Measuring and understanding social services outputs

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1. Background

The Office for National Statistics (ONS) conducted a review led by Professor Sir Tony Atkinson on the future development of government output, productivity and associated price indices. One component of government output is social care. In order to feed into this review and with the longer-term objective of improving measurement and understanding of PSS output and productivity in social care, the Department of Health intends to develop new measures of personal social services (PSS) output and productivity, reflecting best available practice. This paper reports on an initial scoping and developmental exercise that was shared with the Atkinson Review Ream during its review.

An extensive search of the literature (see Appendix A) identified little theoretical discussion or empirical evidence in the field of measuring productivity and outputs of social care services. Most of the evidence was limited to evaluations of cost effectiveness of specific interventions or services for particular client groups. Of these, the most comprehensive and the one that most directly addressed the issue of productivity of services was the ECCEP study conducted by Davies and colleagues (Bauld et al., 2000; Davies et al., 2000). This study drew on a detailed data collection to investigate for a variety of outcome indicators the different productivities of services for individuals with different need related characteristics. While very valuable in informing factors that need to be taken into account such studies do not address the central question of how to measure government output in social care services across client groups in a way that could be used to monitor changes in productivity over time.

A few studies have addressed the issue of estimating changing productivity of social care services over time using routine statistics. Bebbington and Kelly (1995) used cost and volume data to evaluate changing efficiency in English local authorities during the 1980s. Jimenez and colleagues (2003) employed a non-parametric Malmquist Index approach using data envelope analyis (DEA) to investigate changes in local authority social service productivity between 1992 and 1995. A number of Scandinavian studies have used DEA to analyse efficiency of service provision for older people by local municipalities (Hougaard et al., 2004). Hougaard and colleagues compared the results of DEA with multi-directional efficiency analysis (MEA) in the analysis of Danish care of older people. MEA provided a ‘more subtle performance picture’ than DEA but required information about inputs, using data about numbers of different types of staff in municipalities. While these types of analyses provide potential triangulation evidence to check the validity of the results of any approach developed for national accounts or ongoing monitoring of outputs and productivity they rely on complex analyses to draw conclusions about productivity from routine statistical sources and do not provide additional insight into the measurement of outputs.

The Australian government has an elaborate system for monitoring productivity, efficiency and effectiveness of government services (Steering Committee for the Review of Government Service Provision, 2004). However, in practice the approach is closer to Best Value and PAF than national accounts. Data is collated which reflect a wide range of government activity but no attempt is made to add up government outputs, even within 'community services' which cover most of the areas we are concerned with.

All the studies of changing productivity used measures of activity such as residential care weeks or home care hours as a basis for the measure of output. While these were sometimes cost weighted to reflect their relative value and attempts were made to allow for changing levels of impairment among service users in some (see Bebbington and Kelly, 1995), none were able to include any information about changes in quality of provision. The Australian performance framework includes and is developing a number of indicators of quality and appropriateness of community services (Steering Committee for the Review of Government Service Provision, 2004).

In terms of national accounts there is less debate about the measurement of government outputs in this area than about the flawed basis for National Accounts in general (Nordhaus and Tobin 1973; Lutzel 1989). This literature draws on household economics, developed from ideas proposed by Becker (1965) and Lancaster (1966), which represents the household as the unit of consumption of goods and services. In this approach benefit (or utility) is not gained directly from buying items such as meat and vegetables. For benefit to be gained it is necessary to spend time and energy, for example in preparing and eating meals. Thus as well as a unit of consumption the household is a unit of production. The overall objective of the household is to produce well being or utility for members of the household through what are termed 'commodities' such as nutrition, social interaction and so on. In the process the household uses resources at its disposal: primarily the time of household members, physical facilities and unearned income. These resources are used to generate income, to purchase goods and services, and to produce 'commodities' directly.

Most care takes place outside the market place and, in common with other aspects of household production, uses scarce resources and provides wellbeing so ought theoretically to be included in National Accounts. Omission results in incomplete measures of production and measures that are dependent on certain circumstances (Landfield and McCulla, 2000). For example, the limitation to measuring marketed commodities means that as economies develop shifts between the market and non-market sector (primarily as women's participation in the workforce increases) measures of GDP provide biased estimates of economic growth (Weinrobe, 1974) and distort international comparisons (Landfield and McCulla, 2000).

Concerns about this and the associated omission of a large proportion of women’s contribution to economic well-being (Waring, 1988) has resulted in a number of attempts to measure the contribution of household production. Since the 1990’s the United Nations System of National Accounts has recognised, but not included the contribution of households. Rather than attempt to include household contributions to welfare in National Accounts, as had been proposed during the 1970’s and 1980’s, the emphasis is on developing satellite accounts (United Nations, 2000). The argument is that the concept of production in National Accounts has been ‘linked to the concept of a market where that output can be traded’ and household production is not typically traded in the market (Landfield and McCulla, 2000). It could, of course, be argued that much of government output (such as public goods) falls into the same category.

The debate is of particular interest as it has resulted in a number of attempts to define the basis on which we should measure and to measure household outputs, including the output of care. In defining what should be included in household production a rule that has been frequently used is the third person criterion: goods and services produced by households for own consumption that could be produced by a third person for remuneration (Lutzel, 1989). Using this criterion any additional benefit derived from the manner in which production is undertaken and by whom (a caring relative rather than a care worker for example) should be excluded.

Two principal approaches[1] have been adopted for measuring the output of households. The most widespread approach is an indirect measure based on valuing the inputs to the process, principally time of household members. Many countries conduct regular surveys based on detailed time diaries on which such estimates are based (Folbre and Nelson, 2000). The debate in these is primarily around the basis for the valuation of time. The so-called ‘direct valuation’ approach instead identifies the output in terms of outputs traded in the market and uses the market price to value this (Dulaney et al, 1992). In applying this approach to care Dalenberg and colleagues (2004) devised an approach to identify days of care provided by household members. These were then valued at child day care rates (adjusted to reflect 24 hour caring) or nursing home day rates depending on whether children or older people were being cared for.

Separate to the National Accounts argument a few authors have used the household production theoretical framework to consider the provision of care and decisions about care making. Kutty, (2000) represents functionality of older people as an output of the production

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[1] Although Quah (1987) also proposed a contingent valuation approach , identifying willingness to pay for lost production if time could not be spent on household activities.

process, paralleling Grossman's (1972) model of treating health as both an investment and a consumable good. Williams and Doessel (2003) have considered the production of mental health and demand for mental health services from this perspective. Dickie and Gerking (2001) have investigated the valuation of public and non-marketed goods through relationships between health attributes, private goods and air quality. However, in each instance the perspective and resulting definitions of commodities have been primarily about health related aspects of well-being rather than social care. We turn now to describe an application of the household production approach to the consumption of social services.

2. Production of social care

It is important to be clear what we mean by social care and the role that government funded PSS plays in the production of welfare for individuals. The Social Production of Welfare approach that we use to do this also draws on household economics (Netten and Davies, 1990).

From the individual household member perspective the effect of impairment will change what they do and contribute to the household and to increase their demand for commodities such as personal comfort. Thus, for example, if an individual breaks her leg, she may no longer be able to prepare meals and need help getting dressed. Thus the demand on household resources increases. Long-term severe impairment (be it physical, mental or emotional) can mean the resources of the household can no longer produce enough for household members so people from other households get routinely involved in helping out. Thus the unit of production for social care becomes the informal care network.

Government expenditure in supporting household production is associated with a number of different agencies:

- Department of Health (DH) policy and local authority purchase and provision of social care;
- Local authority housing departments provision of sheltered and specialised housing;
- Independent sector provision of social care and housing services;
- Department of Work and Pensions welfare payments;
- NHS community, primary and public health care services;
- Department of Transport and local authority responsibility for transport services;
- Department for Education and Employment (DfES) provision of training and education.

Each of these agencies has different, if overlapping objectives. Social care is concerned with the impact of impairment on people's lives, with social care services compensating for handicap. Health services are primarily concerned with treating the causes of impairment, although public health care is concerned with prevention and investment in health. Housing services are primarily concerned with shelter and providing a facilitative environment. Public transport services are concerned with facilitating people with impairment in getting around. Education and employment services are concerned with enhancing individuals' abilities to participate in the workforce.

So, for example, for an older person with severe arthritis, the NHS might provide a replacement hip and medication. Social care services would be concerned with the impact of reduced mobility on the individual's ability to get his meals, whether he was becoming socially isolated, whether he was safe and whether he could care for himself. These issues would be affected by the type of housing he was living in and the degree to which transport services enabled the him to get to the shops and so on. Of course, the degree to which all these factors affected the individual would be dependent on the nature and extent of his informal care support network.

It is important to keep the wider context in mind but our focus of interest is the impact of government funded PSS. This will be expected to have a variety of effects depending on the type of service. Current interventions include:

- *Financial contributions such as Direct Payments*: that add directly to the resources of the network and enable household members to purchase goods and services;
- *Aids and adaptations*: that improve the productivity of individuals with impairment;
- *Home care workers*: that usually substitute for household members by undertaking tasks such as personal care;
- *Meals services*: that supply outputs directly to the household;
- *Social work interventions*: that can contribute to the technical efficiency of the care network in enabling individuals to access services and through advocacy and counselling;
- *Respite and day care services:* that reduce the demand for help within the network;
- *Care management:* that increases the efficiency of service inputs by appropriate assessment, monitoring and matching of needs to resources;
- *Training carers:* that contributes to the 'human capital' or skills available to the household.
- *Residential care:* that virtually replaces the entire production process.

The historical role of PSS is a compensatory approach to the effects of impairment. However, there is increasing emphasis on interventions that represent positive contributions to well-being and in some instances this may be the reality already. The aim in developing an approach to measuring social care outputs and productivity must be to enable such changes and any associated rise in well being to be reflected.

We start by outlining the desirable attributes of a measure of PSS outputs and briefly consider the use of prices before describing an approach to developing a welfare index designed to reflect the gain in well being resulting from PSS expenditure. We take various elements of this index in turn, starting first with the measure of direct service effects, including measuring of quality of services, before considering the impact of PSS activity on human capital and prevention. We briefly outline a case for developing satellite accounts and describe planned and proposed activities to operationalise the approach.

3. Desirable attributes

The ideal approach would provide us with a reliable and sensitive measure that reflects the welfare gain resulting from publicly funded social care. There are enormous conceptual and practical problems in achieving such a measure, so the aim is to derive best estimates based on readily available information and to identify future information needs (both in terms of research and routine statistics) to maintain and improve the measure. For the purposes of this paper we refer both to issues that would be addressed by a best estimate and to potential sources and assumptions in terms of measures that might be implemented in the foreseeable future. In the shorter term the Department of Health is developing an interim cost weighted index that represents a considerable improvement on previous measures.

Our aim is to develop the basis for an indicator that reflects accurately the impact of social care resources on the welfare of users and carers. Amongst other things, the ideal indicator would therefore:

- Comprehensively account for resources devoted to PSS related activities;
- Incorporate the preferences of service users and carers for the characteristics and outcomes of interventions;
- Account for the differential effectiveness of services for users/carers in different circumstances;
- Account for changes in marginal service productivities at different levels of provision;
- Account for the impact on welfare of differences in service quality;
- Account for potential complementarity effects between services, and for the effect of all resources including less homogeneous ones such as respite care;

- Show linear additivity properties, so that it can be meaningfully aggregated within and across user types;
- Have the potential to reflect shifts in types of provision, including a move from deficit models to active promotion in well-being.

