

27th March 2006

**EXPENDITURE ON SOCIAL CARE FOR OLDER PEOPLE TO 2026:
PROJECTED FINANCIAL IMPLICATIONS OF THE WANLESS REPORT**

**Juliette Malley¹, Adelina Comas-Herrera¹, Ruth Hancock²,
Ariadna Juarez-Garcia³, Derek King¹ and Linda Pickard¹**

¹ Personal Social Services Research Unit, London School of Economics

²Department of Health and Human Sciences, University of Essex

³Health Services Management Centre, University of Birmingham

PSSRU Discussion Paper 2332

**PERSONAL SOCIAL SERVICES RESEARCH UNIT
LSE HEALTH AND SOCIAL CARE
LONDON SCHOOL OF ECONOMICS**

Acknowledgements

This paper arises from research financed by the King's Fund on behalf on the Wanless Review. It builds on the PSSRU model, which was developed with financial support from the Department of Health; the CARESIM model, which was developed with financial support from the Nuffield Foundation; and linkages between the models, which were funded by the Institute for Public Policy Research (ippr) and the Nuffield Foundation.

Material from the Family Resources Survey and the General Household Survey is crown copyright, made available by the Office for National Statistics via the UK Data Archive and is used with permission.

The authors are grateful to the Wanless Review team for funding the modelling and analysis set out in this paper and in particular to Julien Forder and Jose-Luis Fernandez for their contribution to the modelling and their helpful comments on an earlier version of this paper.

All responsibility for the analysis and views expressed in this paper rests with the authors. It should be made clear, however, that the authors of this paper are independent of the Wanless Review team and have not participated in the development of the normative approach adopted by the Wanless Review team.

1 Introduction

As part of the Wanless Review of social care for older people, the King's Fund commissioned the Personal Social Services Research Unit (PSSRU) at the London School of Economics and the University of Essex to make projections of expenditure on social services for older people. This paper presents the results of the research. It reports on projections to 2026 of demand for social services for older people and associated expenditure in England.

The approach taken by the Wanless Review team is described in detail in their report, *Securing Good Care for Older People: Taking a long-term view* (Wanless 2006) and can be characterised as 'normative'; projections are based on various assumptions about how, in the view of the Wanless Review team, services *should* be allocated to achieve stated outcomes. This represents a departure from the 'positive' approach taken by the PSSRU long-term care team, where projections are based on analyses of how services are *currently* allocated. A separate version of the PSSRU long-term care finance model has been developed to produce the analysis commissioned by the Wanless Review team. The structure and basis of the Wanless Review version of the model, however, draws on existing work carried out by the PSSRU long-term care team and established links with the CARESIM model at the University of Essex.

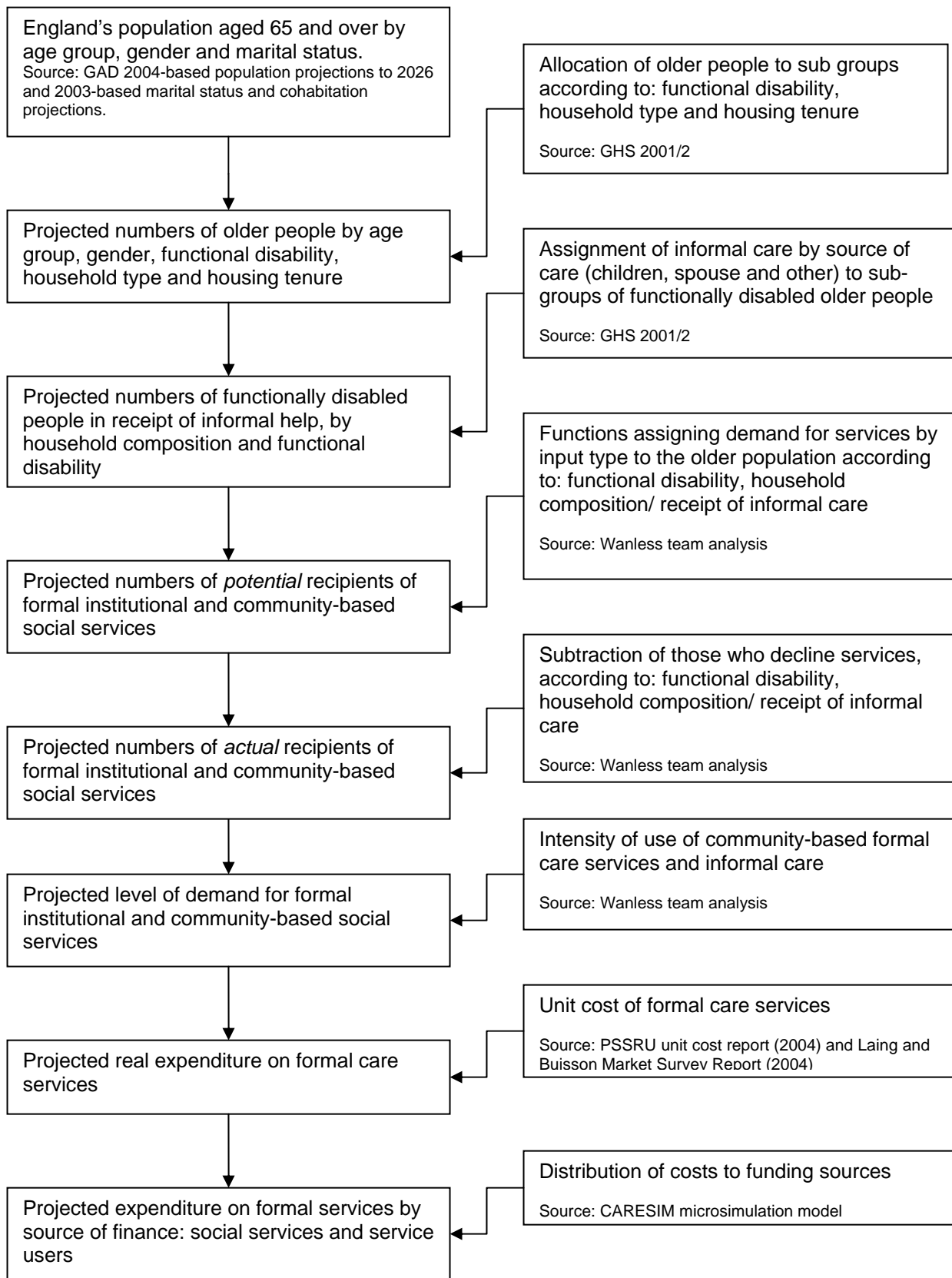
It should be emphasised that the estimates provided by this report are not forecasts about the future; they are projections on the basis of specific assumptions about future trends. This is of particular importance to the Wanless Review version of the model as it assumes a completely different pattern of services, based on explicitly stated outcomes that, in the view of the Wanless Review team, should be delivered by social services. We can never know with any degree of certainty how people will react to changes in a system, especially one as complex as social services; we can only extrapolate how they might behave according to past behaviour.

The paper has five sections. A description of the models used to produce the projections in this report is given in section two. Section three discusses the main projections. Three different scenarios are presented that model the two possible future service models commended by the Wanless Review team and a further scenario reflecting existing patterns of care. In section four we explore the sensitivity of these projections to changes in key assumptions. Section five concludes the paper with a brief discussion.

2 Description of models

In this section we describe the models used to produce the projections reported in this paper. The PSSRU Wanless Review model is described first as it is this model that is used to produce the projections of numbers of service users and overall expenditure; the CARESIM model is then described. The models have been used in conjunction with other studies in order to address the question of how costs would be divided between public and private sources of finance under different charging systems. In effect the models work together by examining the effect of changing the charging system on the split between sources of funding. Several different scenarios have been developed over a series of papers (Wittenberg *et al* 2002; Hancock *et al* 2003; Hancock *et al* 2006). For the purposes of this report we have considered only two of the scenarios : how expenditure would be broken down by source under the current funding system and under a policy of 'free' personal care; a detailed discussion of how changes to the charging system would alter the balance between public and private contributions to financing social services is found in Hancock *et al* (2006). Figure 1 provides an overview of the PSSRU Wanless Review model and linkages between the models and sets out the sources of data.

Figure 1. Structure of the PSSRU Wanless Model



PSSRU Wanless Review model

The PSSRU long-term care finance model is a cell-based (or macro-simulation model) and takes the form of an Excel spreadsheet. It is described in detail by Wittenberg and colleagues (2006). It was designed to make projections of the likely demand for long-term care in England to 2041 under different scenarios. For the purposes of the study reported in this paper an adapted version of the model was developed, the PSSRU social care projections model for the Wanless Review, that makes projections of demand for social services for older people in England to 2026.

The adapted version is outlined in Figure 1 with sources of data shown. It consists of five main parts. The first part estimates the numbers of older people with different degrees of functional disability by age group, gender, household type, receipt of informal care and housing tenure. The second part estimates the level of demand for services within the population. The third part covers total social services expenditure, while the fourth part allocates the expenditure to the various sources of funding. The final part estimates the workforce providing social services for older people.

The principal difference between the PSSRU social care projections model for the Wanless Review (referred to as the PSSRU Wanless model) and the PSSRU long-term care finance model (referred to as the standard model) is in the way that service receipt is treated (second part). The standard model starts by asking what services older people receive under current patterns of care. Data on service receipt taken from Department of Health statistical bulletins and from the 2001/2 General Household Survey (GHS) are used to estimate the numbers of older users of services by age, gender, degree of disability, household composition, receipt of informal care and housing tenure. The PSSRU Wanless model starts from a different position. It asks first who should receive services and then what services they should receive, on the basis of desired outcomes (as determined by the Wanless Review team) and the costs of achieving those outcomes. Development of the PSSRU Wanless model has been conducted in conjunction with the Wanless Review team and draws on their analyses (reported in chapter 10 of their report) of need and demand for services in 2002. The picture produced from these analyses is used to populate the base year of the PSSRU Wanless model, 2002, from which all subsequent years are derived. The technical details of the model are described in more detail below.

Projected numbers of older people by disability and household type/ informal care

As in the standard model, the PSSRU Wanless model uses the Government Actuary's Department 2004-based population projections (GAD 2005) as the basis for the numbers of people by age band and gender in each year under consideration until 2026. GAD also produces a number of variant projections because of uncertainty about changing mortality and migration rates. Such uncertainty is not explored in this report; however, it has been shown in previous reports by the long-term care finance team that the GAD variants do not have a substantial impact on demand for and expenditure on services to 2026. The first part of the model splits the older population according to a number of characteristics, such as the level of functional disability (measured in terms of activities of daily living), marital status, whether living alone, with a partner or children, housing tenure, and receipt of informal care (by spouses, children or others). These are all relevant to the use of services but two of the breakdowns are of special relevance in this version of the model: functional disability and household type/receipt of informal care.

Following the method used in the standard model, the projected older population by age band and gender are separated into disability groups. Disability is a crucial factor in considering need for long-term care from social services, as it is disability rather than age which influences need for care. For this reason it is an important driving force in determining receipt of services in the PSSRU social care projections model. Previous studies have shown that projections of long-term care expenditure are sensitive to assumptions about future rates of disability among older people (Nuttall *et al* 1994; House of Commons Health Committee, 1996; Wittenberg *et al* 2001; Lagergren and Batljan 2000; Rothgang *et al* 2003; Karlsson *et al* 2005; Wittenberg *et al* 2006). The model uses as a measure of disability the ability to perform activities of daily living (ADLs) and instrumental activities of daily living (IADLs). Data from the 2001/2 General Household Survey (GHS) is used to break the older population into five categories of disability (Box 1), ranging from no disability to inability to perform two or more activities of daily living (ADL) without help.

Box 1: Disability groups used in the PSSRU Wanless model

The five disability groups used in the model are as follows:

1. People able to perform ADL (personal care) tasks and IADL (domestic care) tasks without difficulty or need for help.
2. People who are unable to perform IADL tasks and/or report difficulty with bathing but not with other ADL tasks.
3. People reporting difficulty with other ADL tasks.
4. People who cannot perform at least one ADL task without help.
5. People who cannot perform two or more ADL tasks without help.

Another key factor in the receipt of long-term care is household type (Arber *et al* 1988; Davies *et al* 1990; McNamee *et al* 1999). In general, older people who live alone are more likely to receive formal services than those living with others (Evandrou, 2005), while those living with others are more likely to receive informal care (Pickard *et al* 2000). Because of the close relationship between household type and informal care, there is a single classification in the standard model for household type/informal care, and the PSSRU Wanless model utilises this classification to separate the population into further groupings.

The household type/informal care classification in the standard model is based, in the first instance, on *de facto* marital status. Older people who are married or cohabiting are distinguished from those who are single, separated, divorced or widowed. The two marital status groups, those who are *de facto* married and those who are *de facto* single, are broken down into five household types using official national statistics (ONS 2002) and the 2001/2 GHS. The propensity within marital status groups to live alone, with children or with others is based on multivariate (logit) analysis of the GHS data and is assumed to remain constant in the projections (Wittenberg *et al* 2006). The following five household type categories are distinguished: single alone, single with children, single with others, couple alone and couple with others.

The five household type groups are then further broken down by receipt of informal care to produce an eight-fold classification by household type and informal care (Box 2). Informal care in the model is based on analyses of receipt of unpaid help with domestic tasks by disabled older people using the 2001/2 GHS (Wittenberg *et al* 2006). The propensity within household type groups to receive informal care is based on multivariate (logit) analysis of the GHS data and is assumed to remain constant in the projections (Wittenberg *et al* 2006). For the purpose of the Wanless

model, the eight-fold classification of household type/informal care is collapsed into four categories: alone with help, alone without help, not alone with help, and not alone without help.

Box 2: Household type/informal care classification used in the PSSRU model

The eight different categories used in the model are as follows:

1. Single, living alone, no informal care
2. Single, living alone, with informal care
3. Single, living with children
4. Single, living with others
5. Couple, living with partner only, no informal care
6. Couple, living with partner only, with informal care from partner
7. Couple, living with partner only, with informal care from outside the household
8. Couple, living with partner and others

The model includes a simple breakdown by housing tenure, between those living in owner-occupied tenure and those living in rented accommodation. This variable is an important link between the PSSRU model and the CARESIM model and is included as it is relevant, in the case of older people living alone, to the division between those who fund their own residential care and those who are funded by their local authority. The current means test for public support in residential care generally takes account of the value of the person's home (unless it is occupied by their spouse or an older or disabled relative). This means that older homeowners who live alone generally need to fund their residential or nursing home care privately, while older tenants and older homeowners living with their spouse are often eligible for public funding. This variable is not used to project demand for services.

The rates of home ownership, by age, gender and marital status, for 2002 are from the Family Resources Survey. Projected rates for future years to 2022 are from projections which are derived from the CARESIM model (Hancock *et al* 2006). Home ownership rates are then assumed to remain constant to 2026.

The older population is broken down into about 1,000 cells by age, gender, disability, household type/informal care and tenure. However, for most purposes in the PSSRU Wanless model these are combined to form just 20 cells. These comprise five levels of disability, according to ability to perform various IADL and ADL tasks, by four household type/informal care categories.

Projecting demand for informal care

Demand for informal care is modelled following the method used in the standard model (see Wittenberg *et al* 2006), based on the analyses described above. The projections of household type/informal care in the PSSRU Wanless model are driven by the 2003-based GAD marital status and cohabitation projections (ONS 2005).

In modelling receipt of informal care in future years, it is important to distinguish between informal care by spouses and by (adult) children (Pickard *et al* forthcoming). Whereas care by spouses is likely to increase in future years, care by children may decrease (Allen and Perkins, 1995; Evandrou and Falkingham, 2000; Pickard *et al.*, 2000). The PSSRU standard model now distinguishes between different sources of informal care for disabled older people, using additional data supplied for the first time with the 2001/2 GHS (Pickard *et al* forthcoming). Three principal sources of informal care are identified using data from the 2001/2 GHS: from children, from spouses and from others. The projections assume a steady state regarding the propensity, within household type/informal care groups, to receive care from a spouse, child, spouse and child, or others.

The numbers of disabled older people receiving informal care in the PSSRU Wanless model are almost the same as in the standard PSSRU model. The volume of informal care, in terms of hours per week, is not modelled in the standard PSSRU model (because data on hours of informal care are not available in the 2000/01 GHS). The PSSRU Wanless model does, however, model hours of informal personal care based on analyses performed by the Wanless Review team, shown in chapter 10 (table 44) of their report and replicated here in Table 1 for clarity. The average hours of informal help received per week vary by household type, with those living alone receiving less hours of care provision than those people living with others. The projections assume that hours of informal care received per week remain constant by household type and disability category into the future. Implicit to this assumption is the understanding that the supply of informal help will rise to meet the volume demanded. The effect of relaxing this assumption is considered in section 4 (see pp 48-52).

