sprint

Social Protection Innovative Investment in Long-Term Care

Social Protection

Innovative Investment in Long-Term Care

TOWARDS AN ASSESSMENT SCALE FOR INFORMING STATE-INVESTMENTS IN LONG-TERM CARE

Jose Luis Fernandez, Joanna Marczak, Martin Knapp, London School of Economics and Political Science, PSSRU

www.sprint-project.eu

The SPRINT Project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 649665.

Executive Summary

Resources available to EU member states for the provision of LTC are limited and under increasing pressure. Policy makers face complex decisions about which LTC interventions, activities and programmes to fund.

Cost-effectiveness analysis (CEA) offers a set of tools for economic analysis (cost-effectiveness, cost-utility and cost-benefit) used to identify interventions that offer health and wellbeing benefits, which are large enough relative to costs to warrant adoption.

Beginning with the premise that state investment decisions in LTC should be informed by SI principles, in this report we have considered how CEA might be incorporated into decision rules for investment decisions in LTC.

We conducted a rapid literature review of academic and grey literature relating to investment criteria in LTC, social care and healthcare - to inform the conceptual framework and the practical considerations relevant to the development of investment criteria for LTC. As the topic is not widely researched, literature identified in the first stage (9 papers), was supplemented with material identified via hand searching. Over 40 papers and reports were included in the review.

We reviewed and describe in this report the key conceptual, data and technical challenges involved in the development and implementation of decision rules in LTC, and more broadly, an approach based on SI principles for using cost-effectiveness analysis to prioritise state interventions in LTC.

Findings

If states are to uphold SI principles in LTC investment decisions, they must evaluate the full set of consequences of LTC interventions. This means states must simultaneously measure and assess numerous and diverse outcome indicators - encompassing things like impacts on employment, efficiency, physical, cognitive, and psychological health, and on subjective wellbeing. We have described some of the key conceptual and practical challenges in assessing societal costs of LTC services, summarised here:

- The nature of the relationship between needs, services and outcomes is complex, and we therefore need to collect wide-ranging information about them and apply sophisticated analytical methods to identify the contribution of services to outcomes. However, most LTC systems in Europe focus their performance assessment on measures of service coverage, expenditure, and some indicators of process quality. They do not collect information regarding final outcomes for users and carers.
- The costs and outcomes of LTC interventions often span long periods of time, raising questions about how this should be reflected in their valuation, and whether a time discount factor should be applied to reduce the value of costs and benefits that take longer to be realised. The practice of weighting future gains and losses less heavily than those that occur in the present is common

in health and other public service sectors. In LTC, time discounting is particularly important when assessing the cost-effectiveness of preventative interventions.

- Calculating the aggregate value of the outcomes of LTC services is challenging because of the large number of outcome dimensions affected by LTC interventions, and because of a lack of a common unit of measurement. Some LTC outcome dimensions are amenable to monetisation (e.g. impacts on other public service use labour force participation and informal care) and others are not. Under certain circumstances, the monetisation of the subset of tangible outcomes might provide sufficient evidence to warrant investment in a given LTC service. In general, the Incremental Cost-effectiveness Ratio (ICER) is often applied in the health care context to represent the value for money of health care interventions. The ICER of services is compared against a benchmark value representing society's maximum willingness to pay (WTP) for improvements in the given outcome. This benchmark willingness to pay is referred to as the cost-effectiveness threshold (CET). There has recently been recognition of the need to use outcome indicators for LTC interventions which extend beyond the narrow measurement of health status and covering other aspects of wellbeing, and to develop a CET for such outcomes. This would allow evaluators to value the full set of impacts of LTC on society.

Cost effectiveness thresholds (CETs) used in the health care sector are unlikely to be appropriate for LTC interventions because of the need to capture a more holistic picture of their impacts on quality of life, and also because of the nature of the needs and circumstances of LTC recipients mean that additional considerations might need to be incorporated. We have described important factors which should be reflected, in addition to cost-effectiveness, when assessing the suitability of state funding for LTC interventions using a CET approach. They include:

- LTC recipients have a wide range of individual characteristics. As in health care funding decisions, some of these characteristics may warrant a higher cost-effectiveness funding threshold and greater flexibility in their application, for example for extreme levels of need, short life expectancies and the presence of incurable diseases such as dementia. In developing funding rules for LTC (particularly setting CET), decision-makers should carry out national consultation exercises to understand and reflect societal preferences about the needs and situation of people with LTC needs.