Accounting for some of these factors would be particularly important in the context of the recent trends towards increased targeting of services.

While a sound theoretical basis is important, in both the short and longer term we need to be clear that the data required to deliver the output weighted index is at the very least collectable and is (or has the potential to be) valid and reliable. The frequency and coverage of data depends on function it is serving:

- The index needs to be based on at least annual data with national coverage to reflect changes in outputs so that the index can be updated at least annually;
- Data that is being used to adjust outputs is acceptable less than annually and on a sample basis but needs to be regularly repeated to reflect changes in quality, the characteristics of people helped and practice. Weights based on such factors could be held constant during interim periods. When new data are collected, some form of smoothing may be required to prevent sudden changes in the measure. One approach could be to assume that changes in an indicator occur linearly over the period between data collections but this could mean some retrospective updating of estimated output for earlier years;
- Data from in depth studies of samples to represent particular attributes of the index to identify and develop information about factors that we assume are fairly stable. This might include the preferences of specific groups of service users for service attributes and outcomes.

4. Prices

One basis that could be used to value outputs is the use of prices as an indicator of the value of services. This has the advantage of being consistent with the approach used for the private sector where it is assumed that the market price measures consumers’ marginal valuation of the characteristics from consuming the output. Social care is privately provided and purchased so market prices do exist. As described above, market prices are used in the direct valuation approach to measuring the non-market produced outputs of care (Dalenberg et al., 2004).

As in most markets there are a number of substantial problems with the operation of that market and thus what these prices represent. Not least of these is the fact that the public sector is the dominant purchaser, so prevailing prices do not reflect individual consumer preferences but commissioning practice and the purchasing power of local authorities. As a result over a period where prices for places in care homes in real terms have been stable or fallen, some 'objective' indicators of quality have risen. Moreover, there are real problems in terms of information asymmetries in social care markets. Nevertheless, these are the prices that are being paid by private consumers in the market so represent their valuation less any consumer surplus in a similar way to other products.

National data about prices paid by local authorities are available. The question arises whether any adjustment should be made if this approach were to be adopted. There is some evidence that prices paid by private consumers for the same service are higher than those paid by local authorities, at least for services for older people (Laing and Buisson, 2003; Netten et al., 2001). However, there are no routinely available data about prices paid by private purchasers and the relationship between prices paid by public and private purchasers changes over time (Netten et al., 2002a). It could also be argued that the value of production by in-house providers is best reflected by the price of independent provision, as there is no evidence of higher levels of quality of provision in the public sector where costs are higher (Netten et al., 2001). However, levels of impairment in public sector residential care is higher than in the public sector so some of the cost/price difference could be attributable to this. Comparative analyses of prices and costs of local authority provision could provide some insight into this but the only comparative data we have with information about resident and home characteristics dates from 1996 (Netten et al., 2001).

5. A welfare index

While consistent with National Accounts, there are many problems with using prices and computing volume measures of output by deflating current expenditure by price indices of procured inputs not consistent with the approach adopted by the Atkinson Review. The Review followed Eurostat guidance that countries should be developing direct measures of government services that are individually consumed. The principal approach that we discuss below should at least theoretically provide a better basis for reflecting changes in government productivity, based as it is on identifying the characteristics and value of outputs to service users. This could be regarded as matching the approach being developed to weight health procedures to reflect resulting quality adjusted life years (QALYs). It is important that the approach is not only internally consistent in terms of the desirable attributes described above, but that it builds in a cost-effective manner on existing and planned developments in routine data collections.

In the field of health Dawson and colleagues (2004) distinguish:

- *activities* as operative procedures, diagnostic tests and so on;
- *outputs* as courses of treatment which may require a bundle of activities and;
- *outcomes* as the characteristics of the output that affect utility.

Following this approach in social care we would define:

- *activities* to include assessments, tasks undertaken by home care workers and so on;
- *outputs* as packages of care which may require a bundle of activities and;
- *outcomes* as the characteristics (or attributes) of the packages that affect utility.

Thus in measuring the value of outputs, in principle we want to measure the contribution to welfare associated with each package of care. In practice we currently measure just individual service receipt. Each service may undertake a number of different activities and a single service such as a care home or home care will often comprise an entire package of care.

At least initially we know that routinely recorded service activity will need to form the basis of the approach, so that rather than a ‘cost-weighted’ activity index we are aiming to develop an ‘output/outcome-weighted’ activity index based on routinely measured levels of activity. The index would represent the addition to total welfare or utility resulting from government expenditure.

The basis for the index will be ‘people helped’ through PSS expenditure during the year. How much they have been helped will depend on the amount of the service received (e.g. number of weeks of care) and what has been facilitated or delivered in terms of commodities (such as personal comfort, meals and nutrition and so on). In devising the approach we need to bear in mind that for the most part people and informal care networks produce their own well being. We define the function and role of PSS in terms of the social production of welfare framework (SPOW) described above. This puts the individual, their family and friends at the heart of the production of welfare process (Netten and Davies, 1990; Netten, 2001).

Although care packages are ideally the output that we want to measure, we know this information is not available on an annual basis using current data systems. In the absence of these data we will need to identify sources of information about the composition of care packages that can be related back to routinely available information and/or the marginal product of services given information about the composition of care packages currently. This latter is made easier by the facts that, as we identify above, in some instances care packages consist of single services. Moreover analyses to date have shown little evidence of complementarity in care packages (Davies et al., 2000). An important task will be to identify the best way to reflect types and distributions of care packages and the implications of this for short and long-term research and routine data collections. In the short term the FSS funded studies, other ongoing research and routine collections such as GHS might provide us with helpful information about the composition of care packages. Studies such as ECCEP (Davies et al., 2000) could provide historical insight into the marginal productivities of services in these care packages.

There would be a number of components to the weights, the basis of which should reflect the role of social care services in the production of welfare (for example, substitutes for individual production, investment in productivity, enabling transaction between welfare states); ability of individual service users; the role of carers; quality and satisfaction with services; and the location of care.

For the time being we assume that packages of care consist of single services. The proposed index relates these to the anticipated welfare gain:

$$W_t=\Sigma c_i q_i S_{it}+\Sigma A_{jt}\delta H_{jt}+\Sigma S_{jt}\delta H_{jt}+\Sigma Q_{tfb}$$

Where:

W_t	is the overall level of welfare produced during period t
c_i	is the capacity to benefit of people using service i given the commodities which the service affects and the degree to which users are reliant or dependent on that service
q_i	is the quality of service i and represents both the degree to which the service is meeting the needs identified in c_i and process outcomes
S_{it}	is the quantity of service i produced during period t
A_{jt}	is the level of assessment or advisory service j delivered during period t
δH_{jt}	is the increase in human capital in terms of health or knowledge resulting from interventions in period t
ΣQ_{tfb}	represents the discounted future benefits arising from preventative services during period t

We also discuss in Appendix A the arguments around inclusion of a further weight:

d_i	the *nature* of impairment or indicator of effort or difficulty of ensuring the needs are met of people using service i

To follow National Accounting principles the measure of government expenditure should be based on net rather than gross spend (reflecting the government's contribution). This would suggest another term (f_i) that reflects the level of activity covered by the contribution by service users in the form of fees and charges for service i. This would be based on the proportion of expenditure met through charges and act to reduce the level of activity by an equivalent amount. This may be problematic as user charges are clearly affected by changes in the charging rules, changes in social security entitlements and the different incomes of successive cohorts of clients. It will be advisable, therefore, to measure product both in net and gross terms in order to monitor the impact of such changes on measured output and productivity.

6. Current service outputs

The general form we assume is multiplicative weights with the aim of identifying the benefit gained from each service. For the time being we assume that we simply add the index value for each service, although this assumption will need to be revisited[2]. Thus for an individual the output of each of the services that they receive would be:

$$\boldsymbol{\Sigma c_i q_i S_{it}}$$

S_i reflects the volume of services in terms (ideally) of numbers of people receiving a service package I during the year. Annual information is available from routine statistics (such as RAP and HH1) about the volume of many services but not at present in terms of numbers of people receiving different service packages (such as both meals and home care). The General Household Survey (GHS) does provide some information but less frequently and not for all client groups. In terms of routine statistics there are particular problems about the way that carer service volumes have been measured in the past although we gather that changes in reporting these services are being introduced.

In order to illustrate how the approach might work in practice we take two key services: residential care and home care for older people. These are measured in the case of residential care in resident weeks and in the case of home care in hours of care per household. We do not want to attribute outputs at the hourly level so assume that in each case we are measuring, for those who are cared for throughout the year, the outputs of 52 weeks of care during a year. In the case of home care we divide this into intensive and less intensive home care with

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[2] As we identify above in the ideal form the S would consist of a package of care so the additivity problem, whereby more than one service produces the same commodity (for example, day care and home care both provide social participation to a greater or lesser degree and people may often receive both) would not arise.

different weights to reflect the level of impairment of those cared for, what services are doing and the quality of services delivered. The actual sub-groups we should use will depend on subsequent empirical work about appropriate cut-off points and available data on a routine basis (primarily HH1 returns at present).

Guidance from the Review team is that Direct Payments, provided that recipients are not restricted in what they purchase, should be treated as a transfer payment in order to fit in with National Account conventions. Thus they would not be included in our measure of output. This is problematic in policy terms as one of the objectives of moving to Direct Payments is to enhance productivity of expenditure by allowing people to maximise their utility directly by putting together their own care packages. In terms of the model being developed here inclusion of Direct Payments does not provide any conceptual problems, as receipt of Direct Payments would be treated like any other service package, again possibly distinguishing between intensive and less intensive support.

Having identified the volume of services, ideally we want to identify a measure of the increased level of well being experienced by older people as a result of receiving these different services per week.

Capacity to benefit

First we need to identify the capacity to benefit or level of well being that *could* be delivered by the service assuming perfect quality and taking into account the characteristics of service users. In order to be able to add across different types of service (and client group) we need to start off with a comprehensive list of what services could deliver that fall into our general definition and what is paid for. This is based on the key domains based on a research project (Netten et al, 2002b) that developed a measure of social care outcome for older people (OPUS) together with other domains of well being where services are known to deliver outcomes.

The outcome domains include:

1. Personal care/ comfort;
2. Social participation and involvement;
3. Control over daily life;
4. Meals and nutrition;
5. Safety (in terms of felt safety – changes to probabilities of events and seriousness of the consequences should ideally be reflected in ΣQ_{tfb});
6. Shelter/ accommodation

7. Environmental cleanliness, order and accessibility;
8. Employment and occupation
9. Role support (as a carer, parent, etc);
10. Location of care.