Table 1. Provision of informal care (personal care hours per week only)

Level of disability	Living situation of cared for person	
	Alone	Not alone
no impairment	2.8	9.5
IADL/bathing	2.8	9.8
difficulty other ADL	2.8	9.7
1 ADL	3.0	10.1
2+ ADL	3.2	10.4

Source: Review model

Projecting demand for services

Demand for services can be distinguished from need for services, which in turn can be distinguished from need for care. Whilst need for care is determined purely, in this context, by the person's degree of disability, need for services depends also on the individual's personal circumstances such as, for example, the availability of equipment and adaptations that allow the person to continue living independently¹ (Wittenberg *et al* 1998). Demand for services, however, depends on many different factors, for example, ability to pay for services that are means-tested or personal characteristics that stop a person from wanting to take up services. There exists a complex relationship between need and demand for services, which the Wanless Review version of the model seeks to address in projecting demand for services.²

The relationship between need and demand for services is modelled by the Wanless Review team and the output from their work is used in the PSSRU Wanless model (see chapter 10 of the Wanless report). The Wanless Review team's model provides three types of data for incorporation in the PSSRU Wanless model:

- the probability of need for a service (the potential population in demand of services) for each service specified in the model for each sub-group of the older population;
- the probability of each sub-group of the older population declining to take up formal services. Subtracting this proportion from the potential population leaves the actual population in demand of services; and
- the intensity of service receipt for all community-based services and informal help for each sub-group of the older population.

¹ These factors may also be considered as factors affecting the demand for services, since they might also affect the likelihood that a person comes forward to receive services. However, for the purposes of the modelling they have been considered as factors affecting need for services.

² It should be emphasised that the modelling of service receipt described in this section relates to the Wanless Review version of the model. The modelling of service receipt under the standard PSSRU model is based on current patterns of service receipt, as described in Wittenberg *et al.*, (2006).

The Wanless Review team makes the link between need for care and demand for services through focussing on the outcomes that, in the view of the Wanless Review team, social services should provide and users want. Need for a service is determined broadly according to a person's need for care and their capacity to benefit from the services. Clearly a person's capacity to benefit from services is not independent from the outcome(s) that the person seeks to achieve. The Wanless Review team distinguished different types of outcomes that could, in its view, be realised by social services: personal care outcomes (including nutrition), safety, well-being and reduction of carer stress. These outcomes for people are achieved with personal care inputs, supervision support for people and measures that promote people's well-being.³ An older person may be in need of more than one of these inputs and may require a service to achieve several outcomes. The intensity and mix of the care inputs is determined for each disability group in the population. The numbers from the Review team's model that correspond to the intensity and mix of care inputs are passed to the PSSRU long-term care team and are incorporated directly into the PSSRU Wanless model. All formal services are allocated in a similar way in the model to sub-groups of the older population and are discussed together.

Three types of formal services are considered in the Wanless model. The formal services are defined as care-with-housing (or institutional) services, community-based care services and community-based other care services. These three categories include, respectively, nursing home care, home care and day care and for modelling purposes these exemplars of the category are used to describe the entire category. In the future, these service categories are likely to develop and will encompass a range of specific service types and variants (see chapter 10 of the Wanless report). Each service provides certain of the inputs described above and helps to achieve one or more of the outcomes described above. In brief, care-with-housing services are allocated to those people who require high levels of supervision as well as personal care, driven by the incidence of severe dementia in the population, or by people with substantial personal care needs only who choose housing-based care options. The proportions of people that fall into this category are shown in Table 2. Community-based services are allocated to people requiring personal care inputs. The intensity – number of hours of care per week – with which these services are delivered to people in the community are set at economically justified 'benchmark' levels where the value of the extra outcomes they produce for recipients is balanced against the cost that society is willing to support. These benchmark service levels are determined by the Wanless Review team's model. Other community-based services are allocated either to people to provide their informal carers with a break or to achieve well-being outcomes. The majority of

³ The inputs required to meet the fourth outcome of freeing carers from undue stress are equivalent to those required to meet the first three outcomes; achievement of this outcome is modelled through identifying those persons who are receiving a high level of informal care and supplying carer-break services to relieve them of their caring duties.

people require either or both of the types of community-based services. Since services are allocated to the older population by type of input required, it is therefore possible to determine the size of the potential population in demand of services for each input type for each service.

Table 2. Estimated proportion of people within each sub-group of the older population receiving care-with-housing services

Level of disability	Living situation of cared for person	
	Alone	Not alone
no impairment	0.0	0.0
IADL/bathing	0.0	0.0
difficulty other ADL	0.0	0.0
1 ADL	0.2	0.2
2+ ADL	0.4	0.2

Source: Review team model

Total demand for care in the population is a combination of the numbers of people taking-up services and the intensity of care they use. The amount of time services spend caring for their clients, the intensity of service receipt, will vary from person to person, depending on their needs, by their receipt of informal care and so on. As noted above, intensity of service receipt is estimated by the Wanless Review. For community-based care services the estimate is in hours per week and for other community-based services the estimate is in sessions per week. For institutional services intensity is not a relevant concept as volume is equivalent to the number of clients. The intensity of service receipt is multiplied by the size of the population in demand of services, for each service individually, to provide a weekly volume of demand for services.

As well as variation between sub-groups of the older population in the benchmark intensity of service receipt, intensity can also vary within a sub-group of the population. In particular, in the Wanless Review team model, those sub-groups receiving informal care are likely to require quite different numbers of hours of formal services. Within each sub-group of the population receiving informal care, the Wanless model estimates that there are some people who receive all the hours of care they need from their informal carers. This situation is modelled by subtracting these people from the total number in need of formal community-based services using proportions supplied by the Wanless Review team. The number of people falling into this category varies by whether the person lives alone or not alone and also by their level of disability. Analyses produced by the Wanless Review team show an inverse relationship between level of disability and number of people receiving all their hours of care from informal sources. The proportions are shown in chapter 10 in the Wanless report (Wanless 2006).

In the view of the Wanless Review team, the willingness of society to support people with needs can be at odds with what the individuals themselves are willing to pay, in charges, for services. In particular, people with low preferences for receipt of care might be unwilling to pay for any charge that is made for services even if that charge is less than the cost of care offered. As a result, there will be variability within each sub-group as to demand for services. Further analysis by the Wanless Review team was used to estimate take-up of services by each sub-group of the older people's population, in other words to determine the proportion of each sub-group of the older population that would turn down the offer of services. These estimated proportions are shown in Table 3 and further details of how these figures were obtained are given in the Wanless report. The proportions shown in Table 3 enable two figures for demand for services to be produced: the *potential* demand for services, or need for services, which provides a figure corresponding to the number of people who, under normative assumptions, need services⁴; and the *actual* demand for services which excludes all those identified as needing services, under normative assumptions, but declining to take up services.

Table 3. Estimated proportion of people within each sub-group of the older population who decline to take-up community-based services

Disability level (IADL/ADL)	Percentage declining services
no impairment	0.00
IADL/bathing	0.34
difficulty other ADL	0.18
1 ADL	0.18
2+ ADL	0.16

Source: Review model

In summary, in accordance with the normative approach adopted by the Wanless Review team, demand for services is estimated in the PSSRU Wanless Review model in the following way.

- A cost-effective package of care is posited for each subgroup of the older population by degree of disability and household composition, as explained in the Wanless report.
- For a minority of disabled older people the package comprises care with housing: for the majority it comprises a set number of hours of community-based care, which may be provided by formal services or informal carers or a combination of both.
- Those requiring formal community-based care are assumed to use the benchmark number of hours of care minus the number of hours (if any) supplied by informal carers. A proportion of those people with informal carers will receive all their care needs from this

⁴ The volume of services reported under the potential demand does exclude those people who receive all their care from informal sources.

source and are therefore subtracted from the total requiring community-based services. This leaves the *potential* population in demand of services.

- A proportion of those requiring formal community-based services are assumed either not to seek or to decline services. This leaves the *actual* population in demand of services.

Demand for services, in terms of number of recipients (*SERNO*) for each service (*j*) can be summarised formulaically as:

$$SERNO_j = \sum_{i=1}^{20} p_{ij}.n_i - \sum_{i=1}^{20} q_{ij}.n_i - \sum_{i=1}^{20} r_{ij}.n_i$$

where p_{ij} is the probability of a person in cell i ($i=1$ to 20) receiving service j ($j=1$ to 3); q_{ij} is the probability of a person in cell i not receiving service j as a result of receiving all their hours of care from informal sources; r_{ij} is the probability of a person in cell i not receiving service j because they decline the service; and n_i is the number of older people in cell i .

Assessment and care management

The number of assessments and the number of clients receiving care management are also included in the model. The standard model assumes that the number of assessments rises in line with the projected number of disabled older people starting from a base figure, taken from 2002/03 Department of Health Referrals, Assessments and Packages of Care (RAP) data, of 900,000 in 2002. As the PSSRU Wanless model assumes a different system, this data based on the current system cannot be used. For the purposes of the PSSRU Wanless model we have assumed that all *potential* recipients of formal care services are assessed, in other words everyone who is estimated to require care is assessed. Therefore the number of assessments rises in line with the projected number of potential recipients of services. All recipients of formal care services are assumed to receive care management. This means that the number of clients receiving care management is assumed to rise in line with the projected number of recipients of these services.

Projected aggregate expenditure on long-term care services

A third part of the model projects total expenditure on the formal services demanded, applying unit costs of formal care to the volume of services projected in the second part of the model. It is assumed that the costs for community-based care services are equivalent to the average cost of publicly funded home care services; those for other community-based services are equivalent to

publicly funded day care services; and those in care-with-housing services are equivalent to publicly funded nursing home services (excluding the nursing care component of the cost which is paid for through NHS funds). All unit costs for community-based services are sourced from the PSSRU Unit Costs of Health and Social Care Report 2004 (Curtis and Netten, 2004) and all care-with-housing unit costs are sourced from the Laing & Buisson Market Survey 2004 (Laing & Buisson, 2004) and are deflated to 2002/3 prices, using Department of Health service specific deflators. Cost assumptions for the base year, 2002, are shown in detail in Box 3.

Box 3: Assumptions about cost of services

All *care-with-housing services* are assumed to be equivalent to the cost of nursing home services for publicly supported residents, minus the nursing element of £83.60, which is paid for by the NHS. The cost is £369.40 per week.

Community-based services are costed as equivalent to local authority supported home care services. The cost of home care services is £11.58 per hour.

Other community-based services are assumed to be equivalent to local authority supported day care services, which cost £25 per attendance.

Costs for *assessment* are estimated at £250 per assessment and those for *care management* are estimated to cost £600 per client year (please refer to Wittenberg *et al* 2006, for assumptions underlying these costs).

In summary, the model estimates total expenditure on social services (E_t), for each year (t), as the sum across all formal social services considered, j ($j = 1$ to 3) of the following: projected number of service recipients in year t ($SERNO_{jt}$) multiplied by the intensity of service receipt in terms of hours per week (int_j) and multiplied by the unit cost of care inflated to the year to which the projection year relates (c_{jt}). This can be shown as:

$$E_t = \sum_{j=1}^3 SERNO_{jt} \cdot int_j \cdot c_{jt}$$

Projected breakdown of expenditure by funding source

The fourth part of the model breaks down projected aggregate expenditure by source of funding: social services and service users (either as private purchase or through user charges). The

proportion of service users who are publicly funded and who are privately funded are provided by the CARESIM model and are applied to three community-based packages of care and care-with-housing care separately (the derivation of the packages of care are described in more detail on pages 18-19).

Local authority gross expenditure on care-with-housing and community-based care services for publicly funded service users is divided between local authority social services and users according to the rules of the funding arrangement under consideration as estimated by the CARESIM model. The full costs of privately funded care-with-housing care and community-based care, and a proportion of the costs of publicly funded social services, are thus assigned to users.

Social care workforce

A fifth part of the model makes projections of the numbers of social care staff required to provide the projected volume of social services, for different categories of staff. Included in the model are social workers, occupational therapists, home helps/ care assistants, managers and support staff. Estimates of the ratio of staff to volume of services provided have been calculated using Department of Health estimates of whole-time equivalent (WTE) staff numbers by category of staff and service for 2002. For care staff, it is assumed that the ratio of staff to service volume remains constant to 2026. For administrative and managerial staff, it is assumed that the ratio of such staff to care staff remains constant over the projection years.

CARESIM model description

CARESIM uses data from the British Family Resources Survey (FRS) to simulate what each older participant in the survey would have to pay towards care-with-housing fees or the cost of care provided to them in their own home, should he or she need such care. The model performs simulations for single people currently aged 65 and over, and for the older partner in couples where at least one partner is aged at least 65 years. The simulations are performed for a base year and for future years. Simulations for future years involve: ageing the sample of those currently aged 65 and over, allowing for deaths and the consequent effects of widowhood; modelling the evolution of their incomes and capital under certain assumptions; and making assumptions about future costs of care and the care charging, social security benefit and income tax regimes which will be in place for the year of interest. Because it is more difficult to predict the future incomes of people who are not yet retired than it is for those who are already drawing pensions, the base year sample is not 'refreshed' as it is aged. This restricts the years and age ranges for which the model can produce projections.

For the base year (2002) simulations are performed for people aged 65 and over. By 2022 the simulations are representative only of people aged 85 and over. However, it is at these oldest ages that the need for care is highest and institutionalisation rates rise sharply, so this restriction is not as limiting as it might seem. Details of how the sample is aged and how the evolution of income and capital is modelled can be found in Hancock (2000).

In the analysis reported here the model uses data from the 1999/2000, 2000/01 and 2001/02 FRS with money values uprated to the price levels prevailing in 2002. In the base year simulations are performed for 21,334 older people. Separate simulations were performed for care-with-housing and for three packages of community-based care (including other community-based services) corresponding to low, medium and high intensity care. The model starts by simulating what each older person would have to pay, per week, on starting to receive care in each of these four categories. The current means-testing arrangements as set out in Department of Health guidance for councils with social services responsibilities (2003) are used for this purpose. Most of those having to meet the full costs of care-with-housing will need to draw on their capital so that over time their capital will fall. Once capital has fallen to the upper capital limit, they may be eligible for local authority help with the fees. Each older person is randomly assigned an uncompleted length of stay in care-with-housing. Their contribution to care costs is calculated for that point. In this respect the model can be thought of as mimicking a cross-sectional survey of care home residents. Community-based care clients may also have to draw on their capital to meet charges although this is less likely under the base charging regime than for residents in care homes. Since there are no data on uncompleted periods of receipt of community-based care we assume that the mean length of time for which recipients of community-based care have been receiving services is 18 months and their contributions to charges calculated for that period.

Linkages between the CARESIM and PSSRU model

The CARESIM model provides projections of two variables for incorporation in the PSSRU Wanless model:

- the proportion of care home residents and community-based care clients eligible for local authority support under the current or an alternative charging regime; and
- the proportion of gross costs met by users, in the case of those eligible for local authority support.

The technical detail of the linkage between the CARESIM model and the PSSRU model and the rationale for the process is described in detail by Hancock and colleagues (2006). Two main revisions to the models have been made to accommodate each other. First, the eight different

packages of community-based care (including other community-based services) in the PSSRU Wanless model are reduced to three packages of varying intensity (low, medium and high).⁵ Second, the figures of demand for these four packages (including the care-with-housing population), broken down by age, gender, marital status and housing tenure, are passed to the CARESIM model for each projection year. These data are used to weight the representative sample that forms the base of the CARESIM model. The contribution of each person towards the costs of care-with-housing or community-based care can then be calculated using the CARESIM model.

3 Key projections

The PSSRU Wanless model produces projections based on specific assumptions about what services are required to deliver specified outcomes and about future trends in the key factors affecting demand for and expenditure on social services, for example demographic trends or the funding system. The Wanless Review has specified three base scenarios that, in their own words, 'capture the degree to which these sets of outcomes are to be achieved in the future'. Two of the scenarios, referred to as the Wanless Review scenarios, are modelled using the PSSRU Wanless model, described in the preceding section. The first scenario, describing the current service model, is modelled using the PSSRU long-term care finance model.⁶ A description of the scenarios is provided in Box 4 for clarity.

Box 4: The base case scenarios

- *Scenario 1 (current service model)*: the rolling forward of the (implicit) outcomes embodied in the current social care system. This scenario is used as baseline for comparison. It is chosen because it would give essentially the same configuration of services to people in the future. What would then change are mainly the demographic and supply-side factors.
- *Scenario 2 (core business)*: the achievement of highest levels of personal care and safety outcomes that can be justified given their cost. This scenario focuses on what might be considered to be the core business of the social care system.
- *Scenario 3 (well-being)*: as scenario 2 but where well-being outcomes for older people are also improved, including being able to participate socially, achieving a sense of self-esteem and so on.

Source: adapted from chapter 10 Wanless report

⁵ The low package corresponds to less than 7hrs of combined community-based and/or other community-based services; the medium package to between 7 and 14hrs; and the high package to over 14hrs.

⁶ See Wittenberg *et. al.* (2006) for details of this model and its assumptions.

The projections under the base case scenarios take account of expected changes in key factors affecting demand for and expenditure on social services. The main assumptions used in the base case of the PSSRU Wanless model are summarised in Box 5 below. The base case is used as a point of comparison when the assumptions of the model are subsequently varied in alternative scenarios.

