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Using a 'wellbeing' cost-effectiveness approach to improve resource allocation in social care

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Abstract

The promotion of wellbeing is the newly-stated guiding principle for the long-term care (social care) system in England. It signals a shift away from a focus on care need *'deficits'* approach. Such a change in perspective has the potential to substantially alter how public care systems operate. The practical challenges are significant, both in the interpretation of wellbeing goals and in determining how the care system might be configured to achieve them.

The main aim of this paper is to contrast a *needs-led* resource allocation system with one using a *maximising wellbeing* approach; that is, one based on: measuring the wellbeing consequences of using services and applying the principles of cost-effectiveness and opportunity cost. As a precursor, the paper also describes how a maximising wellbeing approach might be applied in the case of long-term care.

We argue that in theory a maximising wellbeing approach with full information will produce greater total wellbeing improvement for the same budget than a needs-based system. In practice, the comparison will depend on: (a) whether we can actually measure wellbeing in a way that is consistent with the policy goals; (b) the availability of cost-effectiveness information; and (c) the decision rules used to implement a maximising wellbeing approach.

1   Introduction

The promotion of wellbeing is at the heart of care and support policy, being the guiding principle for the long-term care system in England (Care Act 2014). The statement of this objective signals a subtle shift away from a focus on care need in the population, that is, away from a *deficits* approach. Such a change in perspective has the potential to alter how public care systems operate and what support they provide to client populations. There is, nonetheless, a danger of the rhetoric outstripping practice. The practical challenges are significant and lie in both the interpretation of this wellbeing goal and in determining how the care system might be configured to achieve it.

Public social care (in England and many other countries) operates with a combination of central and local government funding, and uses a bureaucratic system to determine its activities and to allocate available budgets (Williamson 1994; Wistow, Knapp et al. 1994; Forder 2002). This system of commissioning would be significantly affected by a new emphasis on outcomes and wellbeing (Knapp, Hardy et al. 2001).

The care commissioning (assessment and planning) system currently in operation in England is configured to reduce 'need', where need is determined by assessment of the person's level of impairment, degree of risk/safety, informal care/family support and so on (OECD 2005; Department of Health 2010). The implicit philosophy is that, by reducing need, the system should improve the wellbeing of those people who are supported. The alternative is a system that tries to orientate its activities directly on the aim of improving wellbeing.

There are many ways that a wellbeing focus might be interpreted and used to adapt care systems. In all cases, it is about understanding the implications of the care system in terms of changes in people's wellbeing directly (rather than reductions in their need). But such a focus can also accommodates the application of different principles. One highly relevant approach is about 'maximising wellbeing' in the context of overall budget constraints and scarcity. In particular, concepts such as value-for-money/cost-effectiveness go hand-in-hand with such a focus on wellbeing because both require some valuation of the benefits of care (as well as measurement of the costs).

The main aim of this paper is to contrast a *needs-led* resource allocation system with one that is based on: measuring the wellbeing consequences of using services and applying the principles of incremental cost-effectiveness and opportunity cost. We might call this a *maximising wellbeing* approach.

Whilst long-term care policy in many countries has been concerned with the quality of services, the achievement of good outcomes and cost-effectiveness/value for money is a more recent development (Colombo, Llena-Nozal et al. 2011; Mot, Faber et al. 2012; Mor, Leone et al. 2014). The policy narrative concerning outcomes and value for money has tended to focus on the organisational mechanisms that are expected to achieve these aims, such as introducing choice, competition and regulation into the care system. The focus of this paper is on how wellbeing can best be improved using eligibility assessment and resource planning/allocation systems and, in particular, where outcome and cost-effectiveness information is placed at the heart of these systems.

As a precursor to our main aim, the paper also seeks to describe how a maximising wellbeing approach might be applied in the case of long-term care. We discuss how wellbeing might be measured, how the consequences of care services and support might be assessed in these terms, and how wellbeing information might be used by decision-makers to guide the deployment of public care funding.

Our focus is on the English long-term care system, which is usually called the *social care* system in that country. The use of needs-based criteria to determine access to publicly-funded support is a common feature of many country's long-term care systems (OECD 2005; Kraus, Riedel et al. 2010). Countries are often distinguished as to whether access to care is an entitlement based on need or determined by eligibility criteria that concern severity of need but also other factors such as the financial circumstances of the individual (Brodsky, Habib et al. 2003; Wanless, Forder et al. 2006). The countries that have adopted social insurance systems for long-term care, such as Japan and Germany, have explicit needs-thresholds that determine the amount of benefit (cash support or service intensity) that people with care needs should receive. These systems generally have definitions of need that focus on impairment and disability as measured by a person's inability to perform activities of daily living (ADL). Other countries, including those with more universal access, use less explicit needs criteria, based on professional judgement and informed by ADL and functioning assessments.

This paper is structure as follows. We begin by describing the long-term care system in England, with an emphasis on how the current needs-based system works. Next we describe the maximising wellbeing approach in the context of social care. We then discuss the differences it would make for the services and support offered to people compared to a needs-led approach. A discussion of how a maximising wellbeing approach could be implemented in practice then follows.

2 Long-term social care for older people

Publicly-funded social care in England is the responsibility of local government (local authorities) rather than the National Health Service and is subject to a financial means-test. We concentrate in this paper on the care of older people, which includes services and support such as care homes, day care, home care and other community-based services (Fernandez, Forder et al. 2011).

2.1 Needs-based resource allocation arrangements

The needs-based long-term care system in England interprets need in the sense of the deficit people experience in dealing with the consequences of their impairment and disability, and providing protection (Knapp 1984; Davies and Challis 1986). Local authorities use a system of need assessment, care planning and eligibility thresholds to determine access to, and the level and type of, support people should be offered.

Over the last decade a four-band eligibility framework has been used that ranks assessed need into either: critical, substantial, moderate or low levels of need – see the guidance, *Prioritising need in the context of Putting People First* (Department of Health 2010).[1] The assessment criteria cover components of need and are differentiated according to the severity of those needs. The need categories are: safety (to self and others); control over life; abuse or neglect; activities of daily living; occupation; and social and family relationships.

The system involves councils setting an eligibility threshold at some level across these four bands. People with assessed need above this threshold (in terms of severity) have *eligible needs*, and LAs have a duty to provide support (where the person is also eligible on financial grounds). The guidance on eligibility criteria is clear that local authorities should take account of their resources, expectations and local costs in setting their eligibility criteria (para 44 of *Prioritising Needs*).