Location of care is not strictly an outcome domain but there is widespread evidence that people do not want to live in residential care setting and put a value on remaining in their own home over and above any welfare gain associated with the care they receive or the physical facilities provided. People's preference for staying in their own homes has been an important influence on policy and practice, particularly in recent years for older people. As a result people are maintained at much higher levels of impairment in their own homes and in care homes now than was true in the 1980s (Darton et al., 2003). The location of care domain is designed to pick up the welfare gain associated with such a shift[3].

Discussions are ongoing about whether this list is exhaustive and whether it is possible try to reduce it (by combining domains). In terms of additional domains the above list covers all the potential outcomes for older people and carers identified by Qureshi and colleagues, (1998). However, it does not allow for the value to the carer of the increase in welfare in the person they care for and analyses of services for younger adults and further work on carers suggests that social services are also concerned with the provision of advice, information and referral on to other agencies (Harris, 2004; Hirst, 2004). While it is acknowledged that there is an indirect increase in welfare for the carer we would not propose to include this in measures of output as it leads to problems of double counting. The value of information and advice links closely to the outputs of assessments that do not result in service packages discussed below.

Another domain that has been identified that is not included in the list above is that of 'positive health' that some services for younger age groups aim to produce (Emerson, 2004). Any such benefits need to be measured in a way that is consistent with health care outputs, which are being measured in terms of QUALYs. More information is needed about the nature of the interventions and expected health benefits. This will help define whether they should be reflected in either an increase in current human capital or future benefits (both described below) or both.

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[3] This is a relatively recent development in our thinking and we need to clarify whether we would include this simply as an indicator of welfare associated with location regardless of the dependency of the individual or ought to seek to include it only when services are maintaining people at home who would otherwise need to be cared for in an institution.

Combining domains is desirable in order to simplify the index and make the attachment of preference weights a more manageable process. However, there is a trade off as the less clearly defined a domain the less straightforward it is to measure. For example, is it appropriate to combine shelter and physical accommodation with environmental cleanliness and order? Can we combine employment, occupation and role support or are these fundamentally different? Linked to this is the need to clearly define the attributes of different levels within the domains.

As a basis for our index we assume that should a situation arise where all the domains of need were fully met through best quality service interventions and that in the absence of services there would have been high level need in every domain, this element of the index would score 100. Within that global score each domain should be weighted to reflect population preferences, or, if they differ from the general population which we might expect that they would, the preferences of older people (as potential service users). Clearly, as in health, there is a debate to be had about whose preferences. The suggested approach is that we should reflect the preferences of populations in the same the life stage of service users for the purposes of measuring productivity in PSS. A case could be made that we should use service users' preferences as reflecting more directly the welfare gain and which might be more widely acceptable. However, at least in the medium term there are a lot of methodological hurdles to be overcome before this is practical.

The relative weights of the domains and levels will be a key element of the index. Below illustrative weights are shown, largely based on preference-based weights derived for the OPUS measure of outcome for older people to reflect older people's views of the relative importance of each domain (Netten et al 2002b). This study identified the key domains of outcome applicable across all settings rather than the comprehensive approach proposed here, which incorporates all domains that might apply to all care settings for all client groups[4]. We propose that a population based preference study should be used to identify preference weights for all the domains; ideally including a financial domain to identify derived monetary valuation[5] for the capacity to benefit element of the index. Grounding the index in monetary terms should allow us to develop a more robust and meaningful measure than would otherwise be possible. Whatever approach is taken we need to build in a validating process (preferably involving service users).

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[4] The weightings of those domains not included in OPUS (environment, shelter, employment and role support) are assumed – see table 1.

[5] We anticipate using a best-worst attribute approach, which should allow us to incorporate a relatively large number of domains (Flynn, 2004) but methodological advice will be sought on this.

We define the maximum possible score in terms of capacity to benefit as 100. This would reflect the situation where all those receiving a service would have high level needs in all domains in the absence of the service. This is unlikely to ever be the case: most services will only affect a subset of domains and service users will vary in their reliance on services. At the other extreme a service that did not address any of the domains would score 0. This range provides us with a basis for identifying the potential contribution to welfare of each individual service. To do this we identify first which domains are affected by the service[6] and then the degree to which service users are reliant on services in terms of capacity to benefit in each domain. Thus for care homes for older people we might identify the potential domains as:

- Personal care/comfort;
- Social participation and involvement;
- Control over daily life;
- Meals and nutrition;
- Safety;
- Environmental cleanliness and order;
- Employment and Occupation;
- Shelter and physical accommodation[7].

Within each domain we need to identify how reliant service users are on the service. If we classify capacity to benefit in terms of high and low for each domain we would need to find a way to identify (or make assumptions about) how impairment affected individuals' capacity to benefit in each domain. We may want to subdivide the care home population into high and low levels of impairment or simply to reflect the overall population as health inputs, at least theoretically, are now met through NHS spend. We also need to think through how we want to reflect the fact that some commodities may be produced in this setting that would have been better produced (and possibly by the individual) if the person had remained at home.

In terms of home care, the service might be expected to deliver:

- Personal care/comfort;
- Social participation and involvement;
- Control over daily life;
- Meals and nutrition;

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[6] For our purposes here we exclude the location of care domain.

[7] When we are measuring net activity (to correspond with net expenditure) we may want to associate the contribution of user charges to one or more of these domains. Alternatively we could regard the contribution as affecting each domain equally and simply adjust the overall output proportionately. The latter is probably preferable, as user charges are not directly related to the costs of specific commodities (as they are in some countries).

- Safety.

Intensive packages might be delivered mostly to people with high capacity to benefit in all domains, although in a proportion of cases, where people are living with carers for example, the contribution in terms of social participation and involvement might be less. Less intensive packages may be found to address fewer domains (perhaps less often providing meals) and to people with lower levels of need.

Once the profile for each service was identified in this way we would be able to score the potential contribution to well being for each service. For example if we use the weightings suggested in table 1 and we assume all people in care homes were highly reliant on services, the care home index might be 90. This comprises the difference between zero (the value of high level needs on all domains in the absence of the service) and the maximum possible score for the domains of outcome affected by the service. Similarly intensive home care to very dependent people might have an index of 71 (again assuming high level needs in the absence of services and summing the maximum weights for the relevant domains). Less intensive home care would not be able to deliver this level of output in these domains. The precise level would depend on the levels of need of people receiving less intensive packages and the relative importance given to meeting these needs. For example, using the weights shown in table 1, those who would have low-level needs in all the domains in the absence of services (scoring 44) would have a capacity to benefit of 27 (the difference between 44 and 71). As the value of this capacity to benefit element of the index depends on how reliant people are on a given service it would be expected to change over time as the characteristics of service users and the degree of help they get from the informal sector changes.

Again there is a research agenda about measuring and monitoring reliance on services and capacity to benefit. In the first instance we would hope to draw on ongoing research for the FSS studies and possibly follow up work that might refine this within the project period. In terms of monitoring capacity to benefit we might draw on regular surveys such as the Health survey for England and GHS. Unfortunately, as they stand these are not suitable at all for identifying people with learning disabilities (Emerson, 2004) and it is unlikely they will be helpful in identifying the needs of people with mental health problems. It may be that local authorities will need to provide some information to help inform us how the needs related characteristics of these or all service users are changing. However, the first task is to identify what information is required before identifying the best source.

Table 1: Example weightings of domains

Domains	*Weight*	*Low level need weight*
Personal care/comfort	23	11
Social participation and involvement	20	12
Control over daily life	13	11
Meals and nutrition	9	7
Safety	6	3
Environmental cleanliness	4	2
Shelter and physical accommodation	9	4
Employment and occupation	6	3
Role support (as a carer)	10	5
Total	**100**	

Note: These example weights reflect the relative OPUS weights for the first five domains (where weights are given for different need levels) and draw (very crudely) on expenditure in households where the reference person was over 75 for the remaining domains. In all instances the assumption is that high level needs would have a weight of zero. Interaction between domains mean that it is unlikely that the simple additive approach shown here will be derived in practice.

The capacity to benefit weight should combine both degree of reliance on services and valuation of moving from one state to another. What it does not incorporate is the intensity of effort required to deliver that benefit. Variation associated with intensity of effort is included if prices are used as the basis for an indication of the value of the output as prices are dependent on costs. Appendix B discusses the rationale for including a weight to reflect this effect in the approach we are discussing here and how it might work in practice. We are not proposing to include this weight, however, for reasons described in the appendix. Another important argument against including such a weight is that the multiplicative nature of the proposed index means that this would add another level of uncertainty to a measure that inevitably will be complex to put into practice. This issue is of particular relevance when we turn to the measurement of quality.

Quality

We know that in practice all the potential capacity to benefit will not be met by the services so we need to allow for the degree to which services are in practice meeting needs in each domain and delivering process outcomes such as dignity and continuity of service. In this way we reflect the quality of services. Within each service we need to identify the essential ingredients of quality for each domain. For example, in a care home, important aspects of shelter and accommodation would be whether the individual had a single room. Other aspects of quality, such as being treated with respect, might influence several domains. We need to identify both the potential aspects of quality that we should reflect and how they should relate to the service.

We also need to consider how services compare with one another. One aspect of quality is the impact of different services in terms of the way in which the commodity is produced. We have identified above that services such as equipment increase individual service user productivity rather than home care which may substitute for the service user, and care homes, which take over the entire production process. We need to be clear about service user perspectives on different approaches to delivering services and look towards incorporating these in our quality weights. Thus, for example, we would be able to reflect the improvement in well being that we would hypothesise should result from a move to housing and care options from care home placements.

Related to this is the issue of grounding – what do we mean by ‘all needs met’ at the best possible quality for each domain? Clearly, when talking about food and nutrition we are not talking about cordon bleu meals, but are talking about a varied, nutritious diet and timely meals. We need to be clear what is expected of PSS services now and how this might be affected (and thus reflected in the index) by higher standards at a later date. We also need to be clear about how these differ between client groups. For example, what is encompassed by day care services is very different for older people and younger client groups. We need to clarify to what extent this is about which domains are affected and to what extent differences in the quality of the service.

Ideally most if not all aspects of quality would be reflected directly through measures of service outcome. However, in practice for the foreseeable future measures of social care outcome are unlikely to encompass the impacts we want to reflect with sufficient sensitivity and reliability. As a consequence we propose to incorporate and combine a number of measures drawing on existing sources.

For care homes there is information about proportions of homes meeting care standards (Dalley et al., 2004) that include a wide variety of elements including meeting needs and for older people autonomy and choice. There may be some concerns as the system settles in about consistency of inspectors and potential changes that the CSCI may introduce, but this is a source of data about quality available at a national level on an annual basis and one where there are inbuilt concerns to raise the quality of the inspection process on which the judgements are based.

In Appendix D we outline a planned piece of work with CSCI to link standards to our domains of outcome and attach weights to the judgements about the degree to which standards have been met. This, combined with information about the relative importance of these domains (reflecting population preferences) would provide a basis for a quality indicator. For a crude initial indicator for our example Dalley and colleagues (2004) report that in 2003 68 per cent of care homes for older people met or exceeded at least 50 per cent of the standards.