- Equity - Issues of inequality of outcome and access to care across socio-economic groups are important and worthy of consideration by policy makers in LTC funding decisions. In some LTC systems, income inequality is addressed explicitly by means-testing to ensure that the bulk of public resources are targeted on individuals from low income and wealth groups. However, territorial equity as well as social or cultural expectations and preferences can also impact access to care. Decision-makers should consider the distributional consequences of LTC funding decisions, and whether they impact on inequalities across socioeconomic groups or on geographical inequalities.

- The risk of catastrophic financial costs associated with LTC needs and lack of private insurance solutions has led to calls for LTC state systems to treat reducing financial risk as an important

policy objective. This objective should therefore be valued and reflected in LTC funding decisions.

- The literature has identified a further set of influences which play a part in determining funding decisions by Health Technology Assessment (HTA) assessment bodies in the health care area. Three are particularly relevant to the LTC context:
    1. The size of budgetary impact of the introduction of the intervention in the care system, indicated by the size of the eligible population and the unit cost to the state of the service.
    2. Criteria about the quality of the evidence submitted for consideration. These "technical" requirements about the quality of the evidence available would limit significantly at present the number of LTC services that could be assessed.
    3. Factors related to the decision-making process, including whether the views of patients are explicitly included in the assessment material. Given the emphasis on co-production and the importance of empowering service users and carers in the LTC system, involving them and other relevant stakeholders in the evaluation and decision-making processes would be an important priority for the assessment of LTC services.

Table of Contents

Acronyms and Abbreviations

CEA	Cost-effectiveness Analysis
CET	Cost-Effectiveness Threshold
HTA	Health Technology Assessment
ICER	Incremental Cost-effectiveness Ratio
LTC	Long Term Care
NICE	National Institute of Care Excellence
QALYs	Quality Adjusted Life Years
SI	Social Investment
WHO	World Health Organization
WTP	Willingness to Pay

1 Introduction

Policy-makers in all EU member states face difficult choices when deciding which interventions, programmes or activities should be funded from the limited available resources. A set of tools for economic analysis (cost-effectiveness, cost-utility and cost-benefit) grouped under the general label of cost-effectiveness analysis (CEA) have been developed to support decision-makers to identify which interventions offer health or wellbeing benefits large enough relative to costs to warrant adoption. Although strong theoretical argument exists for deriving CEA measures to inform investment decisions in LTC, there is limited systematic use of CEA to inform policy decisions about the prioritisation of LTC services and policy reforms.

The aim of this report is to discuss how results from CEA analyses might be incorporated into decision rules used by policy makers for prioritising investments in LTC. The analysis focusses on the perspective of the state and assumes that decisions about LTC investments should follow social investment (SI) principles as discussed in the rest of SPRINT reports.

The present report departs somewhat from the objectives stated in the original SPRINT proposal, in the sense that it does not propose a specific, off-the-shelve algorithm that could be applied directly by LTC policy makers across the EU to assess the suitability of LTC investments. Instead, it discusses the key factors and considerations that ought to be reflected in such decision-rules, and the challenges that might be faced in their development and implementation.

This change of emphasis reflects firstly the present lack of key evidence required for decision-making in the LTC area, and in particular of quantitative, harmonised data about the outcomes of different LTC services. This lack of data, noted in Richards et al., (2018) and Greve (2018), for example requires policy-makers to use their own subjective judgements to fill in evidence gaps when deciding the suitability of different LTC investments and therefore undermines the development of systematic algorithms for driving LTC service commissioning. Methods for addressing limitations in evidence are discussed in other reports, and in particular in Richards (2018) and Richards et al., (2018).

A second important limitation to the development of a single, normative algorithm for prioritising LTC investment across EU countries is the considerable variability in preferences and expectations of decision-makers from different countries, contexts and care systems, and therefore the potential (indeed, probable) variability in society's willingness to pay for different LTC services in different member states. Even if the "objective" evidence required for assessing investment decisions in LTC was perfect, which of course it is not, different systems are likely to value different outcomes differently, and/or might face different service costs. Such differences will affect the relative cost-effectiveness of the various investment options. Examples of these national differences include differences in cultural expectations about the roles of family carers in LTC provision, variability in the degree to which local areas are allowed (and sometimes encouraged) to determine their own system priorities within countries, and the national differences in the resources available for

investing in public services. As a result, what might represent a sound social investment in one system might not do so in others.

Whereas developing a generic algorithm valid across all long-term care systems for making decisions about state investments in LTC is therefore beyond the scope of this report, it is nevertheless important to highlight principles and considerations that might guide LTC policy-makers investment decisions.