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[1] Regulations to the care and support bill (2013/4) will consider eligibility criteria, although the basic principles are unlikely to change.

Under this system, levels of support for those with eligible needs are provided according to the nature of that need, and generally in proportion to its severity.[2] There is no national guidance regarding which forms and levels of support (including the level of expenditure) should equate with levels of need. Instead the system relies on local discretion. What constitutes the required amount of resources to meet any given level and type of 'need' has been a professional judgement, made with potential service users and their families (Hardy, Young et al. 1999). A care manager might emphasise, for example, the need for safety and basic functioning ahead of other facets of need. With the increased use of personal budgets, many local authorities have begun to use 'resource allocation systems' to determine the £-value of the personal budget. These generally use a point-based system to aggregate aspects of need severity.

The Government's White Paper *Caring for our future: reforming care and support* (July 2012) and subsequent 2014 Care Act introduced new policies with regard to eligibility. The main features are as follows (Department of Health 2013). First, rather than classifying people in one of four needs bands, they are classified as either having or not having an eligible need. In this regard, a single *national* minimum threshold is defined and applied by all local authorities. Second, the measurement of need changes to have greater emphasis on impairment, with a focus on how any inability will create a risk to people's well-being.
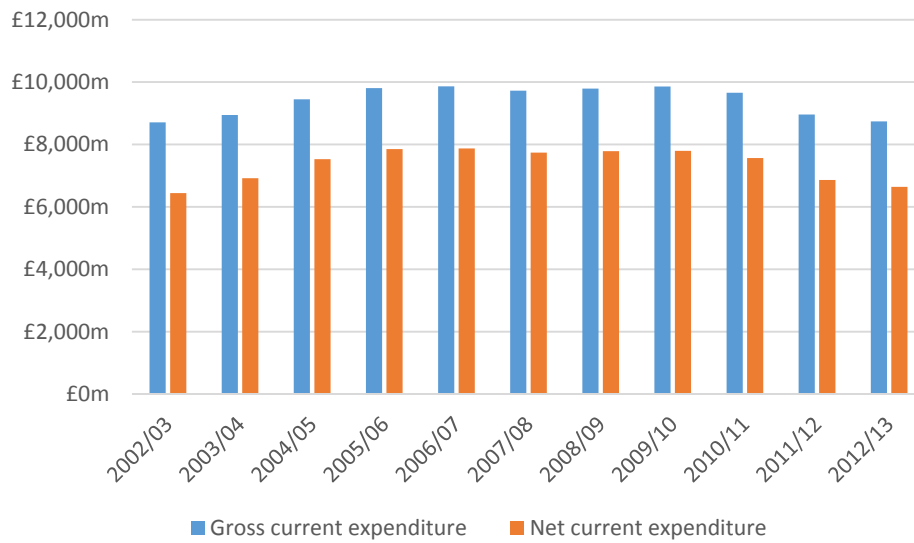
Although the Care Act provisions shift the emphasis in eligibility assessment towards wellbeing, we can still interpret the current policy position as a *needs-hurdle-intensity* approach. In other words, to potentially qualify for publicly-funded support a person must have a sufficiently high level of need.

2.2   Social care expenditure and provision

Figure 1 reports gross and net (i.e. after service user charges and other income) expenditure by local authorities on all social are for people aged 65 and over (2012/13 market prices using the national GDP deflator). Over the last decade, expenditure initially increased in real terms and then decreased from 2009/10.

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[2] Although actual funding is also subject to a financial means-test as well as the needs test.

Figure 1. Gross and net current local authority expenditure on social care for people 65+, England (2012/13 prices)
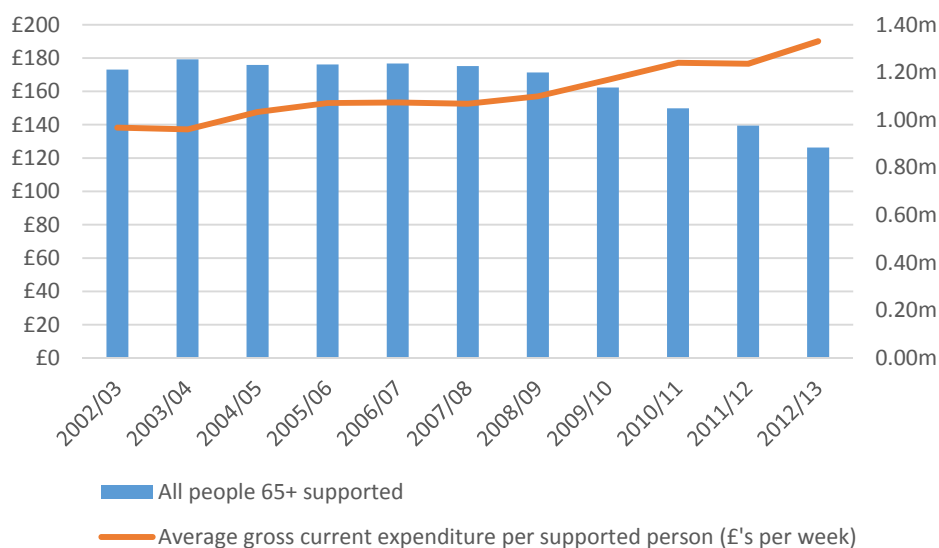
Figure 2 shows the numbers of older people who were eligible and received publicly supported care from LAs in England. It also shows the average (gross, current) expenditure across supported (i.e. eligible) service users. In the first part of the period shown, the numbers supported remained at similar levels year-on-year but thereafter reduced. Although both expenditure levels and numbers supported were falling in this period, the average expenditure per supported person was increasing. This pattern is consistent with a needs-hurdle allocation system, whereby increases in eligibility threshold to reduced total expenditure result in reductions in support to lower-need individuals.

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[3]

http://www.hscic.gov.uk/searchcatalogue?productid=13760&topics=0%2fSocial+care&sort=Most+recent&size=10&page=1#top. GDP deflator: https://www.gov.uk/government/publications/gdp-deflators-at-market-prices-and-money-gdp-march-2013 .

