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**Estimating Demand Pressures  
Arising From Need for Social  
Services for Older People**

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NEED FOR SOCIAL SERVICES FOR OLDER PEOPLE**

**by**

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## 1 INTRODUCTION

The twelve years preceding the introduction of the community care reforms in 1993/4 saw an increased demand for health and social services generated by the increase in numbers of older people (particularly the over 85s) and reflected in the rapid growth of residential and nursing home places over a twelve year period (from 224,000 in 1983 to 427,000 in 1994). While the move into the residential and nursing home sector was partly driven by the perverse incentives offered by social security in the early 1980s, it may also have reflected a real increase in the levels of dependency experienced by older people coming into contact with the services during the period. This has fuelled concern about rising costs. However, there are competing forecasts of how big a burden the costs of care will be. One of the difficulties is in determining how far the burden will fall on statutory services or formal services (provided by either the statutory or independent sectors) and how far the pool of informal carers will be large enough to maintain the level of care which it provides currently. The Institute of Actuaries published an influential paper in 1993 (Nuttall et al, 1993) suggesting that the current cost of informal caring based on a rate of £7 per hour could be estimated at £33.9 billion. The House of Commons Health Committee (1996) took evidence during 1995 and 1996 and concluded that the gloomiest forecasts were unfounded and that radical action was not needed in the immediate future.

Nevertheless, whatever the predictions for the medium and long term, concerns have been raised with regard to current capacities to meet demand. The community care changes resulting from the Act were funded by a transfer, Special Transitional Grant (STG), to the local authorities with which to meet their new responsibilities. There has been a continuing debate as to whether the STG and the SSA allocations have been sufficient to enable them to do this. The Association of Directors of Social Services and the Association of Metropolitan Authorities (now subsumed into the Association of Local Government) have repeatedly called for a review of the current funding of community care saying they are unable to meet the full needs of dependent people (Community Care, 1996, 1997a).

### **1.1 Organisation of this paper**

In the next section, we set out the particular problem posed by the introduction of the STG made to Local Authorities (LAs) after the introduction of the Community Care Act. The background literature is briefly reviewed in section III and the potential data for forecasting in Appendix I. We then divide the forecasting problem into issues of demography and need and between the need for residential care and domiciliary care and these are considered in section IV and V, whilst the funding issues are considered in section VI. The reviews and the estimates are brought together in section VII.

## **1.2 Background to the policy problem**

Questions now arise about what has actually been happening and what is likely to happen to older people who are the major recipients of community care services. The underlying expectation of the reforms was that:

- LA assessment of older people with intensive needs would control and thus restrict entry into residential care through the substitution of (or diversion into) intensive domiciliary care packages;
- individual assessment would lead to the more accurate matching of needs and services;
- the setting of eligibility criteria would provide a rational basis for gaining access to LA supported services in line with available resources;
- the resulting outcome would be a more accurate targeting of services on those with greatest need.

Although forecasts were made of the numbers of older people who would have continued to go into residential care under DSS funding had the old system continued, and assumptions were made about how many of these would be likely to present to LAs for assessment for community-based care, what has actually happened, what is likely to happen, and why, is unclear.

The questions that have to be answered are these:

- how many people have been assessed/supported and will be assessed/supported by LAs as requiring residential or nursing home care or as requiring intensive packages of domiciliary/community care and therefore be diverted from the residential pathway?
- do the numbers match the funding arrangements put in place to cater for them at the time of implementing the reforms?
- to what extent do older people with less intensive care needs have their needs catered for and to what extent do they fall off the end of the queue because eligibility criteria have been set at, or tightened to, a level that excludes them?
- how far does the imposition of charges deter people from presenting for needs assessment? For example, are they refused support and 'go private' or go without services of any kind? Or indeed do they stay away from any contact with the needs assessment process altogether?

The Treasury believe that they are giving more and more money to Social Services whilst the LAs are claiming that because they do not have enough resources to meet existing demand they have to jack up the criteria for assessment. An alternative explanation is that smaller proportions of expenditure are being recouped from those in domiciliary care than those in residential care. Hence the added importance of making a more precise estimate of the level of demand.

This reports sets out to estimate the number of older people in need and the volume of demand for personal social services thus created, in order for these general policy questions to be addressed.

## 2 THE STG ISSUE

During 1992/93 a STG was introduced to compensate for the transfer of responsibilities from DSS to the LAs. The STG is a tapered transfer of resources from DSS to LAs from 1993/94 through 1997/98 for the whole of Great Britain (GB). It was provided to compensate the LAs for the presumed increase in the numbers of residents in nursing and residential homes that they would have to support as a result of the transfer of responsibilities laid down in the Community Care Act 1990. The basis of the calculation for the STG was the rate of increase in numbers of residents in residential and nursing homes (who would have been supported by the DSS at the higher rate of Income Support) from a base of 278.6 thousand in GB 1992/93. The bulk of these - although not all - are places for the elderly.

It should be remembered that these calculations were mostly in order to determine the financial size of the STG and that no great store was set by the precision of the forecasts of numbers of elderly and other claimants as such. However, the underlying presumption was that the LAs would need this level of financial support in order to provide the resource intensive packages that were being envisaged under the Community Care Act in addition to supporting those actually in residential and nursing homes.

The corollary of the financial calculations was the presumption that there would have been an increase in the number of claimants of 30 000 a year (allocated between Residential Care Homes (RCH), Nursing Homes (NH), Hospice Care and Nursing Homes Terminally Ill) if the previous system had carried on. This was based on trends over the previous decade (see Table 1). It was also assumed that there would be a decline in the numbers of these 'preserved rights' cases in both residential and nursing homes, at an estimated rate given in Table 1. Whilst the numbers of residents who had 'preserved rights' was therefore falling quite fast - at the rates indicated in rows 4 and 5 of that table - in order to make up the presumed increase of 30 000 a year in the forecast total numbers of claimants under the old system, the numbers of additional LA supported residents was therefore predicted to have to increase dramatically from a base of 0 in 1992/1993 to 214.42 in 1995/96 (see bottom row of same Table).

These estimates are for GB, and, after applying an adjustment factor of 0.855 to give figures for England, yields an estimate of 183.33 thousand *additional* LA supported residents in 1995/96 and an absolute number of 238.1 thousand *additional* LA supported residents in 1996/97. In fact, the total LA supported residents in recent years have been considerably lower than this.

**Table 1: Forecast Estimates of Implications of Transfer from DSS to LA**

	<b>1992/93</b>	<b>1993/94</b>	<b>1994/95</b>	<b>1995/96</b>	<b>1996/97</b>	<b>1997/98</b>
Claimants old system	278.9	308.9	338.9	368.9	398.9	428.9
RCH Care	155.6	165.6	175.6	185.6	195.6	205.6
Other NH Care		137.1	156.6	176.1	195.6	215.1
Est'd rates decline:						
in RCH Care	0	12.9	31.4	43.6	54.4	64.7
in NH Care	0	18.2	41.9	57.5	70.4	79.1
Extra LA supported:						
RCH Care	0	25.72	65.43	95.02	122.37	148.91
NH Care	0	28.01	79.10	119.40	156.09	187.19
Totals		53.73	144.53	214.42	278.48	336.10

Notes: a) RCH = Residential Nursing Home, b) NH = Nursing Homes. The estimates are based on a presumed increase of 30 000 a year in claimants. The start date for the transfer was 1st April.  
Source: DH Spreadsheet

The DH publish statistics for residents in nursing and residential homes as of 31st March each year. The Statistics for Residents and LA supported residents in residential homes between 1989 and 1996 are given in Table 2. These refer to 31st March of each year. These can be converted by mid-year extrapolation into numbers which correspond to the previous calculations for the predicted numbers of elderly in residential or nursing homes and of the numbers who would have to be supported by LAs.

The total numbers in nursing and residential homes can therefore be estimated by interpolation at 165 000 at 30th September 1995 and 197 000 at 30th September 1996 compared to 101 000 at 30th September 1991. This represents an increase of 64 000 and 96 000 rather than a projected estimate of 183 000 (see commentary on Table 1 above). Hence at least part of the problem.

**Table 2: LA Supported Residents 1993/4-1996/97 (31st March)**

	<b>1994</b>	<b>1995</b>	<b>1996</b>
<b>All client groups</b>	146.3	182.9	210.3
<b>of which elderly</b>	112.0	140.0	112.3
<b>PSD</b>	6.4	7.8	53.3

The first thing to remember is that this is not only an 'elderly' problem: indeed the number of non-elderly among the Preserved Rights cases increased by about 4 700 a year between November 1988 and May 1993 and we can assume that these numbers would have continued to rise.

*(a) Shift in demographic trends*

However, as far as the elderly - who represent nearly 80% of all those in residential or nursing homes - are concerned, it was unrealistic to expect any substantial increase in numbers during the first half of the 1990s because of the downward shift in demographic trends. Just thinking of the numbers in the main potential client group (aged 75+), their numbers have increased from 2.76 million in 1981 to 3.69 million in 2001 and the number of 85+ has nearly doubled from 511 to 987 thousand. However, whilst there was a relatively rapid increase, i.e. at a rate of 64.8 thousand per year, during the 1980s, the rate of increase during the first half of the 1990s was only 13.3 thousand per year (although the rate of increase during the second half of the 1990s is projected to be faster (46 thousand a year). We assume an average rate of increase in the elderly population of 21.5 thousand per year over the period April 1993 to March 1996 - based on an increase of 13.3 thousand per year up to mid-1995 and 46 thousand thereafter). On that basis, the estimated increase in claimants among the elderly should therefore- *on demographic grounds alone* - have been reduced substantially to about 7 600 per year (rather than 25 300 a year).

Even if we assume that the numbers of non elderly claimants would have continued to increase at the rate of about 4 700 a year, then the correct estimate, for Great Britain, would therefore have been about 12300 a year. Interpolating in Table 1 then the additional LA supported residents (all clients groups)) should have been 108.6 in 1995/96 and 167.0 in 1996/97 in Great Britain, and therefore 92.9 in 1995/96 and 142.8 in 1996/7 in England.

*(b) Age distributions*

As we have shown in Table 2, the numbers of elderly in residential homes has risen but not as dramatically as forecast from 69 000 in 1993 to 112 200 in 1996 and just over half of these are aged 85+ (see DHSS, 1996). On this basis we can estimate the numbers of 85+ in residential care homes as in Table 3.

This constitutes an additional partial explanation for the lack of increase in numbers in residential homes, in that the proportions of those in the 85+ age group have increased by nearly 20% since 1989. so that if the age distribution in 1996 had been the same as in 1989, there would have been about 19 000 more elderly in residential and nursing homes.

**Table 3: Estimated age distribution of LA supported elderly residents in residential care homes for the elderly**

	<i>Numbers</i>	<i>under 65</i>	<i>65-74</i>	<i>75-84</i>	<i>85+</i>	<i>Numbers</i>
1989	97.3	2	10	40	47	46.7
1990	90.08	2	10	40	48	44.5
1991	84.6	2	10	39	49	42.3
1992	75.1	2	10	39	51	39.1
1993	68.7	2	10	35	52	36.5
1994	87.9	2	10	35	54	48.4
1995	101.2	2	8	35	56	56.7
1996	112.2	2	9	36	55	61.7

The combination of the two effects means that one might have expected there to be approximately 74,000 and 123 000 additional LA supported residents in residential and nursing homes in 1995/96 and in 1996/97. These numbers are much closer to the actual numbers observed (64 000 and 96 000) confirming that the forecast should not have been taken too seriously in the first place.

However, the apparent lack of 'fit' between the numbers of elderly actually in residential care and the numbers that had been presumed for the sake of the STG, is another reason for trying to define more carefully what is the expected level of demand for residential care from the elderly.

Of course, this is only one half of the problem. There was also the expectation that the amount of community care to be provided would grow ('the diversion'). But as we shall see, it has not. Hence this study: to examine the factors that increase the pressure of demand from the elderly and to propose an approach which could be used to forecast the likely level of demand from the elderly for both residential/nursing home care and care in the community.

The problem for assessing exactly how the 'diversion' has worked out in practice, in addition to knowing the numbers both in residential care and in 'routine' domiciliary care, is therefore to know the following per capita costs:

- the assumed per capita cost in the STG calculation (at 1993 prices) - i.e. the transfer calculations;
- those who have gone into residential care even under current arrangements;
- the average per capita cost of those who have been "diverted".

Whilst the first two of these can easily be estimated, the latter depends on the intensity of care received by those who would have been in residential care.