Overall, the decision to invest or not to invest in a particular LTC service should be driven by the comparison between the costs associated with the organisation and provision of the service in question and the value to society of the benefits it generates. In mathematical terms, this exercise could be illustrated by the following formula:

$$NB^i = \sum B^i - \sum C^i \qquad \text{Eq (1)}$$

where NB^i denotes the net benefit of service *i*, $\sum B^i$ denotes the value of the benefits of providing service *i* and $\sum C^i$ refers to the total costs of providing service *i*.

A necessary (but not sufficient[1]) condition for LTC investments to take place should be that they generate a positive net benefit across society, and therefore that the value of the benefits B^i of providing the service outweigh its costs C^i.

A key aim of this report is to review the main conceptual, data and technical challenges involved in implementing the apparently simple calculation in Equation 1, and more broadly in the development of an approach based on SI principles for assessing the cost-effectiveness of state interventions in LTC. In this regard, the report overlaps to some degree with other SPRINT reports (e.g. Richards et al., (2018) and Greve (2018). Rather that duplicating the analysis, this report will summarise issues treated in detail in other SPRINT reports, concentrating specifically on the implications for state decision-makers in the LTC sector. The second fundamental aim of this report is to discuss the extent to which governments might want to follow the simple cost-benefit approach implicit in Equation 1 when deciding whether and how to invest in the LTC system, or whether (and if so which) other considerations might also be important.

Given the absence of examples of the application of a CEA-based funding prioritisation rule in the LTC context, the analysis below discusses where appropriate relevant experience regarding the health care system.

[1] An intervention which shows a positive net benefit does not warrant automatic funding because there might be more such interventions that could be funded from existing resources. The net benefit calculation can however be used to rank the alternative interventions that might be available, and then resources concentrated on those yielding the greatest net benefit.

2 Methods and Data

The literature referred to in this report was identified using a rapid review approach. Rapid literature review was employed to inform our description of the conceptual context as well as practical considerations relevant to the development of criteria for investment in long-term care which allowed us to explore available evidence in LTC and related sectors.

Rapid reviews are increasingly being seen (instead of full systematic reviews) due to an amplified pressure for rapid, evidence-based policy advice (Watt et al., 2008). They borrow from the principles of systematic reviews but simplify and accelerates the review process to synthesize evidence within a shortened timeframe (Ganann *et al.*, 2010; Tricco *et al.*, 2015). Although the scope of rapid reviews tends to be narrower compared to a full systematic review, importantly there is evidence that the conclusions from rapid reviews do not differ substantially from full reviews and that rapid reviews provide adequate advice for policy decisions (Watt et al., 2008).

The first stage of the rapid review was to search for literature in relation to investment criteria in LTC, social care and healthcare; searchers were conducted in PubMed, Google Scholar and Google search engine. Search terms for the rapid review were generated by researchers involved in the preparation of the report, and key search phrases combined key words and key search terms (see Table 1). Identified terms included any possible important variations of phrases, for example, when searching for issues related to the equity in LTC investment, variations of both elements of the search, such as 'equitable', 'fairness', 'cost distribution', 'redistribution' were considered, which increased the likelihood of retrieving as many relevant articles as possible.

Table 1: Key words and phrases used in the rapid review

Key search terms
Cost effectiveness threshold; willingness to pay; equity, equitable distribution of costs in social care, discounting of costs and outcomes, aggregation problem, funding decisions/recommendations, health technology assessment, insurance, care continuity, rare conditions/disease
Examples of key search phrases
Cost effectiveness threshold in social care/long term care/health care; equity/equality considerations in long-term care/social care, aggregation problem in social/health care/long-term care, long-term care insurance/in Germany/Japan/France; funding decisions/recommendations in social care/long term care/health care, funding of rare conditions/diseases, funding threshold for rare diseases, willingness to pay for rare conditions/diseases

Academic papers published in peer-reviewed journals and grey literature were searched for, articles were immediately assessed for their direct relevance to the discussion of investment criteria in LTC and related sectors and finally nine papers from the searchers were included in this report. The limited number of identified studies was not an unexpected outcome as the topic of investment criteria in social care and LTC is not widely researched, and most identified papers were related to health care settings. Moreover, despite frequent assumptions that rigorous approach to literature searches will produce the best results, in practice the best search outcome often stems from using researchers existing knowledge, and snowballing methods to track references of literature which have been cited in the most important articles (Greenhalgh and Peacock, 2005). To broaden the scope of the review, the second stage consisted of hand searches from literature identified in the first stage of the review and drawing on knowledge of the researchers involved in the project about relevant literature. As a result, over forty articles and reports were included in the review and informed the discussion below.