Figure 2. Number of supported people by local authorities, aged 65+ and Average gross current expenditure per supported person (£ per week, 2012/13 prices), England

Source: Community Care Statistics, Social Services Activity (and Referrals, assessments and packages of care for adults), England (Health and Social Care Information Centre)[4]plus author calculations

3 A maximising wellbeing approach in social care

The implicit principle of a needs-based system is that by reducing need, the system should improve the wellbeing of those people who are supported. An alternative approach is to focus directly on improving wellbeing, explicitly recognising the impact of services and support on wellbeing, but also the opportunity costs that are entailed. In particular, a *maximising wellbeing* (MW) approach embodies three core concepts:

- First, given that the goal of services and support is to improve the *wellbeing* of service users and their families, wellbeing can be measured using quality of life indicators, ideally at the individual person level. Improvement in quality of life is the desired outcome of public social care expenditure.
- Second, that services and support will have an impact on wellbeing (quality of life) and that this impact is measurable. Improvement in quality of life can therefore be regarded as the *benefit* of public expenditure.
- Third, that there is always an opportunity cost to the provision of services and support. Funding one service will ultimately mean forgoing the funding of others and hence the loss of the benefits those services would have produced.

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[4]

http://www.hscic.gov.uk/searchcatalogue?productid=13822&topics=1%2fSocial+care%2fSocial+care+activity&sort=Relevance&size=10&page=1#top. GDP deflator: https://www.gov.uk/government/publications/gdp-deflators-at-market-prices-and-money-gdp-march-2013.

3.1 Measuring wellbeing as social care-related quality of life

There are clearly challenges in finding ways to measure wellbeing, given the very general nature of the concept. Perhaps reflecting the personal nature of care, the use of person-level, quantifiable measures of quality of life to assess the wellbeing implications of service use are the most suitable with regard to a maximising value approach. These types of measures are in widespread use in the health literature, albeit where the focus is on measuring health status rather than wellbeing *per se* (Brazier, Deverill et al. 1999; Dolan 2001; Drummond, Sculpher et al. 2005). In particular, this health literature has focused on mainly generic, preference-weighted, multi-attribute tools, especially for the purpose of economic evaluation (Drummond, Sculpher et al. 2005).[5] The EQ-5D[6] has become something of a standard currency in this regard.

Quality of life measures are appealing because they are designed to produce quantitative ratings of relevant experiences: for example, being in pain, being able to conduct usual activities, feeling in control of their lives etc. These measures generally rate aspects of quality of life on a scale that is 'anchored' with reference to the overall value of being in full health as opposed to being dead. Ratings are usually made by asking people how far they would trade the poorer quality of life they would suffer as a result of having a condition against having ideal quality of life but dying earlier. In other words, these measures aim to allow us to describe the *value* of quality of life attributes with reference to something concrete like an extra year of (ideal-quality) life. In this way, comparisons can be made between quite different care activities using a common currency – the equivalent loss or gain in years of ideal-quality life. Others have experimented with using money as the common currency – that is, rating health or wellbeing changes directly in their pound-equivalent value (e.g. Donaldson and Shackley 2003) – but these approaches have tended to produce unstable valuations (Cookson 2003).

The literature on generic[7], preference-weighted (multi-attribute) tools in social care is somewhat under-developed (Makai, Brouwer et al. 2014). Only two main wellbeing measures with relevance to social care exist that are preference-weighted: the ICECAP-A measure, a self-report measure of wellbeing capability for adults (Al-Janabi, Flynn et al. 2012); and the Adult Social Care Outcomes Toolkit (ASCOT) (Malley, Towers et al. 2012), which measures care-related quality of life (CRQOL).

The ICECAP-A measure has a descriptive system that focuses on measuring capability rather than actual functioning in relation to wellbeing: i.e. people's ability to achieve various activities that produce wellbeing. Five over-arching attributes of capability wellbeing were identified for the measure: *stability*, *attachment*, *achievement*, *autonomy* and *enjoyment*. For each attribute, people are asked to rate their experience on a four-level scale running from no capability to full capability.

The main ASCOT measure has eight attributes, representing different aspects of quality of life that are most likely to be affected by social care services: *Personal cleanliness and comfort, Accommodation cleanliness and comfort, Food and drink, Safety, Social participation and*

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[5] There are also a range of measures that are not preference weighted (anchored to death) – for example the SF-36. Another approach is a class of instruments without fixed attributes (sometimes called personal outcome measures). Instead, respondents are asked to say which aspects of quality of life are most important (perhaps with relevance to services) and then rate their corresponding experience. Examples include the Schedule for the Evaluation of Individual Quality of Life (SEI-QoL) (Coen, O'Boyle et al. 1993; O'Boyle 1994; Cheyne and Kinn 2001) and the Patient-Generated Index (PGI) (Ruta, Garratt et al. 1994; Martin, Camfield et al. 2007).

[6] See http://www.euroqol.org/about-eq-5d.html

[7] Generic measures often use a pre-determined set of 'items' – i.e. aspects of the wellbeing such as pain, usual activities, self-care etc. – that are pre-valued using the preferences of the general public. Service users or patients then rate their situation within this descriptive framework.

involvement, Occupation, Control over daily life, and *Dignity*. Respondents are asked to rate their experience in each domain on a four-level scale, running from ideal/best quality of life through to very poor/poorest quality of life. Respondents give a subjective rating in this respect, since people's view of what constitutes good or bad quality of life with respect to, say, control or occupation depends on their preferences and circumstances. In other words, someone who rarely leaves the house, for example, could still rate themselves as having a high level on the *Social participation and involvement* domain, perhaps higher than someone who does go out a lot.

Both measures have preference weights estimated for each level within each attribute. These weights are added for level chosen for each attribute to give an overall wellbeing or quality of life score.

There are a number of issues with these measures with regard to social care. First, both measures are primarily designed to be self-reporting. As such they cannot be used in their native form for people with significant cognitive or communication difficulties. Work is currently on-going in the development of (a) a 'proxy' version of ASCOT and (b) an observational version. The former allows – and adjusts for – another person (e.g. a carer) answering on the service user's behalf. The latter version involves a protocol for an independent observer of the service user's activities to translate or 'code' their observations into scores on each of the ASCOT attributes. These methods allow scoring for people that cannot respond themselves, but they do have limitations: namely, they are often costly to undertake (e.g. using an independent observer); and they require the third party to estimate how the observed person would have responded.

