.9	6.6	9.2	2.6	30.9
Hospital 3	45.8	32.2	10.2	8.5	3.4	24.0
Hospital 4	60.6	27.3	0.0	3.0	9.1	26.8
All	48.0	35.8	4.5	7.3	4.5	100.0
N = 234						

Pearson Chi-sqd. = 39.64; D. of F. = 12; Sig.p < 1%

Poor Health Status in Institutions

A clearer profile of dependency within and across among hospitals emerges if one concentrates on patients who are most seriously disabled on each additional indicator. Poor health status on each additional indicator is defined to include only descriptions of incapacity which are most disabling for the patient. The definition used of poor health status is given in the notes to Table A5.6.

When aggregated across all hospitals, the proportion of elderly persons seriously incapacitated on each of the additional health indicators, with the exception of restlessness, is very similar (Table A5.6). In the case of incontinence and unco-operativeness, 37 per cent of all patients are severely disabled. The proportion of patients seriously disabled with respect to mental status and communication is 42 per cent and 39 per

cent, respectively. Only 16 per cent of all patients are considered to have a serious problem with restlessness.

The proportion of patients with poor health status in Hospital 4 is always below the survey average for each additional indicator. In contrast, Hospitals 2 and 3 generally contain relatively more patients with poor health status on each additional health indicator. The major exception is incontinence in the case of Hospital 3, while the number of patients who are uncommunicative and unco-operative in Hospital 2 is close to the survey average. Hospital 1 contains relative high numbers of old people who are incontinent and unco-operative but relatively less who are mentally disturbed, uncommunicative or restless. The distribution of additional ill health across hospitals, described above, is not, therefore, dissimilar from the one observed using the Guttman scale used to assign dependency.

Table A5.6: *Elderly With Poor Health Status on Additional Health Indicators by Hospital*

	Incontinence [a]	*Mental Status Deficiency* [b]	*Uncommunicative* [c]	*Unco-operative* [d]	*Restlessness* [e]
			Per cent		
Hospital 1	49.4 (1)	32.0 (4)	22.2 (4)	44.4 (1)	11.1 (4)
Hospital 2	49.3 (2)	48.7 (2)	38.2 (2)	36.8 (3)	18.4 (2)
Hospital 3	29.3 (3)	56.9 (1)	52.5 (1)	37.3 (2)	22.0 (1)
Hospital 4	12.1 (4)	34.8 (3)	36.4 (3)	31.8 (4)	12.1 (3)
All	37.3	42.0	38.9	37.3	16.4

Poor Health Status:

a. Incontinent of urine only or doubly incontinent.

b. Often somewhat confused or severely confused.

c. Can understand simple information but cannot indicate needs or cannot understand information but retains some expressive ability, or has no effective contact with others.

d. Requires frequent persuasion, or shows independent but ill-directed activity, or completely resistant and withdrawn.

e. Persistently restless by day, or persistently restless by day with frequent night-time restlessness, or constant restlessness.

Note: In parentheses after each proportion is given the rank, 1 = Highest; 4 = lowest.

Relationship between Dependency on Guttman Scale and Ill-health on Additional Indicators: Hospital Samples Elderly

We now explore the extent to which those who have a high degree of disability on the Guttman scale have serious disabilities on the additional health indicators. Table A5.7 shows that there is a strong positive, mostly linear, relationship between increasing dependency on the Guttman scale and the proportion of patients experiencing problems on the additional health indicators.

Most of the worry with regard to the unidimensional nature of the Guttman measurement of dependency is that many important non-physical attributes of incapacity are not properly assessed. It is clear from the above, however, that there is a relationship between severity on the Guttman Scale and the proportion of elderly persons having difficulties with continence, mental clarity, communication, co-operation and restlessness. This finding bears out the view of Kyle, *et al.* (1987) who argue that many forms of dependency are adequately reflected, albeit indirectly, in the Guttman scale. Incapacity on additional indicators gives rise to problems in carrying out activities of daily living included in the Guttman scale.

Poor Health Status by Category of Dependency in Hospitals

Now the proportion of cases where patients are classified as having "poor health status" on the additional health indicators is shown by hospital, for each category of dependency.

Table A5.7: *Category of Dependency by Poor Health Status* on Additional Health Indicators: Hospital Sample Elderly*

	Incontinence	*Mental Status Deficiency*	*Uncommunicative*	*Unco-operative*	*Restlessness*
			Per cent		
Category A	3.0	12.1	7.5	15.1	7.5
Category B	9.5	23.8	11.8	23.5	5.9
Category C	10.5	20.5	19.4	27.8	5.6
Category D	46.0	46.0	35.1	27.0	16.2
Category E	69.2	66.4	73.1	59.1	26.9
Non-Scale	0.0	62.5	12.5	50.0	25.0
All	37.3	42.0	38.9	37.3	16.4

* Poor health status: defined as in Table A5.6.

Table A5.8: *Elderly Persons in Category of Dependency A With Poor Health Status* on Additional Health Indicators by Hospital*

	Incontinence	*Mental Status Deficiency*	*Lack of Communication*	*Lack of Co-operation*	*Restlessness*	*Number*
			Per cent			
Hospital 1	8.6	4.3	0.0+	30.0+	0.0+	23
Hospital 2	0.0	20.0	20.0	0.0	20.0	5
Hospital 3	0.0	41.7	25.0	33.3	25.0	12
Hospital 4	0.0	0.0	0.0	0.0	0.0	25
All	3.1	10.8	7.7++	13.5++	7.7++	65

* Poor health status: defined as in Table A5.6.

\+ Patients in the Pilot Survey in Hospital 1 were not asked questions on communication, co-operation or restlessness (N = 10).

++ N = 52

Table A5.9: *Elderly Persons in Category of Dependency B With Poor Health Status* on Additional Health Indicators, by Hospital*

	Incontinence	*Mental Status Deficiency*	*Lack of Communication*	*Lack of Co-operation*	*Restlessness*	*Number*
			Per cent			
Hospital 1	11.1	37.5	0.0+	20.0+	0.0+	9+
Hospital 2	25.0	0.0	0.0	0.0	0.0	5
Hospital 3	0.0	50.0	25.0	50.0	0.0	2
Hospital 4	0.0	20.0	20.0	40.0	2.0	5
All	10.1	25.0	11.8++	23.5++	5.9++	21

* Poor health Status : defined as in Table A5.6.

\+ Patients in the Pilot Survey in Hospital 1 were not asked questions on communication, co-operation or restlessness. (N = 5)

++ N = 17

Table A5.10: *Elderly Persons in Category of Dependency C With Poor Health Status*on Additional Health Indicators by Hospital*

	Incontinence	*Mental Status Deficiency*	*Uncommunicative*	*Unco-operative*	*Restlessness*	*Number*
			Per cent			
Hospital 1	33.3	11.1	0.0+	16.7+	0.0+	9
Hospital 2	7.1	28.6	21.4	28.6	7.1	14
Hospital 3	0.0	25.0	37.5	50.0	12.5	8
Hospital 4	0.0	12.5	12.5	12.5	0.0	8
All	10.5++	20.5	19.4++	27.8++	5.6++	39

* Poor health status: defined as in Table A5.6.

\+ Patients in the Pilot Survey in Hospital 1 were not asked questions on communication, co-operation or restlessness (N = 6)

++ N = 36

Table A5.11: *Elderly Persons in Category of Dependency D With Poor Health Status* on Additional Indicators by Hospital*

	Incontinence	*Mental Status Deficiency*	*Lack of Communication*	*Lack of Co-operation*	*Restlessness*	*Number*
			Per cent			
Hospital 1	70.6	35.3	40.0+	60.0+	40.0+	17
Hospital 2	60.0	53.3	20.0	33.4	20.0	15
Hospital 3	12.5	50.0	37.5	12.5	12.5	8
Hospital 4	0.0	50.0	50.0	12.5	0.0	8
All	45.8	45.8	33.3++	27.8++	16.7++	48

* Poor health status: defined as in Table A5.6.

\+ Patients in the Pilot Survey in Hospital 1 were not asked questions on communication, co-operation or restlessness (N = 5)

++ N = 36

Table A5.12: *Elderly Persons in Category of Dependency E With Poor Health Status* on Additional Health Indicators by Hospital*

	Incontinence	*Mental Status Deficiency*	*Uncommunicative*	*Unco-operative*	*Restlessness*	*Number*
			Per cent			
Hospital 1	75.7	48.8	47.1+	64.7+	17.7+	41
Hospital 2	76.4	64.7	64.8	50.0	20.5	34
Hospital 3	69.6	86.4'	91.3	47.8	34.7	23
Hospital 4	42.1	84.2	89.5	84.2	36.9	19
All	69.2	66.4	73.1++	59.1++	26.9++	117

* Poor health status: defined as in Table A5.6.

\+ Patients in the Pilot Survey in Hospital 1 were not asked questions on communication, co-operation or restlessness (N = 17)

++ N = 93

Additional Measures of Disability in the Community

The additional indicators of dependency for the community elderly sample are profiled in Tables A5.13 and A5.14. Table A5.13 shows the poor health status on the additional health indicators (as defined in Table A5.6 above) for the sample overall (bottom line) and for each dependency category. Thus, overall, 9.1 per cent are incontinent of urine only, or doubly incontinent, 19.7 per cent are often somewhat confused or severely confused, 6.1 per cent can understand only simple information, or cannot communicate, 26.3 per cent require frequent encouragement or are completely resistant or withdrawn, and 18.7 per cent are persistently restless by day, or by day and by night. Levels of dependency on the first three of these indicators increase across categories of physical dependency. In particular, there are smaller percentages showing these symptoms in categories A and B, compared with categories C, D and E.

The Instrumental Activities of Daily Living scale measures dependency in activities such as shopping, cooking and housekeeping (Table A5.14), areas which are obviously essential for living in the community. In the first four areas of dependency, namely using the telephone, taking medicine, handling money, and using public transport, it can be seen that overall between one-quarter and one-third of the sample are dependent, i.e., needing help to carry out these activities. It should be noted that many indicated that using the telephone and using public transport were not applicable. It can also be seen that the percentage needing help increases

across categories of dependency. In the remaining four areas listed, namely shopping, preparing meals, housekeeping, and washing and ironing clothes, it can be seen that around 80 per cent of old people in almost all categories of dependency are in need of help with these activities. There is therefore very little variation across categories with uniformly high percentages needing help with all of the activities.

Table A5.13: *Category of Dependency by Poor Health Status on Additional Health Indicators: Community Sample Elderly*

Dependency Category	*Incontinence*	*Mental Status Deficiency*	*Lack of Communication*	*Lack of Co-Operation*	*Restlessness*
			Per cent		
A	4.4	14.4	2.2	18.9	16.7
B	5.1	7.7	5.1	28.2	12.8
C	19.2	26.9	7.7	26.9	15.4
D	22.2	22.2	11.1	33.3	33.3
E	18.2	63.6	27.3	45.5	36.4
Non-scale	7.1	35.7	7.1	42.9	21.4
All	9.1	19.7	6.1	26.3	18.7

Table A5.14. : *Percentage of Community Sample Elderly Persons in Each Category of Dependency who Cannot Perform the Instrumental Activities of Daily Living without Help*

Dependency Category	*Need help with:*							
	Using the Telephone	*Taking Medicine*	*Handling Money*	*Using public Transport*	*Shopping*	*Preparing Meals*	*House-keeping*	*Washing and Ironing Clothes*
				Per cent				
A	7.4	23.6	20.5	17.21	80.7	77.5	80.9	83.9
B	31.4	50.0	33.3	42.9	89.2	66.7	87.2	82.1
C	31.3	50.0	38.5	38.31	96.2	84.6	92.3	88.5
D	25.0	81.3	73.3	0.0	83.3	77.8	88.9	94.4
E	40.0	75.0	44.4	0.0	81.8	100.0	100.0	100.0
Non-scale	21.01	68.2	58.31	38.5	92.9	85.7	92.9	92.9
All	20.2	42.6	33.3	23.2	85.6	78.1	86.3	86.6

Chapter 6

CARE AND SERVICE USAGE IN HOSPITALS

Introduction

Within hospitals, the most important and expensive form of service provided is nursing and attendant care. Paramedical services incorporating physiotherapist, occupational therapist, chiropodist and speech therapist are other elements of resource use as, of course, is the contribution of the physician. In addition, old people in long-stay care also consume medicines, while pathology, X-ray and diagnostic services may sometimes be required. Elderly persons may also receive visits from voluntary agencies and religious as well as from family and friends. Whatever the source of the resource use, a significant opportunity cost (in the sense of the real resources which are not available for other uses) exists for each of the above activities. This chapter aims to estimate and explain the hours of care provided by all health care personnel, voluntary agencies, relatives and friends, and religious to old people in long-stay care.

The *a priori* expectation is that as disability in old people increases so also do hours of care provided by health care personnel. This is based on the theoretical model outlined in Chapter 3 which shows the *ex ante* marginal cost of care increasing as dependency gets worse. The possibility exists, however, that care hours may decrease as disability worsens. This will occur if carers concentrate most of their efforts on low-dependent old people in the hope of slowing down or preventing their entry into more severe categories of dependency. The likelihood of this happening may be stronger for some services more than others. For instance, some elements of paramedical care, particularly physiotherapy and occupational therapy may be preventive and, therefore, concentrated on less dependent old people. In addition, scarcity of resources may force providers to consider the relative benefits arising from different forms of intervention. This may result in old people in the most disabled categories losing out because they are "too far gone" to gain much benefit from treatment.

Information on hours of care provided to old people in hospital was collected in a very aggregate way from ward sisters or senior staff nurses. This does not affect the reporting of individual specific care activities such as

bathing, washing, mobility assistance and the like. Asking nurses to estimate total care hours (including supervision) is, however, a much more problematic exercise, since the latter may be provided to more than one person at a time. Similar attributability problems arise with respect to paramedical care which, in some instances, is not provided on an individual specific basis. Voluntary and religious visiting may also be jointly consumed by old people. These caveats should be borne in mind when trying to make sense of the allocation and distribution of time within long-stay institutions.

Nursing and Attendant Care

Hours of care provided by nurses and attendants increases as disability worsens – that is as one moves from Category A to Category E (Table 6.1). This confirms the *a priori* hypothesis that primary nursing care is positively correlated with increasing dependency. When all specified caring tasks are aggregated, Category A patients receive the lowest weekly average hours of care and Category E patients the highest. There is a large jump in specified direct hours of care provided by nurses/attendants (from 14 to 25 hours) as dependency increases from Category D to Category E on the Guttman scale. It is unlikely that this gap can be fully explained by the fact that patients in Category E have one extra disability (an inability to feed without help). More than likely, the significant increase in hours of care also reflects the relatively high proportion of elderly persons in that category who are severely disabled on the additional health indicators not included in the Guttman scale. We have already seen that the proportion of elderly persons with poor health status on the additional health indicators increases as dependency worsens along the Guttman scale (Table A5.7). It should not, therefore, be surprising that hours of care for patients in the most dependent category are relatively high.

There are, however, significant differences among hospitals in the amount of specified care provided to patients (Table 6.1). Patients in Hospital 2 receive the highest amount of hours and those in Hospital 4 receive the least. Part of the reason for the observed variation in care hours among hospitals is the difference in dependency across hospitals. Hospital 2, for example, contains much more dependent patients than Hospital 4 (Table 5.3). However, it is clear from Table 6.1 that when category of dependency is held constant, differences in hours of care persist among hospitals. Hospital 2 provides more care hours than any other hospital for each category of dependency, and Hospital 4 the least care. The analysis of variance results presented in Table 6.1 confirm the significance of hospital and category of dependency as important influences on aggregate care hour provision.

Table 6.1: *Hours of Aggregate Specified Nursing/Attendant Care Per Week by Category of Dependency by Hospital*

Category of Dependency	*Hospital*				*All*
	1	*2*	*3*	*4*	
A	3.27	8.78	5.99	2.53	3.92
B	7.73	13.88	7.58	4.13	8.05
C	6.53	16.88	14.49	4.58	11.48
D	8.31	25.56	12.54	6.71	13.86
E	17.56	38.48	31.07	9.57	25.00
Non-scale	6.24	20.35	9.16	17.00	13.98
All	10.76	27.66	18.08	5.65	15.41

Analysisof Variance: Hospital: $F = 13.13$ (3,220); $p < 0.001$.
Category of Dependency: $F = 9.48$ (4,220), $p < 0.001$.
Interaction: $F = 0.87$ (12,220), $p < 0.001$.
Note: Total hours are aggregated across specified activities.

The hypothesis that neither hospital nor category of dependency affect hours of care is also tested for each activity (bathing, washing, etc.). The results shown in Table 6.2 confirm that hospital is significant at the 1 per cent significance level for each of the specified activities. In other words the hypothesis that hospital has no effect on hours of caring by activity can be rejected. Category of dependency is also significant at the 1 per cent level for washing, toileting and feeding and at the 5 per cent level for bathing and dressing.

Information was also provided by sisters and senior staff nurses on the total hours of care provided to elderly persons (Table 6.3). The latter incorporates estimates of time spent supervising and keeping an eye on elderly patients. Such time is not accounted for by the activity estimates specified by task and anyway is unlikely to be patient specific; nurses can usually keep an eye on more than one person at a time. The most striking aspect of the distribution of total care hours provided to patients, in comparison with the earlier estimates of caring hours aggregated by specified activities, is the huge increase in care hours evident in Hospital 2 and Hospital 3. Average hours of nursing/attendant care increases by 90 hours per week in Hospital 3 and by 55 hours in Hospital 2. Such large increases are not, however, evident in either Hospital 1 or Hospital 3. Total reported care hours per patient per week are only 7 hours above the

Table 6.2: *Analysis of Variance Results for Specified Activities: Nursing and Attendant Care*

Activity	*Hospital*	*Category of Dependency*	*Interaction*
	F.	*F.*	*F.*
Bathing	22.26*	2.62**	3.59*
Washing	11.15*	6.63*	1.27
Toileting	4.50*	5.77*	0.60
Dressing	14.10*	3.35**	1.10
Feeding	6.22*	21.01*	1.59*
Mobility Assistance	8.84*	2.19	0.93
General Administration	22.81*	2.09	2.69*
Administration of Medication	11.90*	1.06	0.69
Other	5.61*	0.03	0.62
All	13.13*	9.48*	0.57
Degrees of Freedom	(3,220)	(3,200)	(12,220)

* $p < 0.01$.
** $p < 0.05$

Table 6.3: *Hours of Total (Aggregate Specified plus Supervision) Nursing/Attendant Care per Week by Categories of Dependency and by Hospital*

Category of Dependency	*Hospital*				
	1	*2*	*3*	*4*	*All*
A	4.95	110.80	108.83	8.00	29.90
B	6.74	56.60	105.00	12.40	21.54
C	7.70	42.29	122.50	12.00	46.54
D	9.16	103.64	112.67	17.00	64.37
E	17.63	89.71	117.82	17.68	68.11
Non-scale	6.25	99.33	62.67	18.00	62.78
All	11.53	83.04	108.17	12.85	55.13

Analysis of Variance: Hospital: $F = 74.63$; (3,220); $p < 0.001$.
Category of Dependency: $F = 2.73$ (4,220), $p < 0.05$.
Interaction: $F = 1.94$ (12,220); $p < 0.05$.

aggregate of specified caring estimates in Hospital 4, and only 1 hour above in Hospital 1. The huge variation across hospitals in total care hours by category of dependency is confirmed by the analysis of variance results in Table 6.3: here the factor hospital is significant at the 1 per cent level.

It is worth noting that the aggregate specified caring estimates shown in Table 6.1 do not exhaust all available caring hours (estimated by multiplying nurse and attendant caring staff by 40 hours per week) in any of the hospitals, though they do account for a significant proportion in each. Similarly, the estimates for total hours in Hospitals 1 and 4 do not use up all available hours. However, total hours in Hospitals 2 and 3 exceed available hours by a significant margin. The latter can be explained by the quasi-public good nature of supervision in long-stay geriatric hospitals, in the sense that it is possible for caring staff to keep an eye on more than one person at a time.

There are differences in the hours of care given between assessment and long-stay patients in Hospital 2. Patients in long-stay care receive more aggregate specified and total hours of care than patients in assessment/rehabilitation beds. This holds for all categories except B and C for aggregate specified hours (Table 6.4).

Table 6.4: *Nursing and Attendant Care Hours per Week in Hospital 2: Aggregate Specified and Total by Category of Dependency in Assessment and Long-stay Units*

Category of Dependency	*Aggregate Specified Hours of Care*		*Total Hours of Care*	
	Assessment	*Long-stay*	*Assessment*	*Long-stay*
A	2.92	12.69	25.00	168.00
B	17.22	8.88	35.67	88.00
C	20.70	13.05	36.71	47.86
D	23.93	26.64	74.00	125.88
E	23.99	43.97	41.13	107.32
Non-scale	0.00	17.87	0.00	99.33
All	20.69	31.58	45.65	104.23

Explaining Nursing and Attendant Care by Additional Health Indicators

It has been shown above that there are some marked differences across the hospitals in specified care hours, for particular categories of dependency. One possible explanation for this is that there may be differences across the hospitals with respect to the proportion of patients who are incapacitated on the additional health indicators (discussed in Chapter 5). It turns out that this is not an adequate explanation. The relationship between category of dependency and "poor health status" on the additional indicators has been explored in Appendix A.5. For example, take the case of dependency category A (Table A5.8). Hospital 3 contains relatively more patients than Hospital 2 who are incapacitated on each of the additional health indicators. Yet the hours of care (specified and total) in this case are higher in Hospital 2 than in Hospital 3, though only marginally so in the case of total reported hours.

It is not known what is the net impact on caring hours of different mixtures of "other" health indicators. A hospital may have relatively more patients with poor health status on some indicators and few patients with poor status on other indicators. For instance in the case of category of dependency D, Hospital 2 contains relatively more patients with mental clarity problems than is the case in Hospital 1 (Table A5.11). However, Hospital 2 has relatively less patients who are incapacitated on the remaining health indicators. Whether measured by specified or by total hours reported, patients in this category of dependency receive more care in Hospital 2 than they do in Hospital 1 (Table 6.3). A relationship between this variation and different mixes of health problems is, however, difficult to discern.

Full-time Nursing/Attendant Care

Most of the variation in total hours of care among hospitals can be explained by the presence or absence of patients requiring full-time care in these hospitals. Neither Hospital 1 nor Hospital 4 contain any patients who are receiving full time (that is, round-the-clock) 168 hours of care per week. In contrast, 39 per cent of patients in Hospital 3 and 28 per cent of patients in Hospital 2 receive full-time care (Table 6.5). In both of these hospitals relatively more patients in category A receive round the clock care than in any other category.

The reasons why full-time care is appropriate may differ from one person to another. These differences might not relate to the relative degree of physical disability as picked up in our measures of dependency. The provision of full-time care for patients in lower categories of dependency may reflect intensive care for acute illness unrelated, initially

at least, to physical dependency. For this explanation to be valid, the assignment of dependency by the nurse would have to reflect the abilities of the elderly persons outside their current – presumably temporary – illness. Unfortunately, we do not know if this was the approach followed by the ward sisters and senior staff nurses from whom the caring estimates were received.

Table 6.5: *Proportion of Patients Receiving Full-time Care by Category of Dependency and Hospital*

Category of Dependency	*Hospital*			
	1	*2*	*3*	*4*
	Per cent			
A	0	60	42	0
B	0	20	0	0
C	0	0	38	0
D	0	27	50	0
E	0	35	39	0
Non-scale	0	33	33	0
All	0	28	39	0
Number	100	76	56	66

One other possibility is that round-the-clock care is a necessary response to the poor and disturbed mental state of some patients. Table A5.2 shows that a significant proportion of patients in Hospitals 2 and 3 have poor mental health (i.e., are more seriously confused or severely confused). In addition, both of these hospitals have a relatively high proportion of patients who are restless. While this goes some way towards explaining the distribution of full-time care it does not explain why Hospitals 1 and 4 contain no patients who require round-the-clock care. While these two hospitals contain relatively fewer mentally distraught and restless patients, there is still a significant minority of patients in these categories.

One cannot, however, take for granted that the reporting of round-the-clock care will always be a reflection of genuine difference in need among institutions. Institutional differences in the philosophy of caring for elderly persons may account for some of the observed variation in total care hours

among institutions. It may be the case, for example, that supervision or keeping an eye on the elderly person is deemed a direct form of care (reported) in some hospitals but is perceived to be an indirect form of care (unreported) in other hospitals. Moreover, in some institutions, patients may be encouraged to become as self-sufficient as possible. Ironically, encouraging an elderly patient to do tasks for themselves can sometimes actually increase rather than reduce workload for nurses and attendants. Therefore, some of the variation in care hour provision in this study may be caused by differences in how the caring process is perceived and reported by staff in the hospitals.

Nurse/Attendant Patient Ratios

Differences in nursing/attendant resource use among hospitals may reflect not just differences in degrees of "objective" need, but also different levels of resource provision within hospitals. The availability of staff will to some extent at least, determine the amount of care received by patients in the institution. In that context it is useful to compare nurse-patient ratios and attendant-patient ratios among the four institutions. The nurse-patient ratio is three times higher in Hospital 2 than in other hospitals (Table 6.6). This is not surprising given that Hospital 2 is a large urban teaching hospital. There is no difference in this ratio across the other hospitals. There is relatively less difference among hospitals in attendant-patient ratios. Hospital 1 has, however, a markedly lower ratio than the other hospitals.

Table 6.6: *Nurse/Patient Ratio and Attendant/Patient Ratio by Hospital*

Hospital	*Nurse/Patient Ratio*	*Attendant/Patient Ratio*
Hospital 1	0.19	0.21
Hospital 2	0.55	0.30
Hospital 3	0.18	0.30
Hospital 4	0.18	0.26

Nursing/attendant patient ratios may, of course, differ *within* hospitals. Unfortunately, information is not available on staffing ratios by ward within the hospitals under observation. However, irrespective of the allocation of nurses within institutions which, in any case, is picked up by the survey estimates on caring hours, the availability of more staff should bias upwards the amount of care hours available to patients. Part of the reason for higher hours of care in Hospital 2 must, therefore, relate to more favourable staff-patient ratios. However, this argument only goes some of the way towards explaining the relative variation in hours of care among hospitals. There is, for example, a close relationship between Hospital 3 and Hospital 4 in respect of nurse and attendant-patient ratios. Yet the aggregate specified care hours provided to patients differs markedly between these two hospitals (Table 6.1).

Medical Care

Patients in Hospital 2 receive, on average, more weekly hours of medical care than those in the other hospitals (Table 6.7). It is not surprising to find relatively high levels of physician care in this hospital. There are two consultant geriatricians, two registrars, two senior house officers and four interns working with old people in the hospital. By contrast, none of the other hospitals has a resident physician whose work is solely concerned with looking after the needs of hospital patients. Instead, the usual practice is to employ a part-time medical officer to look after those patients requiring medical attention. This system works rather better in some hospitals than in others, but at the very least it means that medical care is available to patients who are in need.

Table 6.7: *Average Weekly Hours of Medical, Paramedical and Miscellaneous Care by Hospital*

Service	*Hospital*				
	1	*2*	*3*	*4*	*All*
Physician	0.33	0.88	0.31	0.43	0.50
Physiotherapist	0.25	1.90	0.52	0.00	0.66
Occupational therapist	0.04	1.51	0.26	0.12	0.47
Speech therapist	0.00	0.17	0.01	0.00	0.05
Chiropodist	0.09	0.34	0.35	0.04	0.19
Voluntary agencies	0.05	0.11	0.08	0.01	0.07
Chaplain	0.43	0.77	0.42	0.57	0.57
Family and friends	1.37	5.51	2.81	0.85	2.69

The relatively low average per capita weekly hours of care provided by the medical officer in Hospital 3 is difficult to interpret, given the high levels of dependency in the hospital. The fact that nursing hours of care are exceptionally high in this hospital might lead one to expect that physician care should also be high, unless, of course, nursing care is being substituted for medical care. The attitude of the medical officer to medical interventions is, of course, crucial in determining the extent and length of visiting. If the medical officer prefers a more "hands off" approach to medical care this would undoubtedly bias downwards the number of visits to patients in the hospital.

Patients in assessment/rehabilitation beds of Hospital 2 receive more hours of care per week than old people in long-stay beds (Table 6.8). The more intensive care provided to the former obviously reflects their need for a greater amount of physician time to ensure that they are kept out of long-stay beds for as long as possible.

Table 6.8: *Average Weekly Hours of Medical, Paramedical and Miscellaneous Care in Assessment and Long-stay Units of Hospital 2*

Service	*Assessment*	*Long-stay*	*F-Value*
Physician	1.00	0.78	2.24**
Physiotherapist	3.80	0.80	2.68**
Occupational therapist	3.14	0.44	3.21*
Speech therapist	0.40	0.04	34.18*
Chiropodist	0.20	0.42	2.36**
Chaplain	0.22	1.06	33.12*
Voluntary agencies	0.08	0.10	1.89***
Family and friends	8.03	3.66	1.19
Miles travelled	55.88	35.40	8.42*

* Significant at level of 1 per cent.
** Significant at level of 5 per cent.
*** Significant at level of 10 per cent.