3 Conceptual and Practical Issues for the Assessment of the Societal Cost-effectiveness of LTC Investments

Lopes (2017) has defined SI in LTC as "welfare expenditure and policies that generate equitable access to care to meet the needs of ageing populations, improve quality of care and quality of life, increase capacities to participate in society and the economy, and promote sustainable and efficient resource allocation".

This definition stresses the need to evaluate the full set of consequences of LTC services and thus to measure and assess simultaneously a number of outcome indicators so that resources can be invested where they generate the greatest return from a societal perspective, given their cost. Greve et al. (2018) also noted that relevant outcomes for SI in the LTC sector ranged from employment effects and efficiency improvements to impact on physical, cognitive, and psychological health and on subjective wellbeing. We concentrate below on the challenges involved in using evidence about such outcomes for informing the prioritisation of state investment across LTC services.

3.1 Assessing the Effect of LTC Services on Outcomes

In the LTC context, a unit of service (e.g. an hour of home care or a place in a residential care home) cannot be assumed to generate the same impact on the wellbeing of all users and carers. In fact, there is growing evidence which suggests that the outcomes of long-term care services vary

significantly depending on the needs of the recipients of care (Davies et al., 2000; Forder et al., 2014).

The variability in the relationship between services and outcomes for different service recipients responds to two factors:

- The fact that raw outcomes (e.g. physical and mental health, wellbeing) are predominantly affected by "need-related factors", with services playing a minor effect relatively speaking (Davies et al., 2000). Hence, whether someone suffers from advanced dementia, is bed-bound, or cannot feed themselves is likely to impact their quality of life more than the size of the care package they receive.
- The fact that the service "productivities", the rate at which additional units of service improve outcomes, vary depending on the needs of service recipients. For example, English evidence suggests day care is twice as effective at delaying care home admission for people with cognitive impairment than for other users of the service, as it provides a break for informal carers looking after them (Davies et al., 2000).

The two issues listed above have important implications for the design of national LTC performance assessment systems compatible with the SI approach. They imply that counting units of service provided by the care system will not provide an accurate assessment of its impact on final outcomes because these outcomes will depend on the characteristics of the care recipients targeted. The limitations of focusing on service levels are further underlined by the growing emphasis in self-directed models of care in the LTC sector, and in particular the widespread use of direct (cash) payments, which makes it very difficult to monitor the content of the care packages commissioned with LTC resources. Equally, simply counting raw outcomes (e.g. levels of wellbeing) of care recipients will result in a biased picture of the contribution of the care system to outcomes, because raw outcome levels will reflect mostly the needs of the care recipients rather than the impact of services on them.

The complex nature of the relationship between needs, services and outcomes described above implies the need to collect wide-ranging information about them and to apply sophisticated analytical methods which identify the contribution of the care system to outcomes (Fernandez and Knapp, 2005). At present, however, the majority of care systems in Europe focus their performance assessment systems on measures of service coverage, expenditure, and some indicators of process quality, and do not collect information regarding final outcomes for users and carers. A notable exception is the English system, which requires all local authorities to implement a yearly survey of service users and carers which collects information about their needs, the services they receive and their quality of life using the ASCOT social care quality of life measure (Malley et al., 2012; Rand et al., 2017, 2015). Whereas significant challenges remain about how best to use this information to support the way English local authorities target social care, encouraging findings are emerging which confirm the importance and feasibility of measuring the impact of social care services on the wellbeing of service users and carers (Davies et al., 2000; Forder et al., 2014; Rand et al., 2012). Finland is also developing its evidence base for assessing costs and outcomes of publicly provided

LTC services. As a result, municipalities are required by law to assess well-being, adequacy and quality of services provided for older people, and to assess which factors affect the need for formal support (Ministry of Social Affairs and Health, 2012).

3.2 The Longitudinal Nature of LTC Interventions and the Need to Discount

The costs and outcomes of LTC services often span long periods of time. Interventions such as reablement, for instance, aim to change the future dependency profile of care recipients and potentially affect the future patterns of care service use over a number of years. From a LTC investment assessment perspective, an important question is the extent to which the longitudinal profile of costs and outcomes of care services should be reflected in their evaluation, and whether a time discount factor should be applied to reduce the present (perceived) value of costs and benefits that take longer to be realised.