A second issue is whether there is sufficient comprehensiveness, particularly to allow for the potentially diverse situations of individual people to be reflected. In other words, aspects of quality of life that are important to one person may not be important to others. We can argue that we should only focus on those attributes that have potential to be affected by social care, but the reach of social care in this sense could be quite wide. ASCOT incorporates eight attributes, which is relatively high for preference-weighted measures. Even so, its design assumes that health-related effects of social care services are captured using health-related measures like EQ-5D.

Certain relevant aspects of quality of life such as compassion and dignity in care are important in relation to social care. A dignity question is asked in ASCOT, but some may argue that a single four-level question is too reductionist. Nonetheless, the purpose here is not to define compassion or dignity objectively but rather ask the service user whether *they* think are being treated in a dignified way.

A third issue is about reliability. Measures like ASCOT ask about current functioning, including in relation to relatively complex subjects such as social participation. Ratings in this respect are subjective and are likely to be affected by mood and other factors which can vary on a short time scale. For an individual person, the changes in ASCOT score taken at different points in time may be partly due to short-lived effects, rather than underlying changes. This problem may be lessened for the ICECAP measure because perceptions of capability probably change more slowly than perceptions of functioning. This potential issue is also minimised when ASCOT or ICECAP are used in samples of individuals since these essentially random short-term variables would be averaged out in a sufficiently sized sample of service users.

A fourth issue is in choosing the 'unit of analysis'. Because of the high interdependency and 'co-production' between the cared-for person and their families, there is an argument for treating the household as the unit of analysis rather than the individual person. Such an approach requires

indicators that can account for both the individual and interdependent elements of wellbeing among members of the household.

Fifth, we have a choice between measuring capability or functioning. Capability is having the potential to function in some wellbeing-relevant way, e.g. being supported to get dressed even if the person chooses not to get dressed. A functioning perspective would measure whether the person was actually dressed. In either case, given the nature of social care in helping people to manage the consequences of their condition, it is important not to measure *personal* ability to function (Forder and Caiels 2011).

Notwithstanding these potential limitations, ASCOT and ICECAP are able (for the first time) to give us valuations of the impact of long-term care, in a comparable fashion. ASCOT is now routinely used to measure quality of life in the Adult Social Care Survey (ASCS) that each local authority undertakes annually. The results feed into the Adult Social Care Outcomes Framework (ASCOF), which is a mechanism for assessing the performance of the care system.

3.2   Impact and attribution

The beneficial effect of using social care can be determined by the improvement it makes to people's care-related quality of life (CRQOL) (as measured using the above instruments). Whilst this calculation appears straightforward in principle, it can actually be difficult to identify how much of any difference in CRQOL is due to the use of social care and how much is due to other changes in people's lives, such as their social or economic situation.

The costs of people's care and support also needs to be measured. Ideally, an inclusive definition would be used, covering not only formal social and health and other relevant services but also informal care. As with benefits, we would want to measure how this full range of costs changes as a result of social care use.

There are several methods for tackling the *attribution* problem. These include: randomised controlled trials of services or interventions that measure CRQOL; non-randomised methods that use statistical modelling to attribute effect (Jones 2007)[8] – for example, *production function* approaches (Forder, Malley et al. 2013); and more pragmatic methods such as those that ask service users to rate hypothetically their CRQOL in the absence of the service (Netten, Trukeschitz et al. 2012) (Mueller, Gaus et al. 2014). Each has their strengths and limitations. Generally speaking, simple before and after comparisons are not robust because people's CRQOL changes over time, irrespective of their service use.

There are particular challenges with respect to social care (Forder and Caiels 2011). First, the use of care services is inter-related with other services and informal care, and these can (partially) compensate for the loss of care. As a result, an evaluation needs to measure and account for these consequences. Second, people are not 'blind' to the care they use. This knowledge might affect study participants' quality of life assessment, letting prior expectations affect people's judgements. A third issue, which is especially relevant to long-term care, is adaptation behaviour (Dolan and Kahneman 2008). People can adapt to their circumstances, which generally results in an under-estimate of the effect of long-term services[9]. A fourth issue is that 'proxies' are often used to respond on behalf of the relatively high number of social care service users who lack the capacity to

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[8] These methods deal mainly with selection problems in non-randomised data.

[9] As services improve a person's situation, so their expectations are raised, with the bar set higher for people to believe they have achieved the best outcomes.

self-report their quality of life. In theory some proxy effects can be allowed for, but a number of biases could remain.

Notwithstanding these challenges, evaluations can be conducted that give estimates of how much recipients' quality of life is improved by social care services and support. Moreover, these evaluations can identify how the scale of impact of services varies according to people's baseline need characteristics.

3.3 Opportunity cost and maximising net benefit

With an ultimately fixed set of resources available, there is always an opportunity cost of funding an activity/project in that other activities cannot be funded. A maximising value approach is about making decisions that produce the greatest *net benefits*: i.e. (the value of the) benefits over the costs involved. If we have a certain budget, this approach seeks to guide decisions to produce the greatest total value from that budget (Boadway and Bruce 1984).

Mathematical (constrained) optimisation techniques can be used to determine how much expenditure should go to each care 'use' to maximise value from a budget. In this process, information is required about how much additional value each social care use produces for each additional £1 in funding spent on that use. This required information includes not only estimates of the benefits and costs of care but also of the relative value of the benefits as they are received by different people in the population.

3.3.1 Usage groups, need and decision types

In considering opportunity cost and benefits, we need to be clear about the definition of the decision-making unit. The cost-effectiveness literature distinguishes between mutually exclusive and independent 'uses' of the budget (Weinstein 1990). We can define a 'use' as any care intervention for a particular condition or 'need'[10]. In this sense we can compare alternative interventions (activities, support, services) that are designed to help the same condition i.e. are for the same use. In the main, care interventions for the same use/purpose are mutually exclusive e.g. we cannot simultaneously use low-intensity and high-intensity home care packages for the same condition. It is convenient to group by condition and severity. As such, we can assume that alternative packages of interventions for the same condition type-severity group are mutually exclusive.[11]

By contrast, activities for different groups are independent. Using care interventions for one group (e.g. day care for people with certain learning disabilities) does not preclude the use of care interventions for another group (e.g. care home services for people with dementia).