For home care a good source for the home care of older people is the three yearly user experience survey (UES). This provides information on overall satisfaction with social services received at home at a national level. In 2003 information was collected from 87,000 services users in all local authorities in England using detailed guidance on sampling procedures and conduct of the survey (Department of Health, 2003). The Best Value Performance indicator based on this question (per cent extremely or very satisfied) has a confidence interval of +/-0.3 per cent (Department of Health, 2003).

More detailed information about quality of home care in 34 authorities is available from an extension to the UES survey conducted by PSSRU (Netten et al., 2004) that it is planned to repeat in 2006. This study investigated and confirmed the validity of the best value indicator based on the satisfaction measure. Appendix C describes an analysis of the data from that study in order to weight the satisfaction item to reflect the relative quality of service user experience. Table 2 below shows the quality weights based on the best solution in that it reflects all the statistically significant different levels of satisfaction in terms of quality.

On this basis the quality weight would be .632. If ‘extremely’ and ‘very’ levels of satisfaction were combined as they are in the Best Value performance indicator the quality weight would be .781.

Although there was some evidence of lower levels of satisfaction amongst those receiving more intense services (Netten et al., 2004) this accounted for a very small proportion of the variation in reported quality. Further work would be needed to separate out the impact of impairment on people’s expressed satisfaction before we could be confident that this reflected genuine differences in quality. For the present we include the same weight for those receiving intensive and low level home care but will reconsider if future analyses suggest this is advisable.

Table 2: Quality of home care services

Level of satisfaction	*Quality weights (2)*	*% Older service users*	*Level of service quality*
Extremely	1	25.02	.250
Very	.668	32.47	.217
Quite	.426	31.37	.133
Neutral/dissatisfied	.279	11.14	.031
Total	N/a	100	.632

Note: Figures do not add exactly due to rounding.

In principle this quality weight could be applied to all service delivered in the home as that is what the general satisfaction question asks about. However, the quality indicators are dominated by home care (the principal service in the home and the basis for the selection of the sample). Ideally future work would investigate ways to reflect quality each service or service package separately. This is a particular issue for day care where there is little information about quality and no regular sources of data.

Using the quality weights on the example above the index scores would be:

W_c= 90 x .68=61.2

W_{ih}=71 x .632=44.9

W_{lh}=27 x .632=17.1

Where W_c is the welfare gain from a week in a care home, W_{ih} the welfare gain from a week's intensive home care and W_{lh} from a week's non-intensive home care. To estimate total output level these values would be multiplied by the number of weeks of service delivered over the year and added across services.

Of course one problem with this approach is that the measures of quality are not directly comparable across different modes of care as the basis of the judgement is the subjective service user perspective for home care and more objective regulator perspective for residential based care. The ideal approach would probably be based on a combination of the two (for example, the type of quality measure developed for nursing homes in Ohio by Straker (2004)). In our view the problem of using different approaches is outweighed by the advantage that the approach builds on existing national sources. One of the responses to our earlier consultations identified the problems associated with attempts to introduce into routine practice new approaches to measurement.

The implications of the use of different approaches to the measurement of quality could be tested through a satisfaction survey of care home residents and/or a study with regulators investigating the quality of home care services. This latter is unlikely to be feasible in the short term as regulators are only now starting to inspect home care agencies in any detail. However, if it were thought that this might be a promising way forward then it would be important to discuss this with CSCI in the near future.

Another aspect of quality omitted from this approach is appropriateness of the care provided. For example, are people being cared for in their own home that would better be cared for in a residential setting? While the location of care indicator should pick up the added value of being cared for at home to the individual, it will not pick up whether they would have been better off if they were cared for in a residential setting. We want to reflect such effects as shifts in provision or improvements in care management practice that improve appropriateness of care will not be reflected. In an ideal world an outcome indicator would be able to pick up such effects but this is a difficult effect to identify.

7. Human capital

Human capital is defined as the skills and abilities on which individuals can draw to produce commodities or welfare for themselves and others. We have identified a number of areas where PSS could be expected to contribute to the human capital of service users and their carers.

Care management and assessment

Considerable resources are devoted to screening, assessment, putting together packages of care and reviewing those packages. For the most part these are treated as an essential overhead cost to the care packages, the outputs of which we would measure as described above. However, we do need to be clear whether there are additional outputs that are generated by the care management process that we should attempt to incorporate, particularly for those who do not receive a service package. People are entitled to receive assessments and we need to be clear whether an increase in assessments reflects additional PSS output that should in practice be measured.

In terms of well being, many individuals will experience a loss, as the assessment will be seen as a rationing process. However, individuals may receive valuable information enabling them to access other services. Where this relates to other sectors (such as health or housing) the process is part of the cost of case-finding for that sector so the related expenditure should in theory form part of the cost of outputs produced by that government sector. However, in many instances we might expect that the advice would be related to access to voluntary or private sector provision of services on the boundary of social care so there would be no clear sector that should reflect the additional benefit incurred (even if we were able to allocate the expenditure to the relevant agencies).

An alternative treatment is to draw on the household economics literature in which consumer knowledge has been treated as human capital and the furthering of that human capital as investments in search (Ratchford, 2001). Ratchford explores how the investment in human knowledge relates to the demand for goods and time. Clearly, the process of seeking an assessment and the resulting output from that assessment could be represented as an investment in search to identify services or other types of assistance to contribute to the household's production of commodities. The next step is to identify how we can put a value on the resulting increase in knowledge.

One approach to estimation would be to use the principle that the value of a commodity to a household is the total cost of producing the commodity – the purchased consumables, capital goods depreciation and time spent in production. Similarly the cost of investing in human knowledge could be represented as the value to the household of acquiring that knowledge. In the case of the assessment this would be the value of time (and expenses) involved in seeking out the assessment and taking part in the process. This would involve the time and expenses of relatives in addition to the individual. Of course, people will invest in the process with expectations of outcomes and may well be disappointed so an important question would be 'Was the effort worth it?' Nevertheless, this provides us with a starting point for valuing the increase in human capital resulting from an assessment. While any estimate based on the opportunity cost of time of applicants and carers would be likely to be rather less than the cost of the assessment the additional value could be represented as targeting of services.

Advice and information services

For younger client groups and carers, one of the types of service that is not adequately covered by the approach described in earlier drafts is the role of information and advice. Information is a key output for carers (Nicholas, 2000; Unell, 1999; Blunden, 2002). If we included a human capital dimension a similar approach could be used to incorporating the output of these services.

Health

We identified above that one suggested additional dimension of outcome is ‘positive health’. Clearly if we are going measure any kind of health output we need to be clear about how it relates to how health service outputs are measured. Dawson and colleagues propose the use of Qualys in which preference weights are attached to different aspects of health related quality of life (Dawson et al., 2004). This would add another layer of complexity on to the PSS outputs function and it may well be difficult to demonstrate any effect in measures such as EQ5D.

One approach would be to represent social care inputs in parallel with public health interventions, which has yet to be addressed. We might use the Grossman (1972) approach that represents health as human capital in which individuals (and services) invest. The benefits will accrue in terms of increased human capital and prevented need for future services. More thinking needs to be done about how this would be valued as we are working towards a monetary basis for most of the other elements of the output index. Nevertheless, it would fit in with including a human capital element to reflect the value of assessment and advisory services.

8. Future benefits

At a very fundamental level all social care could be seen to produce a stream of future benefits as, in the absence of such interventions we would expect increased need for health services. For example, social isolation is known to be associated with morbidity and mortality (Eng et al., 2002; Fratiglioni et al., 2000; House, 2001; Shah and Cook, 2001) so potentially any intervention that reduces isolation has a longer-term impact in addition to the utility or benefit derived at the time. In addition some services have, as their specific objective, the prevention of deterioration, so, if effective, would be expected to decrease the need for future service inputs. The measurement of this would ideally reflect a discounted estimate of future benefits as the cost would have been incurred in the current year, but the benefit felt in future years. Although it is important to examine the literature to identify such effects and how they might be incorporated we suspect this type of effect is not likely to be very easy to link robustly to service interventions in the short term.

One area that warrants investigation, however, is that of equipment and adaptations to property. These services are measured as revenue expenditure in terms of the cost of installation, but in terms of their role in the production of welfare they represent capital goods that enhance the productivity of individuals over the time that the individual uses this equipment or adaptation (usually a lot longer than a year). Potentially these are very cost effective interventions so it is important to accurately reflect the outputs from such services. However, in terms of priority areas to address future benefits are likely to be difficult to quantify and the level of expenditure is relatively low.

Another area where the benefits are experienced in terms of prevention is the use of respite services that enable carers to continue to care (Glendinning, 2004). This impact will be felt concurrently (Levin et al., 1994) which we would ideally pick up through current service outputs and, potentially, in future years.

9. Satellite accounts

In the earlier sections of this paper we made clear that most social care is produced outside the formal sector and that a number of different government departments influence the production of welfare of people with impairment. Here we have attempted to define PSS outputs clearly but what is required and what is produced will fundamentally depend on these other sectors. One commentator on an earlier draft felt that this, in particular the potential preventative role of these other sectors, was very important and would be neglected by a narrow output focused treatment of PSS. There are also more immediate concerns about the potential for distortion for groups such as those with learning disabilities that are in some instances supported through supported housing arrangements and in others through PSS expenditure (Emerson, 2004). Changes in levels of outputs measured may simply reflect movements between accounts but as these accounts are not measured on a like for like basis the overall picture will not be clear.

One way to address this issue is the use of satellite accounts, which allow the development of alternative approaches to measurement and cross-sector effects to be included. Given that it is widely acknowledged that most care is produced outside the formal sector this area would seem to be a prime candidate for such a treatment.

If such a course was to be pursued it would be important to clarify the scope and boundaries of any such accounts. In the first instance long-term care would seem to be a candidate as a matter of international concern with ageing populations. However, at this stage it is not clear how applicable such an area would be to other client groups so it would be important to consult and consider definitions in the context of other proposals for satellite accounts (such as those for health).

10. Next steps

To fully operationalise this approach to the measurement social care outputs would require a substantial research agenda. However there are a number of steps that could be taken that would take us some way in developing an initial measure that could be developed and refined over time. Appendix D summarises the current situation for each client group and identifies those activities being undertaken and proposes research that we feel is likely to be most productive in the short and medium term. We have focused on the measure of current service outputs initially rather than the contributions to human capital and preventative effects as current service effects comprise the majority of PSS outputs currently and are those most easily identified.

11. Conclusions

This paper has outlined two possible approaches to measuring social care outputs. The first is the use of prices as weights to reflect the value of PSS volume of outputs in the same way that GNP is measured for the private sector. This is close to the cost weighted approach being adopted by the Department of Health in their development of an interim measure and fits most closely with the way National Accounts are measured currently and proposals to measure household non-marketed outputs such as care.

The alternative option that we have presented here has the advantage that it fits most closely with the Atkinson Review approach to measuring government outputs, for which there most usually are not prices available, in terms welfare gain from Government expenditure. By mapping services on to a common set of domains or commodities it provides a flexible approach to the monitoring of PSS output over time. Changes in characteristics of provision and the people cared for can be reflected in amended ‘capacity to benefit’ profiles. Weighting these to reflect population preferences and adjusting for quality of service provision allows us to reflect the welfare gain of interventions. The approach looks promising, although it has yet to be fully worked through for all client groups. It is less developed in the important areas of contribution to human capital and prevention, reflecting in part the evidence base for these effects.