There is not a huge variation in the level medical service across different classes of dependency, although old people in the lowest category receive the least amount of hours (Table 6.9). However, by constrast, in Hospital 4 (significantly) and Hospital 2 (less so) most medical resources are concentrated on patients of dependency A, that is on those who are

least dependent (Appendix Table A6.1). Part of the explanation for this may be the nature of the relationship between medical inputs and health outcomes. It may be that a greater level of medical services are required in order to slow down the rate of decline of elderly persons, thereby preventing further loss of abilities. This is borne out somewhat, as mentioned above, by the relative differences in physician resource use between assessment/rehabilitation and long-stay patients reported for Hospital 2.

Table 6.9: *Average Weekly Hours of Medical, Paramedical and Miscellaneous Care by Category of Dependency*

Service	*Category of Dependency*					
	A	*B*	*C*	*D*	*E*	*All*
Physician	0.44	0.47	0.55	0.52	0.51	0.50
Physiotherapist	0.38	0.73	1.44	0.94	0.42	0.66
Occupational therapist	0.40	0.49	1.17	0.58	0.22	0.47
Speech therapist	0.00	0.00	0.09	0.04	0.08	0.05
Chiropodist	0.13	0.25	0.13	0.18	0.24	0.19
Voluntary agencies	0.06	0.00	0.03	0.13	0.07	0.07
Chaplain	0.39	0.32	0.60	0.51	0.74	0.57
Family and friends	1.98	1.61	2.02	3.68	3.05	2.69

Physiotherapy

As mentioned in the introduction to this chapter one of the difficulties with estimating the usage of physiotherapy services is that, sometimes, care by a physiotherapist may be given in group rather than individual sessions. The information generated within the hospitals does not allow us to distinguish between individual and group therapy. This qualifies the following estimates.

Significant differences arise among hospitals in the amount of physiotherapy time per patient. Old people in Hospital 2 receive significantly more hours of physiotherapy per week than those in any of the other hospitals (Table 6.7). This is not surprising, since this hospital is the only one that employs full-time physiotherapists. Within Hospital 2, the

difference between assessment/rehabilitation and long-stay patients is striking. One would expect, *a priori*, that physiotherapists would spend more time with assessment/rehabilitation patients than with long-stay patients. This is indeed the case (Table 6.8). Old people in rehabilitation beds receive nearly five times more care from the physiotherapist than those in long-stay beds. The commitment in the hospital to ensuring that elderly patients only enter long-stay beds as a last resort is again reflected in the intensive use of physiotherapy to prevent, or at least slow down, the onset of further disability.

No other hospital, at the time the study was carried out, employed a full-time physiotherapist. In Hospital 1 a physiotherapist based in the local general hospital attends on a sessional basis. Similarly, in Hospital 3 a physiotherapist attends on a sessional basis. Patients in Hospital 4 receive no physiotherapy services either from full-time staff or on a sessional basis. This may partly reflect the relatively low level of dependency in the hospital. More likely, however, it reflects the hospital's recent unhappy experience with physiotherapy care. It appears that when the physiotherapy post became vacant in the hospital, the post was bartered for, among other things, additional ward orderlies.

The latter is a good example of the specific nature of resource allocation within long-stay institutions. This, in turn, makes it very difficult to make general statements based solely on case study material. Health board and hospital managers across the country are likely to have different criteria for decision-making, depending on their objectives and the set of constraints which face them at any particular time.

Occupational Therapy

Old people in Hospital 2 receive significantly more hours of care from the occupational therapist than those in the other hospitals (Table 6.7). In some hospitals (1 and 4) only patients in dependency category A receive occupational therapy (Table A6.3). There is a full-time occupational therapist post in Hospital 1, but the holder was on leave of absence during the period of this study and had not been replaced. Similarly there was also a full-time occupational therapist post in Hospital 4 but this post was bartered for alternative staff. There is, however, a diversionary therapist in this hospital who, although not having professional training, provides a type of occupational therapy and is highly regarded in the hospital. Neither is there an occupational therapist in Hospital 3, but there is craft activity run by a trained craft instructor. Patients in all categories of dependency in that hospital, with the exception of Category D, are involved in mainly therapeutic craft industry.

It is clear (as in the case of physiotherapy) that the provision of occupational therapy depends on the availability of personnel. Patients in Hospital 2 have access to three full-time occupational therapists which must explain, to a large degree, why old people in the hospital receive more care than patients in any other hospital.

A priori, one would also expect that an intensive rehabilitation programme would make most use of occupational therapy services. This is borne out by the evidence from Hospital 2; patients in assessment/rehabilitation beds receive nearly seven times more care than those in long-stay beds.

The usage of occupational therapy services rises up to Category C and then declines, with sharp fall for those in Category E (Table 6.9). The decline in usage above Category C may reflect providers' negative views about the ability of old people with dependency above this level benefiting significantly from intervention. Providers always have to make choices about the relative benefits of treatment within the constraints of available resources. The allocation of occupational therapy time may be a good example of provider preferences for more resources to be allocated to old people "not too far gone" to benefit from treatment. Finally, it should be borne in mind that some elements of occupational therapy are jointly consumed services and are, therefore, not individual specific. Consequently, the estimates shown in Tables 6.7, 6.8 and 6.9 are only meant to serve as an indicator of relative consumption and are not an accurate representation of actual usage.

Speech Therapy

Old people in Hospital 2 receive most care from speech therapists (Table 6.7). Patients in Hospital 1 and Hospital 4 do not receive any services at all. In Hospital 3, services are minimal. In Hospital 2, patients in assessment/rehabilitation beds receive ten times more care than long-stay patients (Table 6.8).

Chiropody

Chiropody care (some minor elements of which are not individual specific) does not vary much by category of dependency. This is particularly the case in Hospitals 3 and 4. Hospital 1 exhibits most differences across categories, especially between high user Category C and low user Category D. Overall resource use is, however, lowest in this hospital. The use of chiropody services is highest in Hospital 3, followed closely by Hospital 2.

Voluntary Agencies

The per capita level of visiting from voluntary agencies is higher in Hospital 2 than in any other hospital (Table 6.7). *A priori*, one would expect a higher visiting rate in urban hospitals. This is because voluntary agencies are found more frequently in those areas. These expectations are borne out; old people in Hospital 2 receive more hours of visits from voluntary agencies than patients in the other hospitals.

Chaplain

There is a higher per capita rate of religious visiting in Hospital 2 than in any other hospital (Table 6.7). Religious visiting is primarily a function of supply. This is especially the case for patients who are not at risk from a life-threatening illness or disability. Religious tend to visit the hospital and therefore all patients within it, rather than make patient specific visits, unless on request. Consequently, the reported per capita consumption is likely to be grossly exaggerated. Neither should one be surprised to find that hours of visits does not differ significantly among categories of dependency across institutions (Appendix Table A6.7).

Relatives and Friends

There is significant variation among hospitals in the hours of visits by family and friends (Table 6.7). The relatively high estimates for Hospital 2 may reflect the urban setting of that hospital and the more developed transport network within its catchment area, though this is entirely speculative. There is a tendency for hours of visits to increase with the level of dependency but the variation across dependency classes is not significant (Table 6.9). The relatively higher rate of visiting at lower levels of dependency in some hospitals may be some function of the consequent ability of patients in those categories to communicate effectively with their visitors.

Conclusion

There is a positive linear relationship between nursing and attendant hours of care and dependency. This bears out the *a priori* hypothesis that old people with higher levels of disability need and receive more hours of care. More surprisingly, there is a significant variation in the amount of aggregated specified and total care hours provided to patients among the four hospitals, even when category of dependency is taken into account.

This variation cannot be explained fully by recourse to the "additional" health indicators (other than physical dependency). It may be, of course,

that patients in Hospital 2 and Hospital 3 are more ill than patients in Hospital 1 and Hospital 4. However, for this explanation to hold, such differences would have to be systematic across all categories and, even more unlikely, would have to be unrelated to the health indicators used in the study.

It is perhaps more likely that some of the variation in hours of care, especially total care estimates, can be explained by differences across institutions in how the caring process is perceived and reported. For instance, supervision may not constitute direct care in Hospital 1 or Hospital 4 and hence may be under-reported. Moreover, the categorisation of patients as requiring round-the-clock care may also be influenced by different perceptions of need among the staff in different institutions. Bed-ridden patients may be perceived as high resource users, in the sense of requiring constant supervision, in some hospitals, but not in others. Without more detailed qualitative analysis, which is outside scope the of this study, little else can be said on this issue.

More favourable nursing and attendant patient ratios may partly explain why patients in Hospital 2 receive more care relative to those in other hospitals. This argument is, however, not sustainable if used to explain why hours of care are so high in Hospital 3. The latter has nursing and attendant ratios similar to Hospital 4 but provides much more reported care hours to patients.

As in the case of nursing and attendant hours, the estimates of medical and paramedical care, and visiting from family, friends, voluntary agencies and religious are more reliable as indicators of relative magnitudes than of absolute consumption. In the case of every service except chiropody, the level of service is markedly higher in Hospital 2 than in any other hospital. Differences between Hospital 2 and the rest are particularly marked in respect of medical care, physiotherapy and occupational therapy. Hospital 4 is least well off in terms of service provision, especially lacking paramedical services. Occupational therapy and speech therapy are not provided in Hospital 1 while speech therapy is not available in Hospital 3. The fact that Hospital 2 is a teaching hospital means that it is relatively better off in terms of medical and paramedical personnel.

The pattern of usage by dependency level is less clear-cut. While *a priori* expectations were that usage would increase with dependency, this is not the general pattern. For instance, in the case of physiotherapy, average hours increase from low levels of dependency up to category C and then decline as dependency increases. This may reflect the decisions of providers to concentrate most resources on those old people likely to benefit most from treatment.

In principle, the provision of paramedical services can reflect a number of different elements. In particular, the availability of services and the needs of patients are two key underlying elements. Of these two, the availability of staff rather than the need for services is evidently the major influence. It is highly unlikely, given what is known about the distribution of dependency across the four hospitals, that variation in "need" is responsible for the wide variation in service provision that exists across the hospitals. Particular examples of this are physiotherapy and occupational therapy.

It could be argued that variation in hours of care (nursing, medical and paramedical) among hospitals for similar levels of dependency may, at the margin, represent differences in efficiency rather than differences in need among hospitals. Such an interpretation, based solely on the care estimates provided in this study, should be avoided. The major problem relates to the absence of measures of health outcomes. Without such measurement, it is not possible to say whether more care hours or less care hours or the substitution of one form of care for another, improves the health status of the elderly person. Throughput is often used as a measure of intermediate outcome but it tells us little about the health status of the old person at discharge or the probability of re-admission at some future date. The measurement of outcome is not part of the ambit of the study but its absence makes it more difficult to interpret whether more or less hours of care is good or bad for patients. Too much care could, for example, lead to institutional dependency while too little care could mean rapid deterioration of the elderly person, thereby reducing the advantage of being in hospital in the first place. Without detailed knowledge of the relationship between health outcomes and the amounts and types of different forms of care, and given the possibility that other factors influence variation in hours of care, any discussion on efficiency is merely speculative and should be avoided.

APPENDIX A.6

USAGE OF SERVICES IN INSTITUTIONS

Table A6.1: *Average Weekly Hours of Care by Physicians*

Category of Dependency	*Hospital*					*Number*
	1	*2*	*3*	*4*	*All*	
A	0.20	0.94	0.30	0.56	0.44	58
B	0.37	0.76	0.29	0.38	0.47	19
C	0.31	0.91	0.33	0.25	0.55	34
D	0.44	0.75	0.37	0.38	0.52	44
E	0.35	0.93	0.30	0.35	0.51	106
All	0.33	0.88	0.31	0.43	0.50	261
N	73	70	53	65	261	

Analysis of variance:	Hospital	Dependency	Interaction
F	8.355	0.042	0.255
	$p > 0.05$	$p < 0.05$	$p > 0.05$
D of F	(2,260)	(4,260)	(12,260)

Table A6.2: *Average Weekly Hours of Care by Physiotherapists*

Category of Dependency	*Hospital*					*Number*
	1	*2*	*3*	*4*	*All*	
A	0.33	3.50	0.00	0.00	0.38	65
B	0.03	3.00	0.00	0.00	0.73	21
C	0.06	3.61	0.63	0.00	1.44	39
D	0.16	2.50	0.62	0.00	0.94	48
E	0.34	0.53	0.76	0.00	0.42	117
All	0.25	1.90	0.52	0.00	0.66	290
N	99	73	53	65	290	

Analysis of variance:	Hospital	Dependency	Interaction
F	14.45	2.042	2.665
	$p < 0.05$	$p > 0.05$	$p < 0.05$
D of F	(3,289)	(4,289)	(12,289)

Table A6.3: *Average Weekly Hours of Care by Occupational Therapists*

Category of Dependency	*Hospital*					*Number*
	1	*2*	*3*	*4*	*All*	
A	0.18	1.66	0.46	0.32	0.40	64
B	0.00	2.00	0.17	0.00	0.49	21
C	0.00	2.73	0.94	0.00	1.17	39
D	0.00	1.87	0 00	0.00	0.58	48
E	0.00	0.76	0.01	0.00	0.22	117
All	0.04	1.51	0.26	0.12	0.47	289
N	98	73	53	65	289	

Analysis of variance	Hospital	Dependency	Interaction
F	14.63	2.55	0.94
	$p < 0.05$	$p < 0.05$	$p > 0.05$
D of F	(3,288)	(4,288)	(12,288)

Table A6.4: *Average Weekly Hours of Care by Speech Therapists*

Category of Dependency	*Hospital*					*Number*
	1	*2*	*3*	*4*	*All*	
A	0.00	0.00	0.00	0.00	0.00	52
B	0.00	0.00	0.00	0.00	0.00	17
C	0.00	0.24	0.00	0.00	0.09	35
D	0.00	0.10	0.00	0.00	0.04	36
E	0.00	0.21	0.01	0.00	0.08	93
All	0.00	0.17	0.01	0.00	0.05	233
N	42	73	53	65	233	

Analysis of variance	Hospital	Dependency	Interaction
F	2.47	0.24	0.18
	$p > 0.05$	$p > 0.05$	$p > 0.05$
D of F	(3,232)	(4,232)	(12,232)

Table A6.5: *Average Weekly Hours of Care by Chiropodists*

Category of Dependency	*Hospital*					*Number*
	1	*2*	*3*	*4*	*All*	
A	0.05	0.30	0.37	0.04	0.13	64
B	0.25	0.40	0.38	0.04	0.25	20
C	0.03	0.18	0.26	0.04	0.13	37
D	0.02	0.30	0.41	0.04	0.18	46
E	0.12	0.42	0.35	0.04	0.24	116
All	0.09	0.34	0.35	0.04	0.19	283
N	94	72	52	65	283	

Analysis of variance	Hospital	Dependency	Interaction
F	20.68	1.82	0.48
	$p < 0.05$	$p < 0.05$	$p > 0.05$
D of F	(3,263)	(4,263)	(12,263)

Table A6.6: *Average Weekly Hours of Visits by Voluntary Agencies*

Category of Dependency	*Hospital*					*Number*
	1	*2*	*3*	*4*	*All*	
A	0.02	0.55	0.00	0.00	0.06	52
B	0.02	0.00	0.00	0.00	0.00	17
C	0.04	0.07	0.00	0.00	0.03	36
D	0.10	0.10	0.31	0.00	0.13	35
E	0.07	0.09	0.09	0.03	0.07	94
All	0.05	0.11	0.08	0.01	0.07	234
N	43	73	53	65	234	

Analysis of variance	Hospital	Dependency	Interaction
F	1.48	0.58	1.40
	$p > 0.05$	$p > 0.05$	$p > 0.05$
D of F	(3,233)	(4,233)	(12,233)

Table A6.7: *Average Weekly Hours of Visits by Chaplain*

Category of Dependency	*Hospital*					*Number*
	1	*2*	*3*	*4*	*All*	
A	0.12	0.14	0.19	0.64	0.39	52
B	0.08	0.40	0.41	0.45	0.32	17
C	0.18	1.00	0.26	0.52	0.60	35
D	0.15	0.49	0.55	0.69	0.51	35
E	0.87	0.93	0.55	0.50	0.74	93
All	0.43	0.77	0.42	0.57	0.57	232
N	42	73	52	65	232	

Analysis of variance	Hospital	Dependency	Interaction
F	0.79	0.72	0.38
	p > 0.05	p > 0.05	p > 0.05
D of F	(3,231)	(4,231)	(12,231)

Table A6.8: *Average Weekly Hours of Visiting by Relatives and Friends*

Category of Dependency	*Hospital*					*Number*
	1	*2*	*3*	*4*	*All*	
A	0.63	8.02	3.64	1.02	1.98	48
B	0.69	4.23	0.17	0.29	1.61	18
C	0.41	3.96	2.46	0.43	2.02	35
D	1.27	7.53	2.85	1.17	3.68	41
E	2.15	5.16	2.68	0.85	3.05	99
All	1.37	5.51	2.81	0.85	2.69	241
N	78	69	39	55	241	

Analysis of variance	Hospital	Dependency	Interaction
F	10.05	0.66	0.33
	p < 0.05	p > 0.05	p > 0.05
D of F	(3,235)	(4,235)	(12,235)

Table A6.9: *Average Miles Travelled Per Week by Family and Friends Visiting Old People in Institutions*

Category of Dependency	*Hospital*					*Number*
	1	*2*	*3*	*4*	*All*	
A	25.41	173.08	32.69	17.45	29.37	42
B	60.40	18.47	3.69	14.88	37.35	14
C	18.31	39.17	18.28	13.96	23.70	30
D	44.50	19.34	26.03	50.22	33.86	32
E	82.17	43.68	36.78	39.92	61.49	89
All	55.75	41.69	30.95	26.27	40.47	207
N	69	48	35	55	207	

Analysis of variance	Hospital	Dependency	Interaction
F	2.64	2.25	1.75
	p > 0.05	p > 0.05	p > 0.05
D of F	(3,206)	(4,206)	(12,206)

Table A6.10: *Average Weekly Hours of Medical, Paramedical and Miscellaneous Care by Category of Dependency in Assessment Unit of Hospital 2*

Service	*Category of Dependency*					*All*
	A	*B*	*C*	*D*	*E*	
General practitioner	0.78	0.91	1.32	1.11	0.74	1.00
Physiotherapist	3.75	4.17	4.09	5.75	1.94	3.80
Occupational therapist	2.50	2.50	3.68	4.17	2.31	3.14
Speech Therapist	0.00	0.00	0.47	0.25	0.81	0.40
Chiropidist	0.25	0.33	0.13	0.33	0.10	0.20
Chaplain	0.13	0.06	0.44	0.22	0.11	0.22
Voluntary agency	0.00	0.00	0.15	0.16	0.00	0.08
Family and friends	5.19	6.65	4.09	14.03	8.20	8.03
Miles travelled	41.52	20.76	46.00	28.16	99.40	55.88

Table A6.11: *Average Weekly Hours of Medical, Paramedical and Miscellaneous Care by Category of Dependency in Long-stay Unit of Hospital 2*

Service	*Category of Dependency*					*All*
	A	*B*	*C*	*D*	*E*	
General practitioner	1.05	0.53	0.49	0.51	1.03	0.78
Physiotherapist	3.30	1.25	3.13	0.33	0.07	0.80
Occupational therapist	1.10	1.25	1.79	0.33	0.00	0.44
Speech Therapist	0.00	0.00	0.00	0.00	0.03	0.04
Chiropodist	0.33	0.50	0.24	0.25	0.53	0.42
Chaplain	0.16	0.91	1.57	0.67	1.09	1.06
Voluntary agency	0.91	0.00	0.00	0.05	0.03	0.10
Family and friends	10.84	0.59	3.80	2.60	3.97	3.66
Miles travelled	304.60	16.16	35.08	12.00	31.08	35.40

Chapter 7

THE COSTS OF HOSPITAL CARE

Introduction

This chapter uses the analysis of caring hours and service use (Chapter 6), together with budget data obtained from the institutions,[6] to examine the cost of care in the hospitals. The cost of care is estimated using the opportunity cost methodology outlined in Chapter 4. Estimates of the formal and informal cost of care, capital and personal consumption are, therefore, included in the analysis.

The cost estimates are drawn from four individual hospital case studies. For that reason they are not strictly comparable nor are they representative of the cost of care in all institutions throughout the country. All we know about the latter is that if we divide the total expenditure on long-stay geriatric institutions in 1988 (£61,330,000) by the number of beds in the sector (7,005) the average cost per bed works out at £168 per week. The only other estimate of long-stay costs in Ireland comes from a study by O'Shea and Corcoran (1990). They estimate the average weekly cost of care in one long-stay institution at £228; the latter includes the personal consumption costs of residents as well as capital costs but is not disaggregated by category of dependency.

There has been relatively few costing exercises of the type attempted in this study done in other countries. However, before we begin, it is worth mentioning two that have, not to compare absolute values (because they will vary according to the type of care) but to examine whether resource use and costs have been found to increase with level of disability. In that regard the study by Wright, *et al.* (1981) is closest in methodology and objective to the exercise carried out in this study. For a slightly different

6. The budget data received from each hospital was accepted at face value. Hospital and health board authorities were not given any special instructions. They were simply asked to provide a set of accounts for the institution under examination. Quite clearly, however, there are differences across some item heads (especially between Hospital 2 and the rest) which raise interesting questions about the appropriation of costs within the institutions. For instance "allied" in Hospital 2 is likely to include the pay budget for attendants; the latter is included under the item head "catering and housekeeping" in Hospitals 1, 3 and 4. Notwithstanding their importance, these issues were not pursued any further since they were outside the scope of the study.

Guttman categorisation of dependency (see Table 3.3) they found that resource use and cost in residential care (a small number of institutions were selected) increased with level of disability, though the degree of variation was relatively small. The difference in average weekly nursing and attendant hours of care between old people in the lowest and the highest category of dependency was 10.5 hours; the difference in the relative cost of care between these two categories was £13 per week (1981 prices).

Phillips (1981) also reported a positive correlation between the ordinal Katz scale of deprivation and the direct cost of care for marginal and intra-marginal nursing home patients in Australia. The cost of care for intra-marginal patients in the highest category of dependency was just over three times that of old people in the lowest category. This study was, however, far from comprehensive and the author cautions against inferring any general conclusions about the relative cost of care in different settings, given the truncated nature of the analysis.

The positive relationship between resource use and disability identified in the two studies mentioned above have been confirmed by other types of analysis. For instance, a study by Avon County Council (1981) found that old people with more abilities have lower institutional costs of care than people with less abilities. Once again, however, one should be careful not to infer general conclusions from this work. Only five abilities were considered, the numbers were relatively small and average operating costs were taken from annual accounts. Finally, work by Darton and Knapp (1984) on cost functions for residential care in the United Kingdom suggests that three individual components of dependency are consistently and significantly related to cost: mobility, ability to use the toilet and confusion. There is no indication, however, of the relative impact of each of these dimensions of disability on resource use.

Nature of Cost Data

Budget data are available for each hospital. Hospitals 1, 3 and 4 each publish an annual abstract of accounts which provides an itemised account of spending (Table 7.1). The budget information supplied by these hospitals is broadly similar in organisation and format, although slight differences in presentation do prevent direct comparative analysis. In general, however, expenditure in each is disaggregated into pay and non-pay items.

Information on the costs of care of the elderly in Hospital 2 was more difficult to obtain. The principal reason for this was the absence of a separate budget for the care of old people in that hospital. Care of the elderly is only one part of the total health care activity in this large, mainly acute care, hospital. The hospital budget system is not yet so finely tuned as

to allow routine apportionment of shared costs by origin of resource use. Hence, the hospital had to provide a specially prepared set of costings for care of the elderly for this study (Table 7.2).

Table 7.1: *Aggregate Costs by Type for Hospital 1, Hospital 3 and Hospital 4, 1988*

	Hospital 1	*Hospital 3*	*Hospital 4*
		£	
Pay			
Administrative	27,382	7,678	15,266
Medical	7,896	9,486	12,294
Nursing	809,496	532,789	490,735
Catering and housekeeping	640,341	614,296	481,819
Paramedical	30,173	4,536	1,023
Maintenance	116,609	43,196	9,411
Other staff	9,626	3,206	9,423
PRSI (employers)*	121,500	–	83,019
Non-Pay			
Drugs/medicines	87,240	37,947	48,800
Medical and surgical appliances	13,542	513	22,000
Medical equipment	2,277	24,067	2,200
Provisions	131,564	76,581	98,800
Heat, power, light	92,263	43,730	88,000
Cleaning/washing	51,339	26,787	11,000
Furniture etc.	2,051	4,960	14,800
Bedding/clothing	6,906	760	15,500
Grounds	345	380	900
Transport and travel	2,216	1,370	2,000
Office equipment/ expenses	10,205	4,430	10,000
Other	20,697	15,810	9,900
Gross total	2,183,668	1,452,522	1,426,890

* In Hospital 3 employer PRSI is incorporated in gross paycosts.

Notes: 1. Because of differences in computation across health boards superannuation has not been included for any of the hospitals.

2. Similarly loan charges have been excluded from the analysis due to problems of attributability.

3. An explanation for the observed differences across item heads (especially non-pay) among institutions was not sought since they did not affect the calculation of cost by category of dependency.

Table 7.2: *Aggregate Costs by Type for Hospital 2, 1988*

Item/head	*Total*	*Assessment/ Rehabilitation*	*Long-stay*	*Day Hospital*
		£		
Pay				
Administrative	259,200	172,800	28,800	57,600
Medical	184,500	123,000	20,500	41,000
Nursing	1,577,000	635,000	882,000	60,000
Allied*	931,000	278,000	631,000	22,000
Catering and house-keeping	48,000	30,000	18,000	–
Paramedical	171,000	136,800	17,100	17,000
Other	19,000	14,000	5,000	–
PRSI	197,000	90,000	102,000	5,000
Sub-total	3,386,700	1,479,600	1,704,400	202,700
Non-Pay				
Medicines	124,000	86,800	24,800	12,400
Blood	37,000	29,600	3,700	3,700
Medical/surgical	506,000	259,000	237,000	10,000
Medical equipment	10,000	8,000	1,000	1,000
Heat, power, light	170,000	56,100	96,900	17,000
Cleaning/washing	110,000	36,300	62,700	11,000
Furniture	10,000	3,300	5,700	1,000
Bedding/clothing	42,000	13,900	23,900	4,200
Grounds	2,000	700	1,100	200
Transport/travel	2,000	700	1,100	200
Insurance/legal/audit	48,000	15,800	27,400	4,800
Office equipment and expenses	46,000	15,200	26,200	4,600
Security	20,000	6,600	11,400	2,000
Other	16,000	5,300	9,100	1,600
Sub-total	1,143,000	537,300	532,000	73,700
Services				
Central pathology laboratory	116,000	96,000	10,000	10,000
Diagnostic imaging	39,000	30,000	5,000	4,000
Catering	300,000	100,000	170,000	30,000
Laundry	163,000	60,000	103,000	–
Sub-total	618,000	286,000	288,000	44,000
Total costs	5,147,700	2,302,900	2,524,400	320,400

* Includes a pay figure for attendants.

Note: This table has been compiled especially for this study by the finance unit of Hospital 2 and is not directly comparable to the published accounts data for Hospitals 1, 3 and 4.

Payroll costs in Hospital 2 are direct labour costs with the exception of administration where an estimate was made of the staffing required to manage a hospital of equivalent size. Gratuity and pension estimates, although provided by the hospital, have been excluded from the final tables, since they were not included for any of the other hospitals in the study. In the case of medicine, medical and surgical items, the allocation of costs is mainly based on bed numbers. Power, cleaning, bedding, insurance and security costs are also assigned on the basis of bed numbers. Catering, laundry and maintenance services are allocated in the same way. Services of the central pathology laboratory and the diagnostic imaging department are apportioned on the basis of sample results.

Having allocated costs to the geriatric department, a second stage is required. Costs must be apportioned to long-stay beds, to assessment-rehabilitation units and to the day hospital. Once again, bed numbers are used to assign most costs. However, actual staff numbers are used for nursing and allied services. In addition, geriatrician estimates are used for medical and paramedical services and for administration.

Inherently, the allocation of costs on the basis of a bed-days formula is relatively crude and will lead to some imprecision in the resulting cost estimates. This problem does not exist with respect to Hospitals 1, 3 and 4, each of which is concerned solely with geriatric services. Even though Hospital 1 does have some assessment/rehabilitation beds, it does not provide a separate budget for activity related to these beds.