Box 5: Key assumptions in the base cases of the PSSRU and CARESIM models

Numbers of older people and their characteristics

- The number of older people by age and gender changes in line with the latest Government Actuary's Department 2004-based population projections (GAD 2005).
- Age/gender specific prevalence rates of disability remain unchanged, as reported in the 2001/2 GHS.
- Marital status changes in line with GAD 2003-based marital status and cohabitation projections (ONS 2005).
- There is a constant ratio of single people living alone to single people living with their children or with others and of married people living with partner only to married people living with partner and others.
- Homeownership rates, as reported in the 2001/2 Family Resources Survey, change in line with projections produced by the University of Essex (Hancock *et al* 2006).

Demand for services/ help

- The proportions of older people receiving informal help, formal community care services or residential care services remain constant for each sub-group by disability and other needs-related characteristics.

Supply of services/ workforce

- The supply of formal care will adjust to meet demand.
- The ratio of staff to service users will remain constant throughout the projection years.

Expenditure and economic context

- Social care unit costs rise by 2 per cent per year in real terms (but non-revenue staff costs remain constant in real terms). Real Gross Domestic Product rises in line with HM Treasury assumptions (HM Treasury 2005).

Breakdown between sources of funding

- Proportion of residents in institutions or receiving community-based services who are privately funded rises in line with the results of the CARESIM model.
- Proportion of care fees met by local authority supported residents in institutions or receiving community-based services changes in line with the results of the CARESIM model.
- Division of funding responsibilities between agencies is unchanged, that is the current means-tested system continues into the projection years.

The GAD 2004-based principal population projections for England project that between 2002 and 2026, the numbers of people aged 65 and over will rise by about 47 per cent (Table 4). The numbers of those aged 85 and over is expected to rise much faster during the same period from 956,000 to 1,775,000, an increase of about 85 per cent. This means that by 2026, not only will the numbers of oldest old (those over 85) increase but the proportion of older people defined as oldest old will also increase. Much of this increase is a result of a rise in male life expectancy. The numbers of men aged 85 years and over is projected to increase by nearly 170 per cent between 2002 and 2026 compared to 54 per cent for women. The changing structure of the older population has the potential to have a large impact on demand for and expenditure on social services as the PSSRU long-term care finance team and others have shown (Wittenberg *et al* 2006).

Table 4. Projected older population by age (000s), England, 2002-2026

	2002	2007	2012	2017	2022	2026	% Change 2002-2026
65-69	2,176	2,245	2,762	2,843	2,760	3,033	39%
70-74	1,954	1,972	2,070	2,565	2,651	2,550	30%
75-79	1,625	1,647	1,712	1,829	2,290	2,474	52%
80-84	1,180	1,220	1,282	1,382	1,508	1,758	49%
85+	956	1,085	1,215	1,370	1,577	1,775	86%
All aged 65+	7,891	8,169	9,040	9,989	10,787	11,589	47%

Source: GAD 2004-based population projections

Disability is an important driver of need for services and is correlated with age as shown in the 2001/2 GHS. Under base case assumptions of constant age-specific prevalence rates for disability, the number of disabled people⁷ is projected to grow by over 50 per cent between 2002 and 2026 (Table 5). Over the same period, the number with more severe functional impairments (defined as those who cannot perform one or more ADLs) is projected to increase by approximately 55 per cent. As constant prevalence rates of functional impairment by age are assumed, the growth in the size of this population can be explained by the increased number of people living to older ages, particularly the more significant increase in the size of the population aged 85 and over.

⁷ Defined as having problems with at least one IADL or one ADL.

Table 5. Projected disabled population (000s), England, 2002-2026

	2002	2007	2012	2017	2022	2026	% Change 2002-2026
none	5,550	5,720	6,370	7,040	7,520	8,020	44%
IADL	600	620	680	760	830	910	51%
Difficulty bathing	280	290	320	360	390	420	49%
Difficulty other ADL	530	550	600	670	740	810	51%
1 ADL without help	370	390	430	480	530	580	56%
2+ ADL without help	550	580	630	690	770	850	54%
All with disability	2,340	2,450	2,670	2,950	3,270	3,560	53%

Source: PSSRU Wanless model/ PSSRU long-term care finance model estimates

Patterns of care

The concept of 'patterns of care' is used to refer to variations in service models; or put more simply, variations in who gets what amount of what type of service or care. The source of such variation is multifarious; for example, it can be the result of specific policies around eligibility or policies that set funding levels. It is of special relevance to this discussion as each of the base cases represents, in effect, a different service model engendering a different pattern of care. While scenario 1 is based on current patterns of care, scenarios 2 and 3 are based on patterns of care which the Wanless Review team commend as more cost-effective than the current pattern of care.

The service/ care mix for the base year, 2002, and beyond, for each of the base scenarios, is shown in Table 6 below. As the table demonstrates the difference in mix is considerable between scenario 1, which represents the current system, and the Wanless Review scenarios (scenarios 2 and 3), which represent alternative systems developed by the Wanless Review team. Some key differences are as follows.

- While there are currently around 340,000 older people in residential care (around 4.2 per cent of the older population), including some 20,000 fully funded by the NHS, the Wanless Review scenarios have only 250,000 older people (3.1 per cent of the total) receiving care-with-housing services.
- Around 85 per cent of disabled older people receive informal care under the current system and under the Wanless Review scenarios: the numbers receiving informal care in the Wanless Review scenarios are higher than under the current system because of the lower use of residential care. In all scenarios the overwhelming majority of care is provided by informal sources.

- While around 340,000 older people receive local authority home care and around 390,000 disabled older people receive private home care under the present system – a total of around 650,000 (around 8 per cent of the total older population) allowing for receipt of both types of home care by some older people – more than 900,000 older people (11 per cent of the older population) receive community-based services (assumed to be equivalent to home care) under the Wanless Review scenarios.
- While around 120,000 older people receive local authority day care under the present system, 270,000 older people receive other community-based services (based on day care services) under the Wanless Review scenarios.

The differences between the systems are considered in more detail in the sections that follow.

Table 6. Projected numbers of older people receiving formal social services and informal care (000s), under base assumptions, England, 2002-2026

	2002	2007	2012	2017	2022	2026	% Change 2002-2026
<i>Scenario 1</i>							
Informal help	1,720	1,800	1,960	2,180	2,400	2,600	51%
Institutional*	320	340	360	400	450	500	56%
LA funded home help	340	360	380	420	470	520	53%
Private home help	390	420	450	510	570	630	62%
Day centre**	120	120	130	150	160	180	51%
Meals	260	270	290	320	360	400	50%
<i>Scenario 2</i>							
Informal help	1,780	1,860	2,030	2,250	2,480	2,700	51%
Institutional	250	270	290	320	360	390	55%
Community-based	910	950	1,030	1,140	1,270	1,390	53%
Other community-based							
...for personal care	270	280	310	340	380	410	52%
...for supervision	60	60	70	70	80	90	53%
...for well-being	-	-	-	-	-	-	
<i>Scenario 3</i>							
Informal help	1,780	1,860	2,030	2,250	2,480	2,700	51%
Institutional	250	270	290	320	360	390	55%
Community-based	910	950	1,030	1,140	1,270	1,390	53%
Other community-based							
...for personal care	270	280	310	340	380	410	52%
...for supervision	60	60	70	70	80	90	53%
...for well-being	490	500	550	600	660	720	47%

* Excludes all in nursing homes or hospitals whose care is paid for by the NHS; ** Does not include day care services funded through NHS.

Source: PSSRU long-term care finance model (scenario 1) and PSSRU Wanless model (scenarios 2 and 3) estimates

Demand for informal care

The number of disabled older people receiving informal care is estimated in the same way under all three base case scenarios. The estimates of informal care recipients are based on analyses of the 2001/2 GHS data, carried out as part of the development of the PSSRU long-term care finance model (Wittenberg *et al* 2006; Pickard *et al* forthcoming), as explained above on pages 7-11. Demand for informal care in future years is projected on the basis of constant probabilities of receiving informal care by age, gender, degree of disability and household type.

The greater level of demand for informal care in the base case scenarios of the Wanless Review team, compared to the PSSRU standard model base case, is a result of the greater proportion of people living in a community rather than a residential care setting in the former compared to the latter. The implication of the Wanless Review team scenarios is that approximately 60,000 more disabled older people would be receiving informal care in 2002 than currently do so. By 2026, under the Wanless Review base case scenarios, approximately 100,000 more older people would receive informal care than under the base case of the standard model (Table 6).

The different base cases differ, however, in the way they allocate formal services to older people receiving informal care. Although the projections under the base case scenarios of the Wanless Review team anticipate a greater increase in the numbers of older people receiving informal care in future years, the Wanless team explicitly identify as an outcome of social services, the relief of some of the 'burden of caring' from carers, such that their quality of life is improved (see chapter 10 of the Wanless report for further discussion of this outcome). Such an outcome is included in both scenarios 2 and 3 and is to be delivered through carer-support services, which are discussed in more detail on pages 31-2.⁸ Since carer stress is related to the number of hours of care a carer undertakes, modelling an outcome that seeks to reduce carer stress necessitates estimating the volume of informal care provided. This has been discussed on pages 10-11.

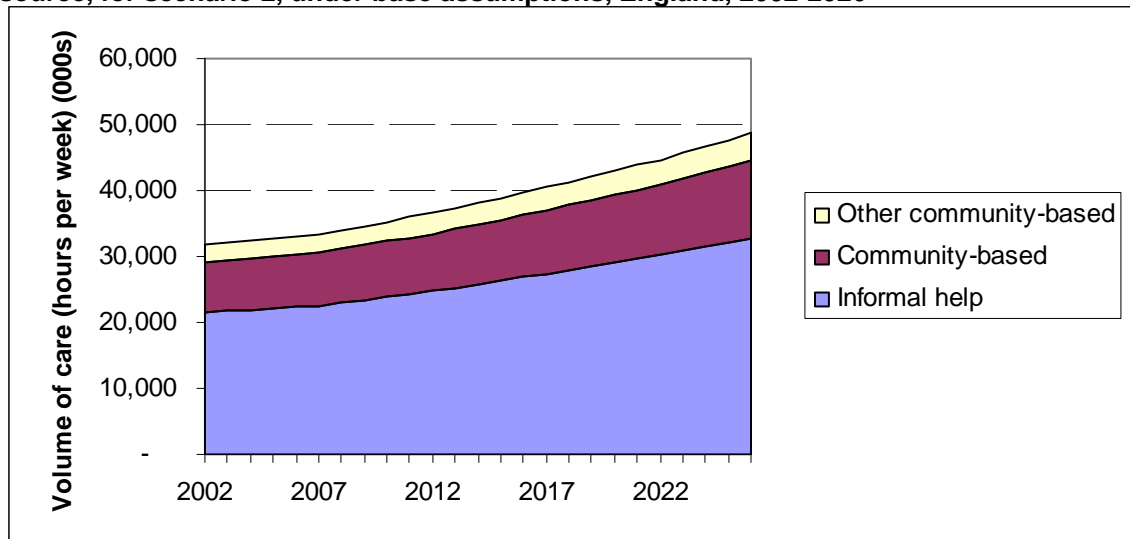
Potential demand for informal care, in the context of demand for all types of community-based care, both formal and informal, in future years is illustrated in Figure 2.⁹ The figure shows projections to 2026 of the hours of care, received by older people under scenario 2 of the Wanless Review team. Under scenario 2, approximately 22 million hours of informal personal care/supervision would be received by older people in England in 2002 and this would rise to approximately 30 million hours by 2026 (Figure 2).

⁸ The support services have only been modelled to 'replace' personal care and supervision inputs. For this reason the projections for scenarios 2 and 3 are equivalent and are reported as one in this section.

⁹ It should be noted that estimates of hours of informal help provided only include help provided for personal care and supervision inputs. If care for IADL tasks and companionship were included the input in terms of hours would be much greater and the reliance on informal help accentuated further. Scenario 1 is not reported as the PSSRU long-term care finance model does not, at present, make any assumptions about hours of informal help provided. This is because data on hours of informal care received by older people are not included in the 2001/02 GHS.

There is, however, scope for debate about the availability of any additional informal carers, either in the present or in the future. Indeed, there is concern, that informal care, particularly care from the children of older people, may decline in future (Allen and Perkins 1995; Evandrou and Falkingham, 2000; OECD, 2006; Pickard *et al* forthcoming). The future supply of informal care has been examined here through a scenario allowing for a decline in receipt of informal care by disabled older people from their (adult) children, described in section 4.3 below.

Figure 2. Projected total weekly hours of community-based formal and informal care, by source, for scenario 2, under base assumptions, England, 2002-2026¹⁰



Source: PSSRU Wanless model estimates

Demand for and expenditure on services

Demand can be considered in terms of both numbers of people taking up services and volume of services provided. Estimates of demand for services are presented by service type in the following sections.

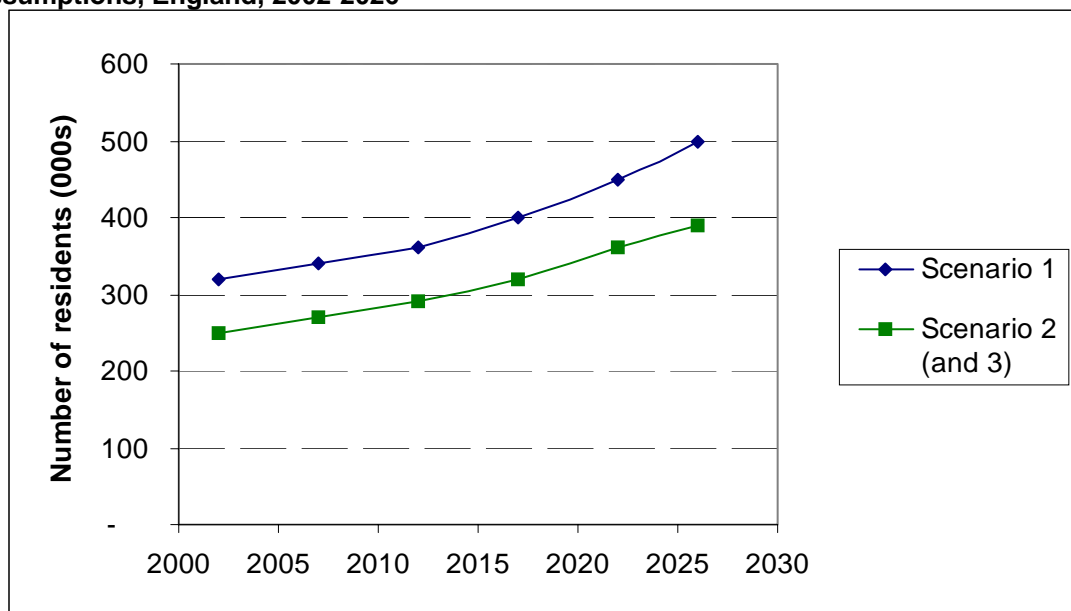
Care-with-housing services

The Wanless scenarios assume that between 16 per cent and 44 per cent of older people unable to perform one or more ADL without help receive care-with-housing. These proportions depend mainly on the prevalence of cognitive impairment and whether the individual lives alone or not. Most people receive care-with-housing because cognitive impairment requires levels of supervision as well as

¹⁰ Other community-based services, which are allocated by sessions per week, have been converted into home care hours per week using a conversion factor of 2.16. This is based on the average length of a session in hours.

personal care that are very difficult for informal carers to provide at home. Figure 3 below shows how demand for care-with-housing services is projected to change under the base case scenarios.¹¹ It can be seen that a much lower level of care-with-housing services are required under the Wanless Review scenarios than scenario 1 which represents the current system.¹² This result occurs mainly because no individual without either substantial physical or cognitive impairment are in care-with-housing/institutional settings in scenarios 2 and 3.

Figure 3. Projected demand for care-with-housing services (000s), under base assumptions, England, 2002-2026



Source: PSSRU standard and Wanless Review model estimates

Associated expenditure is reported in Table 7. Projected expenditure diverges more sharply between the scenarios than projected numbers of care-with-housing clients. This is because of different assumptions about the unit costs of institutional care. In the Wanless Review scenarios, all care-with-housing is costed at £369.40 per resident week. Scenario 1, however, includes three different types of residential services – nursing homes, independent residential homes and local authority homes – all of which have different unit costs; and it also differentiates between privately funded and local authority supported places, which also have different unit costs. For example, the cost of local authority homes is £560 per resident week, which is significantly higher than the unit cost assumed under the Wanless scenarios. This means that the comparison of projected expenditure between scenarios needs to be treated with caution. Nevertheless, to the extent that scenarios 2 and 3 are based on more cost-effective patterns of care, the comparison is informative.

¹¹ Scenarios 2 and 3 are considered together as the inclusion of well-being outcomes does not have an impact on the numbers of people needing care-with-housing services. For more details see chapter 10 of the Wanless report.

¹² NHS funded beds in hospitals and nursing homes have been excluded from the figures presented in scenario 1.