Taking forward the proposal to develop satellite accounts would help provide a more comprehensive picture of the interaction of government outputs in the area of social care and assist interpretation of the overall impact of government expenditure. Necessarily this would add new dimensions of complexity so decisions about appropriate scope and boundaries would need to be made early.

Appendix A

Literature search to support the development of the PSS output and productivity measurement

This Appendix describes the literature review for the development of the PSS output and productivity measurement. The activities undertaken are listed below, followed by results on the electronic search so far and next steps.

A general search is being conducted to identify the international approaches that have been used to measure PSS outputs and productivity. This exercise comprises three activities:

A1 Activities undertaken

Scrutiny of the York Search

We have scanned 6572 papers identified by the York review in order to identify potentially relevant papers to our work that have already been retrieved. It also allowed us to access papers retrieved through non-social care specific terminology, something that we are minimising in our own search strategy in order to keep the search manageable. For the purpose of this study we have conducted a simple search of the York database primarily focusing on social care terms and a few key productivity terms[8]. Using this search strategy 553 records were retrieved of which 149 publications seem to be potentially relevant to the PSS outputs work. The next stage is to examine those records more closely.

An electronic search of the literature

Our search strategy builds on that used in the York review although our search is much more complex. Essentially we have combined papers reporting productivity related terms with those that discuss social care services. We have also run a separate search strategy into economic literature that has built on concepts of 'household production' or 'home economics' and thus the informal production of the commodities that we have identified within the province of publicly funded social care services. The aim was to identify specialist data in the literature that may not be linked to social care nor picked up in previous searches

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[8] Detailed information about search terms, search strategies and results of all the searches described here can be supplied if requested

conducted by the University of York for the work related to the productivity of the health care sector.

International contacts

Another key task was to build up a list of contacts both in the UK and elsewhere to approach with a very simple request for advice on papers and information of relevance to measuring productivity in social care. Initial contacts have been made in the USA, Australia, New Zealand, Belgium, France, Eire, Austria, Denmark, Canada and Finland. The responses that have come back to date have suggested that there is very little available with the exception of Denmark and Australia. One of the contacts in Denmark did send us some information with regards to Danish elderly care resource utilization among municipalities. The study showed that Multi-directional Efficiency Analysis (MEA) provides a much more subtle performance picture than Data Envelopment Analysis (DEA) because we are able to assess the input specific relative improvement potentials. The empirical results show considerable improvement potential for all inputs. The largest relative potential for improvement is found for administrative staff.

Another example was the Australian Report on Government Services, which has as its aim to provide information on the effectiveness and efficiency of government services in Australia. A wide variety of data are collected and presented in the review, which covers education, justice, emergency management and health in addition to community services, which cover most of the areas with which we are concerned in this study. However, there is no attempt within these to add indicators of output or outcome across client groups or even service types. In practice it is closer to the Performance Assessment Framework and Best Value indicators, although the review does discuss the relationships between inputs, processes outputs and outcomes and define the indicators in these terms. Further information received from Canada focuses on health rather than social care related productivity issues.

A2 Results of the electronic literature search

The complete search strategy was initially run and refined on the Ageline and International Bibliography of the Social Sciences (IBSS/BIDS) Databases using SilverPlatter software, and subsequently on the GeogLit database. Searches for the HMIC and Psychinfo databases were conducted using tow different online versions of these databases. While the Psychinfo search was similar to the searches already run, the HMIC database search was modified because of the nature of the database and the limitations of the search engine. Specific searches of the Medline and Econlit databases were also conducted.

Piloting phase

Our pilot search of the Ageline database had a recall rate of 13,432 hits. We analysed the results of the search strategy to identify any spurious terms and also those for whom the precision rate was low (i.e. a large number of references were retrieved for each relevant reference). We then refined the search strategy either eliminating terms or placing greater restriction on them so that they had to be combined with additional terms in order to generate a hit. Terms with the lowest levels of precision tended to be generic terms such as ‘need’ or ‘regulation’. In total six terms were excluded: user, consumer, governance, indicator, need and regulation. An additional term combining consumer with satisfaction was added to the search strategy. Additional terms also had truncators added to them to ensure that only relevant words were picked up. Examples include the following terms: assessment care home$, care package$, quality indicator$, quality preference$, quality of life indicator$. Some search terms were expanded changing from a singular to allow alternative endings such as learning difficult*, care facilit*, nursing facilit*, etc.

Results

While overall we still expect the level of relevant literature to be limited, the recall rate has been reduced to a more manageable level and is likely to have increased the precision rate significantly of our search. Our refined search strategy for the Ageline generated 2295 hits in total of which 460 were books. Using the same refined strategy on the BIDS database only 247 records were retrieved from the IBSS/ BIDS database of which 14 were books (a total of 233 excluding books).

The level of hits from these two major databases is in terms of systematic literature reviewing quite small, and is consistent with our initial piloting indicating that little relevant literature is available in this area. A number of retrieval terms generated no hits (See Table A1). Records from these two databases were downloaded into a bibliographic database (Endnote) allowing duplicate records to be identified.[9] 6 duplicate records were found in Ageline and another 15 from IBSS/BIDS. Overall these two reference sources generated a combined database of 2047 papers in total.

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[9] It should be noted that not all duplicate records will be identified automatically, records with minute differences in punctuation or where spelling mistakes have been made when inputting the bilbliographic details will need to be identified manually. Typically this can account for between 1 and 2% of the results of large literature searches.

Table A1 summarises the search terms with the zero number of publications retrieved for the Ageline and BIDS databases respectively.

Table A1: Search terms with zero number of hits in Ageline and BIDS

AGELINE	*BIDS*
Client centred care	Client centered care
Activity Measurement	Equipment near Client group term
Allocative Efficiency	Meals Service$
Family Production	Nursing residence
Household Economics	Personal activities of daily living
League Table*	Domestic activities of daily living
Measuring Dependency	Control over activities of daily living
Monitoring Dependency	Service preference$
Programme Outcome*	User choice near Client group term
Service User Outcome*	Activity Measurement
Programme Evaluation	Dependency profile
Public Service Arrangements	Measuring dependency
Outcomes Preference$	Monitoring dependency
Social Care Productivity	Minimum Data Set$
Service Outputs	Service User Outcome*
	Quality preference$
	Resident Assessment Instrument
	Social care productivity
	Social care resources
TOTAL: 15 terms	TOTAL: 19 terms

Medline

A search of the US National Library of Medicine PubMed version of Medline, the premier English language medical bibliographic database was also undertaken. Our principle objective here was to replicate the strategy used for the previous databases as closely as possible, however there are some important differences in the way that the online version of this database works. Most notably the NEAR term, used to ensure that some words are adjacent to or within a specific range of another term cannot be applied. Specific phrases can be identified but if the specific phrase was not available we have had to eliminate elements of the search strategy involving the NEAR search term, as maintaining these in the database would have led to tens of thousands of spurious records being identified. This may nevertheless mean that some relevant records may have been excluded.

Unsurprisingly the most popular searching terms here were those for client groups. Of a total combined recall rate of 40,835 for social care and client group terms only 580 were related to the former. Terms excluded because they retrieved no hits included nursing residence, domestic activities of daily living, control over activities of daily living, user centred care and user centered care[10]. Again when looking at productivity terms after excluding terms with no hits (family production, household economics, inspection standards, measuring dependency, monitoring dependency, professional oversight, public service arrangements and social care productivity) a total of 44,930 records were retrieved. Combining the social care and productivity terms together led to a final tally of 819 hits (2 records were identified as duplicates and eliminated). When combining these with the previous Ageline and IBSS searches a further 39 duplicates were automatically excluded, meaning that 780 additional records were added.

Geoglit

Subsequently the Geoglit database with articles published from 1990 on the SilverPlatter was added to the search. This was done because one relevant paper to the literature identified by internet search[11] was not picked up by any of the other databases (including EconLit) but was listed in this database. Geoglit in total added only an additional 373 records, so it seemed prudent to add these records to the Endnote database to improve precision without impacting unduly on the recall rate. On entering into Endnote 2 records were immediately excluded and another 60 were excluded when combined with results from Ageline, IBSS and Medline, adding 311 records to our database. After adding these to previous searches we had 3138 records to examine.[12]

PsychINFO

A key element of our search strategy was to identify relevant papers on social care aspects of mental health. The PsychINFO database of psychiatry and psychology related publications was searched using an on-line version of the OVID search engine using the same search strategy as for AGELINE, IBSS and Geoglit. The search generated a total of 5518 hits, this high number was not suprising given the size anf topic of this database. 22 duplicates records were identified and when combined with the results of previous searches an additional 4981 records were added to our database, leading to a final total of 8119 records to search.

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[10] If the terms are not excluded PubMed will search for these words as individual terms increasing the recall rate and reducing precision markedly of the search strategy, making it impractical for our purposes.

[11] Jiménez, et al.,(2003).

[12] The Endnote Database of these records is available on request.

HMIC

The literature search of the Health management and policy database from the Health Management Information Consortium which includes the Department of Health database, the King's Fund database and the Nuffield Institute’s HELMIS database of health systems information has been completed. Our refined search strategy for the HMIC, using an online version of OVID. The use of this software and the broad nature of this database led to a modification of the search strategy. Rather than using a detailed list of social care terms a smaller set of key tems were identified which were appropriate to the client groups and services of interest. These terms were then exploded picking up further terms, for instance exploding the term residential care would picked up various types of living arrangements such as nursing homes and residential homes. These terms were as with other searches then combined with a range of productivity and measurement terms generating 3824 hits of which 1321 were books and 116 book chapters.

A closer examination of the search results showed that some terms like *quality assurance, cost effective, performance measurement, audit, targets* and *performance evaluation* were generating relatively high number of hits of which very few seemed to be related to social care. This led to further editing of the search strategy by excluding the above listed terms. Using the refined search strategy a total of 2574 records were retrieved of which 1321 were books, 1137 articles and 116 book chapters. Thus a total number was 1253 records were selected including articles and book chapters. The lack of a filter for importing HMIC results accurately into Endnote meant that this result could not be combined with previous search results and instead the comparison with previous results had to be undertaken manually. 79 records that may be relevant were identified.

Searches to finalise

A handsearch of a small number of key journals is still to be undertaken which may counter some of the bias found in electronic searches alone.

Literatures search for papers on the economics of household production

An additional search was undertaken for specific terms relating to the economics of household production across all databases. What was striking was the very limited number of hits for terms such as household or family production and home economics in the Ageline, IBSS and Medline databases. In some instances not a single hit for terms could be identified in either titles or abstracts of papers. More relevant terms were found in the EconLit database of articles published in economic journals since 1969, however even here preliminary analysis indicates that many common terms have only a limited number of hits, e.g. Home Economics 52 hits; Family Production 5 hits; Household Services 29 hits. One exception to this was household production with 1,091 hits, but only 18 records appear highly relevant to the production of social care sector.

A3 Final outputs

This literature search represents the first attempt to systematically identify papers related to the development of methods of productivity and output measurement in the social care field. The search strategy itself will be available for future replication and a bibliographic database of relevant records will be created.