Discounting is based on the notion of "positive time preference", namely the idea that individuals in society prefer to experience benefits sooner rather later (and costs later rather than sooner) because for instance of the risk that death will diminish the opportunity for future consumption, and because of the return that can be expected from investing resources for instance in risk-free state bonds (Cairns, 2001).

The practice of weighting future gains and losses less heavily than those that occur in the present is common in health and other public service sectors, and is for instance recommended by the UK Treasury Green Book, which states the methodology to be used for the economic evaluation in the public sector (HM Treasury, 2018). It is also standard recommended practice in health economics evaluations globally, as noted below.

The impact of discounting depends on the timing of costs and outcomes and thus the type of intervention that is considered. For example, the impact of discounting can be negligible in interventions where costs and benefits occur concurrently; or it can be substantial in interventions when the costs are upfront, and the benefits occur later. In LTC, time discounting is particularly important when assessing the cost-effectiveness of preventative interventions because these services normally involve an early investment, the cost of which it is hoped will be recovered through future reductions in the need for services or justified by future improvements in quality of life or other outcomes. Applying a positive time discount factor therefore requires that the stream of benefits of preventative services is large enough to offset the lower valuation of future benefits. As a result, some have argued that future benefits of preventative programmes should not be discounted as discounting is unlikely to reflect societal preferences (Bonneux and Birnie, 2001; Tasset *et al.*, 1999).

Although the practice of discounting of costs in health-related economic evaluations is generally undisputed, ongoing debates exist as to whether to apply uniform discounting, when the same discount rate is used for costs and outcomes; or differential discounting of costs versus benefits in

economic evaluation. There are also disagreements about the appropriate rate (or rates) to use, for example regarding the use of constant versus time-varying discount rates (Severens and Milne, 2004).

Uniform discounting through time is commonly recommended and used in economic evaluations (Smith and Gravelle, 2001). In terms of the rate to be applied to costs and outcomes, the consistency argument posits that costs and benefits should be discounted at the same rate to be consistent in defining preferences for care programmes that cost money and yield outcomes at different moments in time (Severens and Milne, 2004). Conversely, others have argued that discounting health benefits at a lower rate than costs accounts for any potential increase in the future value of effects (Gravelle and Smith, 2001). Discounting outcomes at a lower rate than costs can, however, lead to a preference to defer spending on care indefinitely (because programmes appear to be more cost-effective if they are delayed into the future).

Smith and Gravelle (2001) reviewed the recommendations for best practice on discounting for health effects set out by government agencies, regulatory bodies, and the academic literature. The authors found that all official sources recommended a positive discount rate for both health effects and costs, and most recommended a specific rate (ranging between 1% and 8%). The most frequently specified rates were 3% and 5%.

3.3 Using the Evidence about Costs and Outcomes to Inform Investment Decisions

We have noted in the introduction that an important condition that ought to be reflected in investment prioritisation rules used by LTC public decision-makers is that the costs incurred in the provision of a given service are lower than the value across society of the outcomes that it generates.

Even if the specific contributions of services to outcomes can be measured, following the discussion above, calculating the aggregate value of the outcomes of LTC services remains a challenging exercise because of the large number of outcome dimensions affected by LTC interventions and the lack of a common unit for measuring them. Solving this outcome aggregation problem requires that decision-makers apply explicit weights to the different outcome measures in a way which expresses their relative preference across outcome dimensions.

Different stakeholders, such as people with needs, private companies, carers, government or interest groups may attach different relative importance to achieving different outcomes. Evaluators acting on behalf of the state will need to use estimates of relative outcome preferences which reflect the prioritisation across them for the population as a whole. In that sense, because the outcomes aggregation process is closely related to the way that health status and/or wellbeing of different individuals are compared and weighted, the weights used for the different outcomes have potentially significant equity implications for society (Liljas and Lindgren, 2001). We discuss further these equity implications in subsequent sections.

Following Richards (2018) and Richards et al., (2018), it is useful to distinguish between those LTC outcomes dimensions which are amenable to monetisation and those which are not. We can therefore express Equation 1 as

$$NB^i = \sum B^i_{NM} + \sum B^i_M - \sum C^i \qquad \text{Eq (2)}$$

where B^i_{NM} represents non-easily monetised benefits, and B^i_M indicates monetizable benefits[2].