Table 7. Projected gross expenditure on care-with-housing/institutional services (£m), under base case assumptions, England, 2002-2026

							% Change
	2002	2007	2012	2017	2022	2026	2002-2026
Scenario 1	6,300	7,300	8,500	10,100	12,300	14,600	131%
Scenario 2 (and 3)	4,900	5,600	6,600	8,000	9,700	11,400	134%

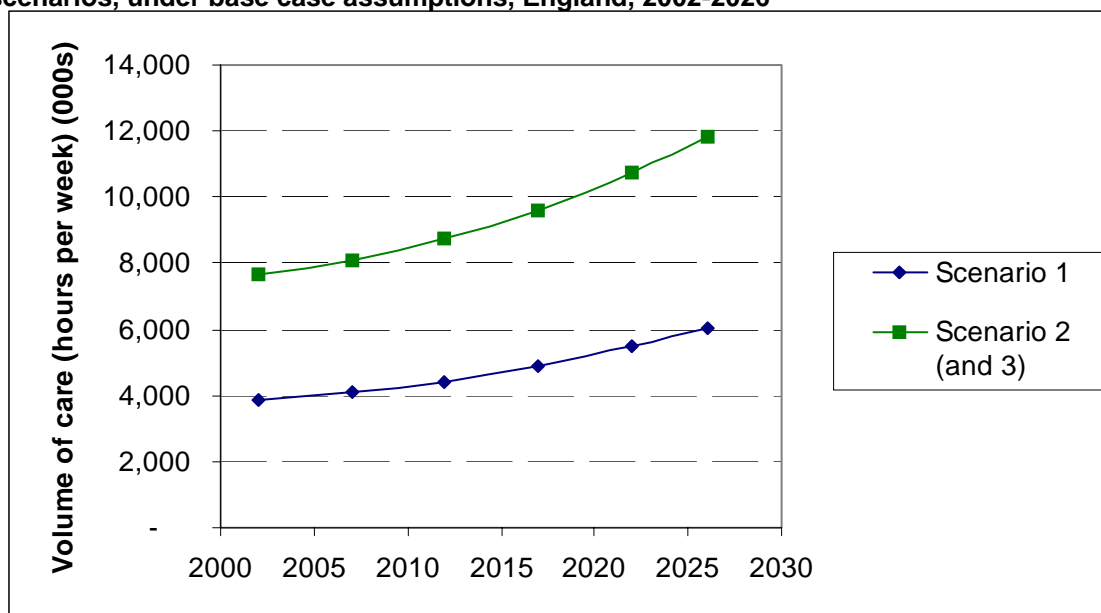
Source: PSSRU standard and Wanless model estimates

Community-based services

The Wanless Review team have modelled community-based services on current home care services and have designated them as services to provide the outcomes associated with personal care (for more details see chapter 10 of the Wanless report). A comparison of the level of demand for the service across the base case scenarios is given in Figure 4. As can be seen, the model estimates that in scenario 2 (and 3) demand for community-based services for disabled people would be much greater than it is in the current system.¹³

¹³ However, in the current system a significant number of people with no self-reported functional impairments, about 430,000 in 2002, are in receipt of privately funded home help services. These people have been excluded from this analysis as the Wanless Review team do not allocate any services designed to achieve personal care outcomes to people with no functional impairments; it is effectively assumed that all those people receiving home care services who have no self-reported functional impairments are receiving home care services for reasons other than achieving personal care outcomes e.g. domestic help. Including these people would likely make the numbers of recipients of services about equivalent across all scenarios, possibly even higher for scenario 1, accounting for those people who receive both privately funded and LA supported home help services. However, if the volume of services received is considered then scenarios 2 and 3 continue to be more generous as the privately funded home help is provided at a very much lower intensity than LA funded home care. A small proportion of those with no functional impairments are also estimated to be receiving LA supported community-based services such as meals, home care and day care. Since the number is small and these people have been assessed as needing services, they have been included in the totals for comparison. It is likely that self-reported IADLs/ADLs do not perfectly predict need for services.

Figure 4. Projected weekly hours of community-based services (or equivalent) for all base scenarios, under base case assumptions, England, 2002-2026



Source: PSSRU Wanless and standard model estimates

The cost of these services is shown in Table 8. The costs for scenario 1 include the cost of meals, for comparison, as these services are implicit in the broad description given by the Wanless Review team of services designed to achieve personal care outcomes. The estimated costs of scenario 2 (and 3) are about twice as large as those in the current system. There is again a caveat about different unit costs, as the PSSRU Wanless model does not differentiate costs of privately and publicly funded care.

Table 8. Projected gross expenditure on community-based services (£m), under base case assumptions, England, 2002-2026

	2002	2007	2012	2017	2022	2026	% Change 2002-2026
Scenario 1	2,300	2,700	3,200	3,900	4,800	5,800	152%
Scenario 2 (and 3)	4,600	5,400	6,400	7,800	9,600	11,500	148%

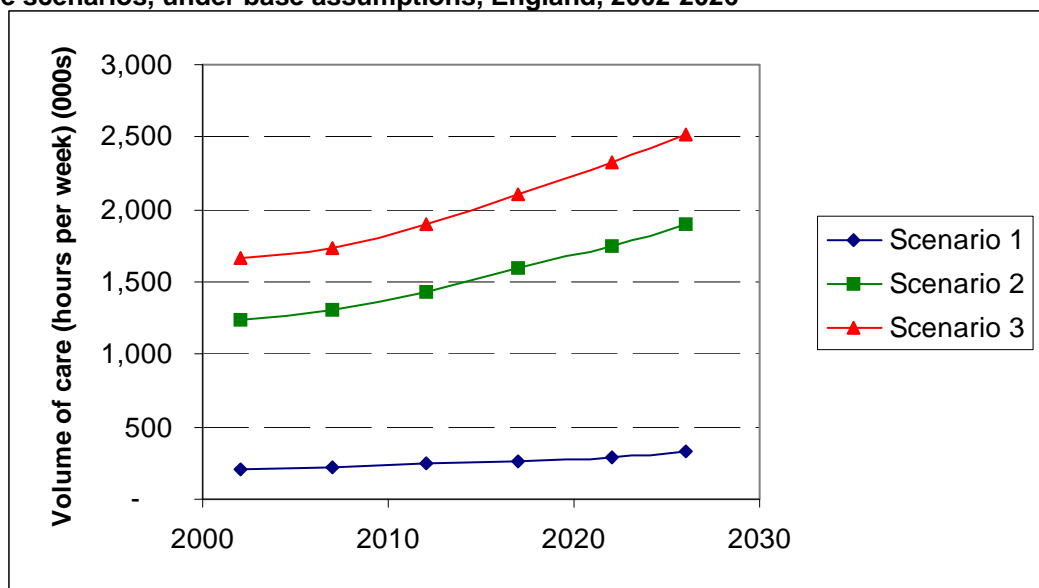
Source: PSSRU Wanless and standard model estimates

Other community-based services

The services reported under this heading are of two types : carer-support services and services to provide well-being outcomes. In the PSSRU standard model, carer-support services and services to enhance well-being are not separately identified. With regard to carer-support services, for example, the PSSRU model includes support for carers as part of the core services provided to disabled older

people. The Wanless Review team scenarios, on the other hand, define support for carers in terms of specific carer services, in particular, breaks from caring. The Wanless scenarios envisage that day care would be a mainstay of these specific carer services, although the type of day care envisioned for the future might be quite different with more active participation by those attending, for example. In Figure 5, which shows the variation in volume of services between the three base case scenarios, the Wanless scenarios are therefore compared with provision of day care under the standard PSSRU model.

Figure 5. Projected weekly hours of other community-based services (or equivalent) for all base scenarios, under base assumptions, England, 2002-2026



Source: PSSRU Wanless and standard model estimates

As is apparent from the graph, the Wanless Review scenarios are substantially more generous in their provision of day care services aimed at supporting carers and enhancing the well-being of the older person. Expenditure on these services is reported in Table 9. As with the volume of services provided, much more is projected to be spent on these services under scenarios 2 and 3. The reasons for this are discussed in more detail below where the other community-based service category is split into its component parts : carer support services and well-being services.

Table 9. Projected gross expenditure on other community-based services (£m), under base case assumptions, England, 2002-2026

	2002	2007	2012	2017	2022	2026	% Change 2002-2026
Scenario 1	300	300	400	500	600	700	146%
Scenario 2	1,600	1,900	2,300	2,800	3,400	4,000	146%
Scenario 3	2,200	2,500	3,000	3,700	4,500	5,300	145%

Source: PSSRU Wanless and standard models

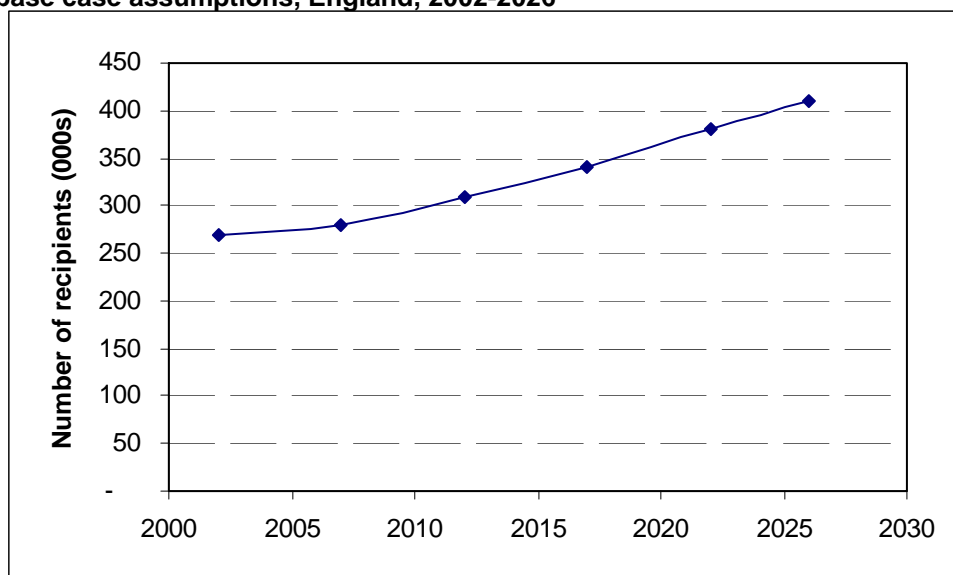
Carer-support services

There has been a great deal of policy emphasis on support for carers over the last fifteen years or so (Pickard 2001, 2004). Current policies are embodied in the National Strategy for Carers (1999), the principles of which were recently endorsed (Department of Health 2006). The emphasis in the National Strategy for Carers is on the provision of breaks from caring. The strategy introduced the Carers Special Grant, renewed on a regular basis, which provides ring-fenced funding to enable carers in England to take a break from caring. The National Strategy for Carers has, however, been criticised, in part, for providing too little funding for carers (Parker and Clarke 1992, Audit Commission, 2004). As Parker and Clarke wrote in relation to the Carers Special Grant, 'It was real money, but £140m over three years and over the whole of England, did not signal a major change in support structures' (Parker and Clarke 2002, p 354). Although the Carers Grant has since been extended to 2006 and the funding increased to £185 million, the assessment of the Audit Commission recently was that 'given the number of carers, resources per head are still modest' (Audit Commission 2004, p 41).

As discussed already, carer-support services, in the form of breaks from caring, are an important part of the services models described by the Wanless Review scenarios. Indeed, the approach to carer support adopted in the Wanless Review scenarios is, in some respects, similar to that adopted in the National Strategy for Carers, in that both place great emphasis on breaks from caring. Both also emphasise home-based respite support for carers, rather than overnight stays in residential/nursing care homes (cf Department of Health, 2006). There are, however, very large differences in the resources that would be devoted to the support of carers under the Wanless Review scenarios compared to the current system.

Figure 6 below presents the estimated demand for carer-support services under the Wanless Review (scenarios 2 and 3). It is estimated that about 270,000 people would require carer-support services in 2002, rising to about 410,000 in 2026. This is an increase of just over 50 per cent between 2002 and 2026. The cost implications of carer-support services are shown in Table 10 below. (This cost forms a proportion of the cost of other community-based services in scenario 3 and the total cost in scenario 2.) Table 10 shows that expenditure on carer-support services under the Wanless Review team scenarios would amount to £1,600 million in 2002, rising to £4,000 million in 2026. Expenditure on carer support under the Wanless Review scenarios is very much higher, even in 2002, than is currently allocated under the Carers Special Grant. Some of the enhanced expenditure on carers in 2002 arises because there are assumed to be more informal carers under the Wanless Review scenarios than there are at present. However, most of the increased expenditure under the Wanless Review scenarios in 2002 derives from an increase in the amount of support provided to carers.

Figure 6. Projected number of recipients of carer-support services for scenario 2 (and 3), under base case assumptions, England, 2002-2026



Source: PSSRU Wanless model estimates

Table 10. Projected gross expenditure on carer-support services (£m), under base case assumptions, England, 2002-2026

	2002	2007	2012	2017	2022	2026	% Change 2002-2026
Scenario 2 (and 3)	1,600	1,900	2,300	2,800	3,400	4,000	146%

Source: PSSRU Wanless model estimates

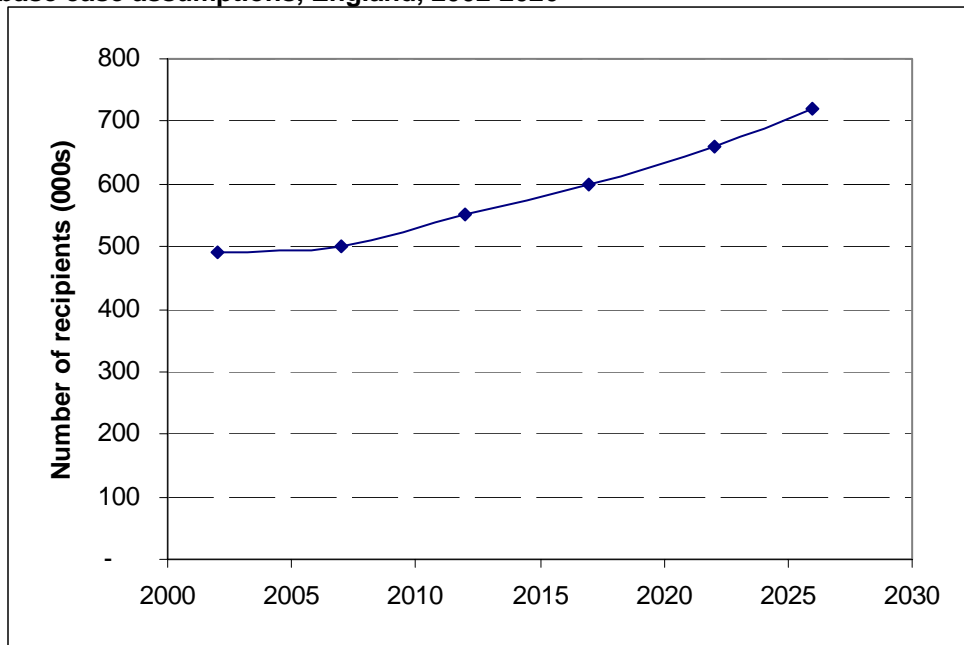
Nevertheless, expenditure on carer-support services in the Wanless Review scenarios is not large compared to the cost of community-based services and institutional services. Under the Wanless Review scenarios, expenditure on carer-support amounts to £4,000 million by 2026, compared to £11,400 million on care with housing (residential care) and £11,500 million on community-based services (Tables 7, 8 and 10). The comparatively low expenditure on carer-support arises partly because, under the assumptions used, the estimated proportion of older people with carers who provide a level of support that is significant enough to constitute the carer being 'stressed' is a relatively small proportion of those receiving informal care (for more details on the derivation of these proportions please refer to chapter 10 of the Wanless report).¹⁴

¹⁴ The proportion of older people with 'stressed' carers might, however, also be greater if all hours of informal care provided were taken into account, rather than personal care/supervision hours only.

Services for well-being

As is discussed in the Wanless report, there is not a well-developed evidence base to flesh out a picture of what services designed to promote well-being would look like nor indeed the cost effectiveness of the equivalent of day care services in delivering the outcome of well-being. The assumptions made by the Wanless Review team are discussed in greater detail in chapter 10 of the Wanless report; the implications of trying to achieve this outcome are presented here. Figure 7 below shows the projected numbers of people requiring these services to 2026 in scenario 3 and under base assumptions.

Figure 7. Projected numbers of recipients of well-being services (000s), for scenario 3, under base case assumptions, England, 2002-2026



Source: PSSRU Wanless model estimates

It is estimated that there will be nearly 500,000 people requiring services to improve well-being outcomes in 2002 rising to just over 700,000 in 2026 (Figure 7). This is an increase of close to 50 per cent. The cost implications of these services are not large compared to the other services reported here. This is mostly because the estimated numbers requiring these services are quite small, representing only 17 per cent of the disabled older population living alone. Also, as noted in the Wanless report, services to help improve social participation outcomes will be only a small part of what might be possible. The cost implications of these services are shown in Table 11 below. The cost of these services forms a proportion of the cost of other community-based services reported (see pp 29-30) for scenario 3; the rest of the cost is a result of spending on carer-support services.