Nursing and Attendant/Allied Care

The major cost element associated with care of the elderly in institutions is the cost of pay for nurses and attendants/allied. The extent to which nursing and attendant pay costs vary by category of dependency is, of course, directly related to the direct provision of specified (in terms of services provided) care hours by category. If more hours are provided to old people in particular categories, the cost of care rises accordingly. Nursing and attendant/allied pay budgets within each hospital are, therefore, allocated to categories of dependency in accordance with the proportion of specified hours of care consumed by old people in each category. For instance, if a particular category of dependency accounts for 20 per cent of overall aggregate specified nursing/attendant/allied hours of weekly care then this category is allocated 20 per cent of the weekly pay budget for these workers. The per capita cost of care is estimated by dividing this allocation by the total number of patients in the category. Due to the aggregate nature of the information on the source of caring in hospitals, no distinction can be made between nursing and attendant/

allied hours of care. Hence, the pay budget for each is aggregated to give a total caring budget from which allocations are made to the various dependency categories.

Nursing pay budgets are provided separately for all hospitals. Accounting systems in Hospitals 1, 3 and 4 are not so finely tuned to allow precise estimates of attendant costs to be made. Consequently the budget estimates for attendant care are derived from the housekeeping and catering expenditure shown in the annual accounts published by each hospital. It may be that part of this expenditure does not vary by category of dependency. However, given the complexity of disaggregation and in the absence of better information, the housekeeping/catering expenditure is added to the nursing budget and assigned by category on the basis of the estimated care hours made by the relevant ward sister. Hospital 2 does provide disaggregated pay estimates for nursing and allied care for patients in assessment/rehabilitation, long-stay services, and the day hospital. Allocation of this budget by category of dependency in each type of care is again based on the proportional use of aggregate specified caring hours by category.

The highest nursing and attendant/allied pay costs per capita are in the assessment section of Hospital 2 (Table 7.3). However, there is little difference in costs per capita between long-stay and assessment units in the hospital. Neither is there a marked difference in costs per capita between Hospitals 1, 3 and 4.

Table 7.3: *Weekly Cost of Nursing and Attendant/Allied Care by Category of Dependency and by Hospital*

Category of Dependency	*Hospital*				
	1	*2*		*3***	*4*
		Assess-ment	*Long-stay*		
			£		
A	30	32	89	37	43
B	70	187	66	46	69
C	59	225	89	91	80
D	77	260	178	78	117
E	160	261	296	193	166
All*	98	225	212	116	97

* Includes Non-Scale.

** Includes employers' social insurance contributions.

For each category of dependency there are major differences in per capita costs across hospitals. The possible reasons for such variation have already been discussed in Chapter 6 and will not be repeated here. It will be recalled, though, that while it was possible to rationalise part of the variation by differences (a) on the additional health indicators, and (b) in nurse-patient ratios between Hospital 2 and the others, some ambiguity still exists as to the explanation for the remaining differences.

Moreover, it is very difficult to forecast the implications for costs of differences in the mix of patients by dependency. Changes in mix could affect not only the numbers of staff, they could also have a bearing on type of staff as well as perhaps a change in the use of capital and the nature of technology within the hospital.

The cost of nursing/attendant care increases as the degree of dependency in patients increases in the assessment/rehabilitation section of Hospital 2 and in Hospital 4 (Table 7.3). In the lowest category of dependency in Hospital 1 the nursing/attendant per capita weekly cost is £30; for patients in the highest category of dependency it is £160. Patients in dependency C in this hospital have, however, a lower cost of nursing/attendant care than patients in category B. A similar discontinuity is evident in Hospital 3 (between categories C and D) and in the long-stay section of Hospital 2 (between A and B). In all other cases in these hospitals, the cost of nursing and attendant/allied care increases as dependency gets worse. Moreover, the ratio between the cost of care in the highest category of dependency and the lowest category is very similar between Hospitals 1 and 3. The ratio in each hospital is just over 5:1. The ratio for Hospital 4 is less than this at approximately 4:1. The ratio of the highest to the lowest per capita cost in the assessment section of Hospital 2 is 8:1. By contrast, for the long-stay unit, the ratio is only a little over 3:1.

Medical Care

The medical care budget in each hospital is allocated to category of dependency on the basis of usage of physician services. Total physician time for each dependency group is estimated by ward sisters. Budgets are allocated pro rata with this time allocation. In the case of Hospital 2, the budget is first of all allocated to assessment, long-stay and day hospital activities in accordance with actual staff numbers in each unit.

Table 7.4 shows the variation in the costs of medical care. Availability of medical staff is, of course, reflected in the deployment of hours. The relatively higher cost of medical care in Hospital 2, in turn, reflects a more generous provision than elsewhere. Full-time medical personnel are not employed in Hospital 1, Hospital 3 or Hospital 4. A part-time medical officer

looks after the health care needs of old people in these hospitals. It is perhaps not surprising, therefore, that the cost of medical care for patients in the assessment/rehabilitation sector of Hospital 2 is so much higher than in the other hospitals. The cost of medical care in the long-stay section of Hospital 2 is also more expensive than in the other hospitals, but less dramatically so.

Variation in the cost of care per occupied bed across hospitals, even among the three hospitals having only part-time medical personnel, is not matched by wide variation among categories of dependency within hospitals. In particular there is relatively little variation in medical expenditure across categories of dependency in Hospitals 3 and 4. In Hospital 2 (long-stay) the cost in the highest spending category (A) is 1.9 times greater than in the lowest category (B). The difference between high cost and low cost categories is much the same (1.8 times) for patients in assessment/rehabilitation beds. In Hospital 1 the cost of care for old people in the highest cost category (D) is just over twice that of the lowest cost categories (A and C).

There is not a clear linear relationship between cost and dependency in any of the hospitals. In contrast to nursing, the cost of medical care varies erratically as dependency level increases. In no hospital do patients of dependency E have the highest per capita cost. Both in Hospital 4 and in the long-stay section of Hospital 2, the highest costs are associated with old people in the lowest category of dependency.

Table 7.4: *Weekly Cost of Medical Care by Category of Dependency and by Hospital*

Category of Dependency	*Hospital*				
	1	*2*		*3*	*4*
		Assess-ment	*Long-stay*		
			£		
A	0.3	23.6	4.3	0.9	1.6
B	0.6	27.6	2.3	0.9	1.1
C	0.3	39.9	2.0	1.0	0.7
D	0.7	33.5	2.0	1.2	1.1
E	0.6	22.3	3.6	0.9	1.0
All*	0.5	30.3	2.9	1.0	1.2

* Includes non-scale.

Paramedical Services

The allocation of the paramedical budget among categories of dependency in each hospital is based pro rata on the usage of paramedical services by each category. In the case of Hospitals 1, 3 and 4 the budget for paramedical service is uniquely defined for care of the elderly. This is not possible in Hospital 2 where the old people are but one category of users of paramedical services in the hospital. The allocation of the budget for paramedical services in the geriatric part of that hospital is based on estimates made by the consultant geriatricians who have overall responsibility for the hospital's services to the elderly.

As mentioned in the previous chapter the estimates of service use do not deal with the issue of group sessions. However, they are the best estimates of paramedical resource use by elderly persons that are available. Consequently paramedical budgets are assigned among categories of dependency in accordance with the observed hours of paramedical care received by patients.

For the purposes of the cost analysis resource use and pay budgets for physiotherapy, occupational therapy, chiropody and speech therapy are aggregated and defined as paramedical care. With the exception of Hospital 2, which employs wholetime physiotherapists and occupational therapists, none of the other hospitals had full-time paramedical personnel at the time this study was completed.

The weekly paramedical budget in the assessment/rehabilitation unit of Hospital 2 is £2,631; in the long-stay unit of that hospital the weekly budget is £329. The corresponding weekly paramedical budgets in Hospital 1, Hospital 3 and Hospital 4 are £580, £87 and £20 respectively. Not surprisingly, therefore, assessment/rehabilitation patients in Hospital 2, irrespective of their level of dependency, incur the highest paramedical expenditure among the hospitals under observation. (Table 7.5)

There is no clear relationship between the cost of paramedical care and category of dependency. In Hospital 1 and Hospital 4, patients in Category A incur the highest expenditure. Patients in Category C have the highest expenditure in the long-stay section of Hospital 2 and in Hospital 3. Patients in category D have the highest cost of care in the assessment/rehabilitation unit of Hospital 2. Patients in assessment/rehabilitation in Hospital 2 have much higher paramedical costs than patients in long-stay care. This is in line with *a priori* expectations, following on the discussion of allocation and need in Chapter 6.

Religious Visiting, Voluntary Agencies and Family and Friends

Both Hospital 3 and Hospital 4 make annual contributions to religious for services rendered during the year. There is, however, no information on whether religious who visit elderly persons in Hospital 1 or Hospital 2 are paid for services provided.

The *de facto* payments made to religious in Hospitals 3 and 4 are taken as representing the minimum monetary valuation of the opportunity costs. This approach yields rates of payment for religious in Hospital 3 and 4 of £0.35 and £0.40 per person per week, respectively. A notional budget for religious services is calculated for Hospitals 1 and 2 based on the average payments made in the other two hospitals, with an adjustment for hospital size. Costs are allocated among dependency classes in each hospital by assigning actual (or notional) budgets pro rata with the share of each class in total hours.

Market prices are not available for the services of voluntary agencies and hence prices must be imputed. It is assumed that hospital visiting by voluntary agencies is a leisure-time activity. The most common approach in transport studies has been to assign a monetary valuation to leisure equal to 25 per cent of the average market wage in the community. This approach is used in this study. The hourly wage rate used for Ireland is the average of the male and female manufacturing industrial earnings (adult rates) during 1988 (£4.64 per hour). One hour of voluntary visiting is therefore assigned a monetary valuation of 25 per cent of this rate (£1.16 per hour).

Table 7.5: *Weekly Cost of Paramedical Care* by Category of Dependency and by Hospital*

Category of Dependency	*Hospital*				
	1	*2*		*3*	*4*
		Assess-ment	*Long-stay*		
			£		
A	2.98	28.93	6.5	0.34	0.14
B	1.34	31.16	4.39	0.22	0.08
C	0.44	37.28	6.94	0.74	0.08
D	0.97	46.74	1.20	0.43	0.08
E	2.51	23.02	0.84	0.48	0.08
All**	2.04	33.72	2.40	0.46	0.10

* Includes physiotherapy, occupational therapy, chiropody and speech therapy.
** Includes non-scale.

Visits made by family and friends are also taken as a leisure time activity with an opportunity cost similar to that of voluntary agencies and the time spent is valued accordingly.

Visitors to the hospital also use up scarce time resources in travelling to and from hospital. Time spent travelling, as well as time actually spent with the patient, is valued as forgone leisure time. Most visits to see patients are made by car with the costs incurred comprising fuel consumed and wear and tear of the vehicle. The mileage rate used is 0.25 pence per mile. This is about half the lowest public sector rate but is sufficient to cover the above mentioned costs.

There is little variation across the hospitals in the per capita costs of religious visiting (Tables 7.6 to 7.10). In the case of voluntary agencies, the costs per capita are low in all cases except for low-dependent long-stay patients in Hospital 2. The cost estimates for visits by family and friends comprise: (a) the opportunity costs of time, and (b) the costs of travel. There is a certain variation in per capita costs across hospitals, but there is no clear pattern by dependency level.

Drugs

Information on the consumption of drugs was collected for all categories of dependency in each of the hospitals. The use of drugs was monitored on the basis of type and frequency of consumption. There are 150 different types of drugs used by elderly persons in the study. Most drugs are consumed on a daily basis. Information on the cost per unit of each of these drugs, as well as average daily dosage, was obtained from the Monthly Index of Medical Supplies (MIMS). Costs by dependency category in each hospital are assigned by combining the information on type of drug consumed and frequency of use (generated by the survey) with the data on cost and average daily dosage (given by MIMS).

A limit of three drugs was, however, put on the recorded daily consumption of elderly persons. Furthermore drug consumption which is not daily (i.e., which is weekly, monthly, or irregular) has been ignored in the cost estimation. Not surprisingly, therefore, the estimation of hospital drug budgets based on recorded type and average daily dosage multiplied by average unit cost does not always accord with the budget figures for drugs included in the accounts of each hospital. *A priori*, one would expect that the allocation mechanism used in the study would not exhaust the available budget for drugs. This is the case in all hospitals. The percentage of the drugs budget "unaccounted" for in each hospital is as follows: 29 per cent in Hospital 1, 11 per cent in Hospital 2 (long-stay), 48 per cent in Hospital 2 (assessment), 15 per cent in Hospital 3, and 24 per cent in

Table 7.6: *Weekly Cost per Occupied Bed by Type of Care and Category of Dependency in Hospital 1*

Category of Dependency	*Nursing and Attendant/ Allied*	*Medical Officer*	*Para-medical*	*Chaplain*	*Voluntary Agencies*	*Family/ Friends + Travel*	*Drugs*	*Other Drugs*	*Personal Consumption*	*Capital*	*Other* Pay*	*Other** Non-Pay*	*Total*
							£						
A	30.1	0.3	3.0	0.1	0.0	7.8	4.3	3.0	20.0	28.9	18.6	22.5	137.2
B	69.8	0.6	1.3	0.1	0.0	17.7	5.9	3.0	20.0	28.9	18.6	22.5	186.9
C	58.8	0.3	0.4	0.1	0.1	5.6	3.0	3.0	20.0	28.9	18.6	22.5	160.0
D	76.7	0.7	1.0	0.1	0.1	13.9	3.6	3.0	20.0	28.9	18.6	22.5	187.8
E	160.2	0.6	2.5	0.8	0.1	25.4	4.4	3.0	20.0	28.9	18.6	22.5	285.6
All	97.8	0.5	2.0	0.3	0.1	17.0	4.2	3.0	20.0	28.9	18.6	22.5	213.6

* Includes administrative, maintenance, PRSI and other.

** Excludes drugs/medicines and maintenance.

Table 7.7: *Weekly Cost per Occupied Bed by Type of Care and Category of Dependency in Hospital 2 (Assessment)*

Category of Dependency	*Nursing and Attendant/ Allied*	*Medical Officer*	*Para-medical*	*Chaplain*	*Voluntary Agencies*	*Family/ Friends*	*Drugs*	*Other Drugs*	*Personal Consumption*	*Capital*	*Other* Pay*	*Other** Non-Pay*	*Other*** Services*	*Total*
							£							
A	31.7	23.6	28.9	0.2	0.0	17.6	3.3	10.2	20.0	28.9	75.6	111.1	70.5	421.7
B	187.4	27.6	31.2	0.1	0.0	13.5	5.3	10.2	20.0	28.9	75.6	111.1	70.5	581.4
C	225.2	39.9	37.3	0.7	0.2	17.6	5.5	10.2	20.0	28.9	75.6	111.1	70.5	642.7
D	260.4	33.5	46.7	0.4	0.2	24.1	5.2	10.2	20.0	28.9	75.6	111.1	70.5	686.9
E	261.0	22.3	23.0	0.2	0.0	37.3	24.8	10.2	20.0	28.9	75.6	111.1	70.5	685.0
All	225.1	30.3	33.7	0.4	0.1	24.9	11.2	10.2	20.0	28.9	75.6	111.1	70.5	632.1

* Includes administration, catering/housekeeping, PRSI and other.
** Includes medical/surgical, heat/power/light, cleaning/washing and other.
*** Includes central pathology laboratory, diagnostic imaging, catering and laundry.

Table 7.8: *Weekly Cost per Occupied Bed by Type of Care and Category of Dependency in Hospital 2 (Long-stay)*

Category of Dependency	*Nursing and Attendant/ Allied*	*Medical Officer*	*Para-medical*	*Chaplain*	*Voluntary Agencies*	*Family/ Friends*	*Drugs*	*Other Drugs*	*Personal Consumption*	*Capital*	*Other* Pay*	*Other** Non-Pay*	*Other*** Services*	*Total*
							£							
A	88.5	4.3	6.5	0.1	1.1	97.6	1.6	0.4	20.0	28.9	21.6	71.2	40.4	382.1
B	66.0	2.3	4.3	0.3	0.0	5.2	1.1	0.4	20.0	28.9	21.6	71.2	40.4	261.7
C	89.1	2.0	6.9	0.5	0.0	14.2	2.9	0.4	20.0	28.9	21.6	71.2	40.4	295.5
D	178.4	2.0	1.2	0.2	0.1	6.4	3.9	0.4	20.0	28.9	21.6	71.2	40.4	374.7
E	296.3	3.6	0.8	0.4	0.0	13.3	3.4	0.4	20.0	28.9	21.6	71.2	40.4	500.3
All	212.4	2.9	2.4	0.4	0.1	14.1	3.1	0.4	20.0	28.9	21.6	71.2	40.4	417.9

* Includes administration, catering/housekeeping, PRSI and other.

** Includes medical/surgical, heat/power/light, cleaning/washing and other.

*** Includes central pathology laboratory, diagnostic imaging, catering and laundry.

Table 7.9: *Weekly Cost per Occupied Bed by Type of Care and Category of Dependency in Hospital 3*

Nursing Category of Dependency	*and Attendant/ Allied*	*Medical Officer*	*Para-medical*	*Chaplain*	*Voluntary Agencies*	*Family/ Friends + Travel*	*Drugs*	*Other Drugs*	*Personal Consumption*	*Capital*	*Other* Pay*	*Other** Non-Pay*	*Total*
							£						
A	37.0	0.9	0.3	0.2	0.0	13.0	3.9	0.6	20.0	31.1	5.5	20.2	132.9
B	45.7	0.9	0.2	0.4	0.0	1.3	3.2	0.6	20.0	31.1	5.5	20.2	128.9
C	90.6	1.0	0.7	0.2	0.0	8.0	1.5	0.6	20.0	31.1	5.5	20.2	179.3
D	78.4	1.2	0.4	0.5	0.4	10.6	3.8	0.6	20.0	31.1	5.5	20.2	172.4
E	193.3	0.9	0.5	0.5	0.4	13.4	3.0	0.6	20.0	31.1	5.5	20.2	288.9
All	116.1	1.0	0.5	0.3	0.2	11.9	3.3	0.6	20.0	31.1	5.5	20.2	210.4

* Includes administrative, maintenance, PRSI and other.

** Excludes drugs/medicines (and maintenance).

Table 7.10: *Weekly Cost per Occupied Bed by Type of Care and Category of Dependency in Hospital 4*

Nursing Category of Dependency	*and Attendant/ Allied*	*Medical Officer*	*Para-medical*	*Chaplain*	*Voluntary Agencies*	*Family/ Friends + Travel*	*Drugs*	*Other Drugs*	*Personal Consumption*	*Capital*	*Other* Pay*	*Other** Non-Pay*	*Total*
							£						
A	43.5	1.6	0.1	0.5	0.0	6.1	3.8	1.2	20.0	30.7	11.7	27.6	146.7
B	69.0	1.1	0.1	0.3	0.0	4.5	3.8	1.2	20.0	30.7	11.7	27.6	170.0
C	79.9	0.7	0.1	0.4	0.0	4.4	2.4	1.2	20.0	30.7	11.7	27.6	179.0
D	117.0	1.1	0.1	0.5	0.0	15.4	5.9	1.2	20.0	30.7	11.7	27.6	231.0
E	165.7	1.0	0.1	0.4	0.0	12.1	3.4	1.2	20.0	30.7	11.7	27.6	273.9
All97.4	1.2	0.1	0.4	0.0	8.4	3.7	1.2	20.0	30.7	11.7	27.6	202.4	

* Includes administrative, maintenance, PRSI and other.

** Excludes drugs/medicines (and maintenance).

Hospital 4. Such "residual" expenditure must, however, be included in our analysis and is consequently assigned (labelled as "Other Drugs" in Tables 7.6 to 7.10), as appropriate, uniformly across categories of dependency in each hospital.

Expenditure on drugs is highest in the assessment/rehabilitation unit of Hospital 2. Hospital 1 has the next highest cost of drugs – one-third the cost of the latter. There is relatively little difference in drug expenditure between the long-stay unit of Hospital 2 and Hospitals 3 and 4. In the assessment/rehabilitation unit of Hospital 2, expenditure on drugs increases with the level of dependency, especially at the highest dependency class.

Other Pay and Non-Pay Expenditure

Budgets for long-stay geriatric hospitals, 1, 3 and 4 are divided into pay and non-pay components. Some of the pay items, e.g., nursing, medical and paramedical will vary by category of dependency. Other pay items such as administration, and maintenance are, however, assumed to be constant across categories of dependency. The weekly occupied bed estimates for such costs in Hospitals 1, 3, and 4 are £19, £12 and £3, respectively. Social insurance contributions are included under "other pay" in Hospitals 1 and 4 but are given in staff pay in Hospital 3. Due to different treatment of superannuation among hospitals this item is left out of the analysis in all of them.

Non-pay expenditure is not expected to vary by class of dependency. The exceptions are drugs, pathology services and medical appliances. It was not possible to disaggregate either pathology or medical appliances by category of dependency. Hence, in line with other non-pay items such as heating, lighting, laundry, etc., these are assumed to be constant across categories of dependency. The occupied bed cost of all fixed non-pay expenditure is derived by dividing the aggregate budget by the number of elderly persons in the hospital. This procedure yields the following weekly cost estimates: £23 in Hospital 1, £20 in Hospital 3 and £30 in Hospital 4.

The budget for care of the elderly in Hospital 2 provides a breakdown of non-attributable items into pay, non-pay and other services. Cost estimates for "other non-pay" in the assessment and long-stay unit of this hospital are much higher (£111 and £71 respectively) than in the other hospitals, reflecting the more complex production function in these units. Items included under the "other services" heading are central pathology, laboratory, diagnostic imaging, catering and laundry. The "other pay" and "other non-pay" headings include a similar range of items, as above, for the other hospitals.

Personal Consumption

Old people within each institution contribute towards the cost of care by way of their pensions. Most patients, however, receive some pocket money allowance for personal consumption purposes. The average payment across health boards is in the region of £11 per week (Department of Health). Not all patients, especially those who are highly dependent, receive such a payment but generally only the very sick do not receive any allowance. Patients also receive visits from family and friends (on average 12 visits per month). Thus, visitors may make expenditure on behalf of the patients by bringing gifts such as food, drink, cigarettes, etc., when they visit. Expenditure on such gifts must, therefore, be added to the private personal expenditure of patients. The assumption made in this study is that each visit generates an additional £3 expenditure. On the basis of an average of 3 visits per week, this entails an additional weekly expenditure of £9. This raises the weekly consumption estimate from £11 to £20 per elderly person.

Capital Costs

With respect to Hospital 3 and Hospital 4, the opportunity cost of capital is estimated using a replacement valuation based on what it would cost to build a similar size geriatric hospital. The cost of such a hospital is estimated at £5.6m. This is based on the recent cost of building a similar size (204 bed) geriatric hospital in the North Eastern Health Board. In order to estimate a replacement cost capital valuation for Hospital 1 and Hospital 2, the above capital estimate is simply adjusted pro rata to take account of increased bed capacity. The resulting capital estimates are £7.8m. and £7.1m. respectively. These capital costs are expressed as an annual flow, based on a 5 per cent real rate of interest and an expected capital life of 50 years.

The calculation of capital costs in this manner means that maintenance costs in each hospital should be excluded from the analysis. To include maintenance would be to "double count" the cost of capital. Hence, it is not shown in the aggregated "other non-pay" items of each hospital.

Cost Per Occupied Bed

Nursing and attendant/allied costs comprise the largest single component of total costs. Expressing nursing and attendant costs as a proportion of total costs, the highest proportion is in Hospital 3 at 55 per cent, with the lowest proportion in the assessment unit of Hospital 2 at 36 per cent.

When costs are aggregated over all components and expressed on a per occupied bed basis, there is little variation in the cost of care across Hospitals 1, 3 and 4 (Table 7.11). By contrast, the long-stay section of Hospital 2 has an average cost of care over double that of each of the other hospitals. The assessment/rehabilitation unit of Hospital 2 has an average cost per occupied bed three times greater than that of the other hospitals.

In general, the higher cost of care in Hospital 2 reflects the more generous provision of nursing, medical and paramedical resources in that hospital. In addition, the costs of care in Hospital 2 reflect the extent and nature of other services such as non-medical support (portering, medical records), catering/administration/maintenance and medical support (pathology, X-ray, laboratory, biochemistry, etc.). An active assessment and rehabilitation programme also means that old people receive more intensive treatment irrespective of category of dependency. In particular, every effort is made to ensure that old people are returned to the community. For example, the high level of paramedical care for assessment/rehabilitation patients is testimony to the intensive treatment of old people in this unit, relative to long-stay patients. The presence of a day hospital on the site of Hospital 2 also allows flexibility in the treatment of elderly persons, thereby facilitating a less institutionalised form of care.

Table 7.11: *Average Weekly Cost per Occupied Bed by Category of Dependency and by Hospital*

Category of Dependency	*Hospital*				
	1	*2*		*3*	*4*
		Assess-ment	*Long-stay*		
			£		
A	137	422	382	133	147
B	187	581	262	129	170
C	160	643	296	179	179
D	188	687	375	172	231
E	286	685	500	289	274
All	214	642	418	210	202

While cost differences between Hospital 2 and the other hospitals can largely be reconciled by the complex nature of the production function in the former, problems also arise when trying to interpret similarities in average cost per occupied bed among the other hospitals. The closeness of the cost estimates for Hospitals 1, 3 and 4 is difficult to reconcile with the observed distribution of patient disability across the hospitals. In particular, Hospital 3 contains more severely dependent old people than the other two, yet does not receive significantly more resources per occupied bed. One possible explanation for this may be the nature of budgetary allocation for long-stay care. In general, there is little attempt by the Department of Health or the Health Boards to allocate budgets according to need, mainly because so little is known about the relationship between the disability of old people or the nature and process of care within institutions. As a result, geriatric institutions which contain more dependent elderly persons do not necessarily receive budgets commensurate with their disability levels. Hospital budgets relate more to historical accident, and until recently, basic incrementalism, than to any rational mechanism firmly based on the assessment of patient need. Therefore we should not, perhaps, be greatly surprised to find unexplained similarities or differences in the cost of care across hospitals.

The cost of care within dependency levels is very similar across Hospitals 1, 3 and 4 (with the exception of Category B in Hospital 3). This does not mean that the care provided by category of dependency across these institutions is entirely homogenous. There is significant variation in the following activities: nursing and attendant care, paramedical care and family/friend visiting.[7] Greater (or less) resource use in any one of these areas is, however, offset to some extent, by less (or greater) resource use in another, leading to a relative smoothening of the overall cost of care by category of dependency. While some substitution among providers (and possibly between the latter and family and friends) is undoubtedly occurring within long-stay institutions, it is unlikely to be as a result of a considered appraisal of the benefits of such an approach. Rather, what we may be observing is the response of providers to arbitrary supply side differences (i.e., unrelated to need) within each of the hospitals.

7. There are, however, some striking similarities in the cost of nursing and attendant care between some institutions. For instance, the cost per Category B occupied bed is the same between Hospitals 1 and 3; similarly for Category D beds, there is no difference between these two hospitals: finally, there is little or no difference between Hospitals 1 and 4 with respect to the average weekly cost of Category E beds.

The interesting question is whether the observed pattern of resource use reflects an *ex ante* evaluation of needs by providers and bureaucrats. There is, as we have mentioned, no evidence that this is taking place in the allocation of resources among institutions. It is, however, more likely to occur within institutions as providers seek to allocate scarce resources on the basis of the disability characteristics of residents. The evidence from this study offers some support for this view in that there is a generally positive relationship between disability and resource use in all the hospitals. Moreover, the similarities in the cost of care within dependency categories in Hospitals 1, 3 and 4 suggests that the decisions of providers and hospital administrators are, broadly at any rate, resulting in similar overall patterns of resource use, although the restricted and case study nature of the data does not allow us to go much beyond tentative statements in this regard.

Finally and positively, what the cost results do not do is to undermine the methodology used to quantify resource use in the long-stay institutions. Costs are related to category of dependency and are not significantly dissimilar across Hospitals 1, 3 and 4 while the differences between these institutions and Hospital 2 can be explained, to some extent at least, by the nature of care in the latter.

Cost Per Patient

One way to take account of the greater turnover of patients in Hospital 2, mainly in the assessment/rehabilitation unit, is to estimate costs on a per patient rather than a per bed basis. This is done by dividing the cost per bed by the number of patients using the bed over a fixed period of time. The results of this exercise is shown in Table 7.12. The weekly cost per patient treated is £27 in the assessment/rehabilitation unit of Hospital 2. This reflects the high rate of turnover in that sector as shown in Table 5.6. The allowance for rate of turnover also reduces the cost of care in the long-stay sector of Hospital 2 and in Hospital 1. By contrast, the cost of care increases in Hospitals 3 and 4, both of which have relatively low rates of turnover. The variations between Hospitals 2 (long-stay), 3 and 4 are reduced when costs are expressed on a per patient basis. Costs per patient among the long-stay units are lowest in Hospital 1, although the presence of a small number of assessment beds in this hospital distorts to some extent the comparisons being made.