Outcomes such as the effect of LTC services on the use of other public services (e.g. reduction in hospital care use), their effect on levels of informal care and the fiscal consequences of changes in labour force participation are all outcomes which can be valued in monetary terms using the broadly established (if not entirely uncontroversial) methods discussed in detail in Richards et al., (2018). The value of changes in informal care provision can, for instance, be estimated using replacement costs, or using opportunity cost principles measuring the value of the informal caregiver's benefits forgone due to the time spent providing care, usually proxied by the person's market wage rate (Van Den Berg et al., 2004). The monetisation of the impact of LTC services on health status, quality of life and wellbeing is in contrast much more challenging and subject to intense methodological debate (Howley and P., 2016; Huang et al., 2018; Sidney et al., 2017)[3].

Under certain circumstances, the monetisation of the subset of tangible outcomes might provide sufficient evidence to warrant investment in a given LTC service. This can be the case when savings more than offset the costs of providing the service (for instance because of reductions in health care use resulting from the LTC care, or because of gains in state revenues due the employment effects). In such cases, decision-makers would be satisfied that investing in the service would represent good value for money as long as the rest of non-monetised outcomes were not worse off as a result.

In terms of Equation 2, a decision-maker would thus approve funding for a service as long as

$$\sum B^i_M > \sum C^i \text{ and } B^i_{NM} > 0 \text{ for all } B^i_{NM}.$$

The conditions defined in Equation 2 will not be satisfied often, either because the savings generated are not sufficient to offset the costs of the LTC intervention, because some of the non-monetised outcomes are worse off following the provision of the service, or because of a combination of the two. In such cases, an explicit judgement will be necessary about the value for money of the intervention based on the comparison of the non-monetised outcomes generated against the observed changes in monetary costs and benefits ($\sum B^i_M - \sum C^i$).

[2] Equation 2 expresses B^i_M and C^i in monetary terms whereas B^i_{NM} is expressed in nom-monetary units. This means that as currently defined Equation 2 involves an undefined operation. Equation 2 is presented in this fashion for simplicity's sake.

[3] Richards et al., (2018) illustrates the SROI approach for monetizing non-tangible LTC outcomes in order to derive a net benefit estimate of LTC interventions. Whereas SROI represents a very useful approach for involving stakeholders in order to support SI in the absence of full information, the discussion below focusses on economic evaluation approaches that are being used for building funding state-level prioritisation rules in the health care area.

In the health care area, this comparison is framed in terms of the Incremental Cost-effectiveness Ratio (ICER), that is the ratio of incremental costs to incremental benefits of one intervention compared to another mutually exclusive alternative. The ICER therefore expresses the costs increase associated with a unit gain in outcome due to the introduction of a particular intervention, and can be expressed mathematically as

$$\text{ICER} = \frac{(C^i - B_M^i) - (C^0 - B_M^0)}{B_{NM}^i - B_{NM}^0} \qquad \text{Eq (3)}$$

where B_M^0, B_{NM}^0 and C^0 represent the monetised benefits, not-monetised benefits and costs associated with the absence of the LTC intervention being evaluated.

In the health care context, health benefits are often represented in the form of quality adjusted life years (QALYs); and hence the ICER gives the 'cost per QALY gain' associated with an intervention. To determine whether an intervention's ICER is likely to be worth investing in requires therefore some benchmark of value representing society's willingness to pay (WTP) for improvements in the given outcome (in the QALY case, society's WTP for an additional QALY). This benchmark willingness to pay is referred to as the cost-effectiveness threshold (CET). If an ICER<CET, an intervention's benefits are deemed large enough in comparison to costs (i.e. it is considered as cost-effective) and thus worthy of funding; but if ICER>CET the benefits are insufficient in comparison to costs (i.e. it is not cost-effective).

In recent years, there has been a recognition of the need to use outcome indicators for LTC interventions which extend beyond the narrow measurement of health status and covering other aspects of wellbeing (Brazier and Tsuchiya, 2015). Doing so would allow evaluators to capture the full set of impacts on the wellbeing of the care recipient associated with LTC interventions, thus avoiding the danger of double counting outcome effects when using multiple "related" outcome indicators in the evaluation of LTC interventions (e.g. including in the analysis estimates of impact on quality of life, satisfaction with services and health status, which are likely to be highly correlated). Two outcome measures, the ASCOT and ICECAP-O, have attracted particular attention. For instance, Leeuwen et al. (2015) found that their findings supported "the adoption of ICECAP-O and ASCOT as outcome measures in economic evaluations of care interventions for older adults that have a broader aim than health-related QOL because they are at least as reliable as the EQ-5D-3L and are associated with aspects of QOL broader than health". ASCOT is currently being translated for use in Austria, Australia, Finland, Japan, and the Netherlands.