Table 11. Projected gross expenditure on well-being services (£m) for scenario 3, under base case assumptions, England, 2002-2026

							% Change
	2002	2007	2012	2017	2022	2026	2002-2026
Scenario 3	600	600	700	900	1,100	1,300	117%

Source: PSSRU Wanless model estimates

Assessment and care management

In addition to the services described above, the models include estimates for spend on care management and assessments. Table 12 shows how this expenditure varies between scenarios. Expenditure on care management and assessment, under the Wanless Review scenarios, is roughly double that for scenario 1 in the base year. By 2026, the model estimates that, under scenario 2, care management and assessment will cost roughly £1 billion more than under the current system. Under scenario 3, the difference is estimated to be about £1.5 billion. The increase in expenditure is a result of both more assessments and more care management under the Wanless Review scenarios. Both scenarios assume that more people are receiving care so more people are in need of care management. The cost of assessments is also greater largely due to the differences in the way assessments are modelled between the Wanless and standard model. In the former, assessments are assumed to be provided to the entire *potential* population in demand of services; whereas in the latter, the number of assessments is derived from DH RAP data for 2002/3 and are assumed to rise in line with the number of disabled people. In the base year these two methods arrive at very different estimates for the number of assessments. The standard model estimates that there are about 900,000 assessments; the Wanless Review model estimates that for scenario 2 there would be 1,500,000 assessments.

Table 12. Projected expenditure on care management and assessment (£m), under base case assumptions, England, 2002-2026

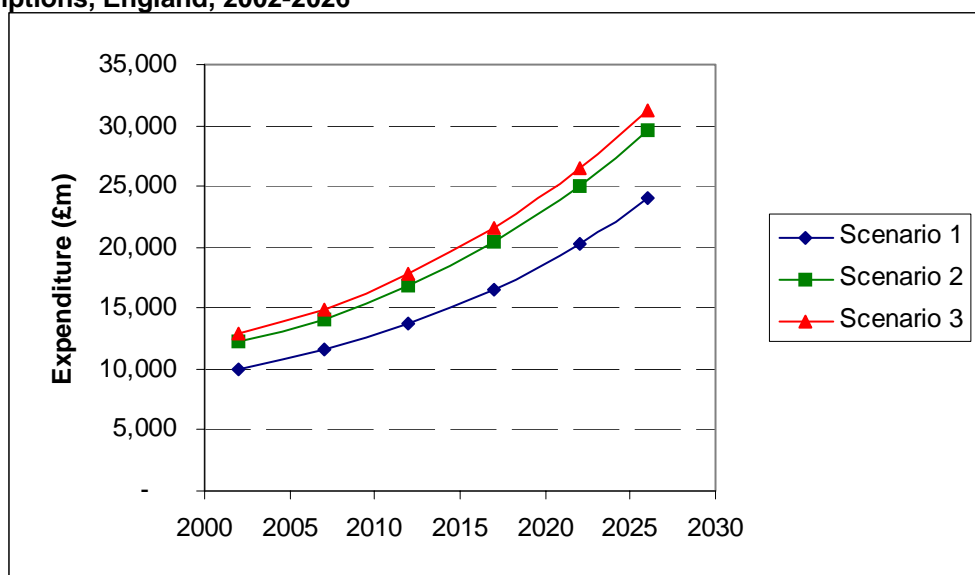
							% Change
	2002	2007	2012	2017	2022	2026	2002-2026
Scenario 1	600	700	900	1,100	1,300	1,500	143%
Scenario 2	1,100	1,200	1,500	1,800	2,200	2,600	147%
Scenario 3	1,300	1,500	1,800	2,100	2,600	3,100	145%

Source: PSSRU Wanless and standard model estimates

Overall expenditure

Figure 8 (below) compares total expenditure on social services across the three base case scenarios. As can be seen, both of the alternative service models to the current configuration of services are estimated to be more expensive. Under scenario 1, total expenditure, public and private, is estimated to increase from about £10 billion in 2002 to about £24 billion in 2026.¹⁵ In contrast, under scenario 2, which is estimated to be about £2 billion more expensive than scenario 1 in 2002, expenditure is estimated to rise to close to £30 billion in 2026, with scenario 3 being marginally more expensive than scenario 2.

Figure 8. Projected total expenditure on social services (£m), under base case assumptions, England, 2002-2026

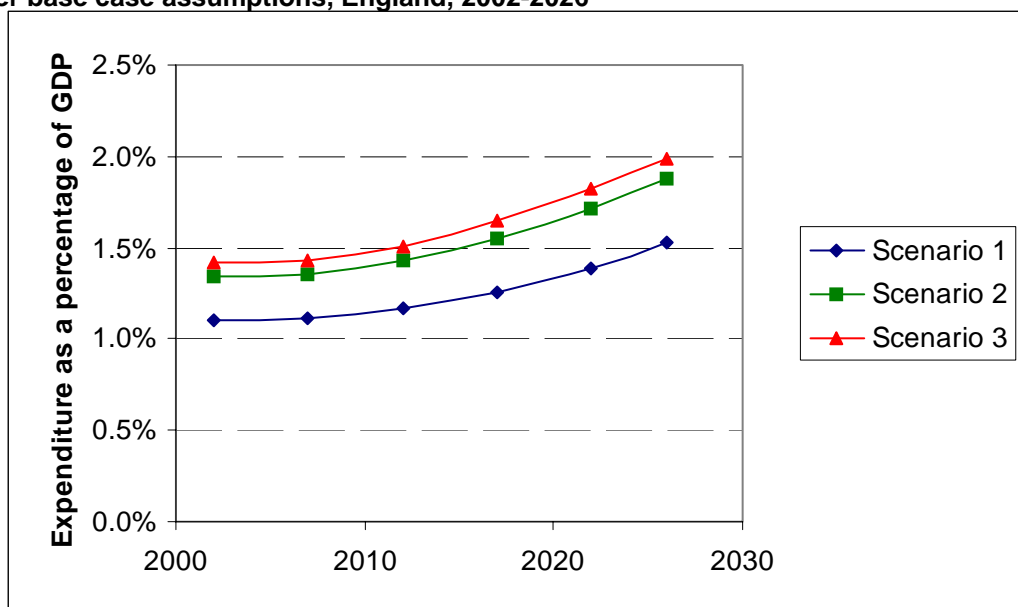


Source: PSSRU Wanless and standard model estimates

In Figure 9, expenditure on social services is considered relative to gross domestic product (GDP), assuming that GDP increases in line with the projections produced by HM Treasury (2005). The model estimates that, although scenarios 2 and 3 are more expensive than the current system, expenditure on social services for older people would not rise beyond 2 per cent of GDP by 2026, even under the most generous service model.

¹⁵ The cost of privately funded home help services for those without disability is included in the total expenditure for scenario 1.

Figure 9. Projected expenditure on social services expressed as a percentage of GDP, under base case assumptions, England, 2002-2026



Source: PSSRU long term care finance model and Wanless model estimates

Breakdown of expenditure between sources of funding

To what extent people should fund their own care and to what extent long-term care, or more specifically social services, should be publicly funded continues to be a source of contention and debate. Work by the PSSRU long-term care finance team at LSE and Ruth Hancock at Essex University has focussed on developing various scenarios to explore the financial and distributional implications for service users and the public purse of changes to the current system of funding. These are reported on by Hancock and colleagues (2006). Here we explore the financial implications for service users and for public expenditure of the various base case scenarios, or service models, assuming that the current funding system remains in place. The analysis has been conducted using the CARESIM Model, as described above. The current funding system is taken to mean the current national system of charging for residential care in England and a system of charging for home care that corresponds to the principles of Department of Health guidance (Department of Health 2003).

Table 13 shows total expenditure on social services broken down by source of funding, where public expenditure is net expenditure on personal social services and private expenditure is a combination of user charges and privately purchased care.

Table 13. Projected total expenditure on social service by funding source (£m), under base assumptions, England, 2002-2026

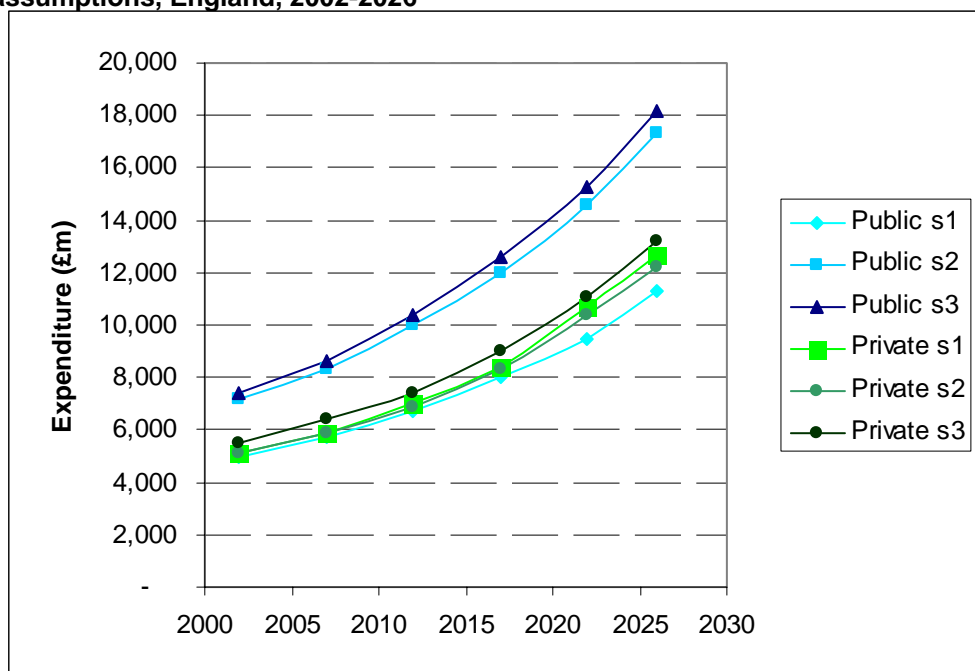
	2002	2007	2012	2017	2022	2026	% Change 2002-2026
<i>Scenario 1</i>							
Public	5,000	5,700	6,700	8,000	9,500	11,300	126%
Private	5,100	5,900	7,000	8,400	10,700	12,700	149%
<i>Scenario 2</i>							
Public	7,200	8,300	10,000	12,000	14,600	17,300	140%
Private	5,100	5,900	6,900	8,300	10,400	12,200	139%
<i>Scenario 3</i>							
Public	7,400	8,600	10,400	12,600	15,300	18,200	146%
Private	5,500	6,400	7,400	9,000	11,100	13,200	140%

Source: PSSRU long term care finance model and Wanless model estimates

Assuming that the current funding system remains in place, private expenditure would be broadly similar under the three scenarios but public expenditure would be significantly higher. It would be around 44 per cent higher under scenario 2 and 48 per cent higher under scenario 3 in the base year than under current patterns of care (scenario 1). Public expenditure accounts for 50 per cent of total expenditure under scenario 1 in 2002, falling to 47 per cent in 2026, but accounts for 59 per cent of total expenditure under scenario 2 and 57 per cent under scenario 3. An important reason for the different balance between public and private funding between the scenarios is the different balance between residential and community-based care. Service users meet, through user charges, a higher proportion of the costs of residential care than of home care.

Figure 10 demonstrates this pattern more clearly, showing that public expenditure will grow at a faster rate under scenarios 2 and 3, whereas private expenditure will grow at a roughly similar rate under all scenarios, although slightly more steeply under scenario 1. As already noted, in addition to the differences in growth rates, the contributions from the public purse are estimated to be greater under the Wanless scenarios compared to the current service model. In scenario 2, public expenditure is expected to rise from £7.2 billion in 2002 to £17.3 billion in 2026, compared to a rise from £5 billion in 2002 to £11.3 billion in 2026 under scenario 1. In effect the majority of the extra expenditure estimated to be incurred under scenarios 2 and 3 is, assuming that the current system of funding remains, estimated to fall to the public purse.

Figure 10. Projected public and private expenditure on social services (£m), under base case assumptions, England, 2002-2026



Source: PSSRU long term care finance model and Wanless model estimates

Changing the funding system

The question of who should pay for social care is a continuing subject of debate. In this section we consider how a different funding system might alter the balance of funding between private and public sources. Since the central theme of the debate has been on the provision of ‘free’ personal care (Royal Commission on Long Term Care 1999; Bell and Bowes 2006), where free denotes that personal care is fully funded by the state, we examine the effects that a policy of free personal care might have on the balance of expenditure between funding sources in England.

The scenario utilises both the CARESIM and PSSRU models. The effects of a policy of free personal care on the relative contributions of service users in terms of user charges are estimated in CARESIM and these proportions are fed back into the PSSRU model as previously described (see pp 18-19). A flat rate of £175.95 per week is assumed as the contribution by social services towards personal care in institutional care settings. This is the difference between the total care home fee and the estimated ‘hotel costs’ in care homes. The latter is estimated with reference to social security benefits, as described by Hancock and colleagues (2006).¹⁶ Social services are assumed to meet the full costs of personal care in home care settings. An increase in demand for services which might be expected following the introduction of free personal care (see Bell and

¹⁶ It should be noted that this is only one method by which free personal care could be modelled. Different approaches to the modelling of free personal care are described in Hancock *et al.* (2006).

Bowes 2006 for details of the Scottish experience) has not been modelled. In effect the model demonstrates how the balance of expenditure would shift, assuming that all other factors remained the same. Although this scenario does not capture all the implications of such a policy it does demonstrate how such a policy may be expected to redistribute the balance of funding compared to the current funding system.

Table 14 below shows how expenditure by funding source varies across the base cases under a policy of free personal care. Under all scenarios there is a significant redistribution from funding by private sources towards public sources.¹⁷ This is shown more clearly in figure 11, which compares the level of public funding under the current funding system and a policy of free personal care for scenario 2 only.

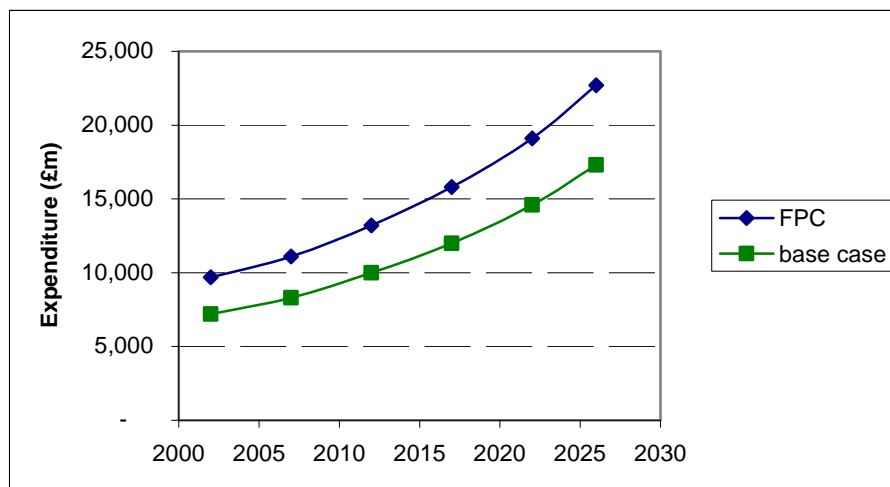
Table 14. Projected total expenditure on social services for older people (£m), by funding source, under a policy of ‘free’ personal care, England, 2002-2026

	2002	2007	2012	2017	2022	2026	% Change 2002-2026
<i>Scenario 1</i>							
Public	6,500	7,400	8,600	7,600	12,200	14,500	123%
Private	3,600	4,200	5,100	8,900	7,900	9,400	161%
<i>Scenario 2</i>							
Public	9,700	11,100	13,200	15,800	19,100	22,700	134%
Private	2,500	3,000	3,700	4,600	5,800	6,900	176%
<i>Scenario 3</i>							
Public	10,200	11,700	13,900	16,800	20,300	24,000	135%
Private	2,700	3,200	3,900	4,900	6,200	7,300	170%

Source: PSSRU long term care finance model and Wanless model estimates

¹⁷ The slight difference between total expenditure, under scenario 1, under a funding system of free personal care compared to the current funding system is a result of the differences in the unit costs of privately and publicly funded services.

Figure 11. Projected public expenditure on social services for older people, scenario 2 only, under the current means-tested funding system and under free personal care, England, 2002-2026



Source: Wanless model estimates

Workforce requirements

A change in demand for services has obvious implications for supply, most notably workforce supply. The picture with regard to the future workforce supply is not clear (please refer to chapter 10 of the Wanless report for discussion of this point). The implications for workforce supply of the various base case scenarios are presented here in Table 15. The most significant difference between the three scenarios is in the number of home helps/ care assistants required. There are estimated to have been around 250,000 (WTE) home helps/ care assistants providing care for older people in England in 2002. Under the Wanless Review scenarios the model estimates that a further 150,000 to 200,000 extra home helps/ care assistants would have been needed in 2002 to deliver the services specified by the Wanless Review team. The number of home helps/ care assistants required to deliver these services into the future is projected to be around 620,000 for scenario 2 and 690,000 for scenario 3 in 2026. This should be compared to 390,000 if the current service configuration is assumed to continue. A greater number of social workers, occupational therapists, managers and support staff will also be required to deliver the Wanless Review scenarios but the increase is not as significant as that required for home helps/ care assistants. Overall, the model estimates that the size of the workforce would need to significantly increase to deliver the Wanless Review scenarios.