One of the difficulties in assessing the economic and medical significance of the relative per capita cost of care across institutions is the absence of outcome measures for any of the four hospitals. While throughput is relatively high in Hospital 2, and particularly so for assessment/

rehabilitation patients, this is but an intermediate measure of outcome. A more complete measure of outcome would incorporate information on the quantity and quality of life associated with care within and outside the institutions (Challis, 1981). Such a task is a separate research question but without it one cannot say for definite whether, or the extent to which, more expenditure on care means better health for elderly persons.[8]

Table 7.12: *Weekly Cost per Patient Treated by Category of Dependency and by Hospital*

Category of Dependency	*Hospital*				
	1	*2*		*3*	*4*
		Assess-ment	*Long-stay*		
			£		
A	87	18	275	141	165
B	119	25	188	137	191
C	102	27	213	190	201
D	120	29	270	183	260
E	182	29	360	307	308
All	136	27	301	223	227

Changes in Hospital Care and Staff Morale

Issues of psychic costs are usually recognised to exist within the context of community care but they also arise – albeit in a different form – within institutional settings. Greater use of assessment may change the workload and the work satisfaction of hospital staff, particularly that of nurses. For this reason, the policies adopted by Hospitals 1 and 2 to counteract the negative effects of change are discussed here.

Systematic assessment of elderly patients on or prior to admission promotes a division between those with low disability, who receive rehabilitation care aimed at enabling them to return to life in the community, and those with higher disability, who are unsuited to rehabilitation and require long-stay institutional care. In such a situation

8. It should be acknowledged, however, that currently only 4 per cent of old people discharged from Hospital 2 are re-admitted within one month.

there is a danger that rehabilitation care will enjoy higher status and command the lion's share of resources and skills while long-stay care becomes a backwater of physically heavy and monotonous work which commands low professional respect. This situation would be more likely to develop where the organisation of care separates the two sets of activities into distinct departments.

In Hospital 1, short-stay assessment beds are scattered around three of the hospital's six units. This is partly because geriatric assessment there was gradually expanded within a traditional type of care system through pragmatic and *ad hoc* accumulation of resources over time. However, while admitting that it results in some administrative difficulty, the hospital's consultant sees this mixing of short-stay and long-stay in a positive light and says that, in the (unlikely) event of his being offered the resources to set up a separate assessment unit, he would wish to stick with present arrangements. It would, he thinks, be difficult to maintain staff morale and high quality of care within units composed solely of high disability patients without prospect of discharge.

Division into short-stay and long-stay units is an organisational feature of Hospital 2's Geriatric Medicine Department. The consultants here see this as a desirable situation in which it is possible to concentrate different combinations of resource inputs effectively on different needs for care. This division is accompanied by a policy of rotating staff between the two sectors. Rotation takes place every six months and the policy is meant to apply to all types of staff except ward sisters and consultants. The rotation policy acquaints staff with the full continuum of care within the department and is said to be popular, particularly with younger staff. Some long-serving members of staff in the long-stay units seem to be informally exempted from it because of difficulty coping with a different pace of activity in the short-stay units.

Conclusion

The increase in the cost of care per occupied bed as disability increases is not the same over all dependency levels: in particular, there is a relatively small increase in average cost as dependency moves from Category B (covering the scale points: cannot walk outdoors without help; cannot walk indoors without help) to Category C (covering, in addition, the scale points: cannot dress without help; cannot get out of bed without help; cannot sit or stand without help; cannot use the toilet without help). The overall pattern reflects to a considerable degree the fact that, as the dependency level increases, the total hours of nursing and attendant care increase throughout the range of dependency.

There is a significant difference between the average cost of care in Hospital 2 and the other three hospitals; and between the cost of care in the assessment and long-stay unit of Hospital 2. The major part of the variation in cost between Hospital 2 and the others reflects differences in the nature of care in the latter that in turn are underpinned by a more generous availability of facilities. This applies both with regard to nursing/attendant care and other services such as physiotherapy, occupational therapy, pathology and diagnostic equipment. The availability of services and the needs of patients interact to determine the level of care by dependency level. Of these two elements the former is likely to be the major influence on service provision.

Notwithstanding differences between the type of care provided in Hospital 2 relative to the other hospitals, there is no evidence to suggest that resources are allocated to long-stay institutions on the basis of need. Resource use within the institutions examined in this study is, however, not inconsistent with an allocation process based on an evaluation of relative need and the potential of old people to benefit from intervention. The cost of care increases as disability gets worse in all hospitals. In addition, patients in the assessment/rehabilitation unit of Hospital 2 receive more care than those in long-stay beds.

If the resource allocation procedure among hospitals is to be made more rational, a case could be made for extending the methodology employed in this study to examine relative need. It has performed the task of tracking resource use by category of dependency on a reasonable basis. There are, of course, other measures of dependency that one could use (e.g., Crichton Royal, Clifton, etc.) but the robust nature of the results of this study are encouraging for the use of unidimensional scales, especially when costs by category of dependency are under investigation.

The impact of different rates of turnover among the hospitals is assessed by estimating costs on a per patient basis rather than a per bed basis. As would be expected, this has a marked effect on the cost estimates for the assessment/rehabilitation unit of Hospital 2, given the high turnover of patients through that unit. In the cost per bed for that unit, the estimate is relatively high compared to the other units, reflecting the intensive level of service in assessment and rehabilitation, the labour-intensive nature of these services and the high usage of paramedical services. Costs per patient treated in this unit are, however, only a fraction of the costs per bed. In the case of the others, unit costs decline in two of the long-stay hospitals and they increase in the remaining two, where there are relatively low rates of turnover of patients.

Chapter 8

PROVISION OF CARE IN THE COMMUNITY

In this chapter the results of the survey of carers and of elderly persons living in the community are described. The chapter focuses on the cost dimensions of caring, rather than, for example, on a detailed description of caring activities. A discussion of the dependency profile of the elderly sample has already been provided in Chapter 5. This chapter begins with a description of the main demographic features of the sample. Comparison with the national representative sample of O'Connor, *et al.* (1988) is also provided. The provision of care in terms of professional and voluntary services is then discussed. The chapter then moves on to describe the findings regarding elements previously identified as being relevant to estimation of costs of informal care, namely hours of care, opportunity costs, and carer strain (Chapter 4).

Elderly Persons Receiving Care

Table 8.1 shows that 44.2 per cent of the elderly persons receiving care are male, while 55.8 per cent are female. This is in agreement with the findings of other research with a national scope: O'Connor and Ruddle

Table 8.1: *Age and Sex of Elderly Persons Receiving Care*

	Male		*Female*		*Total*	
Age Group:	*N*	*%*	*N*	*%*	*N*	*%*
65 - 70	19	20.9	15	13.0	34	16.4
71 - 75	21	23.1	16	13.9	37	17.9
76 - 80	22	24.2	26	22.6	48	23.7
81 - 85	12	13.2	28	24.3	40	19.3
86 - 90	13	14.3	21	18.3	34	16.4
91 - 95	4	4.4	9	7.8	13	6.3
Total (N)	91 (44.2%)		115 (55.8%)		206	

(1988) found that 41 per cent were males and 59 per cent female. The age range is 65 to 95, with 40 per cent between 71 and 80, and 36 per cent between 81 and 90. This is again quite comparable with the sample of O'Connor and Ruddle. The sample in this study is clustered in the 76-80 bracket. At the time of the study, 78 per cent of females were not living with a spouse, compared with 45 per cent of males (Table 8.2).

The relationship between the elderly person and his or her carer is shown in Table 8.3. In the majority of cases, the elderly person is the parent (29 per cent) or parent-in- law (29 per cent) of the carer, a figure comparable with that found by O'Connor and Ruddle, where 45 per cent of carers were caring for parents and 19 per cent were caring for parents-in-law.

Table 8.2: *Marital Status of Elderly Persons Receiving Care*

	Male		*Female*		*Total*	
Marital Status:	*N*	%	*N*	%	*N*	%
Married, spouse resident	50	54.9	26	22.6	76	36.9
Widowed	22	24.2	74	64.3	96	46.6
Single	17	18.7	13	11.3	30	14.6
Separated	2	2.2	2	2.2	4	1.9
Total (N)	91		115		206	

Pearson Chi-squared = 29.05; D. of F. = 3; $p < .001$.

Table 8.3: *Relationship between Carer and Elderly Person Receiving Care*

Relationship	*Number*	*Per cent*
1. Spouse	64	31.1
2. Parent	60	29.1
3. Parent-in-law	60	29.1
4. Brother	2	1.0
5. Brother-in-law	2	1.0
6. Sister	2	1.0
7. Sister-in-law	2	1.0
8. Other relative	12	5.8
9. Non-relative	2	1.0
Total (N)	206	

Use of Professional and Voluntary Services

In this section, data regarding the use of professional and voluntary services by elderly persons in the sample are presented. Specifically, data regarding hospitalisation, a major cost factor in community care, are first provided. This is followed by data regarding the number of visits made to and from GPs, PHNs, chiropodists, social workers, home helps, meals-on-wheels, and priests. Visits by elderly persons to GPs chiropodists, out-patient clinics, day care centres, and pharmacists are then described. Although data on the time spent on each visit, and the distance travelled for each visit were obtained, these quantities were so small that they are not presented here.

Table 8.4 shows the number of hospitalisations and the average length of stays by category of dependency. Overall, 29.1 per cent of the sample had been hospitalised at least once in the previous year. Twenty-four per

Table 8.4: *Number of Hospitalisations and Average Length of Stay by Category of Dependency*

	Dependency Category						
Hospitalisation	*A*	*B*	*C*	*D*	*E*	*Non-scale*	*Total*
Number and % hospitalised at least once	22 (24.3)	11 (28.2)	10 (38.5)	7 (38.1)	6 (54.5)	4 (29.4)	60 (29.1)
Number and % hospitalised once only	17 (18.9)	8 (20.5)	9 (34.6)	6 (33.3)	6 (54.5)	3 (21.4)	49 (23.8)
Average length of stay (days)	25	43	32	53	7	7	29
Number and % hospitalised twice	2 (2.2)	3 (7.7)	0 (0.0)	1 (5.6)	0 (0.0)	0 (0.0)	6 (2.9)
Average length of stay (days)	14	45	0	(missing)	0	0	33
Number and % hospitalised 3 times	3 (3.3)	0 (0.0)	1 (3.8)	0 (0.0)	0 (0.0)	1 (7.1)	5 (2.4)
Average length of stay (days)	49	0	42	0	0	21	42
Total average number of days spent in hospital in previous year	7	12	13	18	4	3	9

cent had been hospitalised once, 3 per cent twice, and 2.5 per cent three times. The percentage who have been hospitalised once is between 24 and 29 per cent for categories A (24.3 per cent) and B (28.2 per cent), increases to 38 per cent for categories C and D, and rises to 55 per cent for category E. The average length of stay for the first (or only) hospitalisation is 29 days over all categories of dependency.

Information is not available about the reasons for hospitalisation. The length of stay in most cases is considerable, the majority being over 21 days. The final row in Table 8.4 shows the average number of days spent in hospital averaged for each category for cost purposes, and thus includes those who did not spend any time in hospital. It is noteworthy that the variation by category in the average number of days overall spent in hospital is not statistically significant. Thus hospitalisation is a high cost factor across all levels of dependency.

Table 8.5 shows the number of visits made to the elderly persons by professionals and from voluntary services in the previous year. Weekly data are presented to provide comparability with institutional data, and for costing purposes, although monthly figures would probably provide a more informative picture. Persons in category A receive few visits from GPs, while those in categories B to E receive similar numbers of visits. Visits are received from PHNs with approximately the same overall frequency as in the case of GPs, but are concentrated on those in categories D and E. Home helps again average the same number of visits per month as GPs, but the distribution is less systematic.

Table 8.5: *Average Number of Visits per Week Made to Elderly Persons by Professional and Voluntary Agencies, by Category of Dependency*

	Number of Visits Per Week						
Dependency Category	*GP*	*PHN*	*Chiropodist*	*Social Worker*	*Home Help*	*Meals-on-Wheels*	*Priest*
A	0.12	0.10	0.002	0.00	0.00	0.00	0.10
B	0.23	0.04	0.002	0.00	0.14	0.17	0.15
C	0.24	0.11	0.013	0.01	0.53	0.00	0.22
D	0.28	0.27	0.002	0.00	0.00	0.00	0.38
E	0.23	0.76	0.000	0.00	0.64	0.42	0.59
Non-scale	0.13	0.50	0.000	0.00	0.49	0.00	0.24
All	0.17	0.17	0.003	0.00	0.16	0.05	0.19

While visits made to the elderly by professionals and voluntary services tend to increase with level of dependency, Table 8.6 shows that visits *by* the elderly *to* professionals have a complementary trend. Those in the lower categories of dependency make a higher number of visits to professionals (doctors, chiropodists, pharmacists) than those in the higher categories of dependency.

Overall, use of services involves mainly hospitalisations, and visits from GPs and PHNs. These findings are similar to those of research reviewed in Chapter 2, showing that medical services are the main ones used by the elderly in the community.

Table 8.6: *Average Number of Visits per Week Made by the Elderly Person to Statutory and Voluntary Services by Category of Dependency*

Dependency Category	*Number of Visits Per Week*				
	GP	*Chiropodist*	*Pharmacist*	*Out-patient Clinics*	*Hospital Day Care Centre*
A	0.11	0.04	0.06	0.03	0.01
B	0.11	0.02	0.05	0.01	0.00
C	0.11	0.02	0.02	0.05	0.00
D	0.03	0.01	0.00	0.05	0.00
E	0.00	0.00	0.00	0.00	0.08
Non-scale	0.01	0.01	0.02	0.00	0.13
All	0.09	0.03	0.04	0.03	0.02

Age, Sex, Marital Status of the Principal Caregiver

The age distribution of the carers (Table 8.7) is comparable with the O'Connor and Ruddle study, with 47 per cent aged between 40 and 60, and 37 per cent aged over 60. The majority of the women (78 per cent) are married with spouse resident. By contrast, 35 per cent of the male carers are married with spouse resident.

Hours of Care

Together with an indication of forgone opportunities, the central piece of information needed for cost purposes is time spent on care. Carers spend an average of 47 hours a week engaging in caring activities (Table

8.8), with a standard deviation of 30, showing that there is considerable variation in the average number of hours spent per week on caring. This figure can be compared with the finding of O'Connor and Ruddle, that 50 per cent of carers spent 4-7 hours a day (i.e., 28 to 49 hours a week) on caring, with 35 per cent spending more time than this. As expected the number of hours of care increases as dependency increases, rising to a figure of 85 hours per week, or 12 hours per day, for category E.

Table 8.7: *Age and Sex of Carers*

	Male		*Female*		*Total*	
Age Group:	*N*	*%*	*N*	*%*	*N*	*%*
18 - 29	4	7.3	2	1.3	6	2.9
30 - 39	8	14.5	16	10.5	24	11.6
40 - 49	12	21.8	40	26.3	52	25.1
50 - 59	10	18.2	35	23.0	45	21.7
60 - 69	10	18.2	42	27.6	52	25.1
70 - 79	8	14.5	16	10.5	24	11.6
80 - 84	3	5.5	1	0.7	4	1.9
Total (N)	55 (26.6%)		152 (73.4%)		207	

Table 8.8: *Average Number of Hours of Care, per Week in Total, Provided by Principal Caregiver by Category of Dependency*

Dependency Category	*Average number of hours*	
	Mean	*Standard deviation*
A	38.27	29.70
B	44.58	29.53
C	46.29	28.02
D	57.66	27.55
E	85.61	22.33
Non-scale	60.87	21.50
All Carers	46.56	30.51

Analysis of Variance: F = 7.5;
Degrees of Freedom 4 $p < .001$.

Table 8.9 provides a breakdown of the time spent by the principal caregiver and by others on the different aspects of caring, specifically on the physical activities of daily living, on instrumental activities of daily living, and on supervision (principal caregiver only). Averaged across all categories, carers spend an average of 26 hours a week on supervision, 16 hours a week helping with instrumental activities of daily living, and 7 hours a week helping with the physical activities of daily living.

Table 8.9: *Average Number of Hours of Care per Week Provided by Principal Caregiver and by Others, Categorised into Physical Care, Instrumental Care, and General Supervision, by Category of Dependency*

	Mean number of hours per week (and Standard Deviations)						*All*
	A	*B*	*C*	*D*	*E*	*Non-scale*	
Principal Caregiver:							
All physical	1.38	6.44	11.01	16.56	29.08	7.15	6.98
	(2.78)	(8.66)	(8.86)	(12.93)	(12.33)	(7.40)	(10.28)
All instrumental	17.12	11.18	12.89	17.66	26.18	18.44	16.01
	(16.29)	(6.74)	(7.11)	(11.03)	(22.58)	(13.11)	(13.95)
Supervision	23.00	27.92	23.84	25.11	229.27	37.10	25.75
	(27.72)	(28.13)	(22.59)	(22.97)	(24.14)	(23.33)	(26.26)
Total	41.50	45.54	47.74	58.33	84.53	63.79	58.74
Help Received:							
Physical	0.11	0.85	1.39	1.41	1.86	0.46	0.67
	(0.38)	(1.82)	(2.91)	(3.03)	(3.36)	(0.76)	(1.80)
Instrumental	0.93	2.70	3.67	1.05	1.60	1.35	1.72
	(2.41)	(6.73)	(8.06)	(2.13)	(2.10)	(2.89)	(4.68)
Total	1.04	3.55	5.06	2.46	3.46	1.81	2.39

These findings highlight the number of activities involved in providing care in the home. They suggest that there is a floor or bottom line level of care that must be provided even for those who are relatively physically independent, and not incontinent, confused, restless or showing other psychological symptoms. This care involves help with the daily activities of shopping, preparing meals, housekeeping, and washing and ironing clothes, activities which require quite a considerable amount of time.

Dependency in the area of confusion, restlessness, lack of co-operation and of communication, on the other hand, which, as Chapter 5 shows, is found even in those who are in the low physical dependency category, requires more intangible caring activities such as encouragement, persuasion, explanation, keeping company, and close supervision, which in this study would all fall under the category of "supervision".

The total number of hours spent providing care by the principal caregiver increases as dependency increases. This increase is primarily related to an increase in help with the physical activities of daily living which in the high dependency category E took around 4 hours per day. The hours spent helping with instrumental activities remain constant across categories except for an increase (statistically significant) from category D to E, which is consistent with the profile of dependency described earlier. Hours of supervision also remain constant across dependency categories.

The number of hours of help received from others is negligible (Table 8.9) with the overall average being 2.4 hours of help per week. Almost no help is received with the physical activities of daily living, although this help does increase with dependency level. Help with instrumental activities is given almost completely with housekeeping, preparing meals, and washing and ironing clothes. These findings show that one particular individual provides almost all of the care to the dependent elderly person living in the home. This is in obvious contrast to the hospital care regimes, where different care activities are distributed across a number of different individuals.

Education and Employment

We now consider the educational background and employment position of carers. These are relevant to the estimation of opportunity costs. The likely forgone employment opportunities can be assessed in a number of different ways:

- by considering the nature of current employment,
- by examining former employment, if any, and work opportunities forgone,
- through answers to questions about intentions if people no longer had caring responsibilities.

Following an outline of educational background, each of these approaches to assessment is followed. *A priori*, it can be expected in general that carers have not had high-skilled or high-paid employment. O'Connor and Ruddle (1988) show that carers have had relatively little employment; when they have been employed, it has tended to be in low-paid jobs.

The majority (58 per cent) of carers have an educational level of primary or less (Table 8.10), with a further 26 per cent having secondary education to Intermediate Certificate level or less.

Current Employment

Only a small proportion of carers are employed, 22 per cent (Table 8.11) with 54 per cent of men contrasting with 11 per cent of women in employment. Sixteen per cent of carers work full-time and 7 per cent part-time (Table 8.12). Only about half of the women in employment are full-time. Women classify themselves mainly as engaged in "home duties". Most of the employed are in manual occupations (Table 8.12).

Table 8.10: *Education Level of Carers*

	Total	
Education Status:	*N*	%
1. Before Primary	74	35.7
2. Primary	47	22.7
3. Before Intermediate	32	15.5
4. Intermediate	22	10.6
5. Group	11	5.3
6. Leaving	16	7.7
7. Higher Education	5	2.4
Total (N)	207	

Table 8.11: *Labour Force Status of Carers*

	Male		*Female*		*Total*	
Labour Force Status	*N*	%	*N*	%	*N*	%
Employee	6	11.1	13	8.6	19	9.3
Self Employed or Employer	23	42.6	4	2.6	27	13.2
Unemployed	9	16.7	1	0.7	10	4.9
Retired	16	29.6	6	4.0	22	10.7
Home Duties	0	0.0	123	81.5	123	60.0
Assisting Relative	0	0.0	4	2.6	4	2.0
Total (N)	54		151		205	

Pearson Chi-squared = 144.57; D. of F. = 5; $p < 0.001$.

Table 8.12: *Carers who are Currently Working Classified by Full-time and Part-time Work, and by Social Class*

	Full-time			*Part-Time*		
Social Class	*Male N (%)*	*Female N (%)*	*Total N (%)*	*Male N (%)*	*Female N (%)*	*Total N (%)*
1. Higher Professional	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
2. Lower Professional	3 (13.0)	2 (20.0)	5 (15.2)	0 (0.0)	2 (22.2)	2 (13.3)
3. Other non-manual	4 (17.4)	1 (10.0)	5 (15.2)	0 (0.0)	2 (22.2)	2 (13.3)
4. Skilled manual	3 (13.0)	0 (0.0)	3 (10.0)	0 (0.0)	0 (0.0)	0 (0.0)
5. Semi Skilled manual	9 (39.1)	4 (40.0)	13 (39.3)	4 (66.7)	5 (55.6)	9 (60.0)
6. Unskilled manual	2 (8.7)	3 (30.0)	5 (15.2)	1 (16.7)	0 (0.0)	1 (6.6)
Other	2 (8.7)	0 (0.0)	2 (6.1)	1 (16.7)	0 (0.0)	1 (6.6)
Total (N)	23	10	33	6	9	15
Percentage of all carers	11.1	4.8	15.9	2.9	4.3	7.2

Employment patterns are further explored with regard to dependency class of the elderly person (Table 8.13). The percentage of carers in paid employment declines as dependency increases. Of those who are employed, those caring for people in the lowest dependant category have the highest net weekly take-home pay.

Employment Opportunities Forgone

In all, 10 per cent of carers gave up paid work to care for the elderly person (Table 8.14). A further 5.6 per cent reduced working time in order to care for the elderly person. In cases where people gave up work, the net weekly pay forgone averaged £72.7.

Table 8.13: *Current Work Status of Carers, by Category of Dependency*

Percentage who:	*Dependency Category*						*All*
	A	*B*	*C*	*D*	*E*	*Non-scale*	
Work full-time	19	6	6	0	0	0	15.8
Work part-time	6	3	5	0	0	1	7.2
Net weekly pay	70.55	55.00	54.28	0.0	0.0	missing	66.04
	(50.52)	(26.04)	(42.42)	(0.0)	(0.0)	(43.45)	

Table 8.14: *Changes in Carer's Work Status in Relation to Caring, by Category of Dependency*

Number and Percentage Who:	*Dependency Category*						*All*
	A	*B*	*C*	*D*	*E*	*Non-scale*	
Gave up paid work to care	9 (10.6)	0 (0.0)	3 (11.5)	3 (16.7)	3 (27.3)	2 (14.3)	20 (10.1)
Net weekly pay forgone	54.2 (44.5)	0 (0.0)	78.3 (64.48)	82.7 (20.03)	76.0 (0.0)	110.0 (14.14)	72.7 (40.90)
Reduced working time to care	5 (5.6)	2 (5.1)	4 (15.4)	0 (0.0)	0 (0.0)	0 (0.0)	11 (5.6)
Average reduction in hours	19	12	15	0	0	0	11

Changes in Labour Force Status that Carers Would Make

Just over 50 per cent of carers say that, if they were no longer caring for the elderly person, they would not seek paid work, while just under 30 per cent would look for work (Table 8.15). Those who would seek paid work are evenly split between full-time and part-time work seekers. There is not a systematic variation in these proportions across dependency groups, except that at the highest dependency group, a high proportion - almost half - of the carers would seek work. This is related to the fact that in this group there is the highest percentage of carers who gave up paid work (Table 8.14).

The proportion who would seek paid work if they were no longer caring, 29 per cent, is higher than the proportions who gave up paid work (10 per cent) and who reduced working hours (6 per cent).

Table 8.15: *Changes in Labour Force Status that Carers Would Make if They Were Not Caring for Elderly Person, by Category of Dependency*

Percentage Who:	*Dependency Category*						*All*
	A	*B*	*C*	*D*	*E*	*Non scale*	
	Per cent						
Are not working and would not seek paid work	52.2	56.4	41.3	61.1	54.5	77.4	52.5
Would look for full-time work	19.1	2.6	7.7	22.2	45.5	0.0	14.7
Would look for part-time work	12.4	20.5	11.5	16.7	0.0	21.4	14.2
Would continue full-time work	19.1	15.4	24.1	0.0	0.0	0.0	14.7
Would continue part-time work	0.0	5.1	3.8	0.0	0.0	0.0	1.5
Would increase part-time work	1.1	0.0	11.5	0.0	0.0	0.0	2.3

It might be expected that the proportion that would seek work would decline systematically with the age of the carer, but this is not the case (Table 8.16).

Table 8.17 shows the average total number of hours of care currently given by those who would seek work or change their work status, if they were not caring for the elderly person. Those who would seek full-time work spend an average of 51.5 hours a week providing care, and those who would seek part-time work spend an average of 59.3 hours of care a week. This suggests that the amount of hours spent caring is an obstacle to seeking work for the 30 per cent who would like to do so. Those who would plan to continue full-time or part-time work (which corresponds closely but not exactly to those who are actually working full-time or part-time) spend considerably less hours per week caring for the elderly, with an average of 28 hours a week.

Table 8.16: *Changes in Work Status that Carers Would Make if they Were Not Caring for the Elderly Person, by Age of Carer*

Number and Percentage of Each Age Category Who Would:	*Age Group*						
	18-29	*30-39*	*40-49*	*50-59*	*60-69*	*70-79*	*80-84*
Not seek any paid work	5 (55.6)	13 (43.3)	29 (51.8)	22 (52.4)	25 (55.4)	11 (57.9)	2 (40.0)
Seek full-time work	1 (11.1)	3 (10.0)	9 (16.0)	6 (14.3)	9 (20.0)	1 (5.3)	0
Seek part-time work	0	6 (20.0)	9 (16.1)	7 (16.7)	5 (11.1)	2 (10.5)	0
Continue full-time work	3 (33.3)	6 (20.0)	5 (8.9)	4 (9.5)	5 (11.1)	5 (26.3)	3 (60.0)
Contine part-time work	0	0	2 (3.6)	1 (2.4)	0	0	0
Increase part-time work	0	1 (3.3)	1 (1.8)	1 (2.4)	1 (2.2)	0	0

Table 8.17: *Average Total Number of Hours of Care Currently Provided by Those Who Would Seek Work or Change Their Work Status if They Were Not Caring for the Elderly Person*

Those who would:	*Average Number of Hours of Care Provided per Week*	
	Mean	*Standard deviation*
Seek full-time work	51.5	32.6
Seek part-time work	59.3	30.9
Continue full-time work	29.5	20.5
Continue part-time work	27.0	4.8
Increase part-time work	61.8	31.2
Would *not* seek paid work	48.1	31.4

Hours Given Up

Tables 8.18 and 8.19 provide data regarding the number of hours of paid work, unpaid work in the home, and leisure time which are forgone by the carer in order to care for the elderly person. Carers say they would spend an average of 38 hours a week on these activities, which amounts to a considerable proportion of total caring time. (This is averaged across all respondents: see note to Table 8.18.) As might be expected, the number of hours which would be spent on these activities increases with level of dependency. Carers say they would spend about the same number of hours on paid work (9 hours), unpaid work in the home (14 hours), and leisure activities (12 hours). Examining only those who do wish to spend more time on activities, they would spend more time in paid work (overall average of 24 hours a week) and unpaid work in the home (average of 22 hours a week) (Table 8.19).