### **3 BACKGROUND LITERATURE**

There is an extensive literature dealing with the factors which contribute towards stimulating or mitigating demand for personal social services. They range from factors relating to the individual older person (for example, the extent of chronic illness or physical disability) to those which are determined by policies and procedures introduced by service commissioners and providers (charging policies, eligibility criteria).

### **3.1 *Defining and identifying the client base***

Who qualifies to be counted as a recipient of personal social services is the first hurdle to overcome. The extent to which services are then made available to the eligible individual can be examined once the client base is identified. The starting point is to agree terms - in particular, dependency and need. 'Dependency' is the consequence of the state of incapacity stemming from physical or mental illness or disability. There are four questions to answer: how can individual dependency be measured; how can the prevalence of dependency within a population be estimated; how can the need which is created by that dependency be best measured at the individual level and at a population level? The task of saying something about current and future levels of dependency then remains.

#### *3.1.1 Individual dependency*

One of the problems in achieving a consensus about how dependency can best be assessed is the wide range of techniques used for measuring dependency at the individual level (Wilkin and Thompson, 1989; Lawton and Brody, 1996; RCP/BGS, 1992; Dunn and Lewis, 1993). Most commonly used is the scale of core tasks (Activities of Daily Living - ADLs), performance of which are regarded as necessary for survival - including feeding, continence, transferring to and from bed, going to the toilet, dressing, bathing. They form the core, for example, of the Barthel and Guttman scales, both frequently used by clinicians in measuring dependency. Criticisms are levelled at the range of core tasks selected for various reasons: they may not be universally performed by those without a disability (for example, not all able-bodied men cook or housekeep); ability and disability may vary over time; technological advances and improvements in health promotion techniques may lessen the consequences of disability and be differentially accessible to individuals.

#### *3.1.2 Dependency within a population*

Theoretically, there are two ways of assessing levels of dependency within a population - through the aggregation of individual records of dependency (e.g. from general practitioners' records) or through population surveys. Each source currently has disadvantages either because of problems inherent in the data collection systems available or absence of surveys.

In terms of forecasting, the major systematic attempt has been by the Institute of Actuaries (Nuttall et al 1993), and subsequently updated by the Institute of Public Policy Research (Richards et al, 1996). They were attempting to forecast in relation to the cost of long-term care for ALL client groups (all ages, all types). In making their forecasts, they had presumed a decline in the incidence of disability of 0.5% per year and an improvement in mortality 50% higher than OPCS estimates for the general population. Whilst the former hypothesis 'fits' with the compression of morbidity hypothesis - which according to Fries (1980) and Manton and Tolley (1990) suggests that increased longevity will be accompanied by increased good health and disability-free additional years of life - the latter appears highly optimistic since pensioner's incomes declined in real terms over the 1980s and we know that poverty and

not behaviour is the strongest determinant of death. For these reasons, we have not relied solely on their forecasts.

### *3.1.3 Predictors of dependency*

Age is generally accepted as a high predictor of dependency (Astin et al, 1995; Hawker and Cooper, 1985; Bone, 1995; Health Committee, 1995), more so than other variables such as sex, marital status, housing tenure type, household structure, size of house, presence of limiting long-standing illness. Demographic change is likely to highlight this tendency for advancing age to be associated with increasing dependency (Laing and Buisson, 1996; McGlone and Cronin, 1994; Nuttall et al, 1993). The balance between different older age bands will have an impact on demand for services since older people, the older they are, typically make greater demands. Additionally, predicted growth in numbers of older members of ethnic minorities will have an impact on demand (Storkey, 1994). Changes in household structure are also likely to have an effect. Numbers of older people living alone are already substantial, usually following widowhood; 'never marrieds' will increase this number.

### *3.1.4 Needs assessment*

While there are many problems in estimating levels of dependency within the population, translating these into accurate assessments of need is just as difficult. As an organising definition in this review, 'need' is regarded as the expression of an individual's reliance on assistance from an external agent and here, in this context, is specifically concerned with need for support or services. 'Unmet need' is where services are not provided - this may be because those with needs are not known to service providers or because they do not fit criteria (however drawn up) which entitle them to services and they are therefore refused.

For many years, social policy analysts have attempted to construct a taxonomy of need. Bradshaw's (1972) taxonomy describing four categories - normative; felt; expressed; comparative is frequently used. Isaacs and Neville (1975) argued that older people with needs can be divided into three groups - the protected (those in institutions), the defended (those cared for by relatives) and the defeated (those failing to receive basic care or whose relatives face intolerable strain) and with them associated long interval needs (in situations of non-critical disability, such as shopping, cleaning); short interval needs (provision of food and drink but also non-critical because it requires no special skill to provide these services); and critical interval needs (which arise at short and unpredictable intervals). This approach was adopted in the PSSRU study of 600 users undertaken by Davies et al (1990). More recently, PSSRU (1996) has concluded that need is the ability of the individual or collection of individuals to benefit from care, rather than it being an absolute attribute or condition.

Copious guidance has been issued on techniques of needs assessment which have been the subject of debate and development since the mid-1980s (Department of Health, 1993; Meltzer et al, 1992; Department of Health, 1993). Recognising the problem LAs have had in perfecting techniques despite the guidance, the Audit Commission has concluded that 'criteria that define those needing care with sufficient precision to limit expenditure in a predictable way may well be too complicated for people to understand or to operate on a day-to-day basis. Conversely, highly flexible criteria which enable diverse needs to be accommodated 'may make it difficult to estimate financial commitments with any certainty' (Audit Commission, 1996); and others have found great variation in the way needs are measured and assessed (Leicester and Pollock, 1993; Godden and Pollock, 1997). Thus, although meeting some part of unmet need was one of the hoped-for effects of the community care reforms, based on pilot projects conducted by PSSRU in the 1980s



(Bebbington and Davies, 1983; Davies, et al, 1990; Bebbington and Davies, 1993), determining the extent of unmet need has been problematic (PSSRU, 1996; Caldock, 1995). As a consequence, fears have been expressed (Caldock, 1995; Kenny and Edwards, 1996; Phelps, 1997) that services have been denied to those with lower levels of need in order to concentrate on higher levels of need, so overlooking the preventive aspect of early lower level intervention.

### **3.2 Meeting demand for personal social services**

There are two broad sets of factors which influence the degree to which individuals, who might be identified as being eligible on the grounds of dependency, receive services in practice. The first is related to the personal circumstances of the individual; the second relates to policy and practice constraints in operation at the time of need arising.

#### *3.2.1 Personal factors mitigating/stimulating demand*

*Primary* indicators of need are those which constitute clear attributes of dependency, such as: functional ability, physical health including frailty or illness, mental health including cognitive functioning, physical environment or housing, financial resources, social networks and availability of informal carers, carers' needs (PSSRU,1996). Other types of indicator - external to the intrinsic state of dependency - may play a part in either mitigating or stimulating an individual's need for services.

#### *3.2.2 Informal caring*

The part played by informal carers (that is, individuals who are part of the dependent person's own social network - family members, friends, neighbours) who provide care at various levels on an unpaid basis has been recognised (with differing degrees of acceptance) since the early 1980s (Finch and Groves, 1981; Dalley, 1996; Luker and Perkins, 1987; Hicks, 1988; Lewis and Meredith, 1988). GHS data from 1985 (Green, 1988) showed that 6 million people counted themselves as informal carers although there was great variation in the amount and type of caring tasks which people performed. Further analysis of the same data has been undertaken (Arber and Ginn, 1990; Parker, 1985; Parker and Lawton, 1994) and these underline the importance of distinguishing between levels of care given, gender differences, differences between co-resident carers (often spouses) and non-residents. The scale of informal caring, if costed at £7 per hour has been valued at up to £33.9 billion (Nuttall et al, 1993).

For the individual, the presence or absence of informal carers may be crucial (Allen and Perkins, 1995). It may enable the individual to maintain a relatively independent way of life, for much longer than would otherwise have been the case although it may disadvantage the individual in seeking formal care (Luker and Perkins, 1987). Access to informal care may therefore depress demand for, or at least receipt of, services.

### 3.2.3 Carers' needs

If the availability of informal care in some circumstances means that the dependent person is less likely to receive assistance from the formal services, it may also mean that the needs of those doing the informal caring may also fail to be taken into account. A number of studies explore the pressures experienced by carers (JRF, 1994; Twigg, 1992) and while all studies highlight the difficulties of carers (isolation, stress, tiredness), some have acknowledged the satisfaction that they also feel in caring for a loved one (Grant and Nolan, 1993; Nolan, Grant and Keady, 1996).

### 3.2.4 Attitudes towards caring and dependency

Policy-makers have relied on the assumption that the informal caring sector can absorb much or most of the demand for support from dependent older people but this may be at variance with what those people themselves want. Many older people profess a clear wish not to be reliant on their children and would prefer to turn to state services (Sixsmith, 1986). West et al (1984) found that three quarters of respondents preferred to move into sheltered housing rather than move in with relatives. Arber and Ginn (1991) have found similar views prevalent.

### 3.2.5 Personal resources in old age

While the evidence on whether poorer older people are less healthy (and more dependent) than better off older people is scant, poor people are less able to cushion themselves from the effects of dependency by recourse to privately purchased services. They are, consequently, more likely to turn to the statutory sector for support. There is plenty of evidence to show that while pensioner incomes as a whole have risen in the past decade, there has been a substantial widening of pensioner income distribution (Dilnot, et al, 1994; Hancock and Weir, 1994; JRF, 1994; Hutton, 1996). Prospects for increasing numbers of people to receive occupational or private pensions in the future (irrespective of current debates about future pensions policy) are not particularly bright (SSAC, 1994; JRF, 1994). The degree to which individuals have the ability to pay for services is highly variable. The degree to which they are *willing* to pay is a further issue for consideration since there is considerable resistance to the idea of paying for what many consider to be a state responsibility (Best & Lewis, 1996; Parker and Clarke, 1997).

### 3.2.6 Physical environment

The physical surroundings in which older people live may have an impact on their need for services. Those living in inaccessible, damp and cold housing; those who live in fear of falling, or being victims of crime; those who live in isolated places with no local services may all require support from outside services (Hough, 1995; Salvage, 1993). Alternatively these factors may be seen as contributing to decisions to move into residential care (DoH, 1994). Lack of heating has been implicated in increased hospital admissions in the winter (Morgan, Blair and King, 1996).

### 3.3 Policy and practice factors

#### 3.3.1 Preventive services

The availability of preventive services may delay the onset of need for more intensive packages of care (Milne and Morgan, 1997) but runs counter to the principle of targeting services on those with the most intensive needs. The development of very sheltered housing, housing with extra care, and staying put schemes (Anchor, 1996) may all have a preventive effect in the longer term for more intensive services.

#### 3.3.2 Other agencies' policies

The tension between health authorities and social services departments with regard to taking responsibility for frail older people is well documented despite central guidance on setting eligibility criteria and drawing clear boundaries of responsibility (Hinchliffe, 1994; Department of Health, 1995). Criteria were to be set in order to manage the budget rather than with responding to demand (Audit Commission, 1996). Although there is not extensive evidence on the impact on elderly people's preferences for different sources of care, it seems likely that a LA policy which seeks to recoup as much of its expenditure on services as possible through charging will dampen demand. Policies vary substantially (levying flat rates fees as opposed to means testing, for example,) as does the proportion of expenditure recouped (Bennett, 1996; Kenny and Edwards 1996).

### 3.4 Literature review: conclusions

A wide range of factors are likely to affect the overall level and pattern of demand for different kinds of social services and these are summarised in Figure 1. The factors can be differentiated broadly into two groups: those such as demography and dependency and/or disability which can be treated as 'universal'; and those such as living arrangements, availability of informal carers and capacity to pay which are predominantly 'contingent' factors affecting whether, how and via whom those services are delivered. The extent to which the latter factors should be taken into account in deciding upon the level of provision may be a secondary issue. [In fact, it is not as simple as that because some of these latter factors affect the level as well as the chosen provider.]