Table 15. Projected workforce requirements for social services for older people (000s), whole-time equivalents, under base case assumptions, England, 2002-2026

	2002	2007	2012	2017	2022	2026	% Change 2002-2026
<i>Scenario 1</i>							
Social workers	11.0	12.0	13.0	14.0	16.0	17.0	53%
Occupational therapists	0.8	0.9	0.9	1.0	1.2	1.3	53%
Home helps/care assistants	251.0	266.0	287.0	316.0	353.0	391.0	56%
Managers	66.0	70.0	75.0	83.0	93.0	103.0	56%
Support staff	63.0	67.0	72.0	80.0	89.0	99.0	56%
TOTAL	393.0	416.0	449.0	494.0	551.0	611.0	56%
<i>Scenario 2</i>							
Social workers	18.0	19.0	21.0	23.0	26.0	28.0	53%
Occupational therapists	1.4	1.4	1.6	1.7	1.9	2.1	54%
Home helps/care assistants	403.0	424.0	461.0	509.0	566.0	620.0	54%
Managers	95.0	99.0	108.0	120.0	133.0	146.0	54%
Support staff	91.0	95.0	104.0	115.0	127.0	140.0	54%
TOTAL	608.0	639.0	695.0	769.0	854.0	935.0	54%
<i>Scenario 3</i>							
Social workers	18.0	19.0	21.0	23.0	26.0	28.0	53%
Occupational therapists	1.4	1.4	1.6	1.7	1.9	2.1	54%
Home helps/care assistants	448.0	471.0	512.0	565.0	628.0	688.0	54%
Managers	105.0	110.0	120.0	132.0	147.0	161.0	54%
Support staff	100.0	105.0	115.0	127.0	141.0	154.0	54%
TOTAL	673.0	707.0	768.0	849.0	943.0	1,032.0	53%

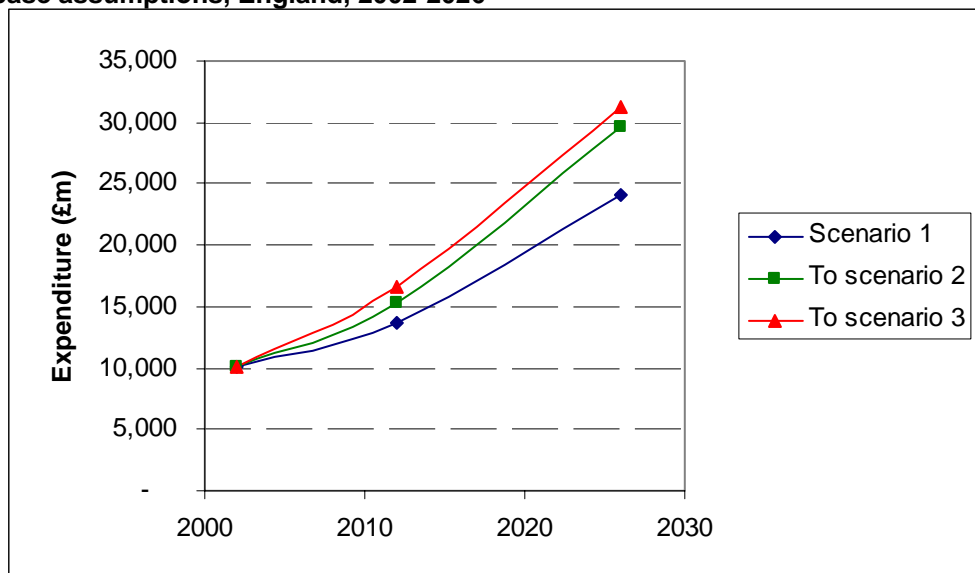
Source: PSSRU standard and Wanless model estimates

Transitions

The PSSRU Wanless model incorporates each of the Wanless scenarios for every year, from 2002 to 2026. This approach allows us to examine the relative cost of each service configuration or scenario at each point in time. It does not, however, represent the reality of introducing a new service model where significant changes will need to be made to the supply side to, for example, build capacity as is demonstrated in the preceding section. To allow for the providers to develop their services and for a smooth transition, changes are usually implemented over an extended period of time. In the following scenario, shown in Figure 12, we show schematically the likely financial implications of moving from the current system to either of the other two base scenarios considered in this review. We have assumed for the purposes of this analysis that by 2012 the changes needed to the system under both scenarios will have been partly implemented and by 2026 the changes needed to the system under both scenarios will have been fully implemented. In modelling terms, this means that by 2012 expenditure will be composed of about half the estimated costs of scenario 1 and half the estimated costs of the Wanless Review scenarios; by

2026, expenditure will be composed of entirely the Wanless Review scenario estimate for expenditure.

Figure 12. Transition to new system: Projected implications for expenditure (£m), under base case assumptions, England, 2002-2026



Source: PSSRU long term care finance model and Wanless model estimates

Figure 12 shows that expenditure would have to rise more steeply in future years if we were to implement either of the service configurations described by the Wanless Review scenarios. If the service model to be implemented was scenario 2 then expenditure would have to increase from the 2002 level of about £10 billion to an estimated £30 billion in 2026; for scenario 3, expenditure would have to increase to an estimated £31.3 billion.

4 What happens if the key assumptions change?

This section investigates the sensitivity of the projections to changes in the base case assumptions, in particular to changes in the assumptions about future trends in disability rates, the unit costs of care, the availability of informal care, and variations in the take-up of services. The rationale behind these scenarios is given in chapter 10 of the Wanless report and is briefly summarised here before presenting the results. The sensitivity of the estimates to changes in these variables has been explored using only one of the Wanless Review scenarios, scenario 2. Table 20 (at the end) summarises the projections obtained under different assumptions.

Changing assumptions about trends in disability rates

There are different views about whether age-specific disability rates can be expected to rise, fall or remain broadly constant in the future (Bone *et al* 1995; Dunnell 1995). In previous versions of the long-term care finance model, the PSSRU team has explored the impact of changing assumptions about age-specific disability rates on demand for long-term care services. Here we report on a new approach to modelling the growth of the disabled population that involves an innovative linkage with a research team led by Carol Jagger at the Leicester Nuffield Research Unit.

The Leicester team has developed a model that can examine the effects of changing incidence rates of disability on the size of the disabled population based on assumptions about the prevalence rates of specific diseases, for example arthritis, stroke, heart disease and dementia. Inclusion of trends in age-specific disability rates based on changes in the *incidence* rates of disability represents a significant departure from the scenarios previously considered in the PSSRU model. The link to the Leicester model allows more detailed assumptions to be made concerning the changing health of the older population. The Leicester team have produced three main scenarios, which are described in detail in Jagger *et al* (2006) and are reproduced in Box 6.

Box 6. Disability sensitivity scenarios

- *No change*: the age-specific prevalence of diseases remains the same with prevention strategies and effective treatments simply offsetting the negative influences of obesity and other cohort trends that increase the prevalence of stroke and coronary heart disease. Incidence of and recovery rates from dependency remain the same with no further effect of treatments. Mortality rates continue to decline at levels commensurate with GAD principal projections.
- *Poorer population health*: obesity trends of 2 per cent increase every year continue. This increases the prevalence of arthritis, stroke, coronary heart disease and vascular dementia but also the resulting dependency associated with these diseases. The emergence of ethnic minorities in significant numbers into the older population adds to the prevalence of stroke and coronary heart disease. Some prevention strategies in place but they fail to offset the increasing prevalence. Treatments continue to focus on reducing the mortality from diseases rather than reducing the disabling effects.
- *Improving population health*: individuals are taking their health seriously and there is a decline in risk factors, particularly smoking and obesity. The health service is responsive with high rates of technology uptake for disease prevention and excellent diffusion rates of treatments to all who can benefit, particularly in terms of control of vascular risk factors.

Source: Jagger *et al* (2006)

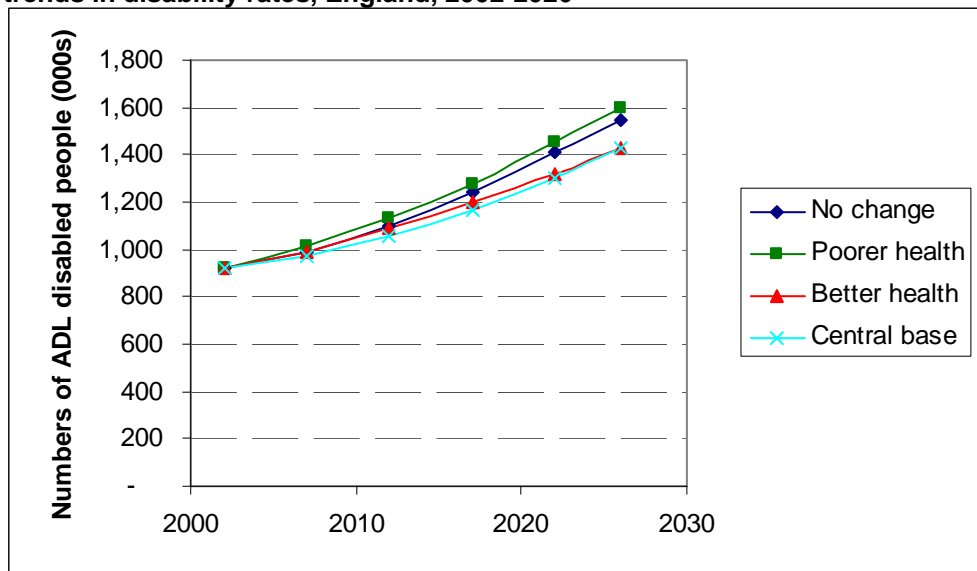
To introduce the Leicester results into the PSSRU model, several steps need to be taken to adjust the Leicester data into a format that is compatible with the PSSRU model. The Leicester model produces results in terms of prevalence of disability, by five year age groups, for the base year (1991) and every two years until 2031. There are some differences between the PSSRU model and the Leicester model in the way disability is measured¹⁸ and in the prevalence of disability at baseline that mean that the output of the Leicester model cannot be fed directly into the PSSRU model. To overcome these differences, the data incorporated in the PSSRU model comprise the trend in changes in disability rates over time that emerges from the Leicester estimates, rather than the disability rates.

Figure 13 presents the estimated size of the older disabled population, under the various scenarios described in Box 6. The disabled population in the figure includes only those who are unable to perform one or more ADLs for consistency with the definition of disability used in the

¹⁸ Both models use ADLs to measure disability, but the measure of ADLs is slightly different between the models. That said they do produce comparable estimates of disability rates when disability is defined as ability to perform at least one ADL without help.

Leicester model. As figure 13 demonstrates, the better health scenario provides a very similar picture with respect to the growth of the disabled population as projected under the base case assumption of constant age-specific prevalence rates of disability. Both scenarios estimate that the disabled population will increase from around 920,000 in 2002 to around 1,430,000 in 2026, an increase of about 55 per cent. The converse scenario, which assumes that the population will be in poorer health, estimates that the disabled population will increase to 1,600,000 by 2026, an increase of close to 75 per cent. The no change scenario assumption, that the age-specific incidence and recovery rates from disability will remain unchanged, estimates that the disabled population will be around 1,550,000 in 2026, an increase of nearly 70 per cent. This assumption is significantly more pessimistic than that considered in the base case.

Figure 13. Projected numbers of ADL disabled people (000s), under varying assumptions about trends in disability rates, England, 2002-2026



Source: PSSRU Wanless model estimates

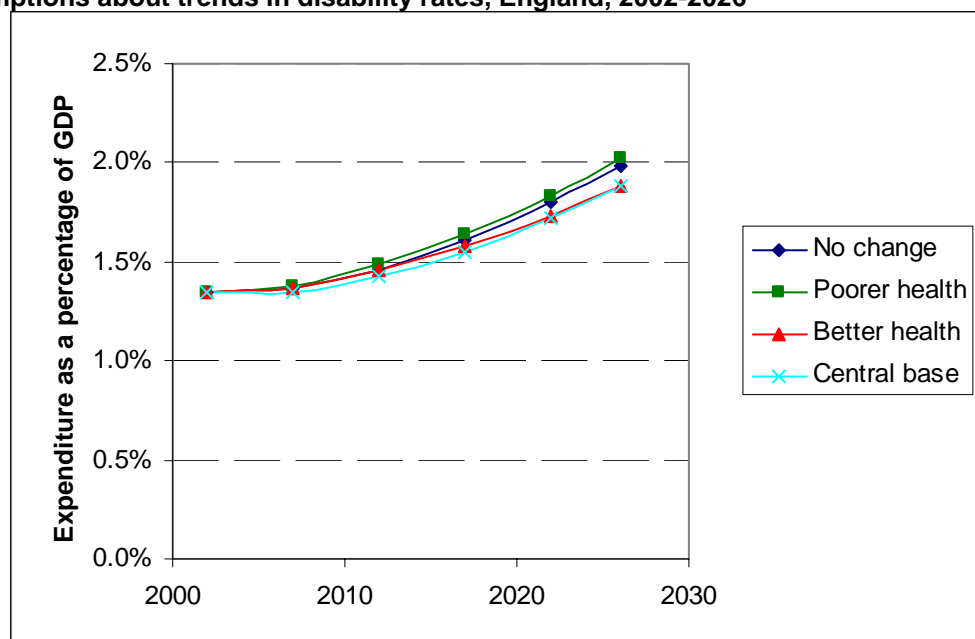
Growth in the disabled population drives growth in demand for services, as there are more people who require assistance. The financial implications of the increase in demand for services under each of the scenarios considered in this section are shown in Table 16. The model estimates that if incidence rates were to remain unchanged then by 2026 expenditure on social services would rise to £31.1 billion, compared to £29.6 billion if the health of the older population improved and £31.8 billion if health were to worsen. This difference equates to a rise in expenditure of about 155, 140 and 160 per cent respectively. Expressed as a share of GDP, if the health of the older population were to improve, expenditure on social services would represent about 1.9 per cent of GDP, compared to 2.0 per cent of GDP if older people's health were to worsen (Figure 14).

Table 16. Projected expenditure on social services for older people (£m), under different scenarios about trends in disability rates, England, 2002-2026

	2002	2007	2012	2017	2022	2026	% Change 2002-2026
No change	12,200	14,200	17,200	21,200	26,200	31,100	155%
Poorer health	12,200	14,400	17,500	21,500	26,700	31,800	160%
Better health	12,200	14,300	17,100	20,700	25,200	29,600	142%
Central base	12,200	14,100	16,800	20,400	24,900	29,500	142%

Source: PSSRU Wanless model estimates

Figure 14. Projected expenditure expressed as a percentage of GDP, under varying assumptions about trends in disability rates, England, 2002-2026



Source: PSSRU Wanless model estimates

Changing assumptions about the unit cost of services

Previous reports by the PSSRU long-term care finance team have highlighted the sensitivity of future long-term care expenditure to relatively small changes in the future unit costs of long-term care (Wittenberg *et al* 1998, 2001, 2002, 2006). The key driver of rises in the unit costs of care is rises in the earnings of staff providing social care. Community-based care services are clearly highly labour-intensive. Care with housing/ institutional care is also labour intensive, with staff costs accounting for the majority of overall costs. For example, data from a UK study shows that, in public sector homes, staff costs accounted for 85 per cent of the total unit cost (Netten *et al* 1998). This suggests that it would be plausible to assume that the real unit costs of care will rise

broadly in line with average earnings of care staff, or perhaps by somewhat less, allowing for non-staff costs (Wittenberg and Comas-Herrera 2003). The PSSRU Wanless model takes this assumption for its base case and assumes that the real unit costs of care, such as the cost of an hour's community-based care, will rise by 2 per cent per year, in line with HM Treasury's assumption for average earnings. An exception is that non-staff revenue costs are assumed to remain constant in real terms. Gross Domestic Product (GDP) is also assumed to rise in line with the HM Treasury's assumption, which is also 2 per cent per year in real terms over the long-term.

Alternative scenarios have been explored that make adjustments to the increase in unit costs to account for potential improvements in the quality of care and increased use of new technology. The scenarios are presented in Box 7, and a discussion of the rationale for these scenarios is given in more detail in chapter 10 of the Wanless report. Table 17 presents estimated expenditure for each of these scenarios compared to the base case (for scenario 2).

Box 7. Unit cost sensitivity scenarios

- *Real increase of 10 per cent in year 1 followed by a 2 per cent real increase per annum thereafter.* Initial increase to allow for improvements in quality to be made; for the years thereafter it is assumed that unit costs rise in line with HM Treasury's assumptions about increases in average earnings.
- *Real increase of 20 per cent in year 1 followed by a 1 per cent real increase per annum thereafter.* Initial increase to allow for improvements in quality to be made; for the years thereafter it is assumed that increased use of technology will drive overall costs downwards. The latter is modelled by assuming that unit costs increase by 1 per cent per annum.
- *Real increase of 20 per cent in year 1 followed by a 2 per cent real increase per annum thereafter.* Initial increase to allow for improvements in quality to be made; for the years thereafter it is assumed that unit costs rise in line with HM Treasury's assumptions about increases in average earnings.