Table 8.18: *Number of Hours per Week of Time Spent Caring for the Elderly Which Would Otherwise be used for Paid Work, Unpaid Work in Home, Voluntary Work, and Leisure Activities, by Category of Dependency*

Activity	*Mean Number of Hours Used Otherwise (and Standard Deviations)*						*All*
	A	*B*	*C*	*D*	*E*	*NS*	
Paid work	8.9 (14.1)	6.3 (10.8)	11.1 (13.3)	12.8 (15.4)	15.2 (19.4)	6.5 (11.1)	9.2 (13.7)
Unpaid work in home	10.0 (15.2)	14.1 (20.3)	17.4 (19.7)	21.9 (21.7)	26.6 (25.5)	12.9 (15.6)	14.0 (18.6)
Voluntary work	1.6 (4.1)	2.1 (3.9)	2.3 (6.1)	3.7 (5.8)	11.8 (30.8)	3.0 (3.9)	2.6 (8.3)
Leisure	12.6 (16.9)	10.5 (13.2)	10.9 (17.1)	15.1 (15.9)	11.2 (14.3)	10.8 (13.9)	12.0 (15.7)
Total	33.0	33.1	41.7	53.5	64.8	33.2	37.7

Note: The numbers in this table include those who say they would not spend any additional hours (i.e., 0 hours) in these activities if they were not caring. Those who would not spend any more time on an activity include those who have not given up any time on that activity as well as those who might not wish to spend more time on the activity. The numbers are averaged across only those who would spend an hour or more on these activities if they were not caring.

Table 8.19: *Number of Hours per Week of Time Spent Caring Which Would Otherwise be Used for Paid Work, Unpaid Work in the Home, Voluntary Work, and Leisure Activities, Averaged Across Those Who Would Spend Time on These Activities, by Category of Dependency*

Activity	*Mean Number of Hours Used Otherwise (and Standard Deviations) Dependency Category*						*All*
	A	*B*	*C*	*D*	*E*	*Non-scale*	
Paid work	24.7	20.6	21.4	25.7	30.4	22.8	23.8
	(12.7)	(9.2)	(10.8)	(12.2)	(16.5)	(6.1)	(11.7)
	(n=32)	(n=12)	(n=13)	(n=9)	(n=5)	(n=4)	(n=75)
Unpaid work in the home	18.2	22.0	21.8	28.2	33.3	25.7	22.1
	(16.5)	(21.7)	(19.8)	(20.6)	(24.2)	(12.0)	(19.2)
	(n=49)	(n=25)	(n=20)	(n=14)	(n=8)	(n=7)	(n-123)
Voluntary Work	7.4	5.2	7.1	7.3	23.6	7.0	8.1
	(6.0)	(4.7)	(9.4)	(6.4)	(42.3)	(2.4)	(13.0)
	(n=19)	(n=16)	(n=8)	(n=9)	(n=5)	(n=6)	(n=63)
Leisure	18.0	14.7	15.2	18.2	11.2	16.8	16.5
	(17.7)	(13.5)	(18.6)	(15.8)	(14.3)	(14.2)	(16.3)
	(n=62)	(n=28)	(n=18)	(n=15)	(n=10)	(n=9)	(n=142)

Housing

Another opportunity cost which can be considered relates to housing. When asked to indicate how the space in the house would be used if the elderly person were moved into a hospital or home (Table 8.20), 54 per cent said that the space would be left vacant, while 37 per cent said that the space would be used by another household member.

A different type of cost relates to adaptations necessary to dwellings. Table 8.21 shows that a small percentage (15 per cent) have made adaptations to the dwelling because of the elderly person's inability to do things for themselves. The value of the adaptations to the dwelling is negligible when averaged across the dependency category, including those who made no changes. Overall, costs in relation to housing in this sample contribute little to the cost of caring for the elderly.

Table 8.20: *Use to Which Space in House Would be Put if Elderly Persons were Moved into a Hospital or Home, by Category of Dependency*

Percentage Who Say Space Would be:	*Dependency Category*						*All*
	A	*B*	*C*	*D*	*E*	*Non-scale*	
Left vacant	54.4	56.4	46.2	41.2	54.5	71.4	53.8
Used by other household members	36.7	41.0	30.8	58.8	45.5	7.1	37.1
Rented out	8.9	2.6	23.2	0.0	0.0	21.4	9.1

Table 8.21: *Adaptations to Dwelling Made Because of Elderly Person's Loss of Ability to do Things for Themselves, by Category of Dependency*

	Dependency Category						*All*
	A	*B*	*C*	*D*	*E*	*Non-scale*	
Number and Percentage Who Made:							
Adaptations	5 (5.6)	9 (23.7)	6 (23.1)	6 (33.3)	1 (9.1)	2 (14.3)	29 (14.7)
Value of adaptations made (£)	2.00 (2.02)	2.00 (2.45)	3.76 (3.34)	2.87 (2.78)	84.0 (0.0)	missing	5.65 (16.52)

Summary

This chapter presented findings from a survey of elderly persons and their carers in the home. It first described the use of professional and voluntary services. The principal usage occurs through periods of hospitalisation and through GP, PHN or home help visits. In the case of the informal care, principal caregivers, of whom 75 per cent were female, had an average age of 52, and spent an average of 47 hours a week providing care for the elderly person, a figure which increases considerably as dependency increases. The bulk of caring activities in lower dependency categories involves providing help with instrumental activities of daily

living, namely housekeeping, shopping, preparing meals, washing and ironing clothes, and in providing supervision. In higher dependency categories, carers spend from 2 to 4 hours per day providing help with physical activities such as washing, dressing using the toilet, and feeding.

A fifth of carers are in paid employment, and a further 15 per cent either gave up paid employment or reduced working hours to care for the elderly person. Twenty-one per cent say that they would seek paid work full-time or part-time if they were not caring for the elderly person. Carers also experience restrictions on the amount of unpaid work in the home and on the amount of voluntary work that they do, and they would increase the amount of time spent on these activities if they were not caring for the elderly person.

Chapter 9

COSTS OF CARE IN THE COMMUNITY

Introduction

As outlined in Chapter 3, the key concept of costs, from the point of view of the allocation of resources, is opportunity cost. This concept is emphasised in this chapter when estimating the costs of care, including informal care in the home. At the same time, as outlined in Chapter 3, there is an alternative way of putting a value on a caring hour: using the price per hour of a public service, say home help, which could substitute at the margin for at least some of the informal care hours. This is at heart a public expenditure rather than an opportunity cost approach. However, it could be said to have some affinity with a (long-run) opportunity cost approach – where the view is not from the standpoint of the household but of the public authorities who might ask what are the alternative ways of providing the output of care which is currently being supplied within the home. Hence, an alternative set of calculations uses a public expenditure approach.

In this chapter, at first the unit costs that are used are outlined, together with the sources from which they are derived. Particular focus is put on the method of estimating the costs of informal care, in view of the difficulties that arise in estimating the costs of this activity.

Aggregate costs per item are estimated by multiplying the cost (price) per unit for each item by the level of service under that item. The results for the estimation of aggregate costs are presented.

Costs Per Unit

Table 9.1 gives the main costs (prices) per unit which are applied either to the number of caring hours or to the usage of services in order to obtain the total costs of community care. There are eleven different services that are focused on, in building up the estimate of costs.

In most cases other than informal care, the prices come from the actual prices or costs that are observed. This is the case for acute hospital care (cost per week or per day), GP visits (costs per visit), public health nursing and home helps (cost per hour). In the case of personal consumption (the principles of which are outlined in Chapter 3) and the opportunity costs of housing, unit prices are less readily available and estimates are made as outlined in notes to Table 9.1.

Table 9.1: *Unit Costs Applied to Community Care, by Main Type of Care or of Service Used*

1. Informal care	Two variants used: £1.21 per hour, £2.40 per hour
2. Acute hospital care	£130 per day
3. Visits by/to GP	£5.98 per visit
4. Public Health Nurse	£9.59 per hour
5. Home help	£2.40 per hour
6. Meals on wheels	£1.69 per meal
7. Chiropodist	£7.54 per hour
8. Priest	£0.97 per hour
9. Day Care Centre	£17 per client per week
10. Personal consumption	£65 per week
11. Opportunity cost of housing	£15.80 per week

Notes: 1. Informal care: see text.

2. Acute hospital care: Commission on Health Funding (1989), Table 12.3 gives estimated average weekly cost per occupied bed for various categories of hospitals. Weighting by the number of beds in each category (Table 12.1), the weighted average cost is £911 per week or £130 per day.

3. Visits by/to GP: GP costs are £5.98 per visit (source: communication from General Medical Service(Payments) Board); no separate allowance is made for time spent travelling by GPs.

4. Public Health Nurse £9.59 per hour: annual salary divided by 46 weeks divided by a 37.5 hour week.

5. Home help: Hourly rate of Eastern Health Board.

6. Meals on wheels: Health Board data, averaged out to get a price per meal.

7. Chiropodist: based on median salary, using 46 weeks a year and a 35-hour week.

8. Priest: Based on actual payments within Hospitals 3 and 4.

9. Day Care Centre: Source: Convery (1987), updated.

10. Personal consumption: Household Budget Survey 1987, Table 9. The value is between the £63 per capita consumption for households where the head is aged 65 or over, without child and/or spouse, and the £66 per head where the head is aged 65 or over with child(ren) and/or wife.

11. Opportunity cost of housing: Assumption of replacement cost of dwelling of £30,000 per unit, a real interest of 5 per cent over 50 years is used to derive the equivalent cost. This sum is further multiplied by 0.5 on the basis (Table 8.20) that in over 50 per cent of the cases, the space in the house would be left vacant if the elderly persons were moved into a hospital or home.

In addition, travel by public health nurses and by home helps is costed at 49.5 pence per mile (public sector rate). Travel time in visits to GPs, and travel by priests, is calculated at an arbitrary rate of 20 pence per mile. The negligible travel time by those on meals on wheels service is ignored.

Cost of Informal Care Hours

By contrast with the majority of the above services, in the case of informal care, prices per hour of care have to be imputed. In estimating the opportunity cost of carers' time, four alternative uses of time can be distinguished: paid work, leisure, housework and voluntary work. The price of each of these uses of time is now discussed in turn.

In the survey of O'Connor and Ruddle (1988), restrictions on employment were reported by 28 per cent. More specifically, 28 per cent said they would like to be in paid employment. Among women, 72 per cent had given up paid work because of marriage and child-rearing, but a further 17 per cent gave up paid work in order to care (with 11 per cent still in paid employment). Among men, about 20 per cent had given up paid work in order to care. In the Stephens and Christianson (1985) study in the US, 35 per cent gave up employment in order to care, and 33 per cent restricted working hours. Particular financial strain is obviously experienced by those on social welfare, where the financial interdependencies of the caregiver and the recipient become quite complex, creating considerable anxiety for the caregiver (Glendinning, 1990).

Chapter 8 has shown that carers, as a group, are much less evident in paid employment than the general population. Of all carers, 22.5 per cent are at work, while of all female carers, 11 per cent are at work. By contrast, for the population of women as a whole in 1988, 27 per cent were at work (Central Statistics Office, 1989). When carers do work, a relatively high proportion, almost a third, work part-time. By contrast, for the population as a whole, 6.6 per cent of those at work in 1988 had part-time jobs (special tabulation by Central Statistics Office from Labour Force Survey). Over a half of carers who worked full-time were in semi-skilled or unskilled manual jobs. The occupational status reflects the educational background of the carers, with almost 60 per cent having an educational level of primary level or less.

This would lead one to believe that the employment opportunities for many carers would, at best, be for low-paid work. Indeed, the majority of female employees in Ireland (at 1987) are under the low pay threshold of £130 per week (Blackwell and Nolan, 1990).

Of the sample of carers, 10 per cent gave up paid work in order to care (Table 8.14) with net weekly pay forgone of £73 on average; and 5.6 per cent reduced working time to care with an average reduction of 11 hours. When asked about the change in work status that they would make if they were not caring, 15 per cent of the carers said that they would look for full-time work and 14 per cent said that they would look for part-time work

(Table 8.15). Of those who would seek full-time work, 40 per cent were aged 50 or over; and of those who would seek part-time work, 38 per cent were aged 50 or over (Table 8.16).

On balance, bearing in mind the occupational and educational background of the carers and their age, the opportunities which most of them have for paid work is at best in low-paid employment. It is assumed that on average the opportunity for market work would be in employment at the low-pay threshold level of £130 per week. A 40 hour work week is assumed, which gives an hourly rate in alternative paid work at £3.25 per hour.

The next step is to weight the various component parts of the alternatives to time spent in caring. The weights are derived from Table 8.18 and are as follows:

	Postulated use to which one hour less of caring would be put (hours)
Paid work	0.24
Unpaid work in the home	0.37
Voluntary work	0.07
Leisure	0.32

These weights are applied to the following prices which apply to each use of the freed-up time:

	£
Paid work	3.25
Unpaid work in the home (valued at the margin at the expected market wage, that is the probability of engaging in paid work)	0.78
Voluntary work (valued in the same way as unpaid work in the home)	0.78
Leisure (costed at 25 per cent of a market wage of £1.12 an hour)	0.28

The market wage of £1.12 an hour is a weighted wage derived as follows from the above prices and weights, respectively: £3.25 multiplied by a weight of 0.24, plus £0.78 multiplied by a weight of 0.37, *plus* 0.78 multiplied by a weight of 0.07. This sums to £1.12.

Applying the four prices to the four respective weights, the overall price of an hour of care is £1.21 per hour.

It might be argued that the wage of £3.25 an hour is too high, given that the net weekly pay of the carers who worked was found to be only £66 (Table 8.13). However, an adjustment would have to be made for the fact that carers were working part-time, which would push up the hourly wage by comparison with a case where all the carers worked full-time. Sensitivity of the outcomes to the market wage can be assessed by using a wage of £100 a week for a 40 hour week, which gives £2.50 an hour. When a similar weighting procedure is used, applying the four prices to the four respective weights, the overall price of an hour of care is £0.93 an hour. When this price is employed, the opportunity costs per hour of care are as follows.

Category of dependency	*Opportunity cost, per capita £ per week*
A	35.6
B	41.5
C	43.0
D	53.6
E	79.6
All	43.3

For all the sample, the weekly costs under this assumption are £43.3, compared with £56.4 when a price per hour of £1.21 is used. Thus, there is not much reduction in the total per capita cost: it declines from £164.3 per week (Table 9.3) to £151.2 with the lower price applied to caring hours.

In view of the difficulties, referred to above, which arise when attempting to put a value on the emotional and psychic costs of caring, no separate allowance is made for those elements of costs. Instead, the nature and extent of these costs are outlined below.

In addition, when estimating the opportunity cost of an hour of informal care, no distinction is made between the following categories:

(a) the different care hours: physical tasks, instrumental tasks, general supervision.

(b) the different categories of dependency.

In other words, an hour of caring time is priced at a uniform opportunity cost, irrespective of the type of caring on which it is spent.

While the "baseline" calculation of costs uses opportunity costs as outlined above to value carer time, an alternative set of calculations is based on costing each carer hour at the going rate for home help of £2.40 per hour.

There is a "second order" aspect in that carers in their turn receive some help from others. However, the amount of help received is small (Table 8.9) and no attempt is made to cost it.

Cost of Service Usage

There are a number of cases where the level of service use is so negligible that it is ignored for cost purposes. This is the case with visits from social workers (Table 8.5), visits to out-patient clinics (Table 8.6), and visits to pharmacists (Table 8.6).

No distinction is made between visits by GPs and visits to GPs. The unit price of GP services absorbs the transport cost in the former instance.

The elderly persons make use of Government schemes, such as free electricity and free transport. However, this represents a transfer payment from the rest of the community to elderly people and is not a real use of resources. The use of resources such as transport will be picked up under personal consumption. Use of these Government schemes is not counted.

In estimating the opportunity cost of the housing which would have an alternative use if the elderly person was not being cared for, allowance is made for the fact that in only some cases would the accommodation which would be freed up be used. Over 80 per cent of the dwellings are owner-occupied; in other cases it is assumed that the rent bears a relationship to the capital value of the dwelling which is picked up by the discount rate which is used. While some adaptations were made to dwellings, on average they were negligible (Table 8.21) and are ignored.

The Opportunity Costs of Care

Table 9.2 give the sources for the activity levels to which the unit prices of Table 9.1 are applied in order to derive the costs of each activity. The outcome of the calculations for the "baseline" case is given in Table 9.3.

There is need for caution about the estimates for the highest dependency level E where the number of cases in the sample was relatively small. Hence, a good deal of imprecision attaches to the cost estimates for this group of elderly people.

Taking the "baseline" calculations, four elements make up the bulk of per capita costs: informal care, the use of hospitals, personal consumption

and housing. These four elements, together, make up 97 per cent of the average cost per week of £164 which applies to all the elderly people. As expected, the cost per patient rises as the dependency level increases. However, the increase in average cost, as dependency level increases, is less than might have been expected. The range of costs is only from £147 per week to £200 per week as dependency increases from A to D; and the range between dependency level B and level D is only from £168 to £200 per week. This is ascribable to three features of the calculations:

(a) Even for those with relatively low dependency in the community, a considerable number of caring hours is given.

(b) There is quite an amount of usage of hospital services, across all dependency levels.

(c) In estimating the costs of personal consumption and of housing, no differentiation is made by dependency level.

There is a degree of uncertainty about the true opportunity cost of housing. One way to handle this is to ask how sensitive are the calculations to the housing component. If housing is excluded, the range of costs is from £131 per week (dependency level A) to £184 per week (D) and £195 per week (E) with an overall average of £148 per week.

Table 9.2: *Sources for Activity Levels in Estimates of Community Care Costs*

Nature of Activity	*Table number*
1. Informal care	8.8
2. Acute hospital care	8.4
3. Visits by/to GP	8.5 and 8.6
4. Public health nurse	8.5
5. Home help	8.5
6. Meals on wheels	8.5
7. Chiropodist	8.5 and 8.6
8. Priest	8.5
9. Day care centre	8.6
10. Personal consumption	
11. Opportunity cost of housing	

Table 9.3: *Average Weekly per Capita Cost of Community Care: by Type of Care and Category of Dependency with Opportunity Cost Valuation of Informal Care*

Category of Dependency	*Informal care (opportunity cost)*	*Use of hospital*	*GP*	*PHN*	*Home help*	*Meals on wheels*	*Chiropodist*	*Priest*	*Day care centre*	*Travel time (a)*	*Personal consumption*	*Housing*	*Total*
							£						
A	46.3	17.5	1.4	0.5	0.0	0.0	0.1	0.1	0.2	0.2	65	15.8	146.9
B	54.0	30.0	2.0	0.2	0.5	0.3	0.0	0.1	0.0	0.2	65	15.8	167.9
C	56.0	32.5	2.1	0.8	1.9	0.0	0.1	0.1	0.0	0.7	65	15.8	173.3
D	69.8	45.0	1.9	1.0	0.0	0.0	0.8	0.1	0.0	1.4	65	15.8	199.5
E	103.6	10.0	1.4	9.6	3.1	0.7	0.0	0.2	1.4	2.5	65	15.8	210.8
All	56.4	22.5	1.6	1.3	0.6	0.1	0.1	0.1	0.3	0.5	65	15.8	164.3

Note: (a) Travel to GPs, by PHNs, by Home Helps, by Priests.

Public Expenditure Costs of Care

If the public expenditure valuation of informal care is used, the cost of informal care is doubled (Table 9.4a). The average weekly cost of informal care on this basis is £112 over all cases compared with £56 in Table 9.3. The total per capita cost ranges from £193 (category A) to £268 (D) and £313 (E) with an overall average of £220 compared with £164 in Table 9.3.

As mentioned above, these calculations use the home help hourly rate of £2.40. This is likely to be very much a lower bound for the public expenditure costs. The reasons are that: (a) the home help rate varies from one community care area to another; (b) the wage needed to elicit a supply of people engaged in the extra tasks involved, that is shopping, cooking, helping to bathe, dress, feed, helping with medication, would be likely to exceed the home help rate. This justifies a sensitivity test with a higher rate of £3.50 an hour, with results shown in Table 9.4b.

Table 9.4a: *Average Weekly per Capita Cost of Community Care: by Category of Dependency with Public Expenditure Valuation of Informal Care*

Category of Dependency	*Informal Care*	*Total Cost*
	£	
A	91.9	192.5
B	107.0	220.9
C	111.1	229.4
D	138.5	268.2
E	205.4	312.6
All	111.8	219.7

Table 9.4b: *Average Weekly per Capita Cost of Community Care: by Category of Dependency with Public Expenditure Valuation of Informal Care at Higher Rate*

Category of Dependency	*Informal Care*	*Total Cost*
	£	
A	133.9	234.5
B	156.0	269.9
C	162.0	280.3
D	201.8	331.5
E	299.6	406.8
All	163.0	270.9

The Stress Costs of Caring

The principal caregiver bears most of the burdens and costs of caregiving, especially where there is no support from others. The non-economic costs of care, from the carer's viewpoint, can be categorised into two categories, namely personal stresses or strains and conflict within marital or family relationships.

There is much evidence in the literature that caring for dependent elderly people can be stressful, strenuous, and isolating. Strains reported by O'Connor and Ruddle (1988) were as follows. First, there were restrictions on leisure and social activities, experienced by 59 per cent of carers. Second, there were adverse effects on relationships with children (23 per cent), spouses (16 per cent), and family in general (24 per cent). Finally, a third of carers in that study felt that their health had suffered.

These findings indicate either less strain or less willingness to report strain, compared with other studies. For example, Stephens and Christianson (1985), in their large-scale study, found that 37 per cent of their sample experienced "a great deal" of emotional strain, with only 28 per cent below the mid-point on their 5-point scale, and 26 per cent reported "a great deal" of physical strain, with 46 per cent below the mid-point.

Qualitative research provides further support for the finding that caring is generally found to be a strain. It also highlights that the expectations about women, and implicit pressures put on them, are

different than in the case of men. Thus,wives, for example, in informal interviews, are much more likely to feel that health services take their services for granted, that their husbands will not allow them to leave the home or engage in independent activity, and will make little or no effort to care for themselves. Women are under greater pressure than men to undertake caring or to depend on the elderly person (Adams, 1971; Finch and Groves, 1980, 1983; Rimmer, 1983; Walker, 1982). Daughters are under greater pressure to give up paid employment, or to put their paid work second to the task of caring (Oliver, 1983; Wright, 1983).

Qualitative research also highlights the strains on the marital relationship and on the family which result from prolonged caring. Partners experience breakdown in communication, and a higher degree of conflict. Those with children find they have less time to spend with them, and that the presence of a dependent elderly person can have a restrictive effect on family activities. Case studies have documented instances where the stress of caring has been associated with physical violence against the elderly person (Briggs and Oliver, 1985).

These findings show that "community care" imposes substantial strains on the principal caregiver. For some caregivers this burden may prove to be intolerable. Particularly vulnerable to negative aspects of care in the community are those caring for highly dependent elderly (especially elderly carers), and those who lack the social and economic resources to obtain support and relief (Finch and Groves, 1980; Glendinning, 1990; O'Connor, *et al.*, 1988b; Stephens and Christianson, 1986, Wenger, 1990; Wicks, 1982).

The psychic costs of caring have not been picked up by either the public expenditure or the opportunity cost approach to costing care of the elderly. Even if the stressful aspects have yet to be accommodated within the procedures used in economic costings, such stress represents a real and significant cost of care. Moreover, psychic costs of this type appear to have clear economic cost implications: high levels of stress are likely to mean that over time the health status of carers deteriorates and their utilisation of the health services increases.

Such psychic costs, their knock-on effects and the social contexts within which they arise are the subject matter of the remainder of this chapter. Data are used from the community survey in the present study on the levels of psychological distress carers experience and these are linked with findings from another study (Whelan and Hannan, Creighton, 1991) on the relationship in the general population between psychological distress levels and health service usage. Carers' response to various options for relieving their psychic and physical burdens are then explored.

Carer Stress

There are a number of research instruments through which manifestations of the stressfulness of caring in the home may be assessed. One of these is the General Health Questionnaire (GHQ) developed by Goldberg and others (Goldberg, 1972 and 1978; Goldberg and Williams, 1988). As shown in Table 9.5 this instrument, as adapted for interviewer administration, consists of twelve items, six of which are positive and six of which are negative. The ordering of the items avoids both a grouping of the "positive" or "negative" items and the need for repeated changes of response format.[9]

With this instrument, a cut-off score above which individuals are likely to suffer from psychiatric illness has been established (Goldberg and Williams, 1988).[10] Table 9.6 shows that in all, 29.5 per cent of carers score above the cut-off point in the GHQ, and are therefore at risk for psychiatric illness. This figure is well above that found by Whelan and Hannan, Creighton (1991) for a national representative sample, where 16.2 per cent scored above the cut-off point.[11] The overall mean score on the GHQ is also higher, at 1.84, than that of Whelan *et al.*, which is 1.06 with a standard deviation of 1.93.[12] Neither the percentage of carers at risk nor the average GHQ score vary systematically by dependency category (according to chi-square and analysis of variance tests).

These results indicate a very high level of psychological distress among carers. Response options which were endorsed by 20 per cent or more of the sample in a manner indicative of psychological distress were feeling more than usual that they were

(i) unhappy and depressed,
(ii) could not overcome difficulties,
(iii) losing sleep over worry, and
(iv) feeling constantly under strain.

9. The response format:
- More So than Usual; Same as Usual; Less than Usual; Much Less than Usual is used with items 3, 4, 6, 9, 11 and 12.
- With items 1, 2, 5, 7, 8 and 10 the response format is.
  Not At All, No More than Usual, Rather More than usual. Much More than Usual.

10. Additionally, those with scores above the cut-off point have been found to use GP and other health services more often, and to use more prescription drugs.

11. In that study, the percentage above the cut-off point increased slightly with age to around 18 per cent for those aged over 50. Thus, the percentage of carers who are at risk for psychiatric impairment is considerably higher than for the general population aged over 50.

12. This mean value did not show an increase with age in the Whelan *et al.*, study.

Table 9.5: *General Health Questionnaire Items*

1. Been feeling unhappy and depressed?
2. Felt capable of making decisions about things?
3. Felt that you couldn't overcome your difficulties?
4. Been feeling reasonably happy all things considered?
5. Been able to face up to your problems?
6. Been thinking of yourself as a worthless person?
7. Felt able to enjoy your day to day activities?
8. Lost much sleep over worry?
9. Felt that you are playing a useful part in things?
10. Felt constantly under strain?
11. Been able to concentrate on what you are doing?
12. Been losing confidence in yourself?

Table 9.6: *Percentage of Carers who Score Above the "At Risk" Score on the General Health Questionnaire (GHQ) and Overall Mean Score on the GHQ by Category of Dependency*

General Health Questionnaire	*Dependency Category*						*All*
	A	*B*	*C*	*D*	*E*	*Non-scale*	
Percentage above cut-off	28.9	25.6	42.3	33.3	27.3	14.3	29.5
Mean score and	1.71	1.89	2.53	1.83	1.72	1.35	1.84
S.D on GHQ	(2.14)	(2.82)	(2.91)	(2.09)	(2.41)	(2.73)	(2.44)

These items illustrate some of the effects on carers of the stresses of informal caring.

An instrument which focuses more specifically on the generation of stress among carers is the Caregiver Strain Index validated by Robinson (1983). The items from this index as used in the community survey are set out in Table 9.7.

Table 9.7: *General Index of Stress Among Carers*

- My sleep is disrupted (e.g., because the elderly person is in and out of bed or wanders at night)
- It is inconvenient for me (e.g., because helping takes so much time or it's a long journey over to help)
- It is a physical strain on me
- It is confining (e.g., helping restricts free time or ability for me to go visiting)
- There have been family adjustments (e.g., because helping has disrupted a routine or because privacy has been lost)
- There have been changes in personal plans (e.g., a job had to be turned down or a holiday cancelled)
- There have been other demands on my time (e.g., from other family members)
- There have been emotional adjustments (e.g., because of severe arguments)
- Some behaviour is upsetting (e.g., incontinence or elderly person has trouble remembering things or elderly person accuses people of taking things)
- It is upsetting to find that the elderly person has changed so much from his/her former self (e.g., he/she is a different person than he/she used to be)
- There have been work adjustments (e.g., because of having to take time off)
- It is a financial strain
- You can feel completely overwhelmed (e.g., because of worry about the elderly person or concern about how you will manage)

The relationship between dependency and experience of strain by carers is shown in Table 9.8. Here the index items are listed from the most frequently reported down to the least frequently reported. Large percentages of carers indicated that they experience strain on a variety of dimensions. The largest proportion experience caring as confining (65 per cent). Forty six per cent found caring to be a physical strain and, as could be expected, this proportion increased as dependency level increased.[13] The item most frequently assented to is that caring is confining and, perhaps not surprising in view of the findings on carers' labour force status

[13] Chi-squared = 17.4, degrees of freedom = 4, significant at 1 per cent level.