**Figure 1 : Inter-relationships between demand and individual capacity**

<i>Demand pressures</i>	<i>Individual capacity</i>	<i>Factors mitigating demand</i>
Individual - living alone - onset of dementia - recent hospital episode - recent bereavement	- individual's dependency level defined eg. By ADLs - age of individual	- availability of informal care - individual's resources - (ability to go private) - onset of acute medical need leading to hospitalisation
<i>Policy</i> NHS policies ( <i>withdrawal from long term care; reductions in length of stay</i> )		- tight eligibility criteria - LA charging policies - availability of other services (e.g. respite care)

Other factors may then influence the type and level of service provided e.g. capping the cost of intensive packages of domiciliary care, leading to admission to residential care; sensitivity

to cultural needs (growing numbers of ethnic minority elders requiring culturally specific services). A model is required which forecasts the overall level of demand based on all these factors.

## 4 AN APPROACH TO THE ELDERLY FORECASTING PROBLEM

In principle, we should treat this as a cumulative sequence of forecasting tasks: 1) *demography*: a detailed prediction in terms of demographic trends; 2) *need*: an estimate of the fraction of each of the groups so defined who will be in need (whether of residential or of domiciliary care) based on the Disability Survey, 1994 GHS, NIDAGE etc; then an estimate of the likely division between domiciliary and residential/nursing home care; 3) *funding sources*: introducing the possibility of self-funding/private use. However, partly because none of the data sets are ideal (see Appendix I for details on the OPS ADS, GHS and NIDAGE), this 'building block' approach is less robust than it first appears because of the wide range of some estimates.

### 4.1 Demography

Latest population estimates and forecasts by age group and by marital status are available in the Annual Abstract of Statistics, although there have been some doubts over the forecasts of OPCS (see Murphy 1995). Estimates for 1998/99 can be made for age distributions by simple interpolation between 1996 and 2001; and are shown in Table 4.

**Table 4 : Population Forecasts for the Years 1996 and 2 001**

	1996, Population in 000's			2001, Forecast in 000's		
	65-74	75-84	85+	65-74	75-84	85+
All	4,230	2,510	910	4,036	2,703	988
Male	1,935	985	235	1,890	1,074	265
Female	2,295	1,605	675	2,146	1,630	722

**Source: Annual Abstract of Statistics, 1997 Edition**

Estimates for the division according to marital status can be made by taking account of the distribution of 5 year age groups among 55-74 year olds in order to assess the trend in marriage patterns. However, in terms of the categories that are available for forecasting purposes, we cannot typically distinguish between these categories in other data sets; the useful division - in terms of forecasting demand pressures for social services - is that which is provided in most household surveys between those living alone, those living with spouse and those living with others, although, of course, some fraction of the elderly are in residential care and not in households. If we were to use these estimates then we would have to allow for a higher margin of error (say 5% rather than 2%) in the forecasts of those with different living arrangements (partly because marital status is more difficult to forecast; and partly because of the bias introduced when proxying for 'living arrangements' with marital status).

A possible basis for demographic forecasting of the proportions in each age/sex group living alone/living with spouse and living with others *in the community*, could therefore be based on extrapolation of the proportional trends in the General Household Survey for 1980, 1985, 1991 and 1994 with appropriate adjustments for those in residential care. But extrapolation of this kind depends on an unwarranted confidence that the same samples are being drawn in each year. Instead, we have based the estimates on the 1994 General Household Survey and they are given in Table 5.

**Table 5 : Living Arrangements by Age and Sex, GB 1994**

	<b>65-69</b>	<b>70-74</b>	<b>75-79</b>	<b>80-84</b>	<b>85+</b>
N	1,045	1,075	615	459	307
Men Alone	19	19	25	39	49
Men w/spouse	63	66	62	50	41
Men w/others	18	15	14	10	10
Women Alone	32	46	59	61	70
Women w/spouse	51	40	28	20	10
Women w/others	17	13	13	19	21

Similar data are available for 1980, 1985 and 1991. Obviously given the relatively small numbers involved, not all the trends are consistent. A 'synthetic' estimate has been made for 1996 and 2001 in Table 6. Small adjustments have been made to adjust for those already living in care.

**Table 6 : Synthetic Estimates of Proportions in the Population Living Alone/Living with Spouse/Living with Others Among 65-75 year olds/75-84 year olds and 85+ year olds in 1996 and 2001 (percentages in each age/sex/year group)**

	<b>1996</b>			<b>2001</b>		
	<b>65-74</b>	<b>75-84</b>	<b>85+</b>	<b>65-74</b>	<b>75-84</b>	<b>85+</b>
<b>Men</b>						
living alone	20	40	50	22	42	52
living with spouse	65	50	40	63	48	38
living with others	15	10	10	15	10	10
<b>Women</b>						
living alone	40	60	70	42	62	72
living with spouse	45	25	10	43	23	10
living with others	15	15	20	15	15	18

Source: Extrapolation from General Household Surveys 1981, 1985, 1991 and 1994; and combining with estimates of population from the Annual Abstract of Statistics.

## 4.2 Can We Estimate Overall Need?

In developing a model, we have to decide whether or not to develop separate estimates for domiciliary and for residential care or to develop a combined estimate. The transfer of responsibilities from the NHS to LAs was intended to ensure a 'seamless web of care' between residential and community care. Exactly how far this has happened is contentious. Writing before the Act, Sinclair (1988) said:

It may be that it is a mistake to see domiciliary care essentially as an alternative to residential care. Advocates of meals-on-wheels, home helps or day care tend to stress the importance of these services as enabling old people to remain in their own homes ... In practice, however, these services have rarely been made available in sufficient quantity to provide a realistic alternative to residential care, and their value may lie in their ability to solve the practical problems of many old people rather than preventing the admission of a few. If so, it becomes no longer surprising that reductions or increases in expenditure on residential care have not been related to compensatory changes in domiciliary care. It simply reflects the fact that, in the past, domiciliary care services have not substituted for residential care (Sinclair 1990).

The situation is much less clear after the Act. Although Social Service Departments are supposed to be operating 'a seamless web of care', in practice, however, this appears simply to mean that the cut-off for community care provision is determined '*arbitrarily*' by the (local) price of residential or nursing home care or conversely by the (local) price of intensive packages of domiciliary care.

There are a number of reasons for suggesting that the division be retained. First, the distribution of hours of LA provided home help/care did not change substantially between 1984 and 1994 (GHS 1994); so that the proportions who might have been receiving intensive domiciliary care at about the same cost as residential care was apparently small. Second, that from the LA point of view, the assessment criteria tend to be very different and the likelihood of recouping charges is also very different (much easier, relatively, with those in residential care). Third, that the potential data sources for making the projections are different. On the other hand, the overlap between residential care and intensive domiciliary care was one of the reasons prompting this investigation in the first place (see the discussion of the STG in the earlier report); and, of course, the policy interest is in identifying (and providing care for?) this target group. Indeed, figures for 1995-96 indicate an increase in numbers of domiciliary care hours targeted at a smaller number of households. In modelling terms, we have therefore distinguished here between the need for intensive intervention (including residential care) and need for low-level intensity domiciliary care (the bulk of that care)

The problem therefore has to be divided into two:

- the probability of needing intensive intervention (including entering residential care) for different socio-demographic groups and different health statuses; and then there are subsidiary questions about whether or not the stay will be LA supported.
- the probability of use of mid- to low-level domiciliary social services (from whatever provider) for different socio-demographic groups and different health statuses; and then there are subsidiary questions about the level of use.

### 4.3 Need for intensive intervention (including residential care)

In assessing trends in the need for intensive care (including residential care), there are two main possibilities: either to take as a basis the proportions of each age group who are considered to be disabled according to the criteria adopted in the OPCS Adult Disability Survey; or to extrapolate from the recent survey by PSSRU. A third possibility is to infer from the General Household Survey from among those reporting that they are “unable to manage anything”. Each method has its advantages and disadvantages requiring a decision as to which of the several contributing but contrasting trends are likely to be the most important.

#### 4.3.1. Extrapolating from the OPCS Adult Disability Survey

At the time of the OPCS Adult Disability survey, whilst there was a strong association between severity and the likelihood of being in residential care, there was no one-to-one relationship between severity category and being in residential care (and therefore what was seen as dependency requiring intensive intervention). Moreover, the pattern of admission to residential care is presumed to have changed substantially since entry to residential care was restricted through the mechanism of LA assessment in 1993 and the curtailment of DSS support. Thus, from the point of view of assessing need for intensive intervention (including residential care) now, the only logical way to use the OPCS ADS is to assume that only those with a certain severity level and above - but everyone in those groups - needs the same intensity of continuous (or regular) care; and that the actual demand specifically for residential care will then be determined by the extent to which that care can reasonably be provided at home.<sup>1</sup>

The base estimate of need is therefore simply the proportions in need of Continuous (severity 9-10) or Regular and Continuous (severity 6-10) care; and these can be applied to the estimated numbers in the population in 2 001 in order to provide estimates of the numbers requiring intensive care. This calculation (in Table 7) suggests that 460 400 will require Continuous care (severity 9-10) and 1 377 100 Continuous or Regular Care (severity 6-10).

**Table 7 : Rates per 1 000 population of those needing Continuous or Continuous+Regular Care whether in private or communal households and Forecasts for 2 001**

	<b>65-74</b>	<b>75-84</b>	<b>85+</b>	<b>All 65+</b>
Population forecast 2 001	4,036	2,703	988	7,727
Continuous (Severity levels 1-10)	21.0	61.3	212.4	
Estimated Numbers	84.8	165.7	209.0	460.4
Regular and Continuous (Severity levels 6-10)	81.5	206.0	497.4	
Estimated Numbers	328.9	556.8	491.4	1,377.1

Source: Annex derived from OPCS ADS 1985; and Meltzer (1995)

<sup>1</sup> The difficulty with using the proportions actually in residential care at the time of the OPCS ADS is that there were some people with very low assessed disabilities in residential care (presumably out of choice). Whilst such groups still exist, assuming that the assessment procedures are functioning, then they form part of the purely private market for care, with which we are not concerned?



Note that these projections are (slightly) higher than those derived from Nuttall's or Richard's forecasts. According to their estimates, between 453 000 and 461 000 would be needing Continuous care and between 1 298 000 and 1 326 000 would be needing Continuous and Regular care. For the reasons given above (section 2.1.2), we believe their estimates/forecasts are too optimistic/pessimistic (depends which way you look at it).

Another, probably more sensitive approach, is to take the estimates from Bebbington et al (1996) and apply them to population data. The problem is that the kinds of variables used in their regression analyses are not available on a population basis. Whilst they can be applied by attribution methods to small areas, it is difficult to apply this equation to values for the whole population without incurring a mega-ecological fallacy! (i.e. the presumption that a cross-sectional relationship observed at an individual level can be applied automatically to national aggregates, and this is especially problematic when the original individual level associations were estimated from a logistic regression). We have instead, taken only the proportions from their analysis and adjusted to the actual values (Table 8).

**Table 8 : Risk of Admission to Residential Care by Age Group, Sex, Living Arrangements and Whether or Not Limiting Long Standing Illness (llsi)**

		65 - 74		75 - 84		85+	
		not llsi	llsi	not llsi	llsi	not llsi	llsi
Men	Alone			4.8	0.2		0.0
	W/spouse W/ others			33.8	4.3	66.7	7.7
Women	Alone						0.9
	W/spouse W/ others						

Source: Re-analysis of Residential Admission Survey

On this basis we can estimate that 3.39% of those aged 65-74, 6.69% of those aged 75-84 and 19.85% of those aged 85+ were at risk of entering residential care in 1994 giving a total of 513 700. These can be treated as estimates of the proportions that would require intensive intervention

Finally, the General Household Survey gives estimates of the proportions who are "unable to manage on their own". The minimum estimate is 830 000; and this could be considered as another estimate of the overlap or of those who are most likely to need to enter residential care.

#### 4.3.2 Estimating the overlap

The numbers currently in residential care and the trends since 1990 are given in Table 9 (extrapolated from the data in Laing & Buisson, their table 7.6), together with an estimate of those with Preserved Rights (i.e. those who had been supported prior to the introduction of the Community Care Act).

**Table 9 : Homes, England 1990-1996: All residents, Self-Pay, Preserved Rights and LA supported in Residential and in Nursing Homes (in thousand): E = Estimated.**

		'90	'92	May '93	May '94	'95	Nov '96
All Residents	Residential Nursing	232 80E	231 120E	227 128E	228 131E	226 145E	226 155
Self Pay	Residential Nursing	? ?	? ?	? ?	62 41	56 57	? ?
Preserved Rights	Residents Nursing	n.a	n.a	?	76 71	?	72 37
LA supported	Residents Nursing	90.8	75.1	68.7	89 23	101 39	112 45

Sources: Row 1 Residential Personal Social Service Statistics Residential Accommodation, England, 1996

Row 2 Estimated from Laing and Buisson (because we cannot locate figures on numbers in nursing homes). Table 7.6; however the figure for 1996 is from DoH 1996. ...