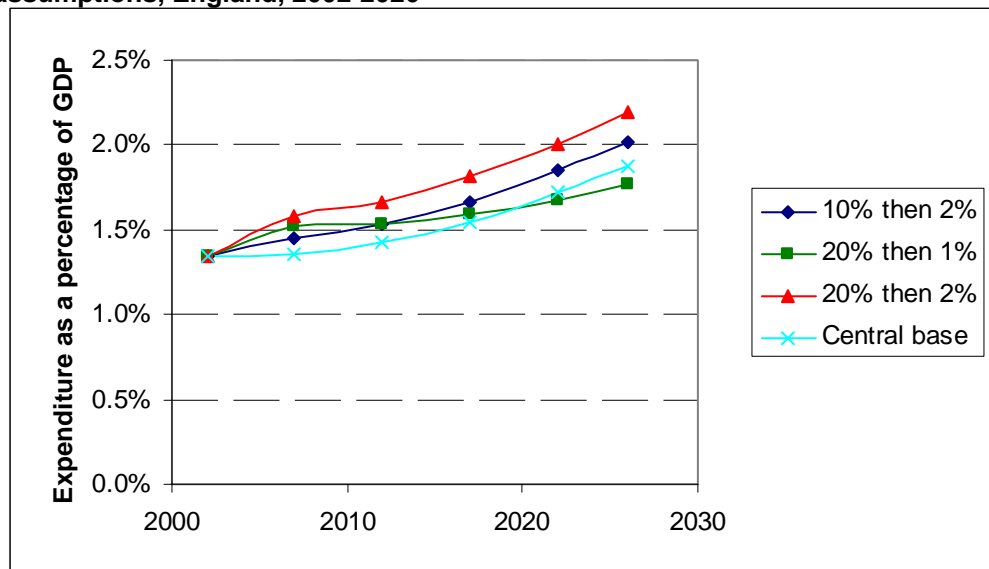
Table 17. Projected expenditure on social services for older people (£m), under different unit cost sensitivity scenarios, England, 2002-2026

	2002	2007	2012	2017	2022	2026	% Change 2002-2026
10% then 2%	12,200	15,200	18,100	21,900	26,800	31,800	160%
20% then 1%	12,200	15,900	18,000	20,900	24,400	27,800	128%
20% then 2%	12,200	16,500	19,600	23,800	29,100	34,500	183%
Central base	12,200	14,100	16,800	20,400	24,900	29,500	142%

Source: PSSRU Wanless model estimates

The scenario that assumes an initial 20 per cent increase in costs to deliver quality improvements followed by a 2 per cent increase per year thereafter would have the most substantial impact on expenditure. Expenditure would have to rise from £12.2 billion in 2002 to £34.5 billion in 2026, an increase of over 180 per cent. By contrast the scenario that assumes both an increase in the quality of services and an investment in (and increased use of) technology is estimated to require only an increase in expenditure of close to 130 per cent by 2026, compared to roughly 140 per cent for the central base case. In Figure 15, estimated expenditure is expressed as a proportion of GDP. Under the most expensive option considered here (the 20 per cent and then 2 per cent rise in unit costs per year) expenditure is estimated to represent about 2.2 per cent of GDP by 2026, compared to an estimated 1.9 per cent under base case assumptions about unit costs. Under the most optimistic scenario (a 20 per cent and then 1 per cent rise in unit costs per year), on the other hand, expenditure is estimated to represent about 1.8 per cent of GDP by 2026.

Figure 15. Projected expenditure expressed as a proportion of GDP, under different unit cost assumptions, England, 2002-2026



Source: PSSRU Wanless model estimates

Availability of informal care scenarios

The PSSRU Wanless model takes into account the effects of projected changes in marital status on informal care/household type to 2026. This is because the model incorporates assumed changes in marital status/cohabitation based on GAD 2003-based projections of the older population by marital status/cohabitation. The projections under the base case imply that there is likely to be an increase in spousal carers of disabled older people in future years, to at least 2026.

It is, however, less certain that the supply of informal help by (adult) children will continue at its present level into the future (cf Pickard *et al* forthcoming). Evidence shows that the proportion of older people living with an adult child has declined from 42 per cent in 1962 to 11 per cent in 2001/2 (Grundy 1995, Grundy and Glaser 1997, 2001/2 GHS, authors' analysis). If this trend continues, it may be compounded in future years by increased levels of childlessness, although this effect will only become apparent once the baby boom cohort reaches old age (Evandrou and Falkingham 2000, Dixon and Margo 2006). In addition, it is anticipated that increasing labour market participation rates of women may reduce the provision of intergenerational care to older people (Salvage 1995, OECD 2006).

A scenario has been developed to examine the possibility that disabled older people no longer receive informal care from their (adult) children. This is obviously an extreme case scenario as it is unlikely that care by children will cease entirely; however, as the results below indicate, it illustrates the important contribution that children make to the care of their older parents (cf Pickard *et al* forthcoming).

Another scenario assumes that the supply of informal help remains constant into the future, and explores the consequences of an increase in the volume of informal help provided by current carers. It assumes that 20 per cent more people receiving informal help have all their needs met by their informal carers and no longer require formal services. The informal care scenarios are summarised in Box 8 and are discussed in more detail in chapter 10 of the Wanless report.

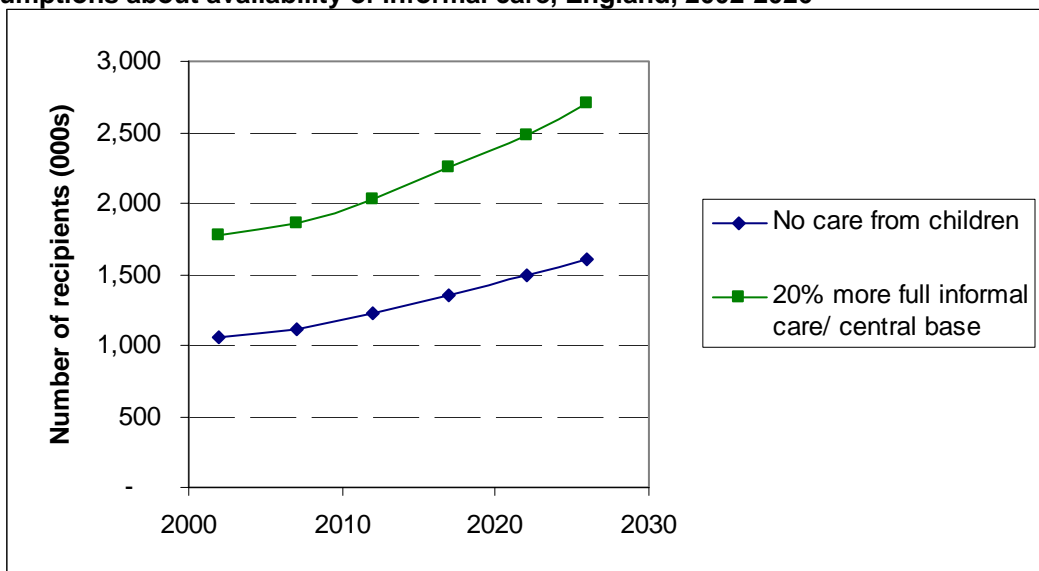
Box 8. Informal help sensitivity scenarios

- *No informal care from children:* All those who under the base case receive informal help from children are treated as if they receive no informal help.
- *20 per cent more people receive full informal help packages:* Of those receiving informal help, it is assumed that 20 per cent more than under the base care receive all the hours of care they need from informal sources, such that they no longer require formal services.

Figure 16 illustrates graphically the effect of there being no older people in receipt of informal care from their children. The numbers of recipients of informal help would fall from an estimated 1,800,000 in 2002 under base case assumptions to approximately 1,000,000. By 2026 the model estimates that the difference would grow, such that there would more than 1,100,000 fewer people receiving informal help (cf Wittenberg *et al* 2006, Pickard *et al* forthcoming).

The assumption that 20 per cent more people receive full informal help packages has no effect on the number of recipients of informal help; rather it affects the volume of informal help received and through this impacts on the volume of formal services received. The financial implications of such changes in the demand for formal services are shown in Table 18.

Figure 16. Projected number of recipients of informal care (000s), under various assumptions about availability of informal care, England, 2002-2026



Source: PSSRU Wanless model estimates

Changing volumes of informal help are assumed in these scenarios to have an impact on the cost of community-based services. As Table 18 demonstrates, there is a large difference in the cost of these services between the informal care scenarios. The impact of there being no informal care by children is estimated to increase the costs of community-based care from £6.2 billion under base assumptions to £7.1 billion in 2002, rising to £15.5 billion under base assumptions and £17.4 billion, under assumptions about decreased availability of care by children in 2026. This increase is found even though the scenario involves a decrease in carer-support services as well as a rise in community-based home care services to replace informal help.

The effect of 20 per cent more people receiving all their care from informal sources is less marked than the 'no informal care by children' scenario, but is estimated to reduce overall expenditure by approximately £0.6 billion by 2026. There is an overall reduction in estimated expenditure despite the increased expenditure that this scenario implies for carer-support services.

Table 18. Projected expenditure on social services for older people (£m), under various assumptions about availability of informal care, England, 2002-2026¹⁹

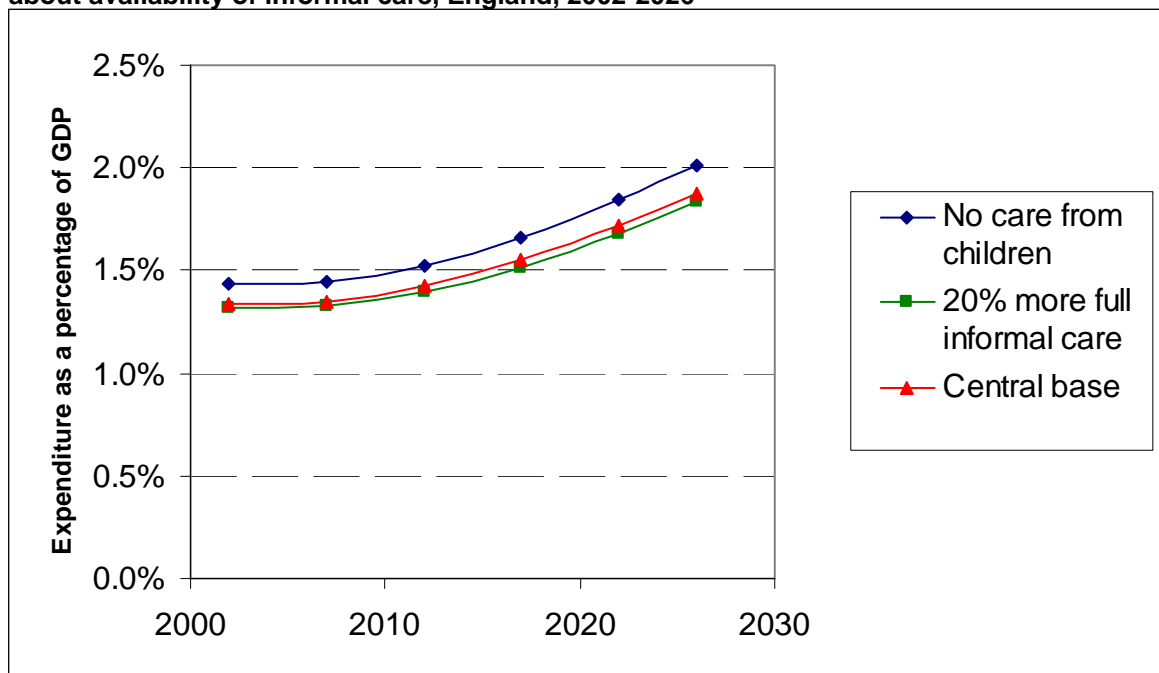
	2002	2007	2012	2017	2022	2026	% Change 2002-2026
<i>No care from children</i>							
Institutional	4,900	5,600	6,600	8,000	9,700	11,400	134%
Community-based	7,100	8,200	9,800	12,000	14,700	17,400	147%
Total for care	11,900	13,800	16,400	19,900	24,400	28,900	143%
Total expenditure	13,100	15,100	18,000	21,800	26,700	31,700	142%
<i>20% more full informal care</i>							
Institutional	4,900	5,600	6,600	8,000	9,700	11,400	134%
Community-based	6,100	7,000	8,400	10,300	12,600	15,000	148%
Total for care	10,900	12,700	15,100	18,200	22,300	26,400	142%
Total expenditure	12,000	13,800	16,500	20,000	24,400	28,900	142%
<i>Central base</i>							
Institutional	4,900	5,600	6,600	8,000	9,700	11,400	134%
Community-based	6,200	7,300	8,700	10,600	13,000	15,500	148%
Total for care	11,100	12,900	15,300	18,600	22,700	26,900	142%
Total expenditure	12,200	14,100	16,800	20,400	24,900	29,500	142%

Source: PSSRU Wanless model estimates

Figure 17 below shows graphically the estimated increase in expenditure relative to GDP, under current assumptions about the predicted growth of the economy. Expenditure is projected to be 2.0 per cent of GDP in 2026 under the scenario in which there is no informal care by children as against 1.9 per cent under the base case.

¹⁹ Totals shown include expenditure on care management and assessment as well as expenditure on care services.

Figure 17. Projected expenditure as a percentage of GDP, under various assumptions about availability of informal care, England, 2002-2026



Source: PSSRU Wanless model estimates

Variations in take-up of services

There are two ways that people can exercise the choice not to take up services; they can either decline to use services outright or decide to have a reduced package of weekly care hours. There are many reasons why people might choose to decline all or part of a service package, and these have already been discussed in section 2.1.3. For the purpose of the modelling, it has been assumed that all those declining to take-up services or reducing the hours of their packages of care do so because they are unwilling to pay for the services – a phenomenon known as the ‘demand effect’. The base case of the model, which assumes that the current funding system is in place, includes within it an assumption that a certain proportion of people within each sub-group of the older population decline to take-up services. The size of this ‘demand effect’ has been estimated by the Wanless Review team and is shown on pages 10-11. The rationale is discussed in more detail in chapter 10 of the Wanless report.

Two scenarios are explored here. The first assumes that all those who are estimated to be eligible for services under the base case of the model, the potential population of service users, decide to take-up full packages of care. Under this scenario the proportions declining services

shown in table 3 in section 2.1.3 are set to zero. The introduction of free personal care, for example, could be expected to lead to increased demand for services.

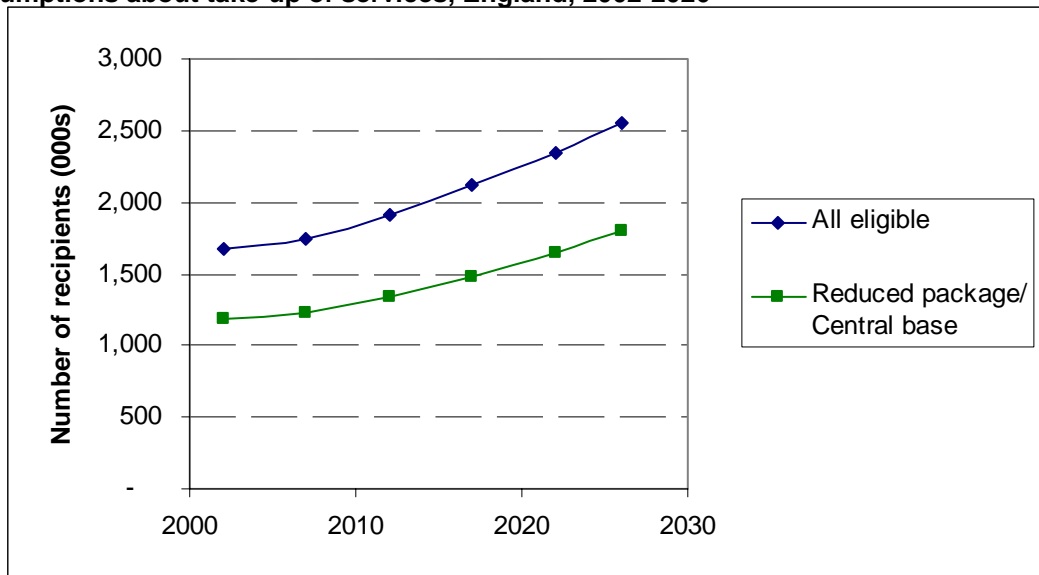
The second assumes that people choose to have packages of care that are less than benchmark levels, as defined by the Wanless Review team. This scenario works by varying the intensity of all types of community-based services received, so that the average weekly package of care for each sub-group of the older population is reduced using percentages specified by the Wanless Review team. The degree to which people choose to reduce their packages of care depends on both their level of functional impairment and whether they live alone or with others. The reduction in intensity, therefore, varies from approximately 6 per cent for those who live alone and have high levels of functional impairment to 44 per cent for those who do not live alone and have low levels of functional impairment. These differences reflect the underlying need people have for services. Those with high need on their own have little option but to use formal services and pay charges. Those people living with informal carers and with low need might be much more inclined to put off or reduce the amount of care they use. These scenarios are summarised in Box 9.