3.3.2 Decision rules: opportunity cost threshold approach

Suppose we have a fixed budget for social care. To maximise total value (wellbeing), we allocate each £1 of budget successively to care interventions, within and between uses[12], where it produces the greatest additional value. As the last £1 of the budget is spent, producing a certain amount of additional value, often denoted by the term λ, there should be no other use for this £1 that gives

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[10] The concept of need is used extensively in the social care/long-term care literature (Davies, Bebbington et al. 1990) and is measured as impairment in the ability to undertake activities of daily living (ADLs) (Fernandez, Forder et al. 2011).

[11] We could strictly argue that mutual exclusivity *only* applies at the individual person level, recognising that all people have slightly different condition/need type and severity. Nonetheless, in practice, we can reduce the size of this problem by assigning people to condition-severity groups.

[12] This means identifying the highest additional value interventions within any (mutually exclusive) usage group, ruling out any 'dominated' alternative interventions within the group – see also below.

greater extra value. In other words, any alternative use of this £1 should not produce greater value. The value of the best alternative use is the *opportunity cost[13]* of the social care use in question.

By the law of diminishing returns, the extra value that is produced by each extra £1 of spending will be smaller than that from the previous £1. Under an optimised funding solution, all uses of social care money that produce extra value per £1 of more than λ are funded (to the point where the extra value of successive £1 of spending reduce the additional benefit to be equal to λ). In that sense, the value λ is the minimum *opportunity cost threshold* of extra benefit per extra £1 for funding social care uses. When we have a specific budget to spend, this opportunity cost threshold is determined in the optimisation calculation – its value is adjusted up or down until the entire budget is spent.[14]

A change in budget or an introduction of a new technology will require a new adjustment process which will likely result in a different opportunity cost threshold that optimally exhausts the budget.

3.3.3   Societal level well-being

The maximising wellbeing approach requires that we are clear about how wellbeing gains are distributed across potential service users, including carers, in the population. In other words, are gains in wellbeing treated with the same weight regardless of the individual who benefits? Of particular relevance is whether people with the most severe conditions should be given greater weight than people with milder conditions.

The preference weighting methods is designed to determine the relative weight people, on average, ascribe to different wellbeing states. Therefore, a move from a poor to medium state on any domain is normally valued to a greater extent than a move from a medium to good state. Nonetheless, this does not necessarily mean that services for high-needs groups produce greater wellbeing gains per £1 than services for low-needs groups because the former services could be more costly. We might wish to put *additional* weight on services for people with high-needs even if they are no more cost-effective than services for lower-need people.

This idea has analogies with the *rule of rescue*, the injunction to rescue identifiable individuals in immediate peril, regardless of cost (Cookson, McCabe et al. 2008). In a social care context, it would be an argument not to leave vulnerable people without support to achieve basic activities of daily living such as feeding, washing, dressing etc. There would in any case be a significant risk to life if these activities were not undertaken.

There is also a strong dignity argument, as part of a wider externalities issue. 'Society' gains wellbeing from knowing that the most vulnerable people in the population have access to, at least, a basic level of care. In principle, these external benefits could be added to the total gain in wellbeing resulting from service use, but, in practice, quantifying these benefits would be difficult. A pragmatic approach would be to give greater weight to the wellbeing of particularly vulnerable groups. A preference study could be used to explore the extent of these caring externalities, conducted in

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[13] Opportunity *cost* in this sense means the loss of potential benefits, not a cost in monetary terms (although such a loss can be equivalently specified in monetary terms). Economists often call this value the *shadow price* because it is essentially the amount of additional 'benefit' that can be bought from an extra £1 of budget.

[14] If marginal benefit curves are all smoothly differentiable, this process will result in an allocation of the budget between usage groups so that marginal benefit per £1 for the last £1 spent in each usage group is equal. If marginal benefit is stepped for increases in expenditure (for example, as one use/technology is substituted for another in a usage group) then the final allocation will be where marginal benefit at the last £1 spent in each usage group is as close as possible to final opportunity cost threshold (shadow price).

addition to determining the preference weights for the SCRQOL instruments. Ultimately, incorporating these wider concerns is a political decision.

As well as caring or dignity externalities, there are other 'collateral outcomes' of social care use. Above we discussed the need to account for the direct substitution effects that the use of a particular service might cause. But what outcome indicators should be used in those cases? Take informal care as an example. Suppose we have an estimate for the amount of informal care that would be displaced if a service user received more home care. Should we factor in the resultant change in wellbeing of the informal carer? How should that wellbeing measured? And what weight would be given to carer's wellbeing as compared to the service user's outcome? A carer's version of ASCOT is being developed, and presumably equal weight would be given to carer's wellbeing changes. But this assumption could be challenged.

4   Implications for resource allocation

There are a number of distinctive implications of a maximising wellbeing (MW) approach as compared to a needs-hurdle-intensity (NH) approach.

First, a NH approach allocates resources according to need (i.e. most support goes to those people with the highest level of need), whereas a maximising wellbeing approach guides resources according to the person's potential for improvement of their care-related quality of life (wellbeing). Although related, these rules do not generally give the same outcome. In theory, a needs-hurdle approach would not purposively guide funding decisions that would give as much total improvement in wellbeing for the available public funding as a maximising wellbeing approach.

Second, a NH approach will generally use a different metric for targeting resources. Conventional assessment of need focuses on a person's *impairment*, often their inability to carry out daily activities and associated risks to their independent and safety. A wellbeing approach focuses on people's shortfalls in achieving outcomes – including so-called higher-order outcomes, such as social contact, occupation and dignity – and information about factors that affect how services could change a person's wellbeing. The latter set of factors may include physical impairment but it could also include other factors such as the person's economic situation. Related to this point, a NH approach tends to use an ad hoc aggregation of needs factors. A MW approach would ideally use preference-weighted measures.

Third, a needs-hurdle approach might be less demanding in terms of the information and evidence that is needed. Much will depend on how systematically a NH approach would require information to account for the effects of services and support on reducing need.

The implications for wellbeing gain can be considered. Figure 3 shows costs, need and benefits of care for two people, one 'high-need' (person 1) and the other 'low-need'. In the upper portion, the curves $u_i(x_i)$ for each person i show the improvement in wellbeing that is produced by the optimal (non-dominated) mix of services for that person, of cost x_i. As reflecting the diminishing impact of services at high intensities of input, the $u_i(x_i)$ functions flatten off. In the bottom portion the curves $v_i(x_i)$ show the level of need for the two people. Through the use of services, need is reduced.