Row 3 and 4 are estimated from Laing and Buisson

Rows 5 and 6 are form the Income Support Statistics, Quarterly Enquiry

Rows 7 and 8 Residential Personal Social Service Statistics Residential Accommodation, England, 1996

The numbers in residential care appear to be pretty stable over the decade whilst the numbers in nursing home have nearly doubled. While most of this increase took place at the beginning of the decade as the perverse incentive offered by social security remained available, the latter increase reflects local NHS policies of withdrawal from continuing care provision and placement of dependent older people in private sector nursing homes. The increase since 1992 has been relatively small - of the order of 6 000 a year (which fits with our STG estimate) compared to the trend in the 1980s. Moreover, the increase since 1992 appears to match the increase in the numbers who are LA supported (row 8 in table). We have therefore estimated the numbers in *both* residential and nursing home care to increase by about the same amount (6 000 per year) until the end of the decade. For the year 2 001, this would therefore give an estimate of 405 000 (381 000 + 24 000) in nursing and residential care combined.

We have three estimates of the need for intensive care and an estimate of the tranche next most likely to require residential care. Subtracting the numbers in residential care from these various estimates/figures/forecasts of the numbers requiring intensive intervention yields the following estimates of the numbers who will be requiring intensive intervention *outside* residential care

#### Box A: Estimates of Need for Intensive Intervention outside Residential Care

	OPCS ADS 1985		PPSRU 1994	GHS 1994
	Minimum	Maximum	Unique Estimate	Unique Estimate
Before	460,400	1,377,100	513,700	n.a
After	55,400	982,100	108,700	830,000

## 5 NEED FOR MID- TO LOW-LEVEL DOMICILIARY CARE

### 5.1 Sources for assessing need

In assessing need for domiciliary care, it is clear that there are a number of starting points. The most general measure of 'felt need' (Bradshaw, 1972) is self-reported health in general, or self reported chronic sickness in general. Both these measures were collected for persons in private households in the four General Household Surveys when data was specifically collected on the elderly. Data for both indices and for all four years have been examined in order to assess a trend over 1981-1994 and thence to provide one possible estimate of current need.

A comparison of LLTI rates from the Census for Scotland with the OPCS Disability Survey shows:

- under-reporting begins around age 60 and results in a flatter age gradient for the elderly, i.e. the under-count is relatively worse for the very elderly among whom the need for services is greatest.
- age gradients are steeper for the elderly with more severe disabilities (OPCS severely categories 5-10, 7-10, 9-10) where need is concentrated.

Despite all these caveats, the data from the General Household Surveys of 1994 is presented in Table 10.

**Table 10: Health in general in the year before interview by sex, age and household type, 1994**

	Lives alone		Lives with spouse		Lives with others	
	65-74	75+	65-74	75+	65-74	75+
Men good	40	39	47	33	38	29
Men fairly good	31	39	35	40	41	51
Men not good	29	22	18	27	21	20
Women good	41	30	48	29	35	29
Women fairly good	37	43	36	44	36	42
Women not good	23	27	16	27	29	29

Source: General Household Survey 1994.

However, Health in General by sex and age does not show any particular pattern over time and the comparison of the same question over the years 1980, 1985, 1991, 1994, does not show much of a shift - although you have to remember that the distribution within the different age categories has substantially changed. The analysis is based instead on the proportions according to living arrangements. This generates the following figures for England after scaling down from Great Britain and subtracting the proportions in residential care (based on the analyses of Bebbington's combined survey above).

**Table 11: Need based on General Health Not Good, England**

	65-74			75-84			85+		
	alone	spouse	others	alone	spouse	others	alone	spouse	others
Men	1,811			1,022			222		
Distribution	398	1,141	272	429	491	102	115	84	22
% not good health	29	18	21	25	30	22	20	25	18
Estimated N	115	205	57	107	147	22	23	21	4
Women	2,082			1,514			568		
Distribution	874	895	312	939	348	227	409	575	102
% not good health	23	16	29	26	26	28	28	28	30
Estimated N	201	143	90	244	90	64	115	161	31

On this basis, we can estimate that - out of the 7 219 000 elderly people in the community, 691 000 men (377 + 266 + 48) and 1 139 000 (434 + 398 + 307) women will need non-intensive domiciliary care, giving a total of 1,830,000.

Note however, that there is some controversy over the validity of the self reported health variable in terms of being a general over estimate and although there is some evidence of relative under counting amongst the elderly.

Another approach to assessing need is that based on Activities of Daily Living. These are three basic sources.

- 1) The most well known - and that used in most of the geographical allocation models - is the OPCS Adult Disability Survey carried out in 1985-86. It was based on an initial screen of 100,000 households generating a screened sample of 28,415 (15% of all adults identified) of whom 18,000 were approached for interview and 14,308 (80%) were interviewed. Disability was assessed on a scale from 1 to 10 based on a lengthy questionnaire relating to over fifteen categories of activity. Typical values are given in Meltzer, et al (1995) and this would generate different sets of values for the proportion of elderly persons "in need" according to the level of "severity" which is chosen.
- 2) The second possibility is to use the results from the supplementary sample of the General Household Survey in 1980, 1985 and 1994, when again questions were asked about the ability to manage a variety of domestic and personal tasks.

The main advantage here is that we can assess whether or not there has been a trend in need for given age-sex-living arrangements. The results of this analysis show that there has indeed been a trend, suggesting that it might not be appropriate to rely solely on forecasts based on the OPCS Adult Disability Survey.

- 3) A third source is the comprehensive survey carried out by the Eastern Health and Social Services Board on Northern Ireland in 1994/95 among some 2000 based on an initial screen of 10,000 households. These are the most recent data, paralleling - in certain respects - the OPCS 1986 Survey although using a somewhat different approach to construct indices of severity.

More details of these, and other sources are given in Appendix I.

## 5.2 *Estimations*

The various models that have been used as a basis of needs based planning at SSD level have been comprehensively reviewed by PSSRU (summary in Appendix II). Most are based on rates of disability from the OPCS Adult Disability Survey; one or two on data from the General Household Surveys. The approach here has been to examine what happens when different surveys are used as the basis for forecasting. Note that whilst some of those models use quite sophisticated techniques based on combining survey data with Census Small Area Statistics, these are not seen as necessarily the most appropriate in this context, partly because the data are now very out of date but mostly because the 'synthetic estimation' required would be at the national level with the problems already mentioned. Note also that - in this subsection - we are only estimating the numbers in need of 'routine' domiciliary care: there is still the 'overlap' relating to the care options for those with intensive needs (see Row 2, Box A above)

### *Adult Disability Survey*

These are based on the projections made by Nuttall et al (1993) which have been updated by Richards et al (1996).

**Table 12: Projected Numbers of Disabled Adults (assuming disabled life mortality improves at 1.5 times the rate of population mortality (1.5 x OPCS rates) and incidence rates decrease by 0.5% pa): Adults 60+ in both Private and Communal Households in Great Britain**

	Base Est.	Estimate	Nuttall	Richards
	1991	1998/9	2001	2001
1-2 Low	1,451	1,417	1,403	1,578
3-5 Moderate	1,532	1,503	1,491	1,383
6-8 Regular	1,094	1,096	1,097	1,124
9-10 Continuous	482	547	575	584

Source: Nuttall Table 4, p.17; Richards: Table All their estimates were for all adults and have been adjusted proportionately.

They provided estimates of the 'need-for-care' among 60+ year old adults. After adjusting for the numbers aged 60-64 and scaling down from GB to England, this yields the estimates of need for domiciliary care given in Tables 13a and 13b.

**Table 13a: Estimating from Adult Disability Survey**

	Scale factor for 65+	Nuttall's Forecast	Richard's Forecast
1-2 Low	1,121:1,371	981	1,103
3-5 Moderate	1,271:1,546	1,048	972
6-8 Regular	905:1,005	845	865
9-10 Continuous	419: 454	453	461

**Table 13b: Rates per 1 000 population of those with Moderate or Low severity disability and according to OPCS ADS and corresponding levels of Care and Forecasts for 2001**

OPCS Category	65-74	75-84	85+	All 65+
Population Forecast	4,036	2,703	988	7,727
Moderate rate	102.8	195.5	221.6	
Estimated Numbers	414.9	528.4	218.9	1,162.2
Low rate	122.0	153.5	109.8	
Estimated Numbers	492.4	414.9	405.3	1,312.6

Source: Annex derived from OPCS ADS 1985; and Meltzer et al (1995)

Note that the estimates from Nuttall and Richards are considerably lower: between 972 000 and 1,048,000 requiring moderate care and between 981,000 and 1,103,000 Low care.

#### *General Household Survey*

Carr-Hill and Dalley(1998) show how, based on an analysis of the four General Household Surveys with special sub-samples of elderly:

- there has been a small but steady increase in the proportion of the elderly who are able to manage on their own between 1981 and 1994 so that it is essential to use 1994 data as the start point in any projections (and also casts doubt on the viability of using the OPC Adult Disability Survey carried out in 1985 as a basis);
- a wide range of estimates can be derived depending on whether the basis is on the ability to go up and down or on any one of a list (and - of course - how long that list is!);
- there is a potential problem of low response rates among one-person households needing intensive care.

However, taking a smallest minimum % and a largest maximum % and applying these to population forecasts we obtain the following estimates for 2001.

**Table 14: Estimates for Routine Domiciliary Care from General Household Survey**

	65-74			75-84			85+		
	Lives alone	with spouse	with others	Lives alone	with spouse	with others	Lives alone	with spouse	with others
Men.	398	1,141	272	429	491	102	115	84	22
Minimum %	4	5	6	5	8	5	14	5	12
Estimated N	16	57	16	21	39	5	16	4	3
Maximum %	16	22	17	34	33	37	58	51	45
Estimated N	64	251	46	146	142	38	67	43	10
Women	874	895	312	939	348	227	409	575	102
Minimum %	7	7	9	9	14	16	33	28	30
Estimated N	61	63	28	85	49	36	135	161	31
Maximum %	28	28	37	51	50	48	83	62	61
Estimated N	245	25	115	479	174	109	339	357	62

On this basis, we estimate as a minimum (up and down stairs) that there are 830 000 in need of domiciliary care and as a maximum (any one of a list) 2,712,000.

#### *Northern Ireland*

This survey was carried out in 1996 by Warnes et al in the Eastern Health and Social Services Board in Northern Ireland. Explicit written consent was obtained from 2 734 among 10 000 originally sampled and 2 442 interviews were finally obtained. Compared to the 1991 census, the NIDAGE sample had fewer 85+ year olds and fewer Roman Catholics.

According to their survey, very high proportions need assistance rising from 53% among 65-69 year olds to 94% of 85+ year olds.

**Table 15: Percent Needing Assistance by Age, Living Arrangement, Sex.**

Age	60-64	65-69	70-74	75-79	80-84	85+
	43	53	63	76	87	94
Lives with	spouse	others	alone		Men	Women.
	57	66	71		56	68

Source: Warnes et al

These estimates are based on the recent survey in Northern Ireland.

**Table 16: Estimates Based on Northern Ireland Data**

	65-74		75-84		85+	
	Live Alone	With Others	Live Alone	With Others	Live Alone	With Others
Estimated Proportions	50	40	70	55	90	75
2001 Base Population	1,272	2,620	1,368	1,168	524	783
N Needing Assistance	636	1,048	958	642	472	587

The estimates for 2001 is 4,343,000 are based on the recent survey in Northern Ireland

### 5.3 The problem

The different bases for estimation in the OPCS Adult Disability Survey, General Household Survey and NI Eastern Board Survey) generate very different possible numbers of those needing assistance outside residential care, out of the total estimated 65+ population of 7,727,000 in 2001.

**Obviously, one could play around with forecasts; but this range (a more than 5 fold variation between the smallest minimum and the largest maximum) makes nonsense of forecasting as a 'science'. Even the two fold variations between the estimated minima and maxima is uncomfortable. The basic problem of course is the Northern Ireland data.**

#### Box B Estimates of Need for Routine Domiciliary Care

GHS General Health Not Good	OPCS ADS 1985 Severity 1-5	GHS 1994 Unable to Manage	NI Eastern Board Survey 1996
Unique Estimate + 1 830 000	Min. (3-5) = 1,162,600	Min. = 830,000	Unique Estimate = 4,343,000
	Max. (1-5) = 2,474,800	Max. = 2,712,000	



## 6 DEMAND

A full model of demand should take into account potential variability in the available sources of help and in the ability to pay. We summarise the general tendencies observed in the data below but, because of the problem highlighted above, we have not attempted to make any further 'precise' estimates.