Table 9.8: *Percentage of Carers in Each Category of Dependency, and Percentage of All Carers, Who Experience Strain as Carers*

Strain	*Dependency Category*						*All*
	A	*B*	*C*	*D*	*E*	*Non-scale*	
				Per cent			
Confining	55.6	69.2	73.1	61.1	72.7	92.9	64.6
Physical strain	34.4	46.2	50.0	72.2	81.8	57.1	46.5
Upsetting because of changes in elderly person	41.1	41.0	46.2	50.0	45.5	50.0	43.4
Completely overwhelming	36.7	33.3	42.3	38.9	54.5	35.7	37.9
Financial strain	31.1	38.5	38.5	72.2	27.3	28.6	36.9
Adjustment for family	30.0	43.6	42.3	33.3	45.5	50.0	36.9
Change in personal plans	31.1	28.2	42.3	50.0	45.5	28.6	34.3
Upsetting because of elderly person's behaviour	27.8	30.8	50.0	55.6	18.2	42.9	34.3
Disruption of sleep	20.0	41.0	50.0	55.6	54.5	35.7	34.3
Demanding because of other demands on time	31.0	23.1	26.9	33.3	54.5	64.3	32.8
Emotional adjustments	27.8	35.9	26.9	27.8	0.0	35.7	28.3
Inconvenient	12.2	28.2	30.8	23.5	27.3	21.4	20.3
Adjustments in work	14.4	25.6	26.9	5.6	36.4	14.3	18.7

reported in Chapter 8, the least frequently assented to concerns work adjustment (such as having to take time off). Statistically significant relationships were found between increasing dependency level and the following index items: physical strain, disruption of sleep, financial strain and upsetting because of elderly person's behaviour.[14] These variations are consistent with the physical and emotional demands of caring for the highly dependent elderly.

[14] For disruption of sleep: chi-square = 16.3, DF = 4, significant at 1 per cent level; for financial strain: chi-square = 11.8, DF = 4, significant at 5 per cent level.

Of particular relevance to a study focused on economic costing is the relationship between psychological distress and usage of health services. This was not examined in relation to carers by the present study but has been explored for a national population sample by Whelan and Hannan, Creighton (1991). Here GHQ scores measured psychological distress, and number of GP visits within the previous year and number of prescriptions filled within the previous year were measures of health service usage: data on hospital service usage were not included in the analysis. The findings of this analysis were summarised as follows:

> Our results confirm that almost 30 per cent of visits to GPs are made by people who are located above the psychiatric morbidity threshold even though they amount to only 17 per cent of the population. The same group is associated with 30 per cent of the prescriptions filled by the population covered by our study. Even when we control for physical health, health eligibility category, Voluntary Health Insurance and socio-demographic background, respondents with scores above the GHQ threshold account for 1 in 10 visits to GPs and 1 in 14 prescriptions filled (Whelan, Hannan and Creighton, 1991, p. 5).[15]

Given these findings, and the carer GHQ scores reported earlier, the likelihood is that carers are relatively heavy users of health services.

A final indicator of carer stress is provided by asking carers if they thought that they would in future no longer be able to care for the elderly person as they are presently doing, and if they felt they would no longer be able to care, why this was likely to be so. Table 9.9 shows that 37 per cent of carers think that they will in future no longer be able to care for the elderly person. This proportion reaches a maximum, at a half, in dependency classes C and D. Those who think that they may no longer be able to care for the elderly person are most likely to give the elderly person's future need for professional care as the reason. However, over a third cite their own ageing and/or failing health as the reason why they think they will not be able to go on giving care.

[15] Furthermore, Whelan *et al.*, found, for example, that those above the cut-off score on the GHQ were almost twice as likely to visit a GP, and filled out twice as many prescriptions as those below the cut-off score.

Table 9.9: *Reasons Why Carers Think They Might No Longer be able to Care for Elderly Person, by Category of Dependency*

	Dependency Category						*All*
Number and Percentage Who	*A*	*B*	*C*	*D*	*E*	*Non-scale*	
1. Think they will no longer be able to care	25 (27.8)	15 (38.5)	13 (50.0)	9 (50.0)	3 (27.3)	8 (57.1)	73 (36.9)
2. Think person will need professional care	14 (60.8)	9 (64.2)	7 (53.8)	4 (50.0)	2 (100.0)	3 (42.8)	39 (57.3)
3. Think they (the carer) will be too old/ill	8 (36.7)	4 (28.5)	4 (30.7)	4 (50.0)	0	4 (57.1)	24 (35.2)
4. Think family circumstances might change	1 (4.3)	1 (7.1)	2 (15.0)	0	0	0 (7.3)	5

Summary

This chapter has applied the method of cost estimation, as outlined in Chapter 3, to the estimation of the costs of community care. Unit prices (costs) for each type of activity are applied to the level of service delivery (given in Chapter 8) under each of these activities in order to arrive at per capita costs for each activity, by level of dependency. These per capita costs, aggregated over all activities, give the total costs per capita by level of dependency. A key cost item is the amount of hours of informal care given within the home. Two methods are used in order to estimate this: an opportunity cost approach that focuses on forgone opportunities of market work, and an approach that uses a public expenditure estimate for the provision of equivalent services.

While average costs increases as the level of dependency increases, the increase is less than might have been expected. The average per capita cost increases from £147 per week to £200 per week as the dependency level increases from A to D. The range from dependency level B to level D is only from £168 to £200 per week.

Caring for highly dependent elderly people is often physically arduous and psychologically distressing. These are – in the everyday understanding of the term – costs to carers even though they currently fall outside the limits of estimation procedures based either on the opportunity cost approach or the public expenditure approach.

Given the modest use of formal services, and the limited part played by informal social networks, much of the burden of community care falls on the principal caregiver. There are two kinds of non-economic burdens: personal stresses or strains and conflict within marital or family relationships. The distribution of these burdens is quite unequal, being felt in particular by the following groups who are not mutually exclusive: (a) those caring for the highly dependent elderly, (b) those who are on low incomes, and (c) women who are often under pressure to give up paid employment or else to put their paid work second to the task of caring.

The results of the community survey show a very high level of psychological distress among the carers. Other research indicates that carers are likely to be relatively heavy users of health services.

The issue of psychic costs arises in relation to hospital care as well as in the informal home care situation (Chapter 7). There is, however, considerably greater scope for making compensatory adjustments in the former than in the latter. In the former case, ward organisation or job rotation arrangements provide means of addressing the problems of physical and psychological strain which arise in institutions. Where these means fail to provide alleviation, staff members have the option of leaving. By contrast, stress on the home carer represents a more intractable problem. Here there is an intimate one-to-one context where life is not divided into work and non-work spheres. The stressful experience is not limited to a certain number of working hours. Moreover, in the context of close family relationships where labour of love is performed and/or kinship obligation is experienced, there is not a meaningful option of "exit", even in the face of very high levels of strain.

Chapter 10

SERVICE USAGE AND COSTS IN A DAY HOSPITAL

Introduction

As outlined in Chapter 2, a day hospital provides an alternative to in-patient services. It engages in investigating, treating and rehabilitating people without the necessity for an overnight stay in hospital.

This study concentrates on the use of resources by dependency group in a day hospital. No attempt is made to estimate health outcomes. This enables a comparison to be made with both traditional in-patient services and with community care, for elderly people who are classed as being in the corresponding categories of dependency. It also enables cost estimates to be derived. Day hospital costs comprise costs put on the following broad categories of service or resource use:

(a) daily services within the day hospital;
(b) transport provision;
(c) use of capital equipment;
(d) formal community care services;
(e) informal care within the home;
(f) in-patient acute hospital services.

The day hospital in question is on the same site as Hospital 2 and is very much part of service provision given to old people in that hospital. For the purpose of this study, however, every effort has been made to estimate the use of resources in the day hospital as a "stand-alone" activity.

Distribution of Dependency

The distribution of dependency of elderly people attending the day hospital is shown in Table 10.1. Categories of dependency are defined by means of a Guttman scale in the same way as for in-patient and community care elderly. Sampling and data collection procedures followed in the day hospital have been described earlier in Chapter 4.

Initially, 19 per cent of old people were classified as non-scale. However, all but one of these persons could be reassigned to an appropriate scale point using the procedure of error minimisation (as in Chapter 5). Those elderly persons in category of dependency A are the highest users of day hospital services (44 per cent). Old people in the highest category of

dependency (E) only constitute 6 per cent of day hospital users.

In general, those who attend the day hospital are in the lower categories of dependency. This is in contrast to the distribution of dependency observed for in-patient care of the elderly users in Hospital 2, where the highest proportion (41 per cent) of elderly are those in category of dependency E.

Frequency of Attendance and Other Aspects of Day Hospital Use

During any one week, approximately 110 elderly persons visit the day hospital. Over the two-week period of the survey, information was collected on 104 persons. These patients made, on average, four visits per month to the hospital. There is little variation in attendance rates across categories of dependency, especially among categories B, C, D and E (Table 10.2).

Table 10.1: *Distribution of Elderly Persons by Category of Dependency in the Day Hospital*

Category of Dependency	*Percentage*
A	44
B	23
C	17
D	9
E	6
Non-scale	1
All	100

Table 10.2: *Number of Attendances per Month by Category of Dependency*

Category of Dependency	*Number of Attendances*
A	3.6
B	4.2
C	4.3
D	4.4
E	4.3
Non-scale	4.0
All	4.0

For old people who attend the day hospital the most usual source of referral is ward discharge (Table 10.3). Just under half of all users come from this source. In addition, 27 per cent of users come from out-patients while 16 per cent are referred by their general practitioner. Only 7 per cent of users come from other hospitals. Given the medical origin of most referrals it is not surprising that in 40 per cent of cases the general practitioner is involved in referral, while in 59 per cent of cases a consultant geriatrician is the prime decision-maker (Table 10.4).

The principal medical diagnosis of day hospital users is also of interest. Unfortunately, however, the information contained in Table 10.5 is far from satisfactory since 49 per cent of old people show up in the

Table 10.3: *Source of Referral for Day Hospital Users*

Source	*Percentage*
Domiciliary	1.0
Out-patients	27.2
General practitioner	16.5
Ward discharges	48.5
Other Hospitals	6.8
Total	100.0

Table 10.4: *Whose Idea it was that Elderly Persons should Attend Day Hospitals*

Whose Idea	*Percentage*
Elderly person	0.0
General practitioner	39.8
Public health nurse	0.0
Social worker	0.0
Consultant geriatrician	59.2
Other	1.0
Total	100.0

Table 10.5: *Principal Diagnosis of Elderly Persons*

Diagnosis	*Percentage*
Stroke	16.7
Other neurological	1.0
Cardiovascular	11.8
Rheumatic disorders	7.8
Orthopaedic disorders	6.9
Respiratory	7.8
Other	48.1
Total	100.0

unidentified "other" category. Nevertheless the table does indicate that 17 per cent of users are stroke victims, 12 per cent have cardiovascular problems, 8 per cent have rheumatic disorders, 8 per cent have respiratory illness, and 7 per cent suffer from orthopaedic-related discomfort.

Usage of Day Hospital Services

Most resource use in the day hospital is provided by nurses and attendants (Table 10.6). The average per capita nursing/attendant minutes of care received by old people per visit to the day hospital is 68 minutes. Patients in category A receive least care per visit, while those in category D receive most care. The small number of elderly in the more dependent categories makes one wary of reading too much into the caring estimates for these categories, especially category E. Generally, when the caring function is disaggregated by activity, nurses and attendant spend most of their time providing help with bathing, mobility assistance and toileting.

The use of physician resources by category of dependency is shown in Table 10.6. There is little difference in minutes per visit across categories of dependency A, B, C and D.

Estimates of resource use with respect to paramedical services are more ambiguous. Basically the problem is, as explained in earlier chapters, that physiotherapists and occupational therapists may provide services in group

rather than individual sessions. As a consequence, the estimates for these services may be more indicative of relative usage than an accurate assessment of individual consumption.

Those elderly in the lowest and highest category of dependency receive least physiotherapy care (Table 10.6). This also holds with respect to occupational therapy. All categories of dependency receive care from the chiropodist with those in categories D and E receiving most care. Only patients in category of dependency A receive the services of a speech therapist (ST). The services of the dietician and the social worker, although used by more categories, are also sparsely provided.

Usage of Community Care Services

Most of the old people who attend the day hospital also receive community care services, whether of a formal type or informally given within the home. As outlined earlier, there is a variability in the extent of provision of services such as home helps, paramedical and PHN services, both across and within Health Board areas. This means that the formal provision of community care is not necessarily optimal. Variations in its provision do not necessarily correspond with variations in people's needs. Thus a warning is in order: the service usage outlined in this chapter is not necessarily adequate or optimal.

Table 10.6: *Usage of Hospital Services by Category of Dependency*

Category of Dependency	*Nursing and Attendant*	*Physician*	*Physio-therapist*	*OT*	*ST*	*Chiropodist*	*Dietician*	*Social Worker*
				Minutes per Visit				
A	35.0	9.4	5.1	9.6	1.3	2.2	0.7	0.5
B	90.0	10.0	25.3	22.8	0.0	3.8	0.4	1.9
C	73.0	8.4	23.1	31.5	0.0	2.2	0.6	1.5
D	136.0	9.4	30.0	34.4	0.0	7.2	0.0	0.0
E	114.0	14.3	13.3	6.7	0.0	5.8	0.0	0.0
All	68.0	9.6	15.5	18.4	0.6	3.2	0.5	0.9

General Practitioner

Elderly persons attending day hospitals make visits to and receive visits from their general practitioner. Those in category B make most visits per week, nearly twice as many as old people in categories D and C (Table 10.7). Doctors also visit patients at home. However, not all categories of dependency receive such visits. For example, old people in categories C and E report no visits from the physician.

Elderly persons attending day hospital also receive less visits from their GP than old people in the community survey (Chapter 8). The reason for this may be that day hospital users receive most of their medical services upon attendance at the day hospital and consequently need to make less use of their general practitioner.

Table 10.7: *Weekly Usage of General Practitioner, Public Health Nurse, and Home Help Services by Category of Dependency*

Category of Dependency	*General Practitioner Visits to:*	*General Practitioner Visits from:*	*Public Health Nurse*		*Home Help*	
			Visits	*Hours*	*Visits*	*Hours*
A	0.1	0.1	0.5	0.2	1.1	1.3
B	0.3	0.1	0.5	0.3	1.6	2.0
C	0.2	0.0	0.2	0.1	1.1	2.8
D	0.2	0.4	0.9	0.2	1.0	1.4
E	0.2	0.0	1.5	1.9	3.2	10.5
All	0.2	0.1	0.6	0.3	1.4	2.3

Public Health Nursing

The use of public health nursing is very much concentrated on those elderly in the highest category of dependency. Patients in category E receive three times more visits than those in categories A or B. Nurses also spend much longer, on average, with patients in category E. Patients in category D also have a relatively high visiting rate.

The relatively high rate of nurse visits to more dependent patients may reflect the response of public health nurses to a scarcity of resources. More effort is perhaps now directed towards visiting those patients with more immediate nursing needs.

The hypothesis (above) that there is an uneven distribution of public health nurse resources is partly confirmed by the difference in visiting rates and hours of care between the day hospital and community samples. The former receive three times more visits and over twice as many hours of care than reported for community elderly (Chapter 8). Although it is impossible to test the hypothesis that such differences are related to availability of resources rather than need, it is reasonable to ascribe part of the variation to the supply side. However, demand side influences may also be at work, given the fact that so many old people in the day hospital sample have recently been discharged from acute care. Without adequate community care services it would not be possible for these people to return to their own homes.

Home Help Services

Table 10.7 also shows the usage of home help services. Rates of visiting and hours of attendance per week are much higher (on average nine times) for old people attending the day hospital than for the randomly selected community elderly (Chapter 8). These differences in the use of home helps between the two groups hold across all categories of dependency. Such variation may, once again, be related more to availability of resources than to need. This is because old people in the vicinity of Hospital 2 have access to more home help services than those in the general community survey. For both day hospital patients and those in the community survey, the rate of visiting and the hours of care increase as the level of dependency gets worse except for some minor discontinuities in the former.

Other Community Care Services

Day hospital users in the survey also receive other services. In the case of meals-on-wheels, the per capita usage is higher than in the case of the community survey (Table 10.8). This difference is likely to reflect the difference in availability of agencies that provide these meals, between these two groups.

Although there are no national figures for attendance at day care centres, the likelihood is that access to centres is variable throughout the country. This is borne out somewhat by the more favourable visiting rates of day hospital users (0.4 visits per week, Table 10.8), compared to per capita visiting rates of 0.02 for elderly in the community survey (Chapter 8). One can be reasonably certain that the availability of a centre within reach of an elderly person, together with suitable transport arrangements, makes a crucial difference to rates of attendance.

In the case of the other services, the level of provision is minimal by any standards (Table 10.8). This is in line with the results of the community survey.

Table 10.8: *Weekly Usage of Other Community Care Services by Category of Dependency*

Category of Dependency	*Meals on Wheels*	*Chiropodist*		*Religious*		*Voluntary Agencies*		*Health Care/ Day Care*
	No. of	*Visits*	*Hours*	*Visits*	*Hours*	*Visits*	*Hours*	*Centre Visits*
A	0.6	0.02	0.01	0.2	0.1	0.00	0.00	0.5
B	0.9	0.02	0.01	0.3	0.1	0.00	0.00	0.4
C	0.1	0.03	0.01	0.3	0.1	0.06	0.03	0.5
D	1.0	0.03	0.01	0.6	0.2	0.00	0.00	0.1
E	0.0	0.04	0.02	0.3	0.2	0.17	0.17	0.3
All	0.6	0.02	0.01	0.3	0.1	0.02	0.02	0.4

In-patient Acute-Care Services

Elderly persons living in the community may also make use of in-patient acute care services (Table 10.9). Day hospital users spent an average of 30 days in hospital during the most recent year (1988). Category D patients spent most days (58) in hospital. Surprisingly, perhaps, those elderly in the higher category of dependency (E) spent less days in acute care. Elderly in category A spent the least number of days in hospital (18 days). The use of acute care by the day hospital sample is higher than that of the general community sample (Table 10.4). This is perhaps not all that surprising given the fact that over 50 per cent of the day hospital sample consist of people recently discharged from acute in-patient care. Ideally, acute care resource use by people attending day hospital care should also be compared to the use of in-patient services by people in long-stay institutions. However, information on the latter was not collected due to the difficulty of picking up all the costs of such episodes in the accounts of the four hospitals under observations.

Informal Care

The approach to the estimation of the use of informal care is similar to that of Chapter 8. The usage of informal care by those who attend the day hospital is now outlined. Table 10.10 shows the informal care provision of

day hospital users, disaggregated by caring activity. The largest component of informal care is related to direct supervision of old people. Supervision is relatively low for category A elderly (4.5 hours per week) but increases steadily up to category D (65.3 hours), before falling to 40 hours a week for those in category E.

Table 10.9: *Days Spent in Acute Care Hospital During the Past Year by Category of Dependency*

Category of Dependency	*Average number of days Spent in Acute Care Hospital during the Past Year*
A	18.4
B	42.6
C	29.9
D	57.8
E	27.2
All	30.2

Meal preparation and housekeeping duties constitute the other major activities of informal carers. In the case of meal preparation, there is little variation in the hours of care provided across categories. There is some tendency for housekeeping care hours to rise with dependency level.

Informal care hours, aggregated across all activities, increase steadily with level of disability up to category D. Old people in category D receive most care (111.5 hours). Hours of informal care fall by 25 hours, however, as one moves from category D to category E. On average, elderly day hospital users receive 50.5 hours of informal care per week. This is similar to estimates of informal care provided by O'Shea and Corcoran (1989) in their small-scale survey of community elderly on the margin between community and hospital care. Their estimate of weekly informal care, aggregated by caring activity, for marginal elderly is 56 hours. Moreover, the estimate of informal care for day hospital users is not very different from the average number of informal care hours given to the elderly in the community survey (47 hours per week).

Table 10.10: *Per Capita Weekly Mean Informal Care Hours by Specified Activity By Category of Dependency*

Informal Care	*Category of Dependency*					*All*
	A	*B*	*C*	*D*	*E*	
Direct supervision	4.5	25.5	50.0	65.3	40.2	24.2
Washing hands & face	0.1	0.1	0.9	1.6	5.0	0.5
Bathing all over	0.4	0.6	2.1	1.5	0.6	0.9
Toileting	0.1	0.2	1.0	2.6	7.2	0.8
Dressing	0.4	0.3	1.3	1.7	4.8	0.9
Walking Indoors	0.0	1.2	2.0	5.5	2.2	1.2
Walking outdoors	0.2	0.3	1.3	0.0	0.4	0.4
Shopping	3.3	4.3	3.3	6.1	3.4	3.8
Meal preparation	4.8	7.5	7.6	7.3	7.6	6.2
Feeding	0.0	0.0	0.0	0.3	1.4	0.2
Laundry	2.1	3.1	3.7	6.6	3.4	3.1
Housekeeping	6.0	7.8	6.5	11.3	6.8	6.9
General administration (handling of money)	0.4	0.6	0.7	0.9	1.2	0.6
Administration of medicine	0.3	0.7	1.8	1.0	0.9	0.8
All	22.6	52.2	82.3	111.5	85.1	50.5

Day Hospital Costs

Day hospital costs are difficult to estimate for a number of reasons. First, the day hospital is situated within a geriatric unit that also provides two other types of geriatric care – assessment/rehabilitation and long-stay services. Second, the geriatric unit is itself part of a large acute-care teaching hospital. The result is that there are certain items of expenditure that are not easily attributable either to the geriatric unit or to day hospital users within that unit.

The total budget for nursing and attendant care in the day hospital is £82,000 per annum. It is possible to allocate this budget among categories of dependency on the basis of the proportion of total nursing/attendant hours used by each category. Per capita costs are calculated by dividing the

shared budget by the number of elderly persons in each category. Category A has relatively low nursing/attendant costs of care (per capita) while categories D and E have relatively high costs of care (Table 10.11). The costs of care, of course, reflects the resource use of each category, as shown in Table 10.7. The per capita cost of physician and paramedical services are assigned on the same basis.

Among the other costs associated with day hospital care are administration costs pertaining to those attending the day hospital. This item is included under the heading of other pay in Table 10.11. Disaggregation by dependency category is not attempted. It is unlikely, however, that much variation exists across dependency categories. Neither is disaggregation appropriate for non-pay items such as heating, lighting, medicines, cleaning, etc. Hence, these costs are apportioned on the basis of average per capita usage. Similarly, the use of services such as pathology and diagnostics are assumed not to vary by category of dependency. The latter assumption is more difficult to sustain. *A priori* one might expect the use of these services to vary by level of disability. Unfortunately, however, we were unable to discover if this was the case.

Transport is an important resource use in day hospital care. It has also been identified by the consultant geriatrician as the most important constraint on the further development of day hospital provision in the hospital under observation. Not enough ambulance places are currently available to bring all old people, who would benefit from attendance, to the day hospital. Given the importance of transport, it is regrettable that no information is available on the cost of ambulance journeys to and from the day hospital. Ambulance costs are, however, notoriously difficult to identify, especially if their use is not confined to particular forms of care or types of patient. The situation is further complicated in this case by the fact that the ambulance services are not under the financial control of the hospital but of the health board. In the absence of any information, use must be made of estimates made elsewhere as a guide to transport costs. Using estimates for day hospital provision provided by Wright and used by Gerard (1988), but adjusted for Ireland to take into account exchange rate differences, the per capita transport costs for the day hospital have been estimated at £11.46. A warning is necessary that in the absence of more reliable information, this estimate is only a rough guide to the true cost of transport in the day hospital.

The average weekly per capita cost of day hospital care is £76 (Table 10.11). Although the resource use has been observed on the basis of services consumed per visit, this was adjusted by the average number of visits per week (0.92) to provide the weekly estimate. Variation across

Table 10.11: *Average Weekly Per Capita Cost of Day Hospital Care by Category of Dependency*

Category of Dependency	*Nursing/ Attendant*	*Physician*	*Para-medical Worker*	*Social Worker*	*Dietician*	*Transport*	*Capital*	*Other*[a] *Pay*	*Other*[b] *Non-Pay*	*Services*[c]	*All*
						£					
A	6.3	6.3	1.3	0.06	0.07	11.5	8.2	10.9	12.9	7.7	65.1
B	20.6	7.9	4.3	0.27	0.05	11.5	8.2	10.9	12.9	7.7	84.4
C	15.7	6.8	4.6	0.22	0.07	11.5	8.2	10.9	12.9	7.7	78.5
D	28.6	7.4	5.8	0.00	0.00	11.5	8.2	10.9	12.9	7.7	93.0
E	26.1	12.1	2.3	0.00	0.00	11.5	8.2	10.9	12.9	7.7	91.6
All	14.34	7.2	3.0	0.12	0.06	11.5	8.2	10.9	12.9	7.7	75.8

Notes: (a) Includes administration and other.
(b) Includes items such as medicines, medical/surgical, heat/power/light, cleaning/washing, etc.
(c) Includes pathology, laboratory, diagnostic imaging, etc.

categories of dependency is primarily caused by differences in nursing, physician and paramedical resource use. Patients who are least dependent have the lowest nursing, paramedical and physician costs. Patients in category of dependency D have the highest nursing/attendant and paramedical costs, while patients in category of dependency E have the highest cost of medical care and close to the highest cost of nursing/attendant costs. There is relatively little difference in the cost of day hospital care between categories of dependency A (£65 per week) and patients in category of dependency D (£93 per week).

The Costs of Formal Community Care

The approach to estimating the costs of formal community care in the case of day hospital users is similar to that used in Chapter 9. The per capita estimates of the use of resources are combined with rates of payment in order to yield estimates of costs.

Table 10.12 gives the estimates of the weekly per capita costs of community care services in the case of the day hospital users. The per capita cost of general practitioner services is the sum of costs for visits from, visits to and travel associated with visits to the GP. Not surprisingly, in view of the patterns of resource use, old people in dependency D have the highest per capita general practitioner cost (£2.6).

In the case of public health nurses, services are concentrated on elderly people in category of dependency E. Hence, the cost per capita (which includes travel costs) is much greater in the care of this group than in the care of any other group – about five times that of the next highest (dependency B). For the same reason, the per capita cost of home help services are by far the highest for dependency E. The only other categories of service where there are discernible costs are meals-on-wheels and day care attendance.

Acute Hospital Services

Table 10.9 has shown that the patients in category of dependency D spent the longest time in hospital during the past year. Hence the patients in this category have the highest cost of care (Table 10.13).

The Cost of Informal Care

By contrast with the community sample, in the case of day hospital users, we do not have information on the perceived opportunity costs of carers of the elderly people. All we have are data on hours of care, disaggregated by caring activity. To estimate the cost of informal caring, we have to make use of the information on benefits forgone that comes from

Table 10.12: *Average Weekly per Capita Cost of Community Care Services for Day Hospital Users by Category of Dependency*

Category of Dependency	*General Practitioner*	*Public Health Nurse*	*Home Help*	*Meals on Wheels*	*Chiropodist*	*Religious*	*Voluntary Agency*	*Day Care Attendance*	*All*
					£				
A	1.0	2.1	3.0	1.0	0.11	0.18	0.01	8.5	15.8
B	1.7	3.7	5.0	1.5	0.14	0.26	0.00	6.3	18.5
C	0.9	1.4	6.9	0.2	0.16	0.32	0.03	8.5	18.3
D	2.6	2.7	3.5	1.7	0.13	0.55	0.00	1.9	13.0
E	1.3	20.5	26.6	0.0	0.18	0.26	0.21	5.6	54.6
All	1.2	3.3	5.6	0.9	0.1	0.20	0.02	7.3	18.7

the community survey. The monetary valuation of each of these forgone activities is based, in the first instance, on an estimate of the value of work-time forgone. Non-market household work and leisure time given up by carers are also valued. Combining these rates yields the estimate of the opportunity hourly cost of informal care derived in Chapter 9 (£1.21 per hour).

Table 10.13: *Weekly Cost of Acute Care Usage by Elderly Persons Attending Day Hospital by Category of Dependency*

Category of Dependency	*Cost of Care per Patient*
	£
A	53.6
B	122.6
C	89.5
D	168.5
E	78.4
All	88.0

The costs of informal care by category of dependency (the hourly rate multiplied by the number of hours of care) are given in Table 10.14. The highest per capita weekly cost is associated with those in category D, with the lowest cost associated with those in category A. The estimated average cost over all patients (£61 per week) is not far below the average cost per week estimate for the day hospital services.

As outlined in earlier chapters, there are other ways to estimate the monetary cost of informal care provision. In particular, the time spent can be valued at the price per hour of someone who is hired to carry out the required tasks. Applying this method to the valuation of informal care for day hospital users yields a per capita weekly cost of £121 (Table 10.14). Hence, with this approach, the cost of informal care is doubled, by comparison with the estimation of opportunity costs.