Applying a maximising wellbeing approach with a total budget of B, the optimal allocation of support is given at the opportunity cost threshold, the tangent line λ_0. This process gives allocations of x_1^W and x_2^W, where $x_1^W + x_2^W = B$. With this allocation, the last £1 spent gives the greatest possible improvement in benefit (with the utility of each person equally weighted).
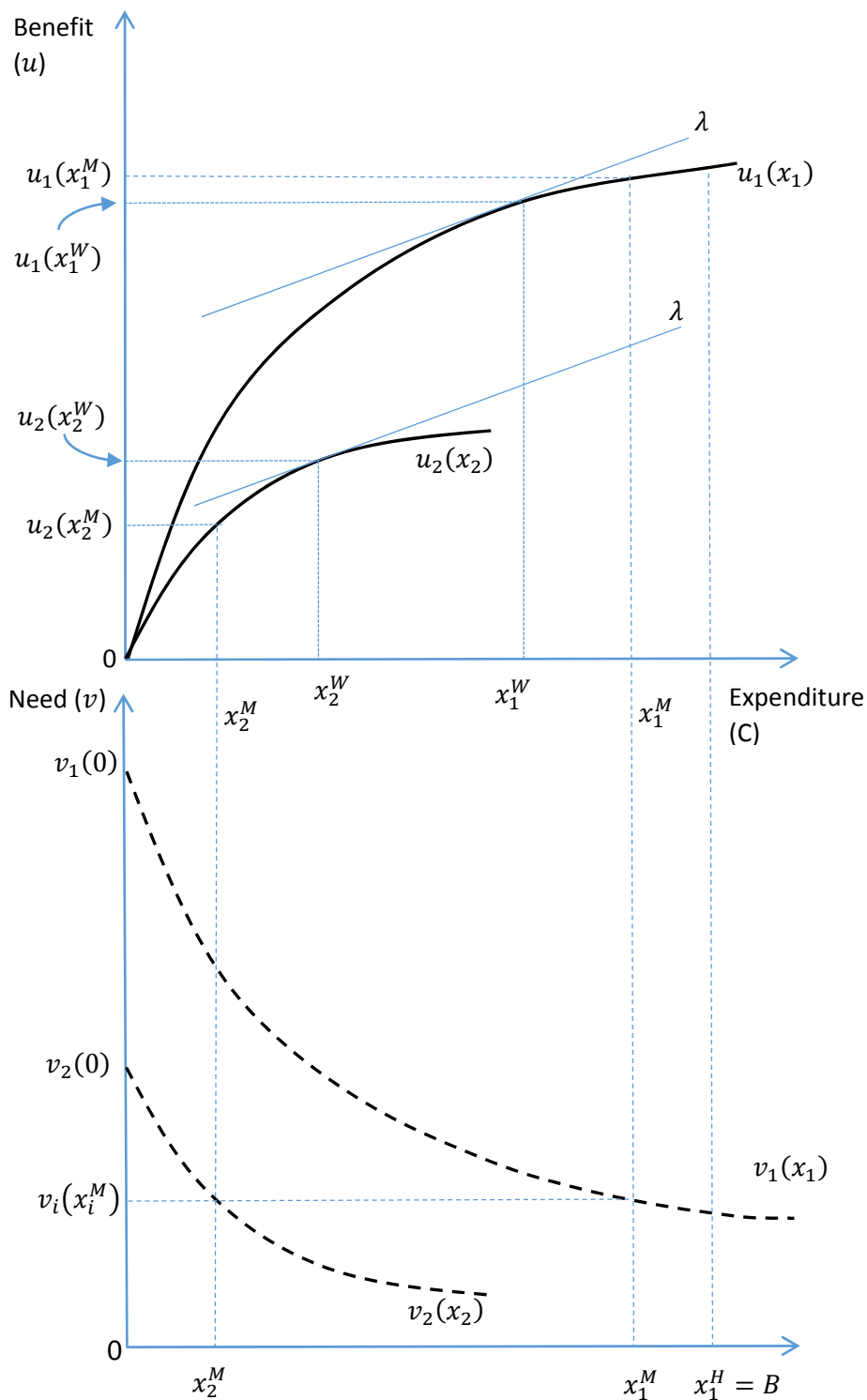
We can contrast the above with the allocation that would occur using a needs-hurdle (NH) approach. In particular, we might consider two types of NH allocation. First, where the hurdle is set on the basis of both the person's pre-service need level and the potential impact of services in reducing this need. The decision rule is that need is *minimised* in the population of eligible people. In this case, the budget B is allocated such that the need of *both* people is reduced to $v_i(x_i^M)$ for $i = 1,2$, again with $x_1^M + x_2^M = B$. Because the level of need (at any given service utilisation level) does not automatically correspond with the capacity for extra services to improve benefits, the NH approach gives a different allocation of the budget.[15] In particular, relative to the MW solution, too much help is given to the high-need person. As a result, the benefit gained by the high-need person relative to the MW solution i.e. $u_1(x_1^M) - u_1(x_1^W)$ is less than the reduction in the benefits for low-need people i.e. of $u_2(x_2^W) - u_2(x_2^M)$.

It is possible given the relative need profiles of each person for the NH approach to give the same allocation as the MW approach between the two people (e.g. if the need profile of person 2 was higher), but this would only happen by chance.

The second type of NH allocation – and perhaps one closest to current practice – is where the hurdle is set only to reflect pre-service need, with a subsequent assessment of support depending on this level of pre-care need (and not the potential of services to reduce need for each person). If the hurdle is set *below* $v_2(0)$, then the subsequent allocation will be similar to the first NH allocation above. But if the need hurdle is set *above* $v_2(0)$, the allocation could differ substantially. In this case, person 2 would not be eligible for any support. The whole budget would be allocated to the high-need person: $x_1^H = B$. The relative benefit gain (compared to the MW allocation) by the high-need person (i.e. $u_1(x_1^H) - u_1(x_1^M)$) would be significantly less than the loss for the low-need person i.e. a loss of $u_2(x_2^W)$. In this approach the low-need person receives no support even where the potential to reduce their need is significant.

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[15] This results occurs even if a marginal reduction in need is valued at the same amount as a marginal increase in benefits, which need not be the case.