We can only take into account a very limited number of factors in this exercise both because of the data and because of the lack of understanding of how the community care reforms have actually affected the volume and pattern of demand. Indeed there is only a rather limited material concerned with the provision of statutory social services; and with the development (or regression) of the private market. (see the various reports by Laing and Buisson).

### 6.1 Statutory provision

Whether or not elderly who are in need receive statutory assistance depends on a variety of criteria which have been reviewed above in section 2: namely, level of dependency set against LA eligibility criteria; current living arrangements; the acceptability of the assessment procedures to the individual; capacity and willingness to pay, and so on. There are no hard measures available which combine all these factors.

It is possible to use sophisticated methods - as are illustrated in Appendix II (combining local individual survey data with Small Area Statistics from the 1991 Census) - if the focus is on the estimation of the appropriate relative level of provision for relative need. But on a national level, we would have to use the 1994 General Household Survey and - whilst there is every reason to believe in the reliability of that data - the year in which the data was collected was precisely the year in which LAs were having difficulty in making the assessments; and therefore the estimated rates of use in that survey would be on the low side.

**Table 17: Rates of Receiving Domiciliary Help according to GHS and NIDAGE**

GHS all 65+	LA provided home help/care	District Nurse or Health Visitor	Meals on Wheels	LA or voluntary day centre
GHS all 65+	7.3	5.8	2.8	3.3
NIDAGE 65+	% statutory	% informal	% paid	
NIDAGE 65+	32.1	41.3	25.1	

Once again, the estimates from the surveys in Great Britain and Northern Ireland give very different answers. According to the 1994 General Household Survey, under 10% *overall* are receiving statutory help, whilst according to the Northern Ireland Eastern Board Survey about *overall* 30% are receiving statutory help, although both sets of estimates vary substantially with age and living arrangements. Among those '*unable to manage on their own*' (GHS) or '*needing assistance*' (NIEB), the proportions still vary substantially from around 20% in the GHS<sup>2</sup> to over 50% in the NIEB. However, the GHS estimate is much

<sup>2</sup> In GHS data, among those living alone, about half depended either on the state or paid help for bathing and for domestic tasks compared to one in six of those living with spouse or others.

nearer the estimate of the number of households receiving care in the Laing and Buisson market surveys (c. 0.5m out of around 4m pensioner households).

On the basis of the latter observation, we are relying mainly on the GHS 1994: a (rounded) summary is provided in Table 18:

**Table 18: Percentages Receiving Statutory Services by Age and Sex**

	65-74		75-84		85+	
	M	W	M	W	M	W
LA provided Home Help	2	4	8	14	25	27
District Nurse/Health Visitor	2	3	6	10	18	19
Meals on Wheels	0	1	4	3	15	11

Source General Household Survey 1994

Any forecasting therefore depends crucially on: (a) how much we believe that the GHS - or any other sample - has correctly identified the proportions of those living alone and the likelihood of receiving informal care; (b) whether or not we expect demographic patterns to change over the next few years; and (c) whether we expect the pattern of services to change.

*(a) demographic forecasting*

Although we have referred to the problems with forecasting the numbers of elderly people<sup>3</sup>, this is unlikely to be a significant problem over the short term considered.

*(b) the likelihood of receiving informal care*

In general, when forecasting the number of carers, we have to be able to relate the characteristics of carers from samples to the general population. This requires at least two assumptions:

- The model requires that the current allocation of carers to dependents remains roughly constant. That is, available carers provide care. This is not unreasonable given the expected increase in dependents relative to carers.
- Factors beyond the scope of the data do not significantly bias the results; for example, whether or not more geographically separated family structures will change the propensity to provide care.

Whilst this would not in general be a problem over this short period, we have to recognise that our only estimate of the potential for informal support is from the 1994 GHS which was precisely the year in which the proportions of informal carers may have been higher than usual because of the difficulties LAs faced in making their assessments.

<sup>3</sup> In addition, there appears to be a substantial discrepancy between the numbers of 75+ years registered with their GPs compared to the OPCS population forecasts (see Carr-Hill and Roberts, 1999)

*(c) New Labour's New Deal*

The extent to which there should be provision in principle for those already receiving informal help is of course a political decision. Whilst this is clearly a very important decision, the impact on the numbers who might be deemed 'in need' is still smaller than the difference in estimates highlighted above.

## **6.2 Ability to pay**

The final element in what would be a forecasting overlay model is the ability to pay. This has to be more speculative depending on policy and practices, etc.

The literature has shown that there are a variety of factors associated with the ability to pay: the assets of the elderly and, in some circumstances, of their immediate family. There will be more complex effects as well: for example, the volume (and pattern) of demand is likely to shift according to the price.

### *6.2.1 The private market for care*

Information on non-residential care is sparse; and even Laing and Buisson admit to only being able to make guesstimates of the volume. The larger home care operators report that personally paid home care has been static or declining as LA paid home care has been increasing; although the figures for the proportion paying for their own care according to the General Household Survey would support their estimate of around 10% of total volume. Although important therefore in terms of the potential for privatisation, this fraction will not make much difference to the estimates of demand for statutory non-residential care in the short term.

The focus therefore has to be on LA funding of the care market. The data below show that the number of home help hours being provided altogether has increased substantially since 1992 with the bulk of the increase being provided by the private and voluntary sectors; the number of daycare attendances on average each week has also increased substantially with the bulk of the increase being provided by the LA and the voluntary sector; whilst the numbers of meals on wheels has stagnated.

**Table 19: Volumes of LA Funded Community Care Services directly provided and contracted during a survey week, England, September 1992-1995**

			UNDER CONTRACT USING	
			Voluntary	Private NHS
<b>No OF HOME HELP/HOME CARE CONTACT HOURS IN WEEK</b>				
Sept 1992	1,687.0	1,647.8	6,800	32,300
Sept 1993	1,780.8	1,694.3	16,100	70,400
Oct 1994	2,215.1	1,787.0	62,200	366,000
Sept 1995	2,384.1	1,689.0	76,600	618,500
<b>No OF HOUSEHOLDS RECEIVING CARE IN WEEK</b>				
Sept 1992	528.5	517.7	6.8	32.3
Sept 1993	514.6	495.8	16.1	70.4
Oct 1994	538.9	479.3	62.2	366.0
Sept 1995	512.4	420.3	76.6	618.5
<b>No OF DAY CARE ATTENDANCES IN WEEK (Elderly and Physical Disability only)</b>				
Sept 1992	146.8	121.1	2.3	8.6
Sept 1993	159.8	125.5	5.4	13.5
Oct 1994	177.0	132.9	12.8	46.8
Sept 1995	193.4	139.6	16.3	75.7
<b>No OF CLIENTS SERVED MEALS IN A WEEK</b>				
Sept 1992	275.7	156.0	25.3	11.3
Sept 1993	286.9	155.1	33.7	11.1
Oct 1994	300.4	152.0	42.5	16.2
Sept 1995	266.1	125.6	51.3	18.9

Source: Community Care Statistics, 1995

It can be seen from the above table that - in contrast to the findings reported in the General Household Survey - there has been a steady increase in the intensity of care provided from all sources (including by the LA) - with a spectacular increase in the intensity of care being provided by private sources.

However, even if we take a very optimistic view of the potential for private finance, this is not going to alter the picture radically.

## 7 CONCLUSION

The purpose of all this analysis was to make a rough estimate of the future pressure on demand for social services from the elderly populations; and there was a particular concern about the implications of the transfer from Health Authorities to LAs. Although we established that the numbers were never likely to be as large as those suggested, it is clear that forecasting of this kind was always a very inexact science and the purpose here was to suggest possible improvements to those forecasts. We therefore reviewed the literature about the factors affecting the need for social services (in section 3) and examined the relevant data sources (in Appendix I); took best estimates for residential care (in section 4) and domiciliary care (in section 5); and likely trends in provision and in ability to pay.

### 7.1 The estimates

The overall picture is presented in Box C. The numbers estimated in need of Continuous or Continuous and Regular Care based on the OPCS Adult Disability Survey are between 460 400 and 1 377 100; and based on the PSSRU for 1996 they are 513 400. Of these, we have estimated that 405 000 will be in residential care whichever estimate is adopted (row 2). The difference between these two provides the estimate of the numbers requiring intensive domiciliary care outside residential care given in row 3: i.e. between 55 400 and 972 100 based on the OPCS ADS, or 108 700 based on the PSSRU Residential Admission Survey, or 830 000 if we use the minimum estimate from the General Household Survey.

#### Box C: The Final Estimates

	OPCS min	OPCS max	Other estimates	GHS min	GHS max
<b>Total in need</b>	460,400	1,377,100	513,700 <sup>+</sup>	n.a.	n.a.
<b>In residential care</b>	405,000	405,000	405,000 <sup>+</sup>	n.a.	n.a.
<b>Need intensive care</b>	55,400	972,100	108,700 <sup>+</sup>	0	830,000
<b>Need routine dom. care</b>	1,162,600	2,474,800	4,343,000 <sup>*</sup>	1,000,000	2,712,000
<b>Statutory services</b>	800,000	800,000	800,000 <sup>*</sup>	800,000	800,000
<b>Unsatisfied demand</b>	362,600	1,674,800	3,543,000 <sup>*</sup>	200,000	1,082,000
<b>Overall unsatisfied</b>	1,234,700 <sup>1</sup>	2,646,900	3,543,000 <sup>*</sup>	1,030,000 <sup>1</sup>	1,912,000

Sources: OPCS Estimates from Tables 8.3 and 8.8b

GHS Estimates from Tables 8.6 and 8.9: the GHS minimum estimate has been included in row 3

Note: 1. These estimates include the corresponding maximum 'need for intensive care'

+ From PSSRU Residential Admission Survey (Table 8.4)

\* From Northern Ireland Eastern Board Survey (Table 8.10)

*In addition* to the estimates of the numbers requiring intensive intervention but who are supposed not to be in residential care, the estimates of the numbers requiring routine domiciliary care are given in rows 4 to 6. Based on the OPCS Adult Disability Survey, the range of estimates is 1 162 600 to 2 478 800, on GHS data, we have estimates ranging from 1 000 000 to 1 882 000 (in addition to those presumed to require intensive intervention but not in residential care). We could then assume that all these will be provided with service in 2 001 (it is just before the next General Election); or that the current pattern by which the bulk of care for those living with spouse or with other adults is provided by adults living in the households (see Annex HLP 2), with only 10% requiring/using social service input) whilst over 60% of those living alone are using services. This latter calculation yields the estimate of c. 800 000 being provided with statutory services in row 5. Unsatisfied demand for routine domiciliary care is then given in row 6 and overall unsatisfied demand (the sum of rows 3 and 6 is given in row 7).

Even taking the minimum estimates, there obviously is potentially a substantial amount of 'unmet' need which probably accounts for the LA Social Service Departments saying that they are not able to satisfy all assessed need.

To conclude, in relation to the broad question as to whether those with needs are being met or can be met, either in residential care or in the community, depends on where the lines defining intensive, mid- and low-level needs are drawn.

## **7.2 The best source of data**

For estimating the demand for intensive intervention (including residential care), there are a number of issues which are well set out in the PSSRU study: length of stay, type of care, person's ability to pay. Because they (PSSRU) were concerned with providing analyses to inform the Standard Spending Assessments of distribution between authorities, they were only concerned with the relative level of charges that might fall on the LA. This meant that they were only minimally concerned with the large proportion of people who at any one time are self-payers in residential accommodation. But, for the current purpose, the focus should be on all those who are in need of intensive intervention (including residential care), *whether or not LA supported*, and eligibility criteria - or other policy instruments - should be considered separately.

For domiciliary care, whilst the best source for estimating need is probably the SARS database (using coefficients derived from analysis of the GHS Adult Disability Survey), this will not provide any data on those who receive assistance or ability to pay. For this reason, it is probably better - because of consistency of definitions etc. - to rely solely on the series of GHS surveys, with two caveats: the difficulty of assessing precisely who is the provider; the unreliability of self-report data. The former can perhaps be estimated by using a combination of data from LA returns and the Laing and Buisson market research studies; the latter can be assessed using the reported analysis Health Survey for England.