Table 10.14: *The Cost of Informal Care Received by Day Hospital Users by Category of Dependency*

Category of Dependency	*Hours of Informal Care*	*Opportunity Cost(a)*	*Buying in caring Services(b)*
		£	£
A	22.63	28.38	54.31
B	52.17	68.13	125.21
C	82.27	99.55	197.45
D	111.54	134.96	267.70
E	85.11	102.98	204.26
All	50.48	61.09	121.15

Notes: (a) Opportunity cost valuation is equal to £1.21 per hour.
(b) The cost of buying in caring services is assumed to be equal to the home help rate of £2.40 per hour.

Personal Consumption

As in the case of the community survey, personal consumption is estimated at £65 per week for the elderly.

Housing Costs

The opportunity cost of housing is taken from the community survey, at £15.80 per person per week.

Total Costs

The total cost of care for day hospital users is shown in Table 10.15. Resource use is made up of services received in the hospital, community care services provided in the home, informal care by family and friends (valued in terms of opportunity cost), personal consumption and housing. The average weekly costs increase as the level of dependency increases. There is, however, little difference in the cost of care between patients in dependency categories D and E, unless acute hospital services are included. Category E have much higher costs of formal community care due to the receipt of more services from both public health nurses and home helps. Patients in category D, however, receive most hours of informal care, hence have higher costs for this resource use. Patients in category A have the lowest cost of care. They have lowest day hospital and informal care costs as well as incurring below-average community care costs.

Table 10.15: *The Opportunity Cost of Care for Day Hospital Users by Category of Dependency*

Category of Dependency	*Day Hospital*	*Community Care*	*Informal Care*	*Housing*	*Personal Consumption*	*Total less Acute Hospital Care*	*Acute Hospital Care*	*Total including Acute Hospital Care*
					£			
A	65.1	15.8	27.4	15.8	65.0	189.1	53.6	242.7
B	84.4	18.5	68.2	15.8	65.0	251.7	122.6	374.3
C	78.5	18.3	99.6	15.8	65.0	277.2	89.5	366.7
D	93.0	13.0	135.0	15.8	65.0	321.8	168.5	490.3
E	91.6	54.6	103.0	15.8	65.0	330.0	78.4	408.4
All	75.8	18.7	61.1	15.8	65.0	236.4	88.0	324.4

Conclusions

The costs of care for the users of the day hospital are built up from four components: (a) the estimated costs of the day hospital itself, (b) the estimated costs of formal community care received by those who attend the day hospital, (c) the estimated costs of informal care (in the home) that they receive, (d) estimated costs of episodes of acute hospital care that they receive. This is on the assumption that the day hospital services are complementary both with community care services (formal and informal) and with acute hospital services. As in the cases of the earlier analysis of long-stay and of community care, the estimated costs reflect the different patterns of usage of services across dependency groups.

The majority of the day hospital patients are in the relatively low dependency groups – compared with the pattern for in-patient care. This is to be expected. If the distribution by dependency is compared with that of the community samples, that for the day hospital group is not very dissimilar from the community group. One slight difference is that there are relatively more in the second lowest and third lowest dependency groups (categories B and C respectively) in the day hospital group.

In terms of time spent in care, the largest single component in the day hospital comprises that given by nurses and attendants. Other significant contributions of time come from physicians, physiotherapy, and occupational therapy services. In the case of nursing and attendant services, the broad patterns is that the higher the level of dependency, the greater the amount of time given.

Examining formal community care, there is a notable difference between the day hospital group and the community sample in the amount of both public health nursing and home help services received. The day hospital group receive much more hours of care than the community group. This is likely to be related, at least in part, to differences in availability of services between the two groups though need factors are also likely to exert some influence on resource use given the recent in-patient experience of many in the day hospital sample. The general pattern, with some exceptions, is that the level of service of both public health nurses and home helps increases as the level of dependency increases.

A significant amount of informal care is given to the day hospital users – a little over 50 hours a week on average. Direct supervision is the largest single component of this. The general tendency is for the hours of care to increase with the level of dependency.

The largest single item in the estimates of day hospital costs is that of nursing and attendant care. The general pattern is that per capita costs rise with dependency level, but there is not much difference in costs between

the two highest dependency levels. In the case of formal community care, the two largest components are public health nursing and home help services. The costs associated with the highest dependency group are much higher than in the case of others, but there is no clear relationship with dependency level, below the highest level. The costs of informal care (using opportunity costs) rise steadily with dependency from level A up to level D.

Examining the components of total costs, the attributed costs of the day hospital are the largest single component. However, the estimated opportunity costs of informal care in the home are not far behind, estimated at some four-fifths of the estimated costs of day hospital services. With the exception of community care resource use by elderly in category E, most of the variation in cost across dependency groups reflects differences in the amount of informal care received from family and friends. If informal care is valued, not in terms of opportunity cost, but instead, at what it would cost to replace the amount of care currently being provided by family and friends, the cost of informal care would double for each category of dependency.

Patients in category D spent most days in hospital during the past year and consequently have the highest cost of acute care. The inclusion of acute care substantially increases the overall cost of care. This is particularly the case for the elderly in dependency category D.

Chapter 11

CONCLUSIONS

Introduction

This concluding chapter is in four parts. First, the findings that derive from the basic research questions are summarised. Second, the policy issues that arise from the placement of individuals in, and the allocation of resources to, different forms of care for the elderly are briefly reviewed. Third, the implications for policy development that arise from the research findings are pointed up. Fourth, further issues for investigation which have emerged from this research are outlined.

I Research Questions and Findings

Key Choices in the Research

The basic research questions posed at the outset of this study are: what are the respective costs of caring for elderly people in the community and in institutions; how do these costs vary according as the level of dependency of the elderly people varies; are there certain key components of these costs; do the full costs of community care (having imputed costs to those carers where hours of service are provided within the household) vary with the level of back-up services provided by the formal programmes which are operated through the Health Boards.

As outlined in Chapters 3 and 4, a number of methodological choices have to be made. One set of choices concerns the appropriate measure of costs. The choice is between opportunity costs, taking account of opportunities that are sacrificed when resources are deployed, and public expenditure. The choice is of particular importance when costing community care, since imputation can be applied to the hours which are given, without monetary reward, within the household. In this instance, the estimation of costs by opportunity costs or opportunities forgone is felt to be the best approach. Opportunity costs give the appropriate guide when decisions are made about the deployment of real resources in one area than in another. In addition, they show the true costs, including imputed costs, that fall on all parties to a transaction. At the same time, the alternative method of estimating public expenditure costs only is used – while recognising the limitations of this approach.

Another set of choices concern the measurement of dependency. With regard to physical measures, it is felt that the Guttman scale provides an appropriate method of measuring dependency. This measure rests on the assumption that disability progresses in a cumulative loss of function, and that disability can be represented in a hierarchy of severity. The Guttman scale is especially useful in economic comparisons of costs where costs of caring for people, with similar degrees of incapacity, are being compared across different settings. Other things being equal, if two people are on the same point on a scale, they should have the same need for care.

The question then arises how to incorporate the non-physical aspects of dependency. It can be difficult to combine ordinal scales such as Guttman with scales designed to pick up non-physical aspects such as mental status. Indeed, the non-physical aspects would break down into a number of different elements, leading to further problems of how to combine them.

The approach used is to take account of non-physical elements by making use of some of the Crichton Royal scale components. In addition, the relationship between the Guttman scale and certain indicators of non-physical dependency is examined. In other words, given that any scale is to a degree an abstraction, the extent to which the Guttman scale gives a representation of both the physical and the non-physical aspects of dependency is an indicator of its usefulness as a general measure of dependency.

The next choice concerns the institutions. Given the scope of this study, it was feasible to choose only some four institutions. Hence, it is evident that the institutions cannot be a random sample, representative of all the long-stay geriatric institutions in the country. Instead, they provide something close to case studies. At the same time, they were selected with a view to showing a variation across some key elements.

It was felt to be particularly important to capture differences across hospitals in the degree to which they use assessment prior to admission, in order to ensure that only the higher-dependency people are admitted, and in the extent to which the hospitals use rehabilitation of elderly persons as a prelude to their return to living in the community. One of the hospitals emphasises assessment, rehabilitation and the speedy return of patients to the community, another reflects an intermediate position between a traditional approach and innovation emphasising assessment and rehabilitation, while the remaining two take a more traditional approach, subject to recent innovation. In addition, the selected hospitals are spread across the country and each is in a different health board region. One is in a large urban area and the others are sited in significantly smaller urban areas.

A further choice relates to the source of information on dependency. The choice here is between relying on the nurses/attendants or else relying on the elderly people themselves. A pilot study was used in one of the hospitals, and this assessed the degree to which there was agreement in the assessment of disability between the providers of care and the recipients. There proved to be a high degree of agreement between the two sets of ratings. Moreover, the use of information from providers rather than recipients has the advantage that the data collected are more comprehensive in coverage, given the likely incapacity of a significant section of the elderly patients to provide all the information requested.

When estimating the amount of care given, there is in principle a number of approaches: relying on estimates of hours given by nursing and other staff in hospitals; and collecting information on the use of time by the keeping of time diaries or time budgets. Given the number of cases in this study, the limited resources for the study and the need to minimise the burden on hospital staff, it was felt best to rely on the estimates of nurses and other staff.

Scope of the Study

A key point about the scope of this study is that the benefits of care are not estimated. In turn, this means that the net benefits, the difference between benefits and costs, are not estimated. The study has not been designed to measure health outcomes. It has taken as given the quality of care across the four hospitals and in the community.

At the same time, the design of the inquiry for the elderly in the institutions aimed at ensuring that a high proportion of the elderly selected in the institutions would be likely to be on the margin of care between the institutions and the community, with criteria including admission to the hospital within the two months prior to data collection. In this way, at least, the likelihood was that there was some degree of affinity between the "objective" needs of this group in the hospitals and the group in the community.

Distribution of People by Dependency Level

The distribution of elderly people by dependency level, in institutions and in the community, is needed in order to build up the cost estimates. It is also of interest in its own right. First, it is important to know if there are low-dependency people in institutions who could be expected to be amenable to care in the community. Second, as the level of disability increases, there may be a tendency for the elderly to be observed in institutions rather than in the community.

Table 11.1 compares the dependency profile of the elderly group in the hospitals with the profile of the community sample. Of the elderly group in the institutions, 55 per cent of them are in the top two categories of dependency (which are categories D and E in the compressed scale shown in Table 11.1). To a degree, this confirms *a priori* expectations that a significant proportion of high-dependency elderly are in the hospitals.

However, at the other end of the dependency scale, 22 per cent of the elderly people in the hospitals are either classed as being free from disability, or have only one disability. This is a higher proportion than might have been expected, *a priori*.

As expected, the distribution by dependency of elderly people in the community sample is quite different from that in the hospitals, with a much higher proportion in the low-dependency levels: 45 per cent being classed as either free from disability or having only one disability.

Among the possible reasons which could explain the presence of low-dependency elderly in the hospitals, the following seem to be the most relevant. First, if formal assessment and rigorous procedures for admission are not used, low-dependency people are likely to end up in long-stay care.

A number of years ago, regular and thorough assessment of elderly people prior to potential admission to long-term care in hospital was the exception rather than the rule. In recent years, there has been some move towards more formal methods of assessment prior to admission. Differences in the extent to which assessment is used can be reflected in the distribution of patients by dependency level.

Table 11.1: *Comparison of the Distribution of Elderly Persons by Category of Dependency in Hospitals and in the Community*

Category of Dependency	*Percentage of Elderly*	
	Hospitals	*Community*
A	21.8	45.5
B	7.0	19.7
C	13.1	13.0
D	16.1	9.1
E	39.3	5.6
Non-scale	2.7	7.1

Sources: Tables 5.2 and 5.3

Note: Here the compressed Guttman scale of dependency is used.

In the debate about the appropriate balance of care for the frail elderly, one of the items of concern has been about the degree to which elderly people of low dependency who could be cared for in the community (given the requisite back-up services), have been placed in institutions. The different patterns of assessment can go some way towards explaining why, in three of the four hospitals, a fifth or more of the elderly patients are of low dependency. In the case of the exception, Hospital 2, the small proportion of low-dependency patients is evidently related to the rigorous procedures for admission that are used. These procedures are complemented by the use of assessment and rehabilitation beds (see below) before final decisions are made about the admission into long-stay care, together with an active policy towards the discharge of patients.

In some of the hospitals there has been a gradual move over time towards a greater use of assessment prior to admission. In these cases it could be expected that, other things being equal, there would be lower dependency levels among the patients who were admitted a relatively long time ago. This expectation was tested by examining whether, in cases where admission procedures were tightened up over time, the low dependency was concentrated among those who were admitted a long time ago. This is not the case. However, the true influence of the data of admission on dependency level is difficult to establish. This is because elderly people, as they age further, can become increasingly adapted to the institution and increasingly dependent on others.

Second, the relative absence of rehabilitation programmes and of an active policy on discharge could also lead to low-dependency people in the hospitals. Third, the quantity and quality of community care that is available is an influence. The willingness and ability of hospitals to discharge people into the community will depend on this. In the absence of adequate community care, there is a higher risk of low-dependency elderly staying in hospital.

A final point about the distribution of dependency concerns the non-physical or additional measures of dependency. Chapter 5 shows that the distribution of additional ill-health across hospitals is not dissimilar from that observed using the Guttman scale. This suggests that the Guttman scale is a reasonable measure of dependency in elderly persons.

Relationship Between the Costs of Care and Different Levels of Service Usage

The costs of different forms of care will reflect (a) the levels of service under different headings, (b) the prices attached to each of these different services. Hence for each of the forms of care, levels of service delivered are

first estimated, followed by the application of "price tags" to each type of service.

One broad point can be made at the outset. In each of the forms of care, certain key services dominate the cost estimates. In the case of institutional care, and in the case of the day hospital services, the most important single element which influences costs is the provision of nursing and attendant hours. In the case of home care, the two largest elements in costs are the opportunity costs of the hours given by informal carers in the home, and the personal consumption of the elderly people.

There is a relatively low level of usage of community care services that are offered through Health Boards. Hence, these services do not make up a significant part of costs for the community sample. The use of acute hospital care for episodes turns out to be more important as a cost item than these formal community care services. Similarly, in the case of the day hospital, the costs associated with the use of formal community care services are much less than those associated with episodes of acute hospital care. The latter turn out to be unexpectedly large, being of the same order of magnitude as those allocated to the day hospital itself.

Relationship Between the Costs of Care and the Level of Dependency

In Chapter 3, the likely relationship between the cost of care and the level of dependency has been discussed. It is expected that the marginal cost of caring for elderly people – that is, the extra cost of care per unit of dependency – increases as the level of dependency increases. The question then arises: what is the difference between the marginal cost of caring for elderly people in the home and in institutions, at different levels of dependency.

Do Costs Increase with Dependency Level?

In this study, average costs per capita rather than marginal costs can only be estimated. The extent to which average costs will be a guide to marginal costs will depend on the degree of utilisation of capacity. For instance, in institutions, if capacity is underutilised, more patients could be expected to be treated at relatively low extra cost, and hence in the short run, marginal cost would be expected to be less than average cost. However, in general in the institutions, there was effectively a rationing of existing places and close to full utilisation of capacity was observed. In this study, capital costs, labour costs and other input costs are estimated. Thus, the costs relate essentially to the longer-run period. In that case, longer-run average cost could be expected to be close to longer-run marginal cost.

In the institutions, it is found that indeed the per capita costs of care do increase as the level of dependency increases (Table 11.2). The increase in cost per capita as dependency level increases is not the same over all dependency levels; in particular, there is a relatively small increase in average cost as dependency moves from level B (covering the scale points: cannot walk outdoors without help; cannot walk indoors without help) to level C (covering, in addition, the scale points: cannot dress without help; cannot get out of bed without help; cannot sit or stand without help; cannot use the toilet without help). The overall pattern reflects to a considerable degree the fact that, as the dependency level increases, the total hours of nursing and attendant care increase throughout the range of dependency.

One reason which could explain the finding that, between some dependency levels, costs do not increase as much as might have been expected, is the way in which resources are put into assessment, at least in some hospitals. A degree of assessment is devoted to lower-dependency patients, together with efforts at rehabilitation. The latter efforts, for the more ambulant patients, aim to ensure their discharge and to avoid their being institutionalised on a long-term basis. Inherently, the assessment and rehabilitation services are labour-intensive in nature and involve highly-skilled staff in the hospital and hence can add considerably to unit costs.

In the case of community care, total costs (estimated on the basis of opportunity costs) increase steadily as the level of dependency increases. However, the increase in average cost is less than might have been expected, with a range only of from £147 per week to £199.5 per week between dependency levels A and D. There are a number of factors that can explain this. First, even in the case of those with relatively low dependency levels, a considerable number of caring hours is given by the carers in the home. There seems to be a minimum critical mass of hours which is given in care in the home.

Second, in the case of both high and low dependency levels, there is a considerable usage of hospital services. Averaged across all the elderly in the sample, the use of hospital services contributes 14 per cent of the total estimated costs. Third, the same cost per person is assumed in the case of personal consumption and housing, no matter what the level of dependency is. Together, these two items of cost make up just under half of the cost per capita of community care.

In the case of the users of day hospital services, there are a number of components to the cost estimates: (a) the costs of day hospital services themselves, (b) the costs of community care and hours of home care for day hospital users, (c) costs associated with housing, personal consumption

Table 11.2 *Weekly Cost per Patient Treated by Category of Dependency*

	Hospital				
Category of Dependency	*1*	*2*		*3*	*4*
		Assess-ment	*Long-stay*		
			£		
A	137	422	382	133	147
B	187	581	262	129	170
C	160	643	296	179	179
D	188	687	375	172	231
E	286	685	500	289	274
All	214	642	418	210	202

	Community Care	
Category of Dependency	*Informal care in the Home* [a]	*Total*
	£	
A	46	147.0
B	54	168.0
C	56	173.0
D	70	199.5
E	104	211.0
All	56	164.0

Users of Day Hospital Care (opportunity cost valuation)

Category of Dependency	*Day Hospital*	*Community Care Services Plus Informal Care (a)*	*Total Less Acute Hospital Care (b)*	*Total Including Acute Hospital Care*
		£		
A	65	44	189	243
B	84	87	252	374
C	79	118	277	367
D	93	148	322	490
E	92	158	330	408
All	76	80	236	324

Sources: Tables 7.11, 9.3, 10.12, 10.13 and 10.14.

Notes: (a) Informal care are estimates using opportunity costs.

(b) The cost of personal consumption and housing are included along with day hospital community care services and informal care.

and episodes spent in acute hospitals. These various items are included on the assumption that there is a degree of complementarity between day hospital care itself, formal community care services and care in the home. Focusing on the first element, the cost of day hospital services themselves tends to increase with dependency level between levels A and D, with the exception of the interval between levels B and C. The combined costs of community care and informal care rise quite steeply as the dependency level increases. This increase is greater than that which occurs for the community sample as a whole, even though the distribution of day hospital users by level of dependency is not dissimilar from that for the sample of the elderly in the community.

One reason for the different pattern of change in costs of community care across dependency levels could be the fact that in the neighbourhood of the day hospital, there is a greater level of availability of formal community care services than is the case across the country as a whole. The importance of the availability of services as an explanation for different patterns of usage is discussed further below. In the particular case of day hospital users, they receive much more public health nursing and home help services than the community group.

The total costs of care per head for the day hospital users increases with the level of dependency between levels A and D. This increase is a steady one, again with the exception of the interval between level B and level C where costs remain about the same.

Costs of Home Care Relative to Institutional Care for Low Dependency Levels

Any comparison between the costs for the community sample and the institutional costs has to allow for the way in which costs per capita differ across the 4 hospitals. In the case of Hospital 2, only the separate long-stay unit is considered initially in these comparisons, although it should be remembered that its activities are complementary with the assessment and rehabilitation unit. Taking the lowest dependency level, A, in 3 of the 4 hospitals the costs per capita are of the same broad order of magnitude as in the case of the community sample, using the opportunity cost valuation for the community sample. In the fourth case the costs per capita for the hospital are higher than in the case of the community sample. In the case of the second lowest dependency level, B, in two of the hospitals the costs per capita are of the same broad order of magnitude as in the case of the community sample, in one of the hospitals the costs per capita are lower than in the case of the community sample, and in another hospital the costs per capita are higher than for the community sample.

A number of different elements can go some way towards explaining these findings and in particular the key finding that there are relatively high resource costs of caring in the community at low dependency levels. First, as already mentioned above, even in the case of those with low dependency levels, a considerable number of informal hours of care are given in the home. This can outweigh the fact that many of those who give informal care in the home have relatively low opportunity costs of their time. Second, there is considerable usage of hospital services by this low-dependency group. Indeed, days spent in hospital is one of the more significant cost items for the community group. Third, the costs of personal consumption are assumed constant across dependency levels and are greater than in the case of the group in the hospitals. Fourth, the costs of housing for the community group are assumed not to vary with the level of dependency. Allowance can now be made for the fact that in Hospital 2, a good deal of resources are devoted to assessment and rehabilitation of the lower-dependency and more ambulant patients. These resources are labour-intensive. Allowing for assessment and rehabilitation, costs per capita in this hospital are higher than in the case of the low-dependency elderly at home.

Costs of Home Care Relative to Institutional Care for High Dependency Levels

There is need for a caution about comparisons for the highest dependency level E, because of small numbers in the community sample (only 11 cases or 5.6 per cent of the total). In the case of level E, the costs per capita of care are higher in the hospitals than in the community. The picture is mixed in the case of the second highest dependency level D. At this level, costs are lower in the hospitals in two cases – although not much lower in one of these cases – and are higher in the hospitals in two cases.

Costs Per Capita Across Institutions

The nature of care that is given differs across the 4 hospitals. In turn, this influences the cost comparisons between the hospitals. One important instance is that there are differences across the institutions in the hours of nursing and attendant care that are given. An extreme case of this is the extent to which there is round-the-clock or 24 hour care in some of the institutions. This can have a marked impact on costs, given that nursing and attendant costs comprise the largest single component of total costs, ranging from 36 per cent to 55 per cent of total costs across the hospitals.

Some of the differences in costs per capita across the hospitals reflect differences in the levels of usage of hospital services that in turn are underpinned by a more generous availability of these facilities in some

hospitals than in others. This applies both with regard to nursing and attendant hours and other services, such as physiotherapy, occupational therapy, speech therapy. The availability of services and the needs of patients interact to determine the level of service by dependency level. Of these two elements, the availability of staff rather than the need for services is evidently the major influence – in particular in the case of paramedical services. Across the hospitals, there are wide differences in the levels of provision of these services. It is unlikely, to say the least, that the differing levels of availability of these services would faithfully reflect differences in "objective" need between the different groups of elderly patients.

Fundamentally, some of the differences in costs per capita across the hospitals reflect the differences that exist in the philosophy and style of care. This seems to affect the reporting of round-the-clock care – that is, differences in interpretation put on round-the-clock care can influence the reporting of care hours.

Not all of the differences in costs per capita across the hospitals can be explained by the differences in levels of dependency. The costs per capita for Hospital 1, 3 and 4 are relatively similar. Yet there are considerable differences in dependency levels across these hospitals. This reflects in part the fact that budgets to the hospitals are not allocated on the basis of need, and that little is known about the degree of disability of elderly people in the institutions or about the nature of care given within the hospitals. The allocation of budgets occurs on the basis of historical allocations, altered at the margins on a year-by-year basis.

Costs of Institutional Care on a Throughput Basis

If assessment is used intensively, the result can be a relatively high turnover of patients in the hospital. In order to allow for turnover, costs can be expressed on the basis of the number of patients treated in a particular period. This estimation of costs, on a per patient rather than a per bed basis, allows for the degree to which there is a turnover of patients through the hospital. Implicitly, this poses a different question from the one that was raised at the outset of this report about comparative costs in different forms of care. The initial question concerned, in effect, a comparison of the resource costs that were involved in a hospital bed for the elderly in long-term care with the equivalent costs that arise in care in the home, having costed all the relevant elements. If the focus is put on those in institutions who are on the margin of community care, a comparison between institutional costs per capita and equivalent costs for those who are being cared for at home can be defended, on the basis that (a) for at least a significant group of those who leave home care for

hospital care, the likelihood is of a long spell in the institution, (b) a significant group of those in hospital care are there on a long-term basis.

If the focus is put on cost-effectiveness, it can be legitimate to raise the question of the turnover of patients through the hospital. If a significant number of patients are discharged, to be replaced by others, this can lead to more cost-effective outcomes than in cases where the turnover is low. There is a particular logic in expressing costs for assessment/rehabilitation in Hospital 2 on a per patient basis rather than on a per bed basis, given that the very function of the separate assessment and rehabilitation unit, apart from complementing the activities of long-stay unit with regard to admissions, is to try and avoid the necessity for people to receive long-term institutional care.

Nevertheless, the limitations of the measure of costs on a per patient basis should be noted. Ideally, patients would need to be followed up over a period of time. In addition, there would be need to allow for the possibility of re-admission at some subsequent date. Moreover, as is emphasised below, cost-effectiveness analysis would require outcomes to be assessed, and this has not been possible in this study.

As expected, the estimation of costs on a per patient basis has a marked effect on the cost estimates for the assessment/rehabilitation unit of Hospital 2, given the high turnover of patients through that unit. In the cost per bed for that unit, the estimate is relatively high compared to the other units, reflecting the intensive level of service in assessment and rehabilitation, the labour-intensive nature of these services and the high usage of paramedical services. Costs per patient treated are a fraction of costs per bed (Table 11.3). In the case of the other, long-stay, units, unit costs decline in two of the cases (compared with the costs per bed) and they increase (slightly) in the remaining two cases, where there are relatively low rates of turnover of patients.

Costs of the Day Hospital

The implicit assumption has been made that the activities of the day hospital are complementary with those of community care services, both formal and informal, and with acute hospital services. It is clear from the day hospital survey that there is a good deal of complementarity with both community care and with acute hospital care. It is also clear from the picture built up of the activities of Hospital 2 that the services of the day hospital are complementary also with geriatric services of that hospital. It is likely that people attending the day hospital can avert the need to enter the assessment and rehabilitation unit of that hospital (which in turn can be prior to admission to long-term care). As in the case of both the long-

stay hospital units and the community care sample, the usage of services in the day hospital reflects availability, in this case of a good deal of paramedical services. Leaving aside the costs of episodes spent in acute hospitals, the largest single component of the cost per capita attributed to day hospital users is the cost of the day hospital itself – £76 out of £236 (Table 11.2). However, the cost per capita of acute hospital care amounts to somewhat more than the cost of the day hospital itself.

Table 11.3: *Weekly Cost per Patient Treated by Category of Dependency and by Hospital*

Category of Dependency	*Hospital*				
	1	*2*		*3*	*4*
		Assessment	*Long-stay*		
			£		
A	87	18	275	141	165
B	119	25	188	137	191
C	102	27	213	190	201
D	120	29	270	183	260
E	182	29	360	307	308
All	136	27	301	223	227

Source: Table 7.12

II The Policy Context of Care Provision

The Continuum of Care

The care of elderly people currently takes place along a continuum ranging from living at home to placement in a long-term institution. Within these two extremes old people may live in sheltered housing or in "boarding out" accommodation. Day hospital and day care facilities may also be available for some old people. This is in addition to the formal statutory services which must be provided anyway, and the informal care supplied by family and friends. Continuing Care Retirement Communities (CCRCs) also exist in some countries whereby old people relocate to residential campuses consisting of independent living accommodation

(apartments or cottages) and a variety of privately provided social and health services (including nursing homes) all in one setting. In exchange for a large entry fee and ongoing monthly payments CCRCs contract to provide care to residents for the rest of their lives (Rivlin, *et al.*, 1988). This raises an important question of whether elderly people should be kept on the move along that continuum until eventually they end up in long-stay care, or whether more services should be available to them in the place where they are living within the framework of an integrated approach to care.

The danger with the continuum as a model, with its emphasis on movement between different forms of care, is that too much attention may be focused on care as a production process rather than on the person-orientated service that it should be. Sometimes there may be valid medical and economic reasons for moving old people around in order for them to receive the best form of care. Economies of scale may, for instance, determine the degree to which a service is mobile or immobile. What should be avoided, however, is that frail old people have to keep moving in order to get the care they need. Instead, what is required is a minimum of moves and a maximum of mobile helpers such as community nurses and home helps. The emphasis should be on normal housing with access to community services. Solutions which emphasise discrete changes in the living arrangements of old people could have adverse consequences in terms of the subjective well-being of elderly people. In general, health care for old people should be concerned with maintaining the independence of the vast majority of old people who are not seriously disabled. This point is related to the key objective of intervention: promoting health, or at least, slowing down the onset of disability, thereby facilitating the wishes of old people to remain in their own homes.

The Role of Day Hospital Care

One policy issue in regard to the continuum of care is the role of the day hospital in care of the elderly, in assessment, treatment and rehabilitation. There are unambiguous benefits associated with day hospital provision, particularly if it is attached to a geriatric institution. The potential for an integrated approach to care, in which the focus is on assessment and rehabilitation rather than admission, is obvious from the example in this study. In this way, elderly people can remain in the community rather than end up in long-stay care.