Figure 3. Benefits, costs and met need levels of care – by condition group (person)

The consequence of a reduction in available budget will differ between the approaches. In the above example, such a reduction under an MV approach would result in a shift in the balance of resources towards the lower need group (at least for small reductions), whereas the opposite would occur under a needs approach.

5 Implementing relevant decisions in social care

The implementation of a MW approach would involve these steps:

- Determine usage groups for the main types and severity of condition/need
- Use evidence of, or establish, the marginal benefit per extra £1 of feasible support options or interventions within each usage group. Comparisons should be made with next-best alternatives, excluding dominated alternatives in this process
- Undertake a strategic needs assessment to determine the size of each condition-severity group in the population
- Use an opportunity cost decision-rule to allocate resources to each group, up to the budget constraint. This process would produce a target level and mix of services and support for each group, including identifying groups which have a target level of zero support.
- Re-allocate as new care technologies arise by adjusting the opportunity cost threshold

The main practical challenge is in having sufficient information about costs and benefits to implement this approach. If decision-makers lack full information (as required to map out the full production functions in Figure 3), what are the implications?

Suppose that cost-effectiveness information is limited to a finite set of service options, as illustrated in Figure 4 (left-hand panel). Here we have three service options for two condition groups, A and B. With limited information, the full solution as outlined above would not be achievable. However, an approximation would be possible to determine. The opportunity cost threshold could be set to fund those service options with marginal benefits per £1 closest above the minimum threshold λ, with total expenditure not exceeding the total budget: i.e. options A_2 and B_1. Equivalently, the threshold would be set to equal the least cost-effective service that could be afforded within the budget, potentially leaving a small amount of the budget unspent.
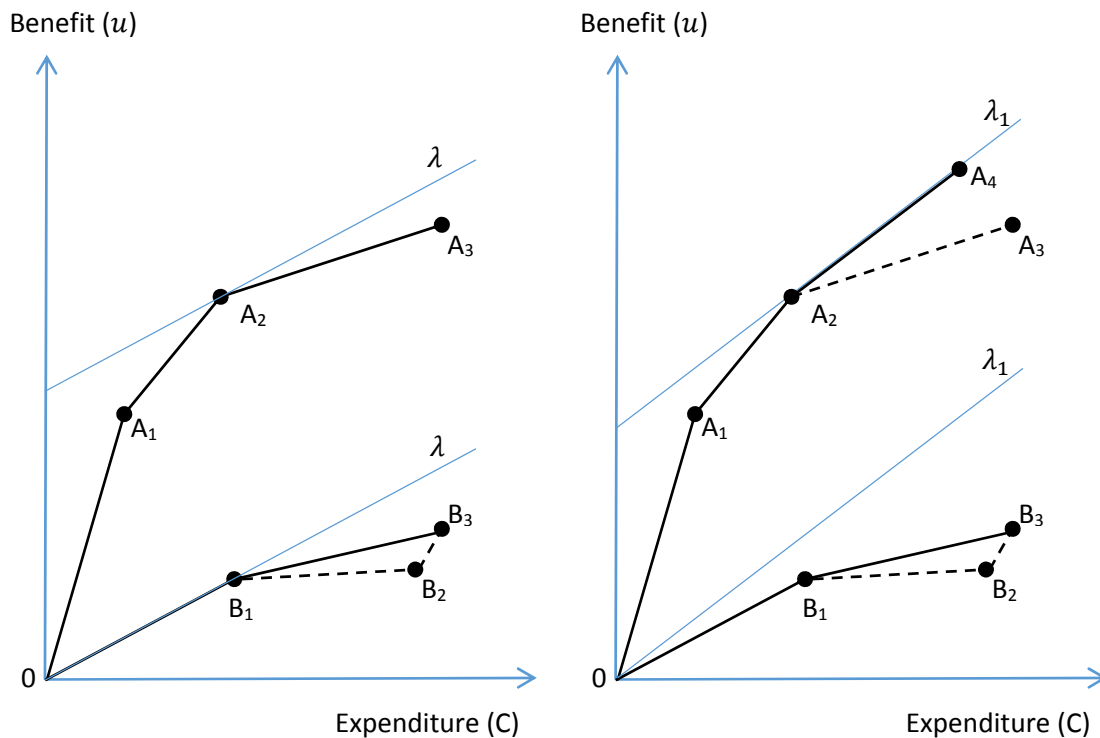
The extent to which a limited solution departs from the theoretical optimum also depends on the availability of information about 'dominated' alternatives (Birch and Gafni 1992; Birch and Gafni 1993; Johannesson and Weinstein 1993). Dominance occurs if the marginal benefit per extra £1 for the new intervention is greater than the marginal benefit per extra £1 of the existing intervention in the same usage group (given divisibility of intervention programme). These net marginal benefit values would need to be established relative to the same (non-dominated) next-less-costly option. The latter might be an existing intervention or it might be a do-nothing option if there were no alternatives. Extending the above example, option B_2 in Figure 4 is dominated by B_3 (both relative to B_1). Consequently, the marginal benefits of spending on group B is given by the improvement of B_3 relative to B_1.

In this way, we map-out (approximately) the curves of the marginal benefit function as in Figure 3. Without excluding dominated interventions, new interventions in the same condition group can appear to have favourable cost-effectiveness (marginal benefit per extra £1) compared to alternative interventions for other condition groups. Without information on the marginal benefits of options B_2 and B_3 with respect to B_1, commissioners might (inappropriately) fund B_3 calculating the marginal benefits of B_3 relative to B_2. A pragmatic way to mitigate this problem is to collect information on the average cost-effectiveness of interventions: i.e. compare them with the do-nothing option, if possible.

Another limitation will result from a lack of information about the *least* cost-effective intervention currently funded. This limitation will have consequences following any introduction of more cost-effective services. Ideally decision-makers should displace the least-cost-effective of the currently-

funded services to make room within the budget. For example, suppose a new intervention in group A was developed, as shown in the right-hand panel of Figure 4. This new service A_4 is more cost-effective than B_1 and therefore would displace the latter. The minimum threshold would have increased accordingly to λ_1. With limited information in this regard, the 'wrong' intervention could be displaced, or perhaps no intervention is displaced with consequent inflation of total expenditure.