### **7.3    *The transfer problem***

We have shown that:

- a. the increase in residential care has been smaller than forecast;
- b. there are - almost insurmountable - data problems in assessing the level of demand;
- c. however, the estimated minimum number is considerably larger than the combined number in residential care or receiving domiciliary care.
- d. in order to further understand what is happening, we need to collect detailed data on the type of social service provision and specifically the intensity of domiciliary care in order to assess whether more and more is being spent on fewer and fewer and of those with intensive, mid- and low-level needs, who is being refused.

## **APPENDIX I: SCOPING AND EXAMINING DATA SOURCES**

The purpose of this part of the work is to review existing data sources in order to establish which analyses will be crucial for building a forecasting model.

### ***AI.1 Data sources for analysis***

There are several possible national and sub-national surveys. The issue is whether they generate the appropriate data. Bone (1995) identifies the following pre-requisites for a set of data to identify trends in dependency. It should:

- include residents of both private households and communal establishments;
- provide data at an individual level;
- include an appropriate measure of dependency or the data from which one can be derived;
- include data on service use;
- include data on demographic and socio-economic characteristics and circumstances needed to monitor and interpret trends;
- yield adequate numbers of the elderly to permit the detection of change and trends in the items of interest;
- allow population estimates to be made.

In her comprehensive review of the existing and potential sources, she identified the changes that would have to be made to each of the possible sources in order that they could generate such estimates; and concluded that there were possibilities for augmenting the General Household Survey or for repeating the Adult Disability Survey, but that there should also be careful thought given to the possibility of mounting a longitudinal study in order to estimate the rates at which people become dependent or take up services, regain their independence or die.

#### *AI.1.1 General Household Survey (Annual)*

This is a multi-purpose continuous survey of the private household population which currently includes about 3 800 individuals aged 65 and over in Great Britain. Specific questions have been addressed to elderly informants in 1980, 1985, 1991 and 1994 on whether or not 'able to manage to perform' different Activities of Daily living (ADLs)<sup>4</sup>; and on source of help. Both the latter are - obviously - self-report data with the attendant problems of variability in tolerance thresholds. In addition, there is a problem of clarity in the question asked about the kind of provider.

However, these are the only data which will provide a suggestion of trends. For example, Bebbington and Darton (1996) compared the 1980 and 1994 GHS databases and concluded that the expectation of years free of any of four activities of daily living (bathing, transfer,

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<sup>4</sup> Going out of doors and walking down the road, getting up and down stairs and steps, getting around the house (on the level), getting to the toilet, getting in and out of bed; cut toe nails, bath shower and wash all over, dress self, wash face and hands and feed; household shopping, deal with personal affairs, clean windows inside, use vacuum cleaner to clean floors, do jobs involving climbing, wash small amounts of clothing by hand, open screw top bottles or jars, cook a main meal, prepare a snack and make a cup of tea.



feeding, getting to the toilet) for men aged 65 and over has improved from 11.6 years in 1980 to 13.3 years in 1994 and for women aged 65 and over from 14.4 years in 1980 to 15.6 years in 1994.

Two important queries are whether the likelihood of receiving domiciliary care services has increased over the 20 years these questions have been asked; and whether, given the increasing inequalities of income, there has been any effect on the likelihood of being in receipt of domiciliary services. The Tables in the corresponding Chapter of GHS 1994 suggest that there has not been much change across the period.

However, when data for the four years are combined and a relative income variable is defined in quartiles in each year a straightforward logistic regression show that, after controlling for age, gender, general health, whether or not living alone, the probability of **not** being able to manage on their own **has decreased**<sup>5</sup> over the period since 1980, and that there appears to be a slight tendency for this probability to be higher the higher the relative income - at least for some activities (see Carr-Hill and Dalley, 1998). The latter result appears perverse but presumably simply reflects a lower tolerance level among the relatively wealthy. The result remains robust with different groupings (e.g. locomotion, self-care, domestic tasks). It does suggest that the elderly are becoming functionally more autonomous (not the same as healthier); but the tendency is not strong.

#### *AI.1.2 Health Survey for England 1991 and 1992/93*

This is a national household survey among the population 16 +. The 1991 Survey was quite small (3 242 individuals) but the 1992/93 survey was of c. 18 000 individuals in 7 000 + households. Self-report data is collected on the health of all adult members of a household, including general health and long-standing illness or disability, symptoms of cardiovascular disease, brief history of cardiovascular disease related conditions, use of health services (GP or hospital), sports and physical activity, smoking, alcohol, alcohol consumption, eating habits, psycho-social factors, socio-economic details, family history of heart disease. In addition data is collected by a nurse on prescribed medicines being taken, blood pressure, demi-span measurement, waist and hip circumference, blood specimen for analysis of total cholesterol, haemoglobin and ferritin.

Whilst these surveys do not contain any data on use of community health or social services, there are two important uses for the survey in the context of this study:

- (a) because all the adult members of a household are interviewed, we can test the impact of different living arrangements upon the patterns of self-report among the elderly, controlling for the pattern of self-report among other members of the household (the analysis to be based on the data on self-reported health).
- (b) we can compare self-report limiting long-term illness with actual morbidity as assessed by nurse measurements

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<sup>5</sup> In a logistic regression, coefficient values of 1 are equivalent to a zero effect; those less than 1 imply a 'negative' sign.

In fact, a separate analysis of the health and lifestyle survey 1984 (HALS-I) with its follow up in 1992 (HALS-II) has demonstrated that the reporting of limiting long standing illness is affected by prior health service use.

### *AI.1.3 NIDAGE Survey 1994*

This was a survey conducted in the Eastern Health and Social Services Board of Northern Ireland among 2 734 people aged 60 and over who had given their consent to be interviewed (out of an original sample of 10 000 drawn from the NHS Central Patient's Register). Of these, interviews were held with 2 442 people about key 'need and 'care' variables. The focus was on functional restrictions in daily living and of acute health needs. Functional restrictions were measured in three broad groups of activity: indoor and outdoor mobility; aspects of personal care; and other household activities instrumental for independence in daily living<sup>6</sup>.

Need was measured in terms of whether or not respondents could manage to do the activity if it were necessary, and respondents were given a score between 0 and 2; aids and adaptations; and satisfaction and unmet need in respect of personal care, mobility and instrumental activities. In addition, need associated with morbidity and general health was assessed in terms of the prevalence of long term illness, assessments of current health and health one year ago, prevalence of illness or hospitalisation during the last year, and prevalence of registered disability.

Care was measured by asking who provided the care for dealing with functional restrictions (based on a grouping of the twenty one activities) and responses were coded into a dozen categorised covering different type of responses; and about the care provided for dealing with particular health problems (where they were asked whether the care was at home or elsewhere and how often they saw the relevant practitioner); and about whether they received any one of a list of 11 statutory services (home help, district nurse, health visitor, physiotherapist, occupational therapist, disability officer, chiropodist, social worker, care manager, day centre, and any other service).

The key independent variables on which they obtained data were: age, sex, social class, household type, and residential density.

Although this was a geographically restricted survey, it has the advantage of being recent and very detailed. Unfortunately, the data have not (yet?) been released for secondary analyses, so we have to rely on published tables (Warnes et al, 1996). For example, their analyses of the influences in the receipt of statutory assistance (their Table 7.8 p 7:15) that 95+ year olds are 14 times as likely as those 65-69 year olds to receive assistance, those living alone twice as likely as those living with a spouse, but that there was little variation by social class.

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<sup>6</sup> In detail these activities were: mobility (transferring to/from bed, transferring to/from chair, moving indoors on level, internal stairs, entry/exit from house etc., walking outdoors, using motorised transport); personal care (bathing/showering/all over wash, grooming, eating, dressing, bladder continence, bowel continence, use of toilet); instrumental activities (meal preparation, shopping/groceries, shopping/clothes, housework, dealing with money, dealing with room heating, telephoning)

#### *AI.1.4 OPCS Adult Disability Survey 1986*

This is a comprehensive series of four surveys of disability covering children and adults both in private households and in residential care<sup>7</sup>. It focuses on disability, a restriction or lack of ability to perform normal activities, which has resulted from the impairment of a structure or function of the body or mind. and the services they receive. It generated comprehensive estimates of the prevalence of disability by age, degree of severity and type of disability; information about the financial and social consequences of disability, in particular sources and levels of income and the nature and levels of extra costs arising because of disability; and also the effect of disability on employment and mobility.

The crucial data here is the link between severity category and receipt of different services (the survey also collected data on whether or not they had paid for it and how much they had spent; and these data are fundamental to the various models of needs based planning that have been proposed for LAs.

However, eligibility criteria, patterns of service provision and the likelihood of clients paying for the service have changed substantially since 1986. Although, this does not necessarily affect the use of these proportions to assess the relative need between or within authorities (because those three factors are unlikely to be distributed differentially between and within authorities relative to the other dimensions (age, sex, living arrangements)), these changes mean that, whilst the 1986 Disability Survey can reasonably be used as a benchmark because of the wealth of detail in the data set, it cannot be used as the *sole* basis for estimating overall levels of demand in 1998/99 and 1999/2000.

#### *AI.1.5 PSSRU Residential Admission Survey 1995*

The PSSRU survey of admissions to residential care (Bebbington, Brown Darton and Netton, 1996) is based on a survey of all people admitted to LA supported residential and nursing care, excluding planned short term care, during three months at the end of 1995. Some data was obtained for 2 572 cases, although the numbers available for analyses was reduced because of missing data. In order to identify the factors that predict admission to LA supported residential care, the data have been combined with data about the elderly living in private households for the 1994 General Household Survey. Whilst this is very comprehensive analysis, it is restricted to those who are admitted to LA supported care. Given that there are large proportions who are self-paying, this means that it only provides a partial coverage for assessing the potential demand for residential care.

Finally, of course, the extent to which this identifies the likely charge to LAs depends on other factors such as: length of stay as a supported resident; type of care required depending on health and dependency of resident; and the person's ability to pay.

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<sup>7</sup> There is one caveat: the reported level of service receipt in the Disability Surveys was very low. Whilst the ADS applied to all communal establishments, those not catering for disabled people were excluded.

## **AI.2 Which data to use?**

There are therefore a range of available surveys, some focusing on private households and some on communal establishments. As can be seen from the brief commentary after the descriptions provided, none of the data is 'ideal'.

### *AI.2.1 Technical limitations of currently available data*

Like others (e.g. Bone, 1996), we have identified a number of technical limitations of these data sets:

- Limitations of Adult Disability Survey - change of healthfulness of 85+ - between 1986 and 1998
- Significant changes in patterns of admissions to hospital in-patient care and therefore changes in the age-specific patterns of discharge
- Change in availability of informal care
- Wealth will not (??) affect target groups defined in terms of socio-demographics and dependency - only what form of help is sought
- Important changes to community services and take up rates

These problems probably mean that we have to be cautious in using the 'gold standard' - the OPCS Adult Disability Survey - which will be 12 years out-of date if it were to be used as any basis for forecasts in 1998/99 and 1999/2000. The particular problems which are probably most serious are the presumed (positive) trends in the health of the elderly and substantial changes in the pattern of community care after the Act.

### **AI.3 The ideal data set**

In principle data are required on an individual basis of:

- socio-economic background;
- current "need" for different social services;
- likely future need in the next period for different social services;
- availability of informal support;
- ability and willingness to buy private support independently;
- actual utilisation over a period.

These data would enable the correct estimation of a functional relationship at the individual level between need and utilisation and how this is likely to change over the next period. The reality is however, that there is no such comprehensive individual and longitudinal data set. In particular, we have not yet identified a survey of residents of residential or nursing homes which would (a) tell us about their prior socio-demographic circumstances; and (b) about their path into that home (how long, previous spells, etc.) - although the longitudinal follow-up of the PSSRU survey of admissions will provide partial data here.

All estimates in the short term will therefore have to rely on cross-sectional surveys - and the variables that can be estimated robustly on a national level. Of particular concern is:

- whether or not we can rely on self-report data?
- are there any trends over time?
- what is the role of informal care?
- what is the role of self-payment?