To some extent, day hospital provision acts as an alternative to a certain amount of in-patient care. In addition, the day hospital serves a complementary function to that of care in the community, where the latter

is seen as comprising both informal care in the home and the provision of formal community care services.

In general, however, day hospital provision carries both substitution and complementarity potential. The former is related to the day hospital as an alternative to in-patient care; the latter is more concerned with the day hospital as a community resource. While it is difficult to separate these functions in practice, a greater emphasis on one or the other has important implications for planning and resource use. For instance, there is sometimes confusion as to where day care ends and day hospital begins.

The Costs of Care

For too long there has been an implicit view that community care is much less costly than institutional care. However, as we have seen in this study, this is not always true. When all aspects of community care are quantified and valued, particularly informal care and acute care resource use, the cost may be higher than in institutions at various levels of dependency. Comparative analyses which take account only of public expenditure as a reflection of resource use, are, therefore, flawed.

Moreover, as this study points out, what is usually measured is actual, not optimal, consumption. This means that calculated costs may sometimes be artificially depressed because resources are inadequate. This is particularly true of paramedical services, both in the community and in some institutions. It is likely that this feature results in a depression of the estimated costs of care in the community more than a depression of the estimated costs in institutions.

The fact that the real cost of community care is higher than is generally thought, and in some cases higher than its alternatives, does not mean that more older people should be looked after in institutions. In general, older people prefer living in their own homes and their preferences should be respected and facilitated whenever possible. What the results here highlight is the weakness of any argument which seeks to promote community care simply on the basis that it costs less. If this argument were accepted, it would mean a transfer of the burden of care from the Exchequer to families. This would be unacceptable, given the paucity of community care services throughout the country and the lack of recognition which informal carers have traditionally received from the statutory sector. Community care should be preferred because it is better for old people, and it can only be so if adequate resources are available to support the "staying put" option. This means an increase in formal community care services and an acknowledgement of the crucial role of carers within the framework of a more integrated approach to care.

Resource Allocation and Need

We have seen in this study that hospitals with very different distributions of dependency often end up with more or less the same per capita cost of care. It is obvious that the degree of availability of services is the most important factor in determining the consumption of services. This means that need is playing a secondary role in decisions about the allocation of resources. This is hardly surprising, given what is known about resource allocation in the acute health care sector. There, allocation is an *ad hoc* process, based more on historical accident and subsequent incrementalism than on any scientific approach to determining need (Tussing, 1985).

Recent research by Wiley and Fetter (1990) has highlighted the usefulness of diagnostic-related groups (DRGs) as a mechanism for allocating resources to the acute sector. The implicit argument contained in their analysis is that, in the future, hospitals could be financed prospectively by DRG classification. This would be very different from the current approach of retrospective allocation based loosely on what hospitals were doing last year, plus or minus a little, depending on the economic climate. While a discussion on the technical merits or otherwise of DRGs as a mechanism for resource allocation would exceed the bounds of this study, they do carry implications for the funding of long-term care. In particular, prospective payment is a much better way to finance long-term care than the current retrospective and generally *ad hoc* process of resource allocation.

Any proposal to improve the system of resource allocation in long-term care along the principles of DRG financing has to begin with a definition of need. Normally, old people in long-stay care are not ill so DRGs are of no assistance in such cases. Instead, the focus shifts to the measurement of disability. Choosing a scale that manages to capture all aspects of dependency is not a simple task, as is evident from this study. However, some tentative suggestions in this regard can be made. For the purpose of allocating resources and costing care, a more aggregate measure of disability is most useful – one that is robust enough to incorporate general characteristics and flexible enough to cover the multifaceted nature of dependency in old people. The Guttman unidimensional scale provided a useful classification of disability for the purposes of this study – certainly broad enough to allow us to discuss the relative cost of care among institutions. Other scales can be used in conjunction with Guttman or as an alternative. For all their limitations, cardinal point scales, such as the modified Crichton Royal Behavioural Rating Scale (CRBRS) are probably most useful in this regard. The limited available evidence suggests that

programme-based measures (such as CRBRS) are more useful than general health classification systems when measuring changes in the health status of older people.

Resource allocation in care of the elderly can never be an exact science based solely on the physical and/or mental dependency of older people. Emotional and social factors also matter. For instance, an old person may be in an institution not because he/she is very disabled in any conventional sense, but because of social deprivation which includes such factors as inadequate housing, spatial isolation, living alone and fear of attack. For that reason, most scales should ideally be supplemented by information on a broad range of social issues.

Under the *Health (Nursing Homes) Act, 1990* it is proposed to award means-tested subventions to residents in private nursing homes. Currently, the only proposal is that there is to be payment for three categories of dependency – light, moderate and heavy – where the latter is defined to include persons with dementia. This proposal could be broadened out to include old people in public long-stay care. This would have the merit of linking all public funding of long-term care to need, as defined by the appropriate dependency measure.

Our results are compatible with the disaggregation of dependency into three categories for the purpose of resource allocation. In particular, the data on nursing care by dependency falls into three broad categories, low, medium and high (Table 6.1). Some combination of the Guttman and the CRBRS scale may, therefore, be a useful starting point for policy-makers wishing to develop a general measure of dependency. More fine tuning could be done as more and better information on reliability and scaleability becomes available.

Assessment and Rehabilitation

Our analysis has highlighted the important role that assessment and rehabilitation plays in determining the overall distribution of dependency in long-term care. Therefore current moves to increase the supply of consultant geriatricians could be accelerated in line with the recommendations of the Working Party on Services for the Elderly (1988). In general, subsidies either in public or private long-stay care should not be awarded to older persons unless they have first of all been assessed as in need of such care.

Assessment is only useful, however, in so far as adequate resources are available to allow meaningful choices to be made in the light of the judgement of providers. As we have seen, social factors may prevent an elderly person remaining in their own home even though assessment may

have deemed this the most appropriate placement. Similarly, inadequate community care facilities may leave providers with no choice but hospitalisation, irrespective of the outcome of assessment. This point is highlighted with reference to placement in and around Hospital 1. Although a consultant geriatrician is involved in the decision-making process governing admission to that hospital, the proportion of low dependent old people might be considered relatively high. However, when all factors are considered, especially spatial isolation and the absence of community-based alternatives, the role of the consultant geriatrician is put into some perspective. For some old people in this hospital there is only one choice – in-patient care. To live at home may be to return to a sparsely populated area without a social network or an adequate community care service (O'Mahony, 1986). If that is the case, an old person in these circumstances cannot be left to their own devices, isolated physically and emotionally from any social contact. There are marked differences across the country in the levels of community care provision, with services being at a low level in sparsely populated rural areas.

Ideally, only very highly dependent old people should end up in long-stay care. For this to happen, adequate resources must be made available to community care so as to delay or postpone the need for elderly people to enter a long-stay institution. Whatever subsidy is paid towards the care of old people in long-stay institutions should also be available to finance a package of community care services for those people. It is only when evaluation and assessment had ruled out continued care in the community that the subsidy would be transferred to the institution.

Within this framework, assessment would take place on a continuous basis. It would not be restricted to a decision to admit or not to admit an old person into institutional care. Nor would it be confined to consultant geriatricians. Many different types of providers are involved in the care of old people, especially in the community. They too should have an influence on placement. Most importantly of all, however, continuous assessment should focus on the expressed needs of old people and their family carers. If these are neglected, the likelihood is that more old people than otherwise will end up in institutional care.

Neither should the call for more consultant geriatricians overshadow the fact that in most long-stay institutions, nurses are the main providers of care. Currently, this latter group carry the main burden of care in institutions. The allocation of a small amount of resources towards training and professional development for long-term care nurses could make an important contribution to the quality of care. There may still be a tendency to view long-term care as being "forever". The result may be an absence of

a strong ethos of rehabilitation and discharge in institutions. This can lead to low morale among staff and ultimately patients. Moreover, because long-term care is a low priority in the health care sector, so also are the people who work in it. Therefore, as well as more training, nursing staff should be encouraged, and given the skills, to become more involved in decision-making within institutions. In this way, confidence in their own abilities and in the importance of the job that they do could be developed. This can only improve the quality of care that they provide to old people.

This research has shown that community care is not provided, as previously thought, by a large informal network of helpers, but that it involves the provision of a large number of hours of care by the principal carer, with relatively little use of medical or social services.

Community care involves three major components. First, the informal care provided in the home is a key element. Second, professional and voluntary sectors provide services to the home or else liaise between the home and institutions. These include GPs, PHNs, social workers, home helps and meals-on-wheels. Third, there is institutional provision (including day centres and day hospitals) and residential options (such as hospitals, nursing homes, boarding out and sheltered housing).

From this study, carers were found to receive little or no help with caring activities. There was a low level of service usage reported even by the very highly dependent elderly and their carers in the community. This low level of usage reflects both a lack of provision of services, a lack of information about services on the part of households, and a lack of accessibility of services to those who could use them. There was a high number of low-dependency elderly found in the hospital sample and a widespread incidence of hospitalisation for acute episodes in the community sample.

Costs of Community Care

The costs of community care includes the costs of formal community care services. However, the actual usage of statutory services reflects the availability of those services in particular areas. One particular instance of this is the difference between the higher usage and availability of statutory services by the day hospital users, and by the community sample as a whole. This means that the cost estimates reflects the existing allocation of resources to these statutory services. They do not put a cost on the "optimal" level of provision of these services, which would ideally back up the informal care in the home and meet the "objective" needs of the elderly people in a cost-effective manner.

Only a small proportion of the estimated unit costs of community care relate to explicit public expenditure on statutory community care services. This reflects two features: (a) the relatively low provision of statutory public services for the community, (b) the dependence of community care on a large amount of informal and unpaid care hours within the home. The opportunities for work of the carers – that they could engage in if they were not involved in caring – are limited, given their age, skill levels and educational background. This implies that the unit "price" of labour which is used in order to estimate opportunity costs is relatively low. Nevertheless, the large amount of hours that is devoted to caring (47 hours a week on average and even 38 hours a week for the lowest level of dependency) means that the opportunity costs of labour are a significant part of the total opportunity costs.

The market opportunities of the carers and their provision of informal care services within the home are linked in a complex manner. First, the preparedness of people to provide these services, which may arise from a variety of motives such as affection, duty, commitment to service, guilt, will in turn worsen any employment opportunities that these people may have had. This is because of a mixture of elements such as a lack of opportunity for training and promotion, the inability to obtain work experience which can often influence job prospects and the operation of age limits at the recruitment level which can make it difficult if not impossible for people to enter or re-enter the labour force after a long period spent away from market work. Second, those with a low opportunity cost of labour, due to educational or work background, may find caring more attractive than the alternatives. These two elements can explain why the opportunity cost price put on an hour of care within the home is relatively low.

The notion of caring within the home being relatively more "attractive" is, however, hard to reconcile with the evidence which has been presented on the stress costs of caring. Putting a valuation on stress costs lies beyond the bounds of the opportunity cost approach. However, the stress indicators used in Chapter 9 show relatively high levels of stress among carers. There is also evidence to suggest that – over a period of time if not at a particular point in time – carer stress is likely to increase health service utilisation and thus to impact on public expenditure.

A major focus of this study has been on filling the gap in the cost estimation procedures left by the neglect of the opportunity costs associated with informal care provision. In the generation of comprehensive estimates another element which has not generally been to the fore when comparisons of community and institutional care are made has turned out to play a key role in the cost structures. The use of hospital

services, including acute services, on an episodic basis, has turned out to be an important part of the costs of the community sample, and also of the costs ascribed to the users of the day hospital. When making comparisons with the institutionalised elderly, it is thus important to ensure that similar episodes of acute care are picked up in the cost estimates. There is likely to be some underestimation of costs as a result of the difficulties of picking up all the costs of such episodes for those who are in long-stay geriatric care, in the cost and financial data obtained.

As with formal community care services, these costs of acute services reflect actual allocation of resources rather than optimal provision of services. Indeed the Working Party on Services for the Elderly (1988) took the view (pp. 115-117) that treatment of the elderly in acute hospitals was distinctly sub-optimal, with both inappropriate admissions of elderly people and at the same time "difficulties in gaining admission to hospital when their medical condition justifies it".

III Implications of the Research Findings for Policy Development

Policy Implications – Introduction

This section draws out the main policy conclusions from this study. It begins by considering some policy issues about integrated care – the drawing together of community and institutional resources. Linked to this, some points are then made about the continuum of care – from care at home at one end to services in institutions at the other. The immediate implications of the cost findings, and the extent to which the allocation of resources is in response to need, are then discussed. Assessment and rehabilitation, which is discussed next, can play a role in the allocation of resources.

The discussion of community care is organised, successively, around its three main components. First, there is the care provided in the home. Second, there are the services provided by the professional and voluntary sectors. Third, there are institutional services for particular episodes, or institutional services such as day hospitals which can complement care in the home. The likely relative supply of carers in the future is assessed.

Integrated Care

There is a temptation to think about older people in terms of extremes. For instance, they can be perceived as either dependent or not. While older people do live either at home or in some form of institution, the view may be that certain groups of them should either be in institutions or should not. This study has confirmed the fallacy of looking

at older people and their needs in this manner. There is a striking heterogeneity among older people, for instance in terms of their social contacts and their capacities. This means that one cannot view them as a single unitary social category.

Most old people are independent. Among the remainder, some are more or less dependent than others; some should be in institutions, others should not, but should have access to institution-based services. Even those with similar physical incapacity may differ in terms of household composition, income, housing and access to supporting networks. Similarly, the carers of old people are a heterogeneous group in terms of their characteristics and their perceived needs. As the report has shown, some of them are single carers, others share that burden; some would prefer cash payment in return for the job that they do, while for others, occasional respite care is sufficient.

The heterogeneity of old people and their carers has important implications for policy. It means that the latter should have many strands if it is to address the diversity which exists in this area. One way in which that diversity could be addressed would be through the development of individually tailored packages of care for vulnerable old people and their carers living at home. For this to happen, people would need to be put in place in the community with specific responsibility for the care of vulnerable old people. This would allow information about actual and potential need to be generated so that services might be planned in an orderly manner. It would also help overcome one of the weaknesses of current provision, where divisions of responsibility between those in charge of institutional care and those in charge of community care services are likely to lead to lack of coherence between services.

Features of this approach could involve a professional worker undertaking an assessment of the person's needs and wishes, drawing on other professionals' assessments. Subsequently a plan for a package of care, involving various types of service, would be drawn up and outcomes would be monitored.[16]

This approach would be likely to help to maintain elderly people in the community for as long as possible, given their dependency. This approach could also help to ensure that key gaps in the current provision of statutory services are filled. In some cases these gaps could be bridged by reducing the burdens of care which currently fall on informal carers in the home.

16. There have been experiments with integrated care in the United Kingdom: see for instance Dant and Gearing (1990) and Challis and Davies (1986).

One approach would be to concentrate resources on those old people who would otherwise be in institutional care. If schemes are generally applied to *all* elderly persons in the community, it is likely, as Kemper, *et al.* (1987) warn, that small reductions in costs of institutional care for some people are more than offset by the increased costs of providing additional community services to others who would remain at home even without expanded services. The appropriate provision of care, therefore, should take account of the provision of informal care which is currently regarded as a "free" service. It does not rule out, however, paying for such care if that is what carers desire.

Community Care

An important principle which should underlie community care is that of maximising choice. Elderly people and their carers should be provided with a range of choices; an elderly person should not be institutionalised because of the absence of support in the community; and conversely, a carer should not be obliged to undertake the caring role.

The findings indicate that a more integrated community care service could give support to the informal care in the home. This would help more elderly people to remain living in the community. The improved services could include outreach programmes providing information about the supports that are available. There could also be a greater emphasis on liaison between the different providers of care, in particular between medical and institutional provision, and between informal care and community care services given through Health Boards.

The specific policy issues on community care are now taken up in three stages: informal care in the home, statutory provision of community care, and institutional provision.

Support for Carers

Less than a quarter of principal carers expressed a preference for the option of having the services they provide for the elderly person supplied by an outside carer paid for by the Health Board. The key role played by principal carers, the amount of work that they perform, and the strain that they experience should be acknowledged, and could be diminished by providing carers with appropriate supports. The support most frequently sought by carers is direct payment for services (Table 11.4). This would obviously provide recognition and support to carers for their role, and compensate them for direct out-of-pocket expenses which they incur. It would also address the problem of economic dependency among carers. And it would also provide carers with discretionary income to use as they

wish to buy in services and supports, and to relieve them of some of the burdens of caring.

The Carers' Allowance was introduced in 1990 for those who take care of certain recipients of long-term social welfare payments, increasing from £29 per week to £53 per week (July 1992 rate) the payment made in respect of certain relatives who care on a full-time basis at home for permanently ill and elderly persons. The scheme now also covers carers of recipients of the Disabled Persons' Maintenance Allowance. Despite these improvements, the scheme is not specifically legislatively designated to provide either compensation for caring or to encourage caring in the home. Its primary aim is to ensure that the incomes of carers who qualify for assistance do not fall below certain limits. While the scheme is designed to respond to carers in greatest financial difficulties there remain marked restrictions on the receipt of the Allowance, including a severe means test.[17]

Table 11.4 : *Percentage of Carers by Category of Dependency of Elderly Persons Cared for Who Agree that Various Types of Carer Support Would Help Their Situation*

Percentage Who Agree that the Following Would Help:	*Dependency Category*						*All*
	A	*B*	*C*	*D*	*E*	*Non-scale*	
				Per cent			
1. Direct payment	78.9	76.9	69.2	88.9	81.8	64.3	77.3
2. Advice on health service or social welfare	44.0	51.3	65.4	38.9	36.4	28.6	46.5
3. Day centres	44.0	35.9	34.6	33.3	9.1	14.3	36.4
4. Short-term relief care away from home	34.8	35.9	38.5	38.9	9.1	57.1	36.0
5. More PHN support	32.2	31.6	42.3	33.3	18.2	0.0	30.5
6. Support group for carers	25.6	33.3	38.5	44.4	30.0	28.6	31.0
7. More support from Chiropodist, Physiotherapist, etc.	23.3	35.9	34.6	27.8	36.4	38.6	28.8
8. Alterations to home	30.0	41.0	7.7	22.2	27.3	21.4	27.8
9. More GP support	16.9	25.6	20.0	33.3	18.2	14.3	20.4

17. Although it should be noted that for carers with savings the means test is more lenient than it is for people claiming unemployment assistance.

There are grounds for a relaxation of these conditions. Direct payment for caring would relieve financial strain and also confer status on carers as a valuable resource in the care of the elderly. There are grounds on an equity basis for a payment. That is, those families who make personal sacrifices to care for elderly people are financially worse off than those who choose not to care for elderly relatives.

One restriction that should be removed is that which confined the payment to carers of recipients of social welfare pensions. Other cases where social welfare pensions are not being received could equally be on low incomes.

The second support most frequently sought by carers is that of information and advice on health and social services, and on welfare. Related to this finding, other studies suggest that carers wish to know more about the medical condition of the elderly person, the long-term prognosis, and treatment and other service options, to be involved in planning a long-term care regime, and to have access to training in some aspects of caring such as handling confusion and restlessness (Challis and Davies, 1980; Graham, 1983). It is important that this information be accessible. Among the ways in which information could be provided are through information lines and local education initiatives (Bulmer, 1987; Hicks, 1988). However it is provided, the provision of information is a relatively low-cost method of providing support, and it would diminish the burden of care for carers.

The third support most frequently sought by carers is relief care of various kinds. This relates to the most frequently cited stress of caring, namely the fact that the carer must constantly remain in the home, and is therefore confined on a daily basis. Carers could benefit from provision of a range of respite options, including day centres, short-term relief care (for instance, through residential services), night-sitting (freeing the carers for a number of hours) and domiciliary relief care. Other options would be: the availability of holiday beds (to enable carers to take a holiday); "floating beds" (accommodation with or without medical treatment for the dependent elderly for, say, 2 nights out of 14); "care helpers" or "care attendants" who would be paid for the provision of services that would substitute for informal care, thereby providing relief to carers.

At a more specific level, carers express a wish for help with certain daily activities involved in caring, namely with shopping, preparing meals, housekeeping and laundry. This could be supplied by an extension of the home help and meals-on-wheels service. Provision of direct payment has frequently been seen as the best way to ensure maximum choice for the elderly and their carers (Glendinning, 1990; Walker, 1983).

One caution is necessary about what might be seen as a relatively undemanding set of responses by the carers. It is not clear that they were well informed about the potential range of statutory services and about the difference which some of these services could make to their lives. Support services are now considered in greater detail.

Support Services

There are a number of elements in the second component of community care, namely medical and social and health services. The low level of usage of support services (Table 8.5) has already been referred to. The high level of strain reported by carers is likely to reflect in part this low level of use of support services. This confirms, to some extent, the view of NESC (1987) that the State more usually intervenes to substitute for the family when family care is absent or breaks down than it does to offer practical support to ensure the continuation of family care, in a complementary sense. Certainly services like home helps are especially vulnerable in times of financial retrenchment because Health Boards are not legally obliged to provide them. Acknowledging the critical importance of home helps in keeping old people out of institutions the Report of the Working Party on Services for the Elderly (1988) called for immediate major improvements in resources for the service.[18] A similar request for more resources was made in respect of community paramedical services.

In this study, the statutory services actually used were almost exclusively GPs and PHNs (Tables 8.5 and 8.6). It would appear from this study that medical care is not widely used in the community context – carers report a small number of visits to and from GPs, and only a minority express a wish for more GP support (Table 11.4). Through the many functions that they perform, PHNs play a crucial role in community care, and a third of the sample indicate that more PHN support would help their situation.

There is at present an absence of social workers in the care of the elderly in the community (Table 8.5). Yet social workers can have an important role in the care of the elderly, given the need for information and advice, and for liaison between services. An increase in service provision by social workers is one of the most effective ways in which community care provision for the elderly could be strengthened. They could help families in a number of ways: partly in providing information

18. It should be acknowledged that the Department of Social Welfare provides some assistance to people who want to become home helps by disregarding income earned from employment of a casual nature as a home help in its means testing.

which currently may not be given through general practitioners and hospital services; partly in helping families to gain access to services.

Both PHNs and social workers can play a number of different roles in the community care context, and are the most likely candidates for the role of liaising between the elderly and the carer on the one hand, and medical and professional services on the other hand. This liaising would involve, as outlined above, planning a long-term care regime for a dependent elderly person in partnership with the carer. This would require assessment of the elderly persons and of their social supports. This would also include an assessment of the capacity of their social supports, and in particular of the principal carer, to bear a possibly long-term caring role. Assessment would also facilitate more effective targeting of support services at need. In the present study, there was little variation in the provision of services by professional and voluntary agencies according to levels of dependency (Table 8.5) which suggests that an appropriate focusing of services is not always achieved.

Institutional Options and Community Care

The third component of community care, namely institutional and residential care, have already been discussed in terms of their role in providing respite care for elderly in the home. A desire for day centres and short-term relief care away from home were expressed by around a third of the sample. Other respite options not asked about include respite care for carers, which is increasingly recognised as a necessary component of community care, especially for elderly carers (Wenger, 1990).

A further option is the development of more attractive options for residential care as a means of providing more options for care in the community, and for exploring more innovative caring regimes which combine the positive features of care in the home (intimacy, privacy, autonomy, and care by close relatives or friends) with residential care (professional assistance, alleviation of the burdens of care). Sheltered housing is an obvious example of this. Another, which Rossiter and Wicks (1982) suggest, is the possibility of involving the carer as part of the caring regime in a nursing home or hospital, thus bridging the gap between care in the home and in the community. Further exploration of these options, and of other carer supports, is needed.

Relative Supply of Carers in the Future

One source of pressure on the future pool of informal carers in the home is likely to come from the projected increase in the population aged 75 and over – both in absolute terms and as a proportion of the population

as a whole – into the early decades of the next century. To what extent is the future supply of informal carers likely to meet the likely demands? The decline in average family size that has occurred since the early 1970s, and the rising rates of labour force participation among women over the same period, would both point to some diminution in the future supply of carers. This study has shown that carers as a group have often had little experience of paid work, and where they have, it has often been in low-paid and low-level occupations. However, future generations of potential carers are likely to face more conflicts between the opportunities for market work and (so far) unpaid work in caring. Moreover, while carers in the sample were relatively undemanding about the state services which they would like to see as a complement to their efforts, the expectations of many of them were formed a long time ago. The next generation of carers may not be so undemanding.

There are some offsetting points that can be cited against any prediction of a reduced supply of informal carers – such as the increased financial resources (from participation in paid work) which could enable help to be purchased; and the improvements that have occurred over time in housing conditions and in facilities within the home, that make care in the home easier. However, on balance, there is likely to be some diminution in the future supply of informal care hours, on the assumption of no change in payments for informal services. This is especially the case if caring tasks continue to be seen as falling primarily on women.

Outcomes

The focus in this study is on the cost of care. However, comparative analysis based on roughly similar categories of dependency is only one part of the equation. Outcome measurement is difficult but is the next logical step in the process of evaluation. Until such time as benefits are measured, policy-makers should not use the results of this study as a general indicator of relative efficiency, either among institutions or between community and institutional care. Moreover, as mentioned above, what we have estimated both in institutions and in the community, are actual practice, not costs based on optimal practice.

In considering the role of day hospitals, issues of outcome also arise, which were beyond the capacity of this study to evaluate. For instance, there needs to be a division of function between day hospital and other services for elderly people. In principle, patients should not attend a day hospital beyond that point at which further rehabilitation by intensive therapy can be achieved. Beyond that point, a social role is being fulfilled,

which could be provided by lower-cost means than a day hospital. Those who need social care are more likely to obtain it in a cost-effective manner in a day centre or a social centre.

Finally, there is a need for a word of caution against using patient turnover or throughput as a measure of efficiency in long-term care. Throughput is simply a measure of activity. In principle, it would be possible for the discharge rate to increase (and the length of stay to decrease) without outcomes being materially affected – depending on what happened to those discharged in the community, including the subsequent admission rates. Some who are discharged may go to private nursing homes with little or no diminution in resource use for the community as a whole. The success or otherwise of an active discharge policy will depend in particular on the availability of support services during the crucial early period when the elderly person returns home. A successful policy of active discharge may well require a concentration of support services in this early period at home. Finally, comparative analysis based on rates of throughput should compare like with like. In other words, assessment units should not be compared with long-stay units – they are very different forms of care.

IV Issues for Further Investigation

Finally, the issues for future investigation and research, arising from this study, are outlined.

One area of inquiry which is clearly indicated as a priority is the level of benefit which is observed in various forms of care and the relationship between benefit levels and (a) the way in which institutions organise their services, (b) the nature of care given in the home. There are difficult problems to be resolved here. First it can be difficult to estimate the differences in quality of care across institutions. For instance, the quality of care can depend in part on the style adopted by particular institutions, which is not something that can be easily estimated in practice. Second, the outcome of care has a number of different dimensions, such as the strengthening of morale, the compensation for disability, the better integration of the elderly people into society. These elements are difficult to measure. Even if they were readily measurable, there would remain the question of whether they could be grouped into an overall index of outcomes. Third, there are inherent difficulties in trying to estimate the (subjective) levels of satisfaction of the elderly people themselves.

If the benefits from the delivery of services could be estimated together with the costs, it would be possible to move towards cost effectiveness

analysis. Here, there would be comparisons of the costs of providing services in different forms, in order to arrive at a certain level of benefit. In the specific case of day hospitals, outcomes would need to be compared with those under the nearest alternatives, such as day centres, intensive provision of domiciliary care together with visits to out-patient departments.

Another group of questions concerns the relationship between the quantity and quality of care and the availability of facilities. Both in the case of the institutions and in the case of the community sample, there were a number of indications from this study that the differential availability of facilities was a key determinant of differences in levels of service across different forms of care. This was the case, for instance, with paramedical services in institutions, and also with the community care services that are provided through the Health Boards.

This study has estimated dependency levels at a point in time and could not estimate the way in which dependency can change over a period of time. One particular point at which this issue comes up is in relation to the impact of admission policy on the dependency profile of the patients. Some hospitals have changed their policy over time. In earlier years, little or no assessment was used and one would expect that many of those admitted then would have been hospitalised for social reasons. In recent years these hospitals have put more emphasis on assessment. Yet those patients who were admitted for social reasons in earlier years could have become progressively more institutionalised, and more dependent, over time. This type of issue can only be examined by following a group of patients over time, that is by a longitudinal study.

A similar issue arises in relation to the implications of an active discharge policy, raised above when considering patient turnover. More information is required on the long- term health implications of a quick return for elderly people to the community.

Finally, the question has been raised above about the possible difficulties of picking up all the acute episodes that arise for those patients in long-stay institutions. There is a gap in knowledge here about how acute units interact with geriatric care units, and about the cost implications.

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