A4 Review of the selected literature

Although a total of some 12,000 records had been retrieved, a detailed analysis of abstracts of references indicated that only a very small fraction appear to be relevant for the development of the social care productivity model. From a total of 12,000 publications we have managed to filter this initially down to 925 records (excluding 149 records identified from the York search). The next step of the literature review process consisted of developing a set of criteria against which the 925 selected records could be assessed. It was decided to start with relatively inclusive and broad categories that could be easily agreed on by the research team. Thus the records were examined on whether they addressed the following aspects of the social care: productivity, efficiency of social care services, client dependency, care quality care packages, care management, care assessment, prevention methods and social care outcomes. Records were however only retrieved if they did discuss productivity issues. Thus the number of records appears to be very small, and in the end we have identified 144 potentially relevant publications, only 10 records primarily focused on the productivity issues in the social care area and in particular explored household production aspects of social care.

It should though be stressed that we have come across many more papers in the 925 which look at issues of cost effectiveness of specific social care interventions, have analysed how the use of financial incentives or use of datasets might influence the costs and/or dependency mix of individuals in residential care and also looked at how to construct measures of performance assessment. Such papers may be useful for stage II of the project when considering how to develop output and productivity measurement. Similarly the separate search of the household production terms retrieved from the Econlit database will also inform the detailed review planned for stage II.

A5 Limitations of search

Although we believe our conclusions in terms of the very limited amount of published literature available to be robust, there are some minor limitations to our analysis to acknowledge. Firstly once completed the hand search of some key journals may identify a handful of additional papers, and secondly our search is inevitably biased towards English language publications because of the nature of most major bibliographic databases. However with the possible exception of French language journals, most top journals tend to publish in English. Bibliographic databases of social science journals are less likely to contain abstracts reducing the likelihood of relevant papers being identified, but again we would hope to compensate for this to some extent through our hand search. One final limitation common to all literature searches is the time lag between study publication and updating of bibliographic database. While this delay is reducing all the time, it is still possible that relevant studies published particularly within the last six months or so may not have been catalogued fully by databases.

Appendix B

Allowing for variations in difficulty in meeting needs

B1 Nature of reliance on services

Sources of impairment and the consequent implications for the caring process vary across (and within) client groups. For example, it will take a lot longer to get someone dressed if they have behavioural difficulties than if they are simply frail. There is no difference in the welfare state generated by the service (getting someone dressed); the question is whether we consider that there is more of a service output. This is important to consider as there are large cost and price differences associated with this factor. For example, in 2004 the average cost of residential care for older people was about £500 per week, for people with learning disability it was closer to £1,000. It is unlikely the welfare states of these groups in the absence of the service will be very different. Although some of the cost difference will be about quality of care and efficiency a substantial proportion of the cost will be associated with the effort involved in the care process.

It is not essential to include this element as long as we are clear that if we do not incorporate any measure on the output side to reflect this then we will observe much higher costs per unit of output for those groups of individuals that are more difficult to care for. If this element is excluded and there is a change in the population cared for in terms of nature (rather than level) of impairment, for example through health interventions keeping people alive who would have died in the past but who are particularly difficult to care for, overall PSS productivity might appear to go down. It is also important to be aware that the cost weighted index includes this weighting by default.

The interim report of the Atkinson Review notes that in the Netherlands that in health the output measures take into account both type and age group in treatment (Atkinson, 2004). It would be interesting to know whether in effect this is identifying some groups as more or less difficult to treat (thus suggesting that degree of effort involved is seen as associated with output) or that the potential gain is more (in terms of QALYs) for younger age groups.

It is important that we do not include an indicator of nature of impairment as an equity weight to reflect the fact that we want to care for people who are difficult to care for as much as those where much less effort is involved. It is only if we identify that service output is higher that such a weight is justified.

An important argument against the inclusion of such an indicator is that the output associated with effort has already been effectively included. A parallel example is that we pay very different prices to have washing machines or cars mended depending on the level of effort required to mend them. We are prepared to pay this difference because we want the working car or washing machine. In effect the difference between the maximum we would be prepared to pay and what we do pay is the consumer surplus. In the case of washing machines and car maintenance we do not measure this consumer surplus. However, in attempting to measure the entire welfare gain resulting from PSS output we do encompass consumer surplus. Thus if we include an additional output associated with effort we are double counting.

There is an argument that we should not reflect consumer surplus at all as this is not reflected in National Accounts in the private sector. At present it is not easy to see how we could exclude consumer surplus in the method proposed.

B2 Conclusion

There has been considerable debate around this issue. The main justification at present for excluding this is that it’s inclusion would result in double counting. Thus we do not recommend pursuing this at present. However it will be important to be aware of this factor when making comparisons of the results of alternative approaches to measuring PSS output, as this is an important source of variation in costs and prices.

Appendix C

Deriving quality weights for care services for older people delivered in the home

C1 Method

The PSS survey of home care users in England aged 65 or over was conducted in 2002-03 for the first time but is intended to be triannual and as such provides a good source for ongoing monitoring of services.

In the process of testing the Best Value satisfaction indicator in an extension to the study conducted with 34 local authorities we derived a number of quality measures based on items included in a questionnaire designed by ONS and SPRU for the purpose. This questionnaire included items reflecting aspects of service quality such as reliability; attitudes and behaviour of the care worker such as treating the user with respect; and outcome indicators such as whether the older person felt clean and or was left with nothing to do for long periods. In the case of both the care worker and outcome items responses were on a four point Likert scale ranging from strongly agree to strongly disagree.

In all instances the responses were categorical, so in order to exclude arbitrary weights associated with these responses and to improve transparency all the questions were reclassified on a dichotomous basis. It is well established that older people tend to over report satisfaction with care services, possibly through concern about the consequences of criticizing their providers (Applebaum et al., 2000) and this survey was no exception. As a result the reclassification was based on the extreme response (for example, my care workers are *always* on time) against all other responses to the item.

The quality measures used those items included in factor analyses based on the reclassified data, initially limiting the solution to a single factor and secondly identifying the best four factor solution. Tables C1 and C2 show the items included and the factor loadings. In both solutions internal reliability of the factors was high (ranging between .81 and .93) and over 50 per cent of variance in all the data was explained.

C2 Results

Table C3 shows the average scores of the quality indicators based on these variables and how they relate to the overall satisfaction indicator. The overall quality indicator is more comprehensive in terms of domains of quality but has a lot fewer observations as it includes items for which there were a lot of missing values in the dataset. These missing observations reflect omitted questions by a few of the participating authorities and lower responses to certain types of questions (particularly those set out in a grid arrangement and negatively phrased items). For our purposes here we use the overall indicator as a basis for the estimated weights as this reflects all aspects of service user experience of services. However, we tested the conclusions against the service quality indicator, as this reflects a much higher proportion of the sample.

Table C1: Single quality factor using dichotomous variables

Overall Quality Measure -Variance explained 50.62%, Reliability = 0.93	*Loading*
Care workers come at times that suit you	0.56
Do your care workers arrive on time?	0.54
Do your care workers spend less time with you than they are supposed to?	0.57
Are your care workers in a rush?	0.51
Do your care workers do the things that you want done?	0.65
Overall, how do you feel about the way your care workers treat you?	0.71
My care workers are understanding	0.85
My care workers are not miserable	0.77
My care workers are obliging	0.87
My care workers are not unfriendly	0.77
As far as I know, my care workers keep any personal details they know about me to themselves	0.81
My care workers do not gossip to me about other people they care for	0.70
My care workers are excellent at what they do	0.89
My care workers are not less thorough than I would like	0.86
My care workers treat me with respect	0.90
My care workers do not do things in their way rather than mine	0.83
My care workers are gentle	0.89
My care workers are not careless	0.87
My care workers are honest	0.86
I am always clean	0.73
I always feel comfortable	0.79
I feel safe in my home	0.64
I have as much contact with other people as I want	0.72
I don’t spend too long with nothing interesting to do	0.63
I get up and go to bed at times which suit me	0.74
The help I get from Social Services has made me more independent than I was	0.65

Table C2: Four factor solution using dichotomous variables

	Loading
Carer Quality - Positive Opinions Towards Carer Variance Explained 20.36%, Reliability = 0.92	
My care workers are understanding	0.76
My care workers are obliging	0.73
As far as I know, my care workers keep any personal details they know about me to themselves	0.66
My care workers are excellent at what they do	0.71
My care workers treat me with respect	0.77
My care workers are gentle with me	0.75
My care workers are honest	0.73
Service Quality Variance Explained 17.03%, Reliability = 0.81	
Do your care workers come at times that suit you?	0.73
Do your carers arrive on time?	0.72
Do your care workers spend less time with you than they are supposed to?	0.69
Are your care workers in a rush?	0.66
Do you always see the same care workers?	0.59
Do your care workers do the things that you want done?	0.72
Are you kept informed, by your home care service, about changes in your care?	0.62
Overall, how do you feel about the way your care workers treat you?	0.65
Carer Quality - Negative Opinions Towards Carer[1] Variance Explained 16.59%, Reliability = 0.86	
My care workers are not miserable	0.78
My care workers are not unfriendly	0.79
My care workers do not gossip to me about other people they care for	0.67
My care workers are not less thorough than I would like	0.70
My care workers do not do things in their way rather than mine	0.62
My care workers are not careless	0.75
Outcomes - Variance Explained 12.04%, Reliability = 0.81	
I am always clean	0.63
I am always comfortable	0.66
I feel safe in my home	0.53
I have as much contact with other people as I want	0.73
I don't spend too long with nothing interesting to do	0.68
I get up and go to bed at times which suit me	0.61

[1] Negative questions have been recoded so a higher score indicates a more positive view of the carer.

Table C3 shows that while there is a clear (and statistically significant) difference in the quality scores at the upper end of the satisfaction measure the results are less consistent at the lower end where there are fewer observations. Once grouped there are no statistically significant differences in reported quality between those expressing 'neutral' or any level of dissatisfaction. There are statistically significant differences between all other levels of satisfaction however.

Table C3: Average quality scores

Level of satisfaction	*% sample (n=20446)*	*Overall (n=9333)*	*Service (18035)*	*Outcome (n=14365)*	*Positive care worker (n=13608)*	*Negative care worker (n=13090)*
Extremely	26	18.62	6.33	3.34	5.65	4.32
Very	34	12.43	4.8	2.05	3.38	2.96
Quite	32	7.94	3.14	1.47	1.99	1.91
Neutral	5	5.33	1.71	1.28	1.51	1.30
Fairly	2	4.7	1.46	1.13	1.33	1.11
Very	1	4.97	1.32	1.45	1.42	1.33
Extremely	1	6.37	1.73	1.71	2.48	1.77
Mean	N/a	12.00	4.41	2.10	3.42	2.83
(SD)		(7.64)	(2.50)	(1.98)	(2.86)	(2.22)

Table C4 shows the values of the overall quality measure when the levels of satisfaction are grouped together combining those levels where there was no statistically significant difference. Table C5 shows the same if ‘extremely’ and ‘very’ levels of satisfaction are grouped together. Using these grouped levels of satisfaction the estimated quality values are very stable. When the sample is randomly split into two the estimated quality scores are almost identical for all levels of satisfaction and no significant effects are found between the two groups.