**APPENDIX II: POPULATION NEEDS ASSESSMENT MODELS****Background**

Several models have been developed as local planning tools for the purposes of allocating personal social service resources. This annex describes the main feature of them and details what factors have been included

**SSARDU Resource Allocation Decision Support Model****Background**

Developed at Univ of Bath with Gloucestershire then Cheshire SSD, the model is essentially a tool to estimate potential populations in need and then to make decision about allocating resources to those, matching LA criteria for provision. The focus is the estimate of potential numbers of people who present needs in the legitimate expectation of resource provision (Wright and Gould, 1995)

**Method**

The predictive demand section applies national prevalence rates for types and levels of severity of disability from OPCS Surveys of disability to local population figures in specified age groups, SSDD administrative areas and by year (up to 2006). Potential numbers can be calculated for 6 types of physical disability, 4 types of learning disability and 3 levels of mental health problems.

**Comment**

The notion of 'need' refers only to severity of disability and age categories.

**University of York Model****Background**

Developed by York Health Economics Consortium and Social Policy Research Unit of the University of York (Ferguson et al, 1993). Model is based on data from 1991 GHS applied to census data at electoral ward level and then aggregated to SSDs. The primary focus of the model was the assessment of the underlying need for domiciliary services which would indicate the scope for expansion of existing service provision (Astin, Corden and Slack, 1995).

**Method**

Eight areas of 'need' regarding: help with personal care, professional care, help with housework, help with shopping, inability to wash clothes, receipt of meals on wheels, inability to cook a meal and inability to use transport. A log-linear analysis of nine variables common to GHS and the 1991 Census identified four indicators: age, sex, number of people living in household and whether individual has an illness which limits their daily activity (Astin Corden and Slack, 1995). Estimates of need for each service were then derived statistically and predicted proportions were applied to the Census data to estimate numbers in need. These were then compared with estimates of those actually receiving meals on wheels based on GHS responses and with SSDs own estimates of receipt.

**Comment**

Sophisticated in estimation procedure but weaker in that it predicts directly the demand for specific services rather than predicting numbers of people with types of dependency/need for whom alternative strategies might be possible. The model does not consider cost of supply factors nor information from individual needs assessments.

### **Balance of Care Model**

#### **Background**

Originally developed by the DoH Operational Research Service in the 1970s (McDonald et al 1974). The model is based on defining a number of dependency categories based on disability, mental health, continence and social support which can be mapped onto a local elderly population to estimate or determine levels of dependency depending on the availability of local dependency data. For each dependency category a number of care options can be defined and resource consequences of allocating the population of each dependency category to the different options in different ways can be explored. Hence the competing demands of health and personal social services can be examined.

#### **Method**

The Balance of Care System is a spreadsheet model. It comprises 16 default dependency categories which are derived from the local age/sex structure of the elderly population and dependency data from a West Midlands local survey. These can be amended or refined.

#### **Comment**

The survey basis is rather old.

### **Kent Elderly Care Planning Model**

#### **Background**

Developed as a method for forecasting purchasing decisions regarding elderly people living in private residences in the community. The approach is based on the Adult Disability Survey.

#### **Method**

Single factors that might affect each major service are examined based on the Adult Disability Survey.

#### **Comment**

The model assumes that relationships are stable.

### **Price Waterhouse Model**

#### **Background**

The model applies current patterns of service provision to local population census data to predict service requirements over a four year time frame.

#### **Method**

Predictions are made for five client groups: older people, people with physical disabilities, people with medical disabilities, people with learning disabilities, and drug and alcohol users.

#### **Comment**

The model is broad brush and very limited: what else do you expect from a management consultant?

**Age Concern Institute of Gerontology****Background**

The model aims to help LAs plan for local purchasing and commissioning of resources. It aims to reflect DoH guidance.

**Method**

Numbers of older people and their carers in different categories are used. The UK Disability Survey is re-analysed to construct 20 categories of need (high and low severity of behavioural problems; high and low levels of continence problems; high, medium and low severity in terms of locomotion; high and low personal care needs; and high and low levels of informal care provided). The number of carers is estimated also from the OPCS Disability Survey. These figures are then applied to the 1991 Census to give an estimate of the numbers of people living at home with and without some informal care and the number of people caring for them.

The user then defines the kind of service required for each category and the carers which would be required in order that they could stay at home. Costs are calculated based on Netten and Dennett (1996).

**Comment**

The number of target groups is larger than most other methods but it does not use any local data, nor does it reflect any variation in local provision.

**The PSSRU Model**

The aim is to synthesise a wider range of more representative local data, to address a mixed economy of care from a plurality of sources.

**Method**

First develop or refine local needs groups definitions and identify target groups. Methods of measuring the level of each domain of need are then developed and applied combining local views and national literature. Estimates of the number in each group are then calculated based on evidence from OPCS Disability Survey (1985) and the numbers in each group expected to request LA services. Population estimates are then linked to service patterns and cost data from a case sample to generate predictions of costs, which can be varied according to different assumptions about take up and substitution.

**Comment**

Groups are specified to a level of precision that allows detailed discussion of the consequences of different options for intervention.

## REFERENCES

- Allen, I and Perkins, E (eds) (1995) *The future of family care for older people*, HMSO, London.
- Anchor, (1996). *Anchor Directory of Services*, Anchor Housing, Oxford
- Arber, S and Ginn, J (1990) The meaning of informal care: gender and the contribution of elderly people, *Ageing and Society*, 10, 4.
- Arber, S and Ginn, J (1991) *Gender and later life: a sociological analysis of resources and constraints*, Sage, London.
- Arber, S, Gilbert, N and Evandrou, M (1988) Gender, household composition and receipt of domiciliary care, *Journal of Social Policy*, 17, 2.
- Astin, M., Corden, A. and Slack, R. (1995). Estimating the need for care at home: a tool for LAs? *Research, Policy and Planning*, 13, 1/2.
- Audit Commission (1992) *The community revolution: personal social services and community care*, HMSO, London.
- Audit Commission (1993) *Taking care: progress with care in the community*, HMSO, London.
- Audit Commission (1994) Taking stock: progress with community care, *Community Care Bulletin*, 2.
- Audit Commission (1996) Balancing the care equation: progress with community care, *Community Care Bulletin*, 3.
- Bebbington, A., Turvey, K. and Janzon, K. (1996). Needs based planning for community care, PSSRU Discussion Paper 1206, University of Kent: Canterbury.
- Bebbington, A et al (1996) *Survey of admissions to residential care: SSA analysis report*, PSSRU, Canterbury.
- Bebbington, A and Darton, R (1996) *Healthy life expectancy in England and Wales*, PSSRU, Canterbury.
- Bebbington, A and Davies, B (1983) Equity and efficiency in the allocation of personal social services, *Journal of Social Policy*, 12,3.
- Bebbington, A and Davies, B (1993) Efficient targeting of community care: the case of the home help service, *Journal of Social Policy*, 22, 3.
- Bennett, F. (1996). Highly charged: policy issues surrounding charging for non-residential care, Joseph Rowntree Foundation, York.
- Best, R and Lewis, J (eds) (1996) *Meeting the costs of continuing care: recommendations*, JRF, London.
- Bone, M, Bebbington, A.C., Jagger, C. and Morgan, K. et al (1995) *Health expectancy and its uses*, HMSO, London.
- Bone, M (1995) *Trends in dependency among older people in England: a review carried out on behalf of the Department of Health*, OPCS, London.
- Bowling, A and Farquhar, M (1991) Psychiatric morbidity and service use among elderly people, *Ageing and Society*, 11, 3.



Bowling, A, Farquhar, M and Browne, P (1991) Use of services in old age: data from three surveys of elderly people, *Social Science Medicine*, 33, 6.

Bradshaw, J (1972) The concept of social need, *New Society*, 30 March.

Caldock, K (1995) Unmet need in social care: a tale of confusion?, *Generations Review*, 5, 4.

Carr-Hill, R. and Dalley, G. (1998). *Estimating Demand for Social Services from Older People* Report to the Department of Health, University of York and Centre for Policy on Ageing

Carr-Hill, R.A., Dixon, P., Mannion, R., Rice, N., Rudat, K., Sinclair, R. and Smith, P.C. (1997). *A model for the determination of expenditure on Children's Personal Social Services*. Centre for Health Economics: University of York.

Carr-Hill, R. and Roberts, D. (1999). Letter, *British Medical Journal*, 1999.

Carr-Hill, R and Sheldon, T (1992) Rationality and the use of formulae in the allocation of resources to health care, *Journal of Public Health Medicine*, 14.

Challis, D and Warburton, W (1996) Performance indicators for community-based social care: from theory to practice, *Care Plan*, 2, 4.

Challis, L and Henwood, M (1994) Equity in Community care, *British Medical Journal*, 309.

Champion, A (1992) Urban and regional demographic trends in the developed world, *Urban Studies*, 29, 3/4.

Chancellor of the Exchequer et al (1996) *A new partnership for care in old age*, HMSO, London.

Cole, K. (undated). *The 1991 Local Base and Small Area Statistics*. Census Dissemination Unit, University of Manchester.

Community Care (1996) 11-18 January.

Community Care (1997a) 8-14 May.

Community Care (1997b) 10-16 April.

Community Care (1997c) 27 April- 2 May.

Cullen, M et al (1993) The Gospel Oak project 1987-1990: provision and use of community services, *Health Trends*, 25.

Dalley, G (1996) *Ideologies of caring*, Macmillan/CPA, London.

Davies, B (1993) On the sensitivity of need estimates to targeting criteria, *International Journal of Health Sciences*, 4, 4.

Davies, B (1997) *Estimating demand pressures from needs for social services for elderly people* (draft for discussion), PSSRU, Canterbury.

Davies, B and Wittenberg, R (1996) *Long-term care: demand, supply and finance* (PSSRU Bulletin 10), PSSRU, Canterbury.

Davies, B, Bebbington, A and Charnley, H (1990) *Resources, needs and outcomes in community-based care*, PSSRU, Canterbury.

Davies, B, Fernandez, J and Saunders, R (1996) *Effects of benefits in cash and kind and entry of elderly persons to institutions for long-term care in England and France*, Discussion Paper 1155, PSSRU, Canterbury.

Davies, B, Fernandez, J and Warburton, R (1996) Post-reform community care for elderly people: who gets how much of what service?, *Care Plan*, 3,2.

Davies, B, Warburton, W and Fernandez, J (1995) Do different case management approaches affect who gets what?, *Care Plan*, 2, 2.

Davies, J., Hoshi, H. And Clarke, L. (1997). 'Is it cash that the deprived are short of?' *Journal of the Royal Statistical Society: Series A* 160(1) pp. 107-126.

Department of Health (1989) *Caring for people* (white paper), HMSO, London.

Department of Health (1993) *Assessment special study: a joint SSI/NHSME study of assessment procedures in five LA areas*, NHSME, Leeds.

Department of Health (1994). *Residential Accommodation Statistics, 1994*, London: DoH.

Department of Health (1995) *NHS responsibilities for meeting continuing health care needs*, HSG (95) 8, HMSO, London.

Department of Health (1996) *Residential accommodation statistics 1996*, DOH, London.

Department of Health/Price Waterhouse (1993) *Implementing community care: population needs assessment: good practice guide*, DOH, London.

Diamond, I., Simpson, S., Middleton, E., Lunn, D. and Tye, R. (1997). Estimating with confidence: making small area population estimates in Britain. Centre for Census and Surveys: The University of Manchester.

Dilnot, A et al (1994) *Pensions policy in the UK: an economic analysis*, Institute for Fiscal Studies, London.

Duncan, A. And Smith, P. (1995). Modelling local government budgetary choices under expenditure limitation, *Fiscal Studies*, 16(4), 95-110.

Dunn, R and Lewis, P (1993) Compliance with standardised assessment scales for elderly people among consultant geriatricians in Wessex, *British Medical Journal*, 307

Evandrou, M et al (1985) *Who cares for the elderly?: family care provision and receipt of statutory services*, University of Surrey, Guildford.

Ferguson, B., Munro, S., Slack, R. Williams, L., Davidson, C., Parker, G., Astin, M., Corden, A. and Meetham, K. (1993). *Caring for People who Live at Home*, University of York, York Health Economics Consortium and Social Policy Research Unit.

Finch, J (1989) *Family obligations and social change*, Polity, Cambridge.

Finch, J and Groves, D (1980) Community care and the family: a case for equal opportunities, *Journal of Social Policy*, 9,4.

Finch, J and Mason, J (1990) Filial obligations and kin support for elderly people, *Ageing and Society*, 10, 2.