Figure 1: Graphical interpretation of ICERs and CETs

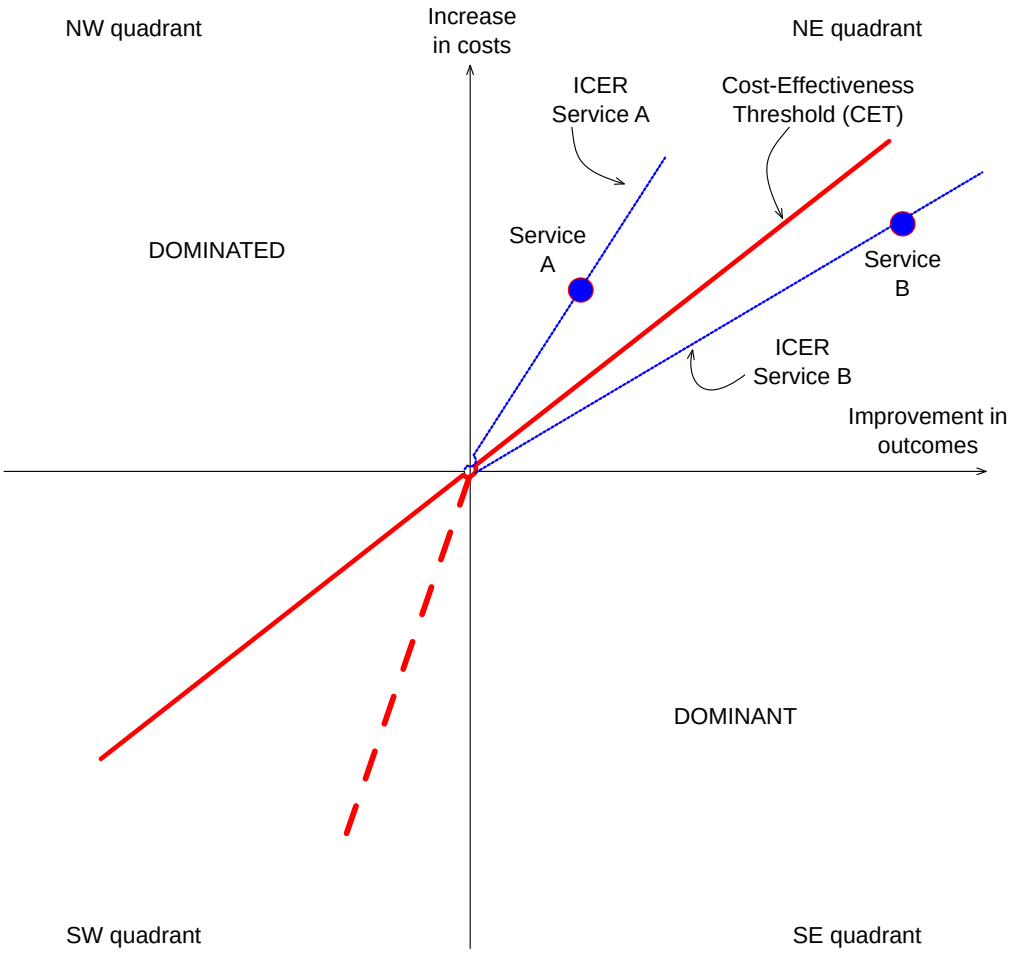

Figure 1 provides a pictorial representation in the cost-effectiveness plane of the interpretation of ICERs, CETs and the way in which they might be used to inform decisions about the funding of LTC interventions.

The vertical axis in the figure represents changes in costs associated with the introduction of the service being evaluated, whereas the horizontal axis represents equivalent changes in outcomes. The results of evaluations in which a service is found to have increased costs and reduced outcomes will be located in the north-west quadrant of Figure 1. Such interventions are said to be dominated and would not be funded as a matter of course. Conversely, interventions leading to improved outcomes and lower costs are said to be dominant and would appear in the south-east quadrant of Figure 1. These interventions would receive state funding regardless of the cost-effectiveness threshold assumed. However, most interventions imply increases in both costs and outcomes, and are therefore located in the north-east quadrant of the figure. Funding for these interventions will depend on whether their ICERs lie above or below the CET.