Tables C4 and C5 also show the standardised scores using the highest level of satisfaction (scoring 1) to indicate the best possible quality. The resulting quality weights are shown for each level of satisfaction. These can then be applied to the proportion of respondents in the national user experience survey to indicate national levels of quality. We report the national levels of satisfaction in section 5 and the resulting quality weight for the home are service as .632 (95 per cent confidence interval +/- .002) using the four level basis shown in table C4. Using the three level solution in table C5 the quality weight would be .781 (95 per cent confidence interval +/- .007)[13].

Very similar results are obtained using the service quality indicator as a basis for the weights (.680 using the four levels and .806 using the three levels of satisfaction).

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[13] The 95 per cent confidence intervals just reflect the variation in the quality scores not the proportions in the population expressing each level of satisfaction.

Table C4: Grouped quality scores and weights using four levels

Level of satisfaction	*Number of cases*	*Quality score*	*Standardised quality weight*
Extremely	2288	18.62	1
Very	3413	12.43	.668
Quite	2982	7.94	.426
Neutral/dissatisfied	650	5.19	.279

Table C5: Grouped quality scores and weights using three levels

Level of satisfaction	*Number of cases*	*Quality score*	*Standardised quality weight*
Extremely/very	5701	14.91	1
Quite	2982	7.94	.532
Neutral/dissatisfied	650	5.19	.348

While there is no data as yet about changes over time we can identify how the indicator would change if there were to be reported changes in levels of satisfaction. Table C6 below shows the changes in both indicators under a number of scenarios. As reported in section 5 national data on satisfaction levels are reported as having confidence intervals of less than +/-1 per cent so we can be confident such shifts do reflect real changes in quality.

Table C6: Sensitivity of quality measure to reported changes in satisfaction

Changes in level of satisfaction	*4 level quality index*	*3 level quality index*	*Using BV % indicator*
1% shift improvement thoughout	.639	.787	.58
1% shift from very to extremely satisfied	.635	.781	.57
Move to 76% very/extremely[1]	.734	.877	.76
No change	.632	.781	.57

Note: 1.The highest level that was reported by any LA in 1993 (Department of Health, 2003). We have assumed that 40 per cent were extremely and 36 per cent very satisfied.

It is not possible to conduct the same analyses for younger disabled adults as there are not individual level data available. However, we are discussing with SPRU the applicability of these weights to the younger age group and potential for analyses of the data that are available.

C3 Conclusion

There are, of course many problems associated with using measures of satisfaction. However all the evidence suggests that this measure is reasonably robust and reflects views about older service user experiences. One issue it is not yet possible to investigate is the degree to which changes over time may reflect changing expectations rather than changing experiences of quality. Weighting the satisfaction measure to reflect different levels of reported quality on more specific aspects of the experience (such as service reliability and being treated with respect) provides a weight that more accurately reflects differences in quality. All the indications are that the estimated weights are stable and reliable indicators of quality but there will be an opportunity to test this when the user experience survey is repeated in 2005/06. The best weight is based on the four level satisfaction indicator, as this reflects all the statistically significant variation in reported quality. However it may be more acceptable to use the three levels of satisfaction as this better reflects the proportions used in the Best Value Performance Indicator.

Appendix D

Putting the model into practice

D1 The model

The proposed approach to measuring outputs is based on:

$$W_t=\Sigma c_i q_i S_{it}+\Sigma A_{jt}\delta H_{jt}+\Sigma S_{jt}\delta H_{jt} +\Sigma Q_{tfb}$$

Where:

W_t	is the overall level of welfare produced during period t
S_{it}	is the quantity of service i produced during period t
c_i	is the capacity to benefit of people using service i given the commodities which the service affects and the degree to which users are reliant or dependent on that service
q_i	is the quality of service i and represents both the degree to which the service is meeting the needs identified in c_i and process outcomes
ΣA_{jt}	is the level of assessment or advisory service j delivered during period t
$\Sigma\delta H_{jt}$	is the increase in human capital in period t. With respect to assessment or advisory services (A_{jt}) this accrues from increased levels of knowledge and understanding. With respect to services (S_{it}) this accrues from improvement in health.
ΣQ_{tfb}	represents the discounted future benefits arising from preventative services during period t.

Current, planned and proposed research to feed into the implementation of this approach is briefly described below. The following tables identify the current state of knowledge and how each of these studies feeds into the model described above.

D2 Research activities already funded

English Survey of Adults with Learning Disabilities

A DH funded project due to report in July 2005 led by Eric Emerson, University of Lancaster:

- Face-to-face interview with 2,750 adults with LD in England. Samples drawn from: general households; SSD lists of people not living in some form of residential care; NCSC lists of providers of Registered Residential Care Homes for people with LD;

ODPM lists of providers of Supporting People programmes for people with LD; KHO3 returns of NHS Trusts providing long-term accommodation for people with LD.

- Interview covers basic demographics plus short scale of support needs (level of support required to participate in specific activities ranging from drinking a cup of tea to applying for a job – seems to work quite well as an overall measure of level of ‘dependency’) and information on hardship (using questions modified from the Millennium PSE survey). There are also sections on accommodation, caring responsibilities (and support they receive in caring roles), financial matters, employment, education and training, health, daytime and evening activities, friendships and relationships, transport. Each section collects some basic information on people’s situation (e.g., type of accommodation), satisfaction with current arrangements, unmet need, where people would go for help in relation to this area of their life (e.g., SSD, relative, …), satisfaction with help received from various agencies including SSD (if applicable) in relation to each area.
- Data collection is nearly complete with dataset due to be delivered by BMRB in December.

Evaluating the Impact of Valuing People

A three phase DH funded project that commenced in April 2004 and will end March 2006 led by Eric Emerson, University of Lancaster:

- Phase 1 involves a trawl of national data sources (government returns, large scale surveys) that contain information on the situation of people with learning disabilities. These data sources are being mapped onto the objectives of the 2001 White Paper. Report on this phase due in January 2005.
- Phase 2 involves structured consultation with people with learning disabilities, carers and providers/policy makers which will generate priorities for information needs (with respect to monitoring the impact of Valuing People).
- Phase 3 will involve working with the DH and other stakeholder groups to develop and road test some new performance indicators for services for people with LD.

The FSS studies

The Department of Health is updating and improving the formulae for allocating funds (the revised Formula Spending Share (FSS)) for personal social services between local authorities in England. It has commissioned PSSRU at the University of Kent to conduct research that will feed into the FSS for older people’s services and Secta and the University of York for research on which to base the younger adults formula. The essential principle underlying the FSS is that local authorities should be given an equitable share of public funds, and that this should reflect area variations in needs and costs. For both projects data is being collected about the need related circumstances and service receipt of a sample of about 2000 service users. Information is being collected about needs related circumstances in a way that is comparable with national sources of data such as the census and the General Household Survey (GHS).

In the case of older people there are two samples, 600 current recipients of home care services and 1,200 new admissions to care homes in 16 or 17 local authorities. In the case of home care, service users and their proxies are to be interviewed directly. Care managers are providing the information about new admissions. For the younger adults study care managers will be providing all the information.

Both studies are due to report to the DH in early June 2005.

DH review of RAP

The DH is reviewing routine data collections, in particular the referrals, assessment and packages of care (RAP) for adults. Two strands of work are being taken forward to identify:

- Information is needed at a local and national level for policy purposes;
- The feasibility of introducing a national collection by investigating what information is available locally at the moment.

As part of the feasibility exercise a number of local authorities have provided DH with data on packages of care that are available from their current records.

SPRU review

As part of their core programme members of SPRU at the University of York are appraising and feeding in to the development of the approach for younger disabled people and carers.

D3 Additional planned/ proposed work

Extension to the older people's FSS study

PSSRU propose to extend the length of interviews with the users of home care services as part of the older people's FSS study. This is a cost-effective way of obtaining data about dependency and service packages alongside measures of social care outcome and levels of satisfaction. The extended interview (due to be piloted early in January 2005) identifies levels of met need in relevant domains, services that affect that domain and expected levels of need in the absence of the service. The general satisfaction question employed in the user experience surveys is also included.

The database from this study should allow us to compare what we would measure as social care outputs for this important group using a close to ideal data set with that which would obtain from existing data sources. The aim would be to provide a direct measure of capacity to benefit for home care clients and a basis for a synthetic estimation of capacity to benefit for residential care for older people (through making links with the admissions study). It may also prove possible to make similar links for services for younger client groups so we are discussing the degree to which questions used in the questionnaire for older people can be used for in the younger adults FSS study. Among other things the data might allow us to investigate the prevalence of unmet need (particularly among higher end home care users) and the relationship between this and levels of satisfaction.

This extension (if commissioned) should report in summer 2005.

Defining and refining domains in capacity to benefit and their links to services/packages of care

As part of the ongoing work reviewing the application of the approach across client groups with colleagues from York and Lancaster we are planning to map and refine the domains on to packages of care given our current state of knowledge. This is an important process in refining the domains and needs to precede both the CSCI and preference study described below. An associated aim of this work is to consider how current measures of service activity fall short of the ideal in terms of how packages of care should be measured and what amendments are needed to routine sources if we are to measure outputs effectively.

CSCI study of standards and quality

Inspectors annually identify for each home whether they have failed, not quite met, met or exceeded a number of care standards (38 in the case of care homes for older people). It is important to involve CSCI in any plans to use these data to reflect service quality, as there are plans to modernise the regulation process (Commission for Social Care Inspection, 2004).

We have approached CSCI about undertaking a consultation with focus groups of inspectors about linking care standards to our domains and identifying how to weight or best use data about judgements on care standards to compile a measure of overall quality. This will encompass all client groups to ensure comparability. The discussions will also aim to take account of ongoing plans to amend, omit or extend care standards.

We have yet to finalise arrangements but hope to have the results available in spring 2005.

Preference study

We are proposing to undertake a study to identify population preferences for the indicator of capacity to benefit. We want to investigate whether these should be age dependent and (ideally) whether ethnic minorities and/or service users would generate different preference weights.

The study would encompass a representative sample of 1000 people in the general population with a boost to ensure that we had a sufficiently large sample of older people (over 65) to ensure a separate analysis. A separate boost of 300 people from ethnic minorities would allow us to investigate whether as a whole this group had different preferences, although it is likely that if this were the case further work would be required with particular sub-groups. We are also proposing to ask service users in the FSS study if they would be proposed to participate in further interviews, potentially generating a further sample of 300 older service users. Further work would need to be commissioned to validate/investigate the views of other client groups.

We are proposing to use a Best-Worst attribute method as this is most amenable to the inclusion of a relatively large number of domains without undue cognitive burden on respondents. Ideally we want the weights in financial terms. Previous work in discrete choice experiments suggest that presenting a financial attribute as social security benefits (thus generating WTA estimates) did not present a problem with older people (Netten et al., 2002b).

If the study were to be commissioned we would anticipate this would report back late 2005 or early in 2006.