- Flowerdew, R., Francis, B. And Lucas, S. (1994). The Standing Spending Assessment as a measure of spending needs in non-metropolitan districts. *Environment and Planning Government and Policy*, 12(1), 1-14.
- Fries, J (1980) Ageing, natural death and the compression of morbidity, *New England Journal of Medicine*, 303.
- Fries, J (1984) The compression of morbidity: miscellaneous comments about a theme, *The Gerontologist*, 24, 4.
- Godden, S and Pollock, A (1997) Everybody counts: health and LAs need to use population-based data if they are to ensure equitable community services, *Health Service Journal*, Feb 20.
- Goldstein, H. (1995). *Multilevel statistical methods*, London Arnold.
- Gould, J (1995) A little help can go a long way, *Care Plan*, 1, 4.
- Grant, G and Nolan, M (1993) Informal carers: sources and concomitants of satisfaction, *Health and Social Care in the Community*, 1, 3.
- Green, H (1988) *Informal carers*, HMSO, London.
- Hall, J., Preston, L. And Smith, S. (1995). *Alternatives to current regression methods in the calculation of standard spending assessments*, London IFS.
- Hancock, R and Weir, P (1994) *More ways than means: a guide to pensioners' incomes in Great Britain in the 1980s*, ACIOG, London.
- Harrison, R, Salva, N and Kafetz, K (1990) Dementia, depression and physical disability in a London Borough: a survey of elderly people in and out of residential care and implications for future developments, *Age and Ageing*, 19, 2.
- Hawker, M and Cooper, M (1985) The balance of care, *Community Care*, 555 (March 21).
- Health Committee (1995) *Long-term care: NHS responsibilities for meeting continuing health care needs (first report)*, HMSO, London.
- Health Committee (1996) *Long-term care: future provision and funding: third report*, HMSO, London.
- Hicks, C (1988) *Who cares?: looking after people at home*, Virage, London.
- Hinchliffe, (1994) *Passing the buck: cost-shunting from the NHS to LAs*, Labour Party, 1994.
- Horobin, G (1987) *Why day care?*, *Research Highlights in Social Work 14*, Jessica Kingsley, London.
- Hough, M (1995) *Anxiety about crime: findings from the 1994 British crime survey*, HOR/SD, London.
- Hutton, S (1996) Current and future income for older people, *Ageing and Society*, 16.6.
- Iliffe, S et al (1992) Are elderly people living alone an at risk group? *British Medical Journal*, 305.
- Inquiry into Provision for Retirement (1984) *Population, pension costs and pensioners' income: a background paper for the Inquiry into Provision for Retirement*, HMSO, London.
- Issaacs, B and Neville, Y (1975) *The measurement of need in old people*, Scottish Home and Health Department, Edinburgh.

Johnson, N et al (1991) Use of computerised general practice data for population surveillance: comparative study of influenza data, *British Medical Journal*, 302.

Joseph Rowntree Foundation (1993) *Financial resources of older people and paying for care in later life: findings* (social policy research 40), JRF, York.

Joseph Rowntree Foundation (1994) *Support networks of older people and the demand for community care services: findings* (social care research 47), JRF, York.

Joseph Rowntree Foundation (1994) *The financial well-being of elderly people: findings* (social policy research 57), JRF, York.

Joseph Rowntree Foundation (1996) *The impact of European union law on pensions in the UK: findings* (social policy research 102), JRF, York.

Judge, K and Mays, N (1994) Allocating resources for health and social care in England, *British Medical Journal*, 308.

Kasper, J, Steinbach, U and Andrews, J (1994) Caregiver role appraisal and caregiver tasks as factors in ending care giving, *Journal of Ageing and Health*, 6, 3.

Kenny, D and Edwards, P (1996) *Community care trends: the impact of funding on LAs*, Local Government Research Board, Luton.

Kingson, E (1996) Ways of thinking about the long-term care of the baby-boom cohorts, *Journal of Ageing and Social Policy*, 7, 3/4.

Kunkel, S and Applebaum, R (1992) Estimating the prevalence of long-term disability for an ageing society, *Journals of Gerontology*, 47, 5.

Laing and Buisson (1996) *Laing's review of private healthcare 1996*, Laing and Buisson, London.

Laing and Buisson (1996) *The UK domiciliary care market: market report*, Laing and Buisson, London.

Laing and Buisson (1998). *Care of elderly people: market survey*. Laing and Buisson, London.

Lawton, M and Brody, E (1969) Assessment of older people: self-maintenance and instrumental activities of daily life, *Gerontologist*, 9.

Lechner, V and Sasaki, M (1995) Japan and the US struggle with who will care for our ageing parents when caregivers are employed, *Journal of Gerontological Social Work*, 24, 1/2.

Leibovici, D, Curtis, S and Ritchie, K (1995) The application of disability data from epidemiological surveys to the development of indicators of service needs for dependent elderly people, *Age and Ageing*, 24.

Leicester, M and Pollock, A (1996) Community care in South Thames (West) Region: is needs assessment working?, *Public Health*, 110.

Leigh, J and Fries, J (1994) Education, gender, and the compression of morbidity, *International Journal of Ageing and Development*, 39, 3.

Levin, E, Sinclair, I and Gorbach, P (1985) The effectiveness of the home help service with confused old people and their families, *Research, Policy and Planning*, 3, 2.

Lewis, J and Meredith, B (1988) *Daughters who care: daughters caring for mothers at home*, Routledge, London.

Luker, K and Perkins, E (1987) The elderly at home: service needs and provision, *Journal of the Royal College of General Practitioners*, 37.

Manton, K (1986) Past and future life expectancy increases at later ages: their implications for the linkage of chronic morbidity, disability and mortality, *Journals of Gerontology*, 41,5.

Manton, K.G., Tolley, D.H. (1990) "Rectangularisation of the survival curve: implications of an ill-posed question. *Journal of Ageing and Health*, 3: 172-19

Martin, J, Meltzer, H and Elliot, D (1988) *The prevalence of disability among adults*, Report 1, HMSO, London.

Martin, J and White, A (1988) *The financial circumstances of disabled adults living in private households*, Report 2, HMSO, London.

Martin, J, White A and Meltzer, H (1988) *Disabled adults: services, transport and employment*, Report 4, HMSO, London.

Mc Clenahan, J (1987) *Planning for the elderly: achieving a balance of care*, King's Fund,

McDonald, A.G., Cuddeford, G.C. and Beale, E.M.L. (1974). Mathematical Models of the Balance of Care, *British Medical Bulletin*, 122, pp64-67.

Mc Glone, F and Cronin, N (1994) *A crisis in care?: the future of family and state care for older people in the European Union*, CPA/Family Policy Studies Centre, London.

Means, R and Langan, J (1996) Charging and quasi-markets in community care: implications for elderly people with dementia, *Social Policy and Administration*, 30, 3.

Meltzer H. et al (1992) *Epidemiologically based needs assessment*, NHS Management Executive, Leeds.

Milne, A. And Morgan, D. (1997). A stitch in time. *Community Care*, 1179, 3 July.

Mintel (1997) *The Fleming pension map of Britain 1997*, Flemings, London.

Morgan, R, Blair, A and King, D (1996) A winter survey of domestic heating among elderly patients, *Journal of the Royal Society of Medicine*, 89.2.

Murphy, M.J. (1995). Methods of forecasting mortality and their performance, *Reviews in Clinical Gerontology*, 5, 2, pp217-227.

National Association of Health Authorities and Trusts (1995) *A health authority perspective of community care: a survey of STG agreements 1995/6*, NAHAT, Birmingham.

National Institute for Social Work (1994) *Charging for social care*, NISW, London.

Netten, A and Dennett, J (1996) *Unit costs of health and social care 1996*, PSSRU, Canterbury.

Newnham, D et al (1996) Self-funding and community care admissions to nursing homes in Aberdeen, *Health Bulletin*, 54, 4.

Nolan, M, Grant, G and Keady, J (1996) Assessing carers' needs: developing an appropriate framework future practice, *Baseline*, 61.

Nuttall, S et al (1993) *Financing long-term care in Great Britain*, Institute of Actuaries, London.  
Oldham, C (1991) *Paying for care: personal sources of funding care*, JRF, York.

- Opit, L and Pahl, J (1993) Institutional care for elderly people: can we predict admissions?, *Research, Policy and Planning*, 10, 2.
- Parker, G. (1985) *With due care and attention*. Family Policy Studies Centre.
- Parker, G. And Clarke, J. (1997). Paying for care in old age: a national survey, *Changing Britain*, 7.
- Parker, G and Lawton, D (1994) *Different types of care, different types of carer: evidence from the GHS survey*, HMSO, London.
- Personal Social Services Research Unit (1996) *Needs- based planning for community care: current developments and future challenges-assessing problems and benefits*, PSSRU, Canterbury.
- Phelps. L (1997) *Rationing community care*, NACAB, London.
- Qureshi, H (1990) A research note on the hierarchy of obligations among informal carers- a response to Finch and Mason, *Ageing and Society*, 10, 4.
- Richards, E (with Wilsdon T and Lyons S) (1996) *Paying for Long-Term Care*, Institute for Public Policy Research, London.
- Roberts, S and Norgard, T (1996) Long-term care policy based on ADL criteria: impact on community dwelling elders not meeting the criteria, *Journal of Gerontological Social Work*, 25, 3/4.
- Royal College of Physicians/British Geriatrics Society Research Unit (1992) *Standardised assessment scales for elderly people*, BCP/BGS, London.
- Salvage, A (1993) *Cold comfort: a national survey of elderly people in cold weather*, Age Concern England, London.
- Scobie, S, Basnett, I and Mc Cartney, P (1995) Can general practice data be used for needs assessment and health care planning in an inner London borough?, *Journal of Public Health Medicine*, 17,4.
- Scott, H (1992) A serious challenge? Black and ethnic minority older people in Scotland, *Elders: The Journal of Care and Practice*, 1,3.
- Shantakumar, G (1996) Preparing for the greying century: lessons from an industrializing country and future developments, *Ageing International*, Summer.
- Sinclair, I (1988) Social work and personal social services for the elderly in Great Britain, *Journal of Gerontological Social Work*, 12,1/2.
- Sixsmith, A.J. (1986). Independence and home in later life. In Phillipson, C. et al. (eds.), *Dependency and Interdependency in Old Age - theoretical perspectives and policy alternatives*, BSG, Beckenham.
- Smith, M., Robins, P. and Duffy, B. (1992). *The prevalence of disability among children in Northern Ireland. PPRU Surveys of Disabilities Report 2*. PPRU: Belfast.
- Spence, S and Atherton, C (1991) The black elderly and the social services delivery system: a study of factors influencing the use of community-based services, *Journal of Gerontological Social Work*, 16, 1/2.
- SSAC (1994) *State benefits and private pensions-the review of Social Security: a report by the Social Security Advisory Committee*, SSAC, London.
- Storkey, M (1994) *London's ethnic minorities: one city many communities*, London Research Centre,

London.

Thane, P (1988) The growing burden of an ageing population? *Journal of Public Policy*, 7, 4.

Thomas, R.W. and Warren T. (1997). Evaluating the role of regression methods in the determination of Standard Spending Assessments. *Environment and Planning C Government and Policy*, 15(19), 53-72.

Turvey, K. (1995). *Needs based planning: use of information from individual assessments to develop population estimates of need and use of resources*, PSSRU Discussion Paper 1136. University of Kent: Canterbury.

The Times (1997) 1 August, p4.

Twigg, J (1992) *Carers: research and practice*, HMSO, London.

Verbrugge, L (1991) Survival curves, prevalence rates, and the dark therein, *Journal of Ageing and Health*, 3, 2.

Vetter, N et al (1992) Supporting elderly dependent people at home, *British Medical Journal*, 304.

Victor, C and Vetter, N (1986) Poverty, disability and use of services by the elderly: analysis of the 1980 GHS, *Social Science Medicine*, 22, 10.

Warnes, A (1989) Elderly people in Great Britain: variable projections and characteristics, *Care of the Elderly*, 1.

Warnes, A, Ashe, A and Peters, D (1996) *Age, deprivation, and needs for health and social services among elderly people*, Phase II Final Report.

West, P., Illsley, R. and Keliman, H. (1984). Public preferences for the care of dependency groups. *Social Science and Medicine*, 18, 4.

Wilkin, D and Thompson, C (1989) *Users' guide to dependency measures for elderly people*, Social Services Monographs, University of Sheffield, Sheffield.

Wright, J. and Gould, N. (1995). *Theoretical and Conceptual Issues in the Measurement of Dependency*, University of Bath.

Young, J (1993) Resource allocation to the aged according to greatest social need, *Journal of Ageing and Social Policy*, 5, 3.