Box 9. Take-up of services sensitivity scenarios

- *All those who are eligible take up services:* It is assumed that all those people who are estimated under the base case to be in need of services, the potential population of service users, decide to take-up full service packages.
- *Reduced weekly package of community-based care:* Of those receiving community-based services under base case assumptions, it is assumed that a certain proportion decide to reduce their weekly package of care, such that the average intensity of service receipt is reduced by a given percentage for each sub-group of the population.

The difference in the numbers of older people estimated to be in receipt of all community-based services under the different assumptions concerning take-up is quite striking, as is demonstrated in Figure 18. Since the reduced weekly package scenario only has an effect on the volume of care received, the number of recipients is estimated to be exactly the same as under the base case. However, when all the people estimated to be eligible for services decide to take-up services, the demand for services increases to reach 1,670,000 in 2002 and 2,560,000 in 2026. This is the equivalent of about an extra 500,000 older people requiring services in 2002 and an extra 750,000 in 2026. The financial implications of the scenario discussed in this section are shown in Table 19.

Figure 18. Projected demand for all community-based services (000s), under various assumptions about take-up of services, England, 2002-2026



Source: PSSRU Wanless model estimates

As Table 19 demonstrates the 'demand effect' has a significant impact on overall expenditure on services. The model estimates that expenditure would be £14.1 billion in 2002 if all those estimated to be eligible for care took up services, rising to £34.3 billion in 2026. The majority of this increase is a result of the increase in demand for community-based services, which are estimated to cost about £2 billion more than under base assumptions in 2002 and nearly £5 billion more in 2026. By contrast if there was a reduction in the average size of the weekly package of care people received, then the model estimates that expenditure on services would be lower than under the base case. Expenditure, under the reduced package, is estimated to total £11.5 billion in 2002, rising to £27.8 billion in 2026. This is compared to an estimated cost under base assumptions of £12.2 billion in 2002 and £29.5 billion in 2026.

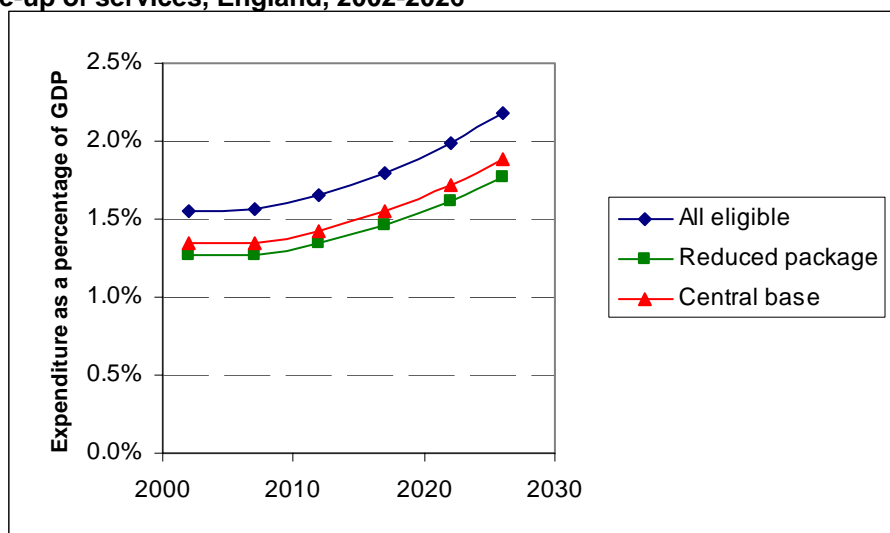
Table 19. Projected expenditure on social services for older people (£m), under various assumptions about take-up of services, England, 2002-2026

	2002	2007	2012	2017	2022	2026	% Change 2002-2026
<i>All eligible</i>							
Institutional	4,900	5,600	6,600	8,000	9,700	11,400	134%
Community-based	8,200	9,500	11,400	13,900	17,000	20,200	146%
Total for care	13,100	15,100	18,000	21,900	26,700	31,600	141%
Total expenditure	14,100	16,300	19,500	23,600	28,900	34,300	143%
<i>Reduced package</i>							
Institutional	4,900	5,600	6,600	8,000	9,700	11,400	134%
Community-based	5,600	6,500	7,700	9,400	11,600	13,800	148%
Total for care	10,500	12,100	14,300	17,400	21,300	25,200	140%
Total expenditure	11,500	13,300	15,900	19,200	23,500	27,800	142%
<i>Central base</i>							
Institutional	4,900	5,600	6,600	8,000	9,700	11,400	134%
Community-based	6,200	7,300	8,700	10,600	13,000	15,500	148%
Total for care	11,100	12,900	15,300	18,600	22,700	26,900	142%
Total expenditure	12,200	14,100	16,800	20,400	24,900	29,500	142%

Source: PSSRU Wanless model estimates

Assuming that the economy expands at the rate reported by HM Treasury, the model estimates that, if all those who were eligible for services took up that service, expenditure would represent about 1.6 per cent of GDP in 2002 and 2.2 per cent in 2026 (Figure 19). This represents about a 0.3 per cent greater spend on social services as a proportion of GDP in 2002 than under the base case assumptions. A reduced package of care is estimated, in terms of GDP, to be approximately equivalent to expenditure under base assumptions in 2002, but by 2026, expenditure under this scenario is estimated to represent about 1.8 per cent of GDP – 0.1 per cent less than is estimated under base assumptions.

Figure 19. Projected expenditure as a percentage of GDP, under various assumptions about take-up of services, England, 2002-2026



Source: PSSRU Wanless model estimates

5 Discussion

This paper has presented projections to 2026 of future expenditure on social services for older people in England. In the paper, projections based on the standard PSSRU/CARESIM model, which projects existing patterns of care into the future, have been compared to projections based on scenarios developed by the Wanless Review team. The Wanless Review team scenarios were based on a specified set of base case assumptions about what services are required to deliver specified outcomes. The outcomes of personal care (including nutrition), safety, well-being and reduction of carer stress were specified by the Wanless Review team. Two base scenarios were designed by the Wanless Review team that, in their own words, ‘capture the degree to which these sets of outcomes are to be achieved in the future’. In the view of the Wanless Review team, these scenarios can be considered to represent different service models, each engendering a different pattern of care services.

The projections presented here should not be regarded as forecasts of the future, for several reasons. First, the Wanless Review scenarios have been developed using data collected under the current system, that is to say that the data has been extrapolated to try to determine what, in the view of the Wanless Review team, an ‘ideal’ service might look like. There are potential problems associated with this approach (for discussion of these please refer to chapter 10 of the Wanless report). Secondly, the projections are highly sensitive to changes in the assumptions about future trends in drivers of demand for care. As the sensitivity analyses show, projected

future demand for social services for older people is sensitive to assumptions about future numbers of disabled older people and the future availability of informal care. It is also sensitive to variations in the degree to which people decide to take-up services, which is assumed to stem from the willingness of individual's to pay for means-tested services. Projected future expenditure on social services for older people is also sensitive to assumptions about future rises in the real unit costs of services, such as the cost of an hour's community-based care. Thirdly, the expenditure projections do not constitute the total costs of care for older people to society. That would require inclusion of the costs of a wider range of services to a wider range of public agencies and service users and the opportunity costs of informal care.

Notwithstanding these limitations, the projections have potential implications for policy. Some potential policy implications of the projections presented here are discussed in the Wanless report.

Summary of projections under variant scenarios

The table below summarises the projections for 2026 obtained under the various sensitivity scenarios discussed in section 4. Where results are the same as for the base case (scenario 2 in this instance) they are not shown.

Table 20. Summary of projections for 2026 under variants around the base case scenario 2

	Projected numbers with disability	Projected numbers of people with informal help	Projected numbers of people in institutional care	Projected number of recipients of all community-based services*	Projected total expenditure (£m)	Projected total expenditure (% of GDP)
Base case (scenario 2 only)						
Scenario 2 base year, 2002	920	1,780	250	1,180	12,200	1.3%
Scenario 2 projection, 2026	1,430	2,700	390	1,800	29,500	1.9%
Disability assumptions						
No change	1,550	2,680	430	1,770	31,100	2.0%
Poorer health	1,600	2,670	440	1,760	31,800	2.0%
Better health	1,430	2,700	390	1,800	29,600	1.9%
Unit costs assumptions						
10% then 2%					31,800	2.0%
20% then 1%					27,800	1.8%
20% then 2%					34,500	2.2%
Informal care assumptions						
No care from children		1,610		1,820	31,700	2.0%
20% more informal care		2,700		1,610	28,900	1.8%
Demand assumptions						
All eligible				2,560	34,300	2.2%
Reduced package				1,800	27,800	1.8%

Source: PSSRU Wanless model estimates

*Includes community-based and other community-based services; All figures are in 000s unless otherwise stated

6 Bibliography

Allen I, Perkins E (eds) (1995). *The Future of Family Care For Older People*. HMSO: London.

Arber S, Gilbert GN, Evandrou M (1988). Gender, household composition and receipt of domiciliary services by elderly disabled people. *Journal of Social Policy* 17: 153-75.

Audit Commission (2004). *Support for Carers of Older People. Independence and Well-being 5*. London: Audit Commission (www.audit-commission.gov.uk/olderpeople).

Bell D, Bowes A. (2006) *Financial Care Models in Scotland and the UK*. Joseph Rowntree Foundation: York

Bone MR, Bebbington AC, Jagger C, Morgan K, Nicholaas G (1995). *Health Expectancy and Its Uses*. TSO: London.

Curtis L, Netten,A (2004). *Unit Costs of Health & Social Care 2004*. PSSRU: University of Kent.

Davies B, Bebbington A, Charnley H, in collaboration with Baines B, Ferlie E, Hughes M and Twigg J (1990) *Resources, Needs and Outcomes in Community-Based Care. A Comparative Study of the Production of Welfare for Elderly People in Ten Local Authorities in England and Wales*. Avebury: Aldershot.

Department of Health (2003). *Fairer Charging Policies for Home Care and other non-residential Social Services. Guidance for Councils with Social Services Responsibilities*. TSO: London

Department of Health (2006). *Our Health, Our Care, Our Say: A New Direction for Community Services*. Department of Health: London.

Evandrou M, Falkingham J (2000). Looking back to look forward: lessons from four birth cohorts for ageing in the 21st Century. *Population Trends*, 99, 27-36.

Dixon M, Margo J (2006). *Population Politics*. IPPR: London

Dunnell K (1995). Population Review: (2) Are we healthier? *Population Trends* 82: 12-18.

Evandrou M (2005) Health and Social Care. In Office for National Statistics (Ed) *Focus on Older People*. London: The Stationery Office, 51-65.

Government Actuary's Department (2005). *National population projections: 2004-based*. Available from www.gad.gov.uk.

Grundy E (1995). Demographic influences on the future of family care. In (eds) Allen I and Perkins E *The Future Of Family Care For Older People*. TSO: London.

Grundy E, Glaser K (1997) Trends in and transitions to institutional residence among older people in England and Wales, 1971-1991. *Journal of Epidemiology and Community Health* 51, pp 531-40.

Hancock R. (2000). *Charging for care in later life: analysing the effects of reforming the means test*. University of Leicester, Nuffield Community Care Studies Unit, Working Paper no. NF86.

Hancock R, Comas-Herrera A Wittenberg R and Pickard L (2003) Who will pay for long-term care in the UK? Projections linking macro- and micro-simulation models. *Fiscal Studies*, 24(4) pp 387-426.

Hancock R, Pickard L, Wittenberg R, Comas-Herrera, A, Juarez-Garcia A, King D, Malley J (2006). *Paying For Long-Term Care for Older People in the UK: Modelling the Costs and Incidence of a Range of Options*. Report to the Nuffield Foundation. PSSRU discussion paper 2336

HM Treasury (2005). *Budget report*. HMSO: London. Available from www.hm-treasury.gov.uk/budget/.

House of Commons Health Committee (1996). *Long-Term Care Finance: Memorandum of Evidence*. London: TSO.

Jagger C, Matthews R, Spiers N, Brayne C, Comas-Herrera A, Robinson T, Lindesay J, Croft P. (2006). *Compression or Expansion of Disability? Forecasting Future Disability Levels under Changing Patterns of Diseases*. Leicester Nuffield Research Unit Working Paper number KF117 02/06

Karlsson M, Mayhew L, Plumb R, Rickaysen B (2005). Future costs for long-term care. Cost projections for long-term care for older people in the United Kingdom. *Health Policy* 75, 187-213.

Lagergren M, Batljan I (2000). *Will there be a helping hand? Macroeconomic scenarios of future needs and costs of health and social care for the elderly in Sweden, 2000-30*. Annex 8 to the Long Term Survey 1999/2000. Stockholm.

Laing & Buisson (2004). *Care of Elderly People Market Survey 2004*. Laing & Buisson Publications Ltd: London.

McNamee P, Gregson BA, Buck D, Bamford CH, Bond J, Wright K (1999). Costs of formal care for frail older people in England: the resource implications study of the MRC cognitive function and ageing study (RIS MRC CFAS). *Social Science & Medicine* 48: 331-341.

National Strategy for Carers (1999) *Caring About Carers*. HM Government, London.

Netten A, Bebbington A, Darton R, Forder J, Miles K (1998). *1996 Survey of Care Homes for Elderly People: Final Report*. Discussion Paper 1423/2. PSSRU: University of Kent.

Nuttall SR, Blackwood RJL, Bussell BMH, Cliff JP, Cornall MJ, Cowley A, Gatenby PL, Webber JM (1994). Financing Long-Term Care in Great Britain. *Journal of the Institute of Actuaries* 121, Part 1: 1-68.

Organisation for Economic Co-Operation and Development (2006). *Projecting OECD Health and Long-term Care Expenditure: What are the Main Drivers?* Economics Department Working Papers No. 477, ECO/WKP (2006) 5, Paris: OECD.

Office for National Statistics (2005). 2003-based marital status and cohabitation projections for England and Wales. *Population Trends*, 121, 77-84.

Parker G, Clarke H (2002). Making the ends meet: do carers and disabled people have a common agenda? *Policy and Politics*, 30, 3, 347-359.

Pickard L, Wittenberg R, Comas-Herrera A, Davies B, Darton R (2000). Relying on informal care in the new century? Informal care for elderly people in England to 2031. *Ageing and Society* 20 (6): 745-772.

Pickard L (2001). Carer break or carer blind? Policies for informal care in the UK. *Social Policy & Administration*, 35, 4: 441-458.

Pickard L (2004). *The Effectiveness and Cost-effectiveness of Support and Services to Informal Carers of Older People. A Review of the Literature prepared for the Audit Commission*. London: Audit Commission (www.audit-commission.gov.uk/olderpeople).

Pickard L, Wittenberg R, Comas-Herrera A, King D, Malley J (forthcoming) Care by spouses, care by children: Projections of informal care for older people in England to 2031. *Social Policy and Society* (paper commissioned for forthcoming special themed issue on the costs of long-term care).

Rothgang H, Comas-Herrera A, Wittenberg R (2003). Dependency rates and health expectancy. Chapter in Comas-Herrera A and Wittenberg R (eds). *European Study of Long-Term Care Expenditure. Report to the European Commission, Employment and Social Affairs DG*. PSSRU discussion paper 1840.

Royal Commission on Long Term Care (1999). *With Respect to Old Age*. Cm 4192. The Stationery Office: London.

Salvage A (1995). *Who Will Care? Future Prospects for Family Care of Older People in the European Union*. European Foundation for the Improvement of Living and Working Conditions, Dublin.

Wanless D (2006). *Securing Good Care for Older People: Taking a Long-Term View*. King's Fund, London

Wittenberg R, Pickard L, Comas-Herrera A, Davies B, Darton R (1998) *Demand for long-term care: projections of long-term care finance for elderly people*. PSSRU: University of Kent.

Wittenberg R, Pickard L, Comas-Herrera A, Davies B, Darton R (2001) Demand for long-term care for elderly people in England to 2031. *Health Statistics Quarterly* 12.

Wittenberg R, Hancock R, Comas-Herrera A, Pickard L (2002). 'Demand for Long-term Care in the UK: Projections of Long-term Care Finance for Older People to 2051' in Brooks, R, Regan S., and Robinson, P. (2002) *A new contract for retirement: Modelling Policy Options to 2050*. London: Institute of Public Policy Research.

Wittenberg R, Comas-Herrera A (2003). Trends in economic growth and real costs of care. In Comas-Herrera A and Wittenberg R (eds.) *European Study of Long-Term Care Expenditure. Report to the European Commission, Employment and Social Affairs DG*. PSSRU Discussion Paper 1840.

Wittenberg R, Comas-Herrera A, King D, Malley, J, Pickard L, Darton R (2006). *Future Demand for Long-Term Care, 2002 to 2041: Projections of Demand for Long-Term Care for Older People in England*, PSSRU Discussion Paper 2330, March 2006 (available free online at www.pssru.ac.uk/pdf/dp2330.pdf).