Figure 4. Benefits and costs of actual care options – by condition group (person)

In practice, decision-makers may not be able to identify the least-cost-effective of the currently-funded services. A pragmatic approach would be to set an approximate cost-effectiveness threshold as a benchmark for considering new interventions. In this way, any new intervention which equals or exceeds this minimum cost-effectiveness requirement is funded. Moreover, a range of other criteria aside from cost-effectiveness might be taken into account, as discussed above. If the budget constraint is relatively flexible, then this option will remain a good practical solution. Eventually, however, as more services are funded and the budget comes under pressure, so the threshold would have to be tightened and the least cost-effective services withdrawn.

6   Discussion

Theoretically, given that the improvement of wellbeing is the objective of the care system and this can be measured by aggregating (weighted or unweighted) care-related quality of life, a maximising wellbeing approach *with full information* will produce greater total wellbeing improvement for the same budget than a needs-hurdle system.[16]

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[16] Strictly, the MW approach will produce greater or *equal* total wellbeing improvement.

In practice, decision-makers will have more limited information, both to implement a maximising wellbeing approach and to operate a needs-hurdle system. Whether an 'in-practice' MW approach out-performs an 'in-practice' NH approach in social care is an empirical question. Nonetheless, there are clearly three factors which (among others) affect such a comparison. The first is whether we can actually measure wellbeing in a way that is consistent with the policy goals, and indeed that *maximising* wellbeing is the goal. The second factor is the availability (and cost of) information about cost-effectiveness. Linked to this point, there is the question of who bears the cost of collecting this information. The third factor is about the way in which an MW approach is implemented.

The first factor has been widely debated with regard to health care, and many of the arguments are relevant to the social care case (Forder and Caiels 2011; Netten, Burge et al. 2012; Makai, Brouwer et al. 2014). The new Care Act in England is unequivocal in placing the promotion of wellbeing at the heart of care and support system. But an operational definition of 'wellbeing' is more challenging. Taking a policy perspective, the overarching indicator of domain 1 of the Adult Social Care Outcomes Framework (ASCOF)[17] is social care-related quality of life (as measured using ASCOT). As such, an explicit policy objective is to improve ASCOT outcomes. However, if wellbeing is measured in some other way – e.g. just in terms of people's basic functioning – then using care-related quality of life to drive an MV approach would not necessarily best achieve this wellbeing goal, even in the full-information theoretical case.

We could also argue that policy makers are not interesting in achieving maximum value, and rather are content to see that basic needs are met. Then it would not matter that a maximising wellbeing approach would likely achieve greater overall value than a needs-based approach. But, again, this position does not appear to be consistent with the policy aims expressed. Nor would it be consistent with the results of preference studies, where service users and the general population place significant importance on higher-order functioning (like self-determination and dignity, social contact, occupation and so forth) as well as basic functioning (like cleanliness, physical safety, basic nutrition).

The second factor is the availability of data about cost-effectiveness. In particular, information would be needed on (marginal) cost-effectiveness relative to both (a) any alternative interventions and (b) compared to a do-nothing option – the latter to help to identify dominated alternatives. There are questions about how and who would generate such evidence. RCTs and other controlled studies are favoured options, and there are a number of examples in social care – e.g. the evaluation of individual (personal) budgets (Glendinning, Challis et al. 2008) or telecare (Steventon, Bardsley et al. 2013). But these studies tend to be costly to conduct. Also, they are not well suited to assessing average cost-effectiveness relative to the do-nothing alternative in social care. There are likely to be ethical and other problems in denying services (i.e. the do-nothing option) to people with *prima facie* care need, even for evaluation purposes.

Statistical methods (e.g. production function approaches), as outlined above, could be used, being relatively low cost. They also provide estimates of average wellbeing improvement per extra £1 compared with zero-use options through statistical extrapolation. As noted, this information is useful in identifying dominated alternatives. They do require a number of assumptions to be made,

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https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/263783/adult_social_care_framework.pdf.

however, for this purpose. The Adult Social Care Survey (ASCS) would be a potential source of data on quality of life to use in such studies.

An important question is who funds the generation of this evidence. The National Institute for Health and Care Excellence (NICE) has responsibility (from April 2013) to develop guidance and quality standards for social care in England. Economic evidence of the type discussed above will be considered in the guidance recommendations (NICE 2013), but the existing evidence base is small. Moreover, it is unlikely that primary evidence will be generated from this activity. An alternative might be for private care organisations to fund studies. Social care services are predominantly provided by the private (including voluntary) sector, and these organisations may see benefit in supplying evidence as to the cost-effectiveness of their services, particularly following the extension of NICE's responsibilities and the emphasis on cost-effectiveness in social care policy statements.

The third factor is about how an MW approach is implemented. As outlined above, currently public social care is a local authority (LA) responsibility, and each of the 152 LAs in England has their own systems for deploying public resources. One option would be for each LA to determine their own MW allocation, given their budget, adjusting a local opportunity cost threshold accordingly.

Alternatively, following the NHS approach, NICE (or an equivalent body) could issue guidance as to the use of social care budgets, using national thresholds (notwithstanding the problem of limited evidence). Appling an MW approach, the resultant 'target' allocations could be used to draft guidance for decision makers that would provide indicative levels of support for people (i.e. target care plans) based on an assessment of their needs. There would also be a determination of how to commission the indicated level of support, including the use of personal budgets. Local authorities already carry out joint strategic needs assessments (JSNA), which could be used to provide information on the size of usage groups. Some form of at-risk population survey that collected good indicators of potential-to-benefit and other relevant factors would be need to be undertaken.

Comparing the local versus national guidance options, the former would be more costly and difficult to implement than the latter, but would better reflect the characteristics and cost circumstances of the locality, and indeed local preferences and accountability. There is also the further issue that LA commissioners will, at the least, be working with personal budget holders in making care choices. Personal budget holders need not follow any guidance in choosing how to use their budget. Nonetheless, in line with an MW approach, the personal budget could be set to reflect expenditure required to achieve the cost-effective allocation of services and support (given the global social care budget).

Notwithstanding these considerations, the key strength of an MW approach over a needs-led approach is that it directly factors in the impact that services and support provide to improving wellbeing for given cost (and need). The 'transaction costs' will likely be higher than a needs-hurdle system. But given the total level of public expenditure on social care, it would require a relatively small improvement in the cost-effectiveness of the social care allocation to outweigh the additional transaction costs required.

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