D3 Further work

In the tables below we also refer to the possibility of other work. This does not necessarily require further funding as in several instances the work might well form part of long term programmes of research currently under negotiation with research units. The proposal is that this work may be extended or enhanced to allow useful results to be fed into the development of the model. In some instances this may require additional funding if this goes beyond what is appropriate for the programme to support. Examples of suggestions include a study of **costs and views of potential service users and carers** of the assessment process that could feed into estimates of human capital gain. This fits in well with work plans at the Manchester branch of PSSRU in terms of older people and their carers, but may require the input from others if it were to be extended to other client groups. At PSSRU Kent we are planning to investigate the **meaning of home and outcomes across different care settings** as part of our programme work on the degree to which extra care housing can and is replacing care home provision. There is a major research agenda whole around **prevention** and it is possible that programmes being developed at SPRU may be able to help inform where we might look for effects and what they would be.

D4 Summary of status of development of output measure

Table D1: PSS outputs measurement - older people

	Current status	*Research*		*Data*	
		Ongoing	*Proposed/ planned*	*Future sources*	*Gaps*
c_i *Capacity to benefit* Domains	Domains need to be refined, matched to service packages and have preferences attached	FSS extension pilot testing OPUS and associated questions	FSS extension to match domains to home care services Preference study to weight domains/ levels	Intermittent research studies to update service-domain links and preferences	Links between residential based care and domains will need to be assumed Information about service-domain links when no home care
Dependency	Need to link dependency levels to domains for all services	FSS extension pilot	FSS analysis to match ADLs/IC with domain needs and ADL/IC info for care home admissions	GHS? Health survey?	What information required to update regularly and where from? Information about dependency when no home care
q_i *Quality*	Estimated quality weights for home care Need equivalent for other services Limited information re value of ‘own home’	CSCI study to link care home standards to domain quality	Study of comparative care settings to investigate perceptions of care homes/ extra care re domain outcomes and meaning of home?	Triennial UES for home care Annual care home standards PIs re time to get equipment Intermittent research re care mode	Day care. Validity of weights applied to meals Equipment Comparative quality across client groups

PSS outputs measurement - older people cont…

	Current status	*Research*		*Data*	
		Ongoing	*Proposed/ planned*	*Future sources*	*Gaps*
S_{it} *Service packages*	RAP, HH1	ECCEP re complementarity DH RAP study with Las	FSS data on home care package composition DH review of RAP	Annual RAP HH1 data	Package composition monitoring, levels of day care/ meals/ equipment service receipt Direct payments
δH_{jt} *Human capital*					
Health	Health related care standards in care homes	Look at literature. Evaluate if work needed	Consult with CHE and others		
Knowledge	RAP data on assessments No information about cost to those assessed or benefits	Look at literature. OT role?	Study of costs and views of older people and carers assessed?	RAP data on assessments	Study needed if value of assessments to be included. Are there other information services that should be included?
Q_{tfb} *Future benefits*	RAP data on number of people receiving equipment etc. No information on long term benefits	Look at literature on prevention and equipment and adaptations	Some basic data from FSS study Long term PSSRU programme plans on equipment services but no immediate proposals	RAP data on number of people receiving equipment etc.	Prevention role seen as priority by observers but difficult to quantify

Table D2: PSS outputs measurement – younger disabled adults

	Current status	*Research*		*Data*	
		Ongoing	*Proposed/ planned*	*Future sources*	*Gaps*
***c_i** Capacity to benefit* Domains	Domains need to be refined, matched to service packages and have preferences attached	SPRU review and linking of domains to services	Preference study to weight domains/ levels	Intermittent research studies to update service-domain links and preferences	Links between services and domains will need to be assumed/ generalised from literature
Dependency	Need to link dependency levels to domains for all services	FSS older people extension pilot	Use older people's FSS match of ADLs/IC with domain needs to younger adults' FSS study results	GHS? Health survey?	Direct information about dependency and domain need levels What information required to update regularly and where from?
q_i *Quality*	Estimated quality weights for older home care service users applied to younger UES? Need equivalent for other services Limited information re value of own home	CSCI study to link care home standards to domain quality	Potential for analysis of younger adults UES? Discuss need for own home study/ quality measurement with SPRU?	Triennial UES for home care Annual care home standards PIs re time to get equipment Intermittent research re care mode/ meaning of own home	Day care. Validity of weights applied younger adults How to reflect equipment quality Comparative quality across client groups

PSS outputs measurement - younger disabled adults cont…

	Current status	*Research*		*Data*	
		Ongoing	*Proposed/ planned*	*Future sources*	*Gaps*
S_{it} *Service packages*	RAP	DH RAP study with LAs	FSS younger adults study data on home care package composition DH review of RAP	Annual RAP data	Package composition monitoring, levels of day care/ meals/ equipment service receipt Direct payments
δH_{jt} *Human capital* Health	Health related care standards in care homes	Look at literature. Evaluate if work needed	Consult with CHE and others		
Knowledge	RAP data on assessments No information about cost to those assessed or benefits or about advice services	Look at literature. OT role?	Study of costs and views of PWLD and carers assessed and advice services?	RAP data on assessments	Study needed if value of assessments to be included. Other advice/ information services that should be included?
Q_{tfb} *Future benefits*	RAP data on number of people receiving equipment etc. No information on long term benefits	Look at literature on prevention and equipment and adaptations		RAP data on number of people receiving equipment etc.	Prevention role seen as priority by observers but difficult to quantify

Table D3: PSS outputs measurement – learning disabled people

	Current status	*Research*		*Data*	
		Ongoing	*Proposed/ planned*	*Future sources*	*Gaps*
c_i* *Capacity to benefit Domains	Domains need to be refined, matched to service packages and have preferences attached	Consultations re domains and services	Preference study to weight domains/ levels for population.	Intermittent research studies to update service-domain links and preferences	Links between services and domains will need to be assumed/ generalized from older people work Need for follow up study to validate preferences with PWLD
Dependency	Need to link dependency levels to domains for all services	English survey of adults with learning disabilities	Analysis of English survey linked with younger adults FSS and older people's match of ADLs/IC with domain needs?	GHS? Health survey?	Direct information about dependency and domain need levels What information required to update regularly and where from?
q_i *Quality*	No information	CSCI study to link care home standards to domain quality	Evaluating the Impact of Valuing People study designed to identify key outcome and quality indicators	Annual care home standards PIs? Intermittent research re care mode/ meaning of own home	Monitoring quality of all home and day care services Comparative quality across client groups

PSS outputs measurement - learning disabled people cont…

	Current status	*Research*		*Data*	
		Ongoing	*Proposed/ planned*	*Future sources*	*Gaps*
S_{it} *Service packages*	RAP	DH RAP study with LAs	FSS younger adults study data on home care package composition DH review of RAP	Annual RAP data	Package composition monitoring, levels of day care/ meals/ equipment service receipt
δH_{jt} *Human capital* Health	Health related care standards in care homes	Look at literature. Evaluate if work needed	Consult with CHE and others		
Knowledge	RAP data on assessments No information about cost to those assessed or benefits or about advice services	Look at literature and consult	Study of costs and views of learning disabled people and carers assessed and using advice services?	RAP data on assessments	Study needed if value of assessments to be included. Other advice/ information services that should be included?
Q_{tfb} *Future benefits*	RAP data on number of people receiving equipment etc. No information on long term benefits	Consult re prevention and equipment and adaptations for this group		RAP data on number of people receiving equipment etc.	Prevention role seen as priority by observers but difficult to quantify

Table D4: PSS outputs measurement – people with mental health problems (MHP)

	Current status	*Research*		*Data*	
		Ongoing	*Proposed/ planned*	*Future sources*	*Gaps*
c_i *Capacity to benefit* Domains	Domains need to be refined, matched to service packages and have preferences attached	Consultations re domains and services	Preference study to weight domains/ levels for population.	Intermittent research studies to update service-domain links and preferences	Links between services and domains will need to be assumed/ generalised from older people work Need for follow up study to validate preferences with PWMHP
Dependency	Need to link dependency levels to domains for all services		Younger adults FSS and older people's match of ADLs/IC with domain needs?	GHS? Health survey?	Direct information about dependency and domain need levels What information required to update regularly and where from?
q_i *Quality*	No information	CSCI study to link care home standards to domain quality Literature re meaning of quality in MH social care	Not clear yet how best to identify reflect quality of non-residential care	Annual care home standards	Establishing and monitoring quality of all home and day care services Comparative quality across client groups

PSS outputs measurement - people with mental health problems cont…

	Current status	*Research*		*Data*	
		Ongoing	*Proposed/ planned*	*Future sources*	*Gaps*
S_{it} *Service packages*	RAP	DH RAP study with LAs	FSS younger adults study data on home care package composition DH review of RAP	Annual RAP data	Package composition monitoring, levels of day care/ meals/ equipment service receipt
δH_{jt} *Human capital* Health	Health related care standards in care homes	Consult re social care outputs for physical and mental health	Consult with CHE and others		
Knowledge	RAP data on assessments No information about cost to those assessed or benefits or about advice services	Look at literature and consult	Study of costs and views of people with MHP and carers assessed and using advice services?	RAP data on assessments	Study needed if value of assessments to be included. Other advice/ information services that should be included?
Q_{tfb} *Future benefits*	RAP data on number of people receiving equipment etc. No information on long term benefits	Consult re prevention for this group		Which services seen as preventative?	Prevention role seen as priority by observers but difficult to quantify

Table D4: PSS outputs measurement – carers

	Current status	*Research*		*Data*	
		Ongoing	*Proposed/ planned*	*Future sources*	*Gaps*
c_i *Capacity to benefit* Domains	Domains need to be refined, matched to service packages and have preferences attached	Consultations re domains and services. Need to define when services provide benefits to both carer and direct service user.	Preference study to weight domains/ levels for population.	Intermittent research studies to update service-domain links and preferences	Links between services and domains will need to be assumed/ derived from literature Need for follow up study to validate preferences with carers
Dependency	No information about carer needs for services	Draw on literature to define reliance on services and for what	No specific work planned as yet – conceptual work needed before research	GHS? Health survey?	Information about reliance on services and domain need levels What information required to update regularly and where from?
q_i *Quality*	No information	Literature re meaning of quality for carers	Not clear yet how best to identify reflect quality of services		Establishing and monitoring quality of all services

PSS outputs measurement - carers cont…

	Current status	*Research*		*Data*	
		Ongoing	*Proposed/ planned*	*Future sources*	*Gaps*
S_{it} *Service packages*	RAP data other than day care very poor for this purpose	Anything from DH RAP study with LAs? SPRU review of what needed	FSS basic data about services received where there is a carer – not carer services DH review of RAP	RAP Day care Number of short term stays	Little useful routine information available
δH_{jt} *Human capital* Health	Health related care standards in care homes	Consult re social care outputs for physical and mental health	Consult with CHE re links		
Knowledge	RAP data on carer assessments No information about cost to those assessed or benefits or about advice services	Look at literature and consult	Study of costs and views of carers assessed and using advice services?	RAP data on assessments	Study needed if value of assessments to be included. Other advice/ information services that should be included?
Q_{tfb} *Future benefits*	No information	SPRU review	No research planned at present.		Prevention role seen as priority by observers but difficult to quantify

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