Figure 1 includes the results of two hypothetical evaluations for a Service A and a Service B. The value of the ICERs for the two services are represented by the slopes of the blue lines joining the

origin to each of the two blue dots. In the example in Figure 1, Service A is found not to be worthy of funding as the improvements in outcomes it generates involve increases in costs above the maximum social willingness to pay per unit of outcome (the CET) represented by the slope of the red line. In other words, the slope of the ICER for Service A is greater than the slope of the CET. Service B implies greater increases in costs than Service A. However, because of its much greater impact on outcomes, Service B is found to be worthy of funding as its ICER falls below the CET.

One final note to make about Figure 1 is the fact that the rate at which society is willing to trade changes in outcomes and costs might be different depending on whether outcomes improve but costs increase (in which case the intervention is located on the north eastern quadrant if Figure 1) or outcomes worsen but costs decrease (in which case the intervention is located on the south western quadrant). It has been noted that due to loss aversion, society might require greater reductions in costs in order to accept falls in outcomes than the marginal increases in costs it is willing to accept to achieve improvements in outcomes. This is represented in Figure 1 by the dotted red line, which depicts the change in the cost-effective threshold in the south-west quadrant in the presence of loss aversion.

Identifying an appropriate cost-effectiveness threshold for LTC funding decisions

Overall, for cost-effectiveness analysis to suitably inform the allocation of public expenditures on given technologies, the chosen CETs ought to reflect the opportunity costs of public spending on LTC. However, the lack of suitable evidence means that no countries so far have adopted a CET for informing funding decisions in the LTC sector, and therefore no examples of CET values in use exist. The following discussion is therefore based on the experience in Health Technology Assessment (HTA) in the broader health care area.

HTA decision-making process is prominent in many European countries. It advises healthcare systems on whether health care interventions should be recommended for public funding. HTA decisions define to whom a medicine can be made available, for how long, at what price and under what circumstances or conditions. HTA decisions about whether or not to recommend or restrict funding of an intervention are based on multi-disciplinary and complex assessments of the range of social, economic, clinical and health care system organisational consequences of interventions (Cerri et al., 2015; Devlin and Parkin, 2004).

In the health care sector, attempts have been made to estimate the relationship between changes in healthcare expenditure and health outcomes (i.e. the marginal productivity of the care system in generating health and wellbeing). This measure has been taken as a direct indicator of the value of what is likely to be displaced when a cost-increasing intervention is implemented or what could be gained elsewhere if cost-savings are made or additional resources are made available. Woods et al. (2015), for instance, have used this method to estimate CETs for low- and middle-income countries. Alternatively, a threshold can be chosen based on a largely subjective analysis of what LTC/health system should be willing to pay for improvements in health and wellbeing. This approach tends to dominate in healthcare systems. Such values are not based on assessment of health opportunity

costs resulting from resource constraints, and can instead be understood as statements of 'value' representing what it is considered that health systems should be willing to pay for health gains.

Overall, there is an intense and ongoing debate in the literature about which methods should be used to derive appropriate cut-offs in health care sectors (Nimdet *et al.*, 2015). A wide array of methods such as expert opinion, human capital, willingness to pay (WTP) exercises, and the World Health Organization (WHO) recommendations have been used to estimate WTP per quality-adjusted life year (QALY) values. After several years of involvement of the national HTAs agencies in funding decisions, the implicit CET used in countries such as the UK has begun to be revealed.

In England, HTA assessments are carried out by the National Institute for Health and Care Excellence (NICE), which in recent years has become responsible for making recommendations about best practice in LTC. It is now widely understood that NICE assumes in its decisions to recommend the funding of new health technologies if the cost to the health and social care systems (effectively the public sector costs in those systems) is below a cost-per-QALY threshold of between £20,000 and £30,000. Interventions for which the ICER is above the threshold (e.g. £20-£30 000 in England) are therefore considered as not cost-effective and are not recommended for funding (with some exceptions discussed below).

Such an approach implies that the state in England is at most willing to pay £30,000 per year for interventions which achieve significant improvements in health status, equivalent to moving from near death to full health status (this is at face value the interpretation of an improvement in one QALY). However, a large number of LTC interventions will cost above £30,000 per year (for example, most institutional care in England) and are almost guaranteed to achieve less than one QALY per year. An important question is therefore which factors beyond health status ought to be considered when defining the relevant outcomes for LTC, and their appropriate valuation, if current levels of LTC service provision are to be maintained, let alone increased. We discuss such additional considerations in the following section of the report.

4 Beyond the Cost-effectiveness Assessment: Additional Considerations to Reflect in State Funding Decisions

CETs used in the health care sector are unlikely to be appropriate for LTC interventions. Firstly, as noted above, there is increasing recognition of the need to capture a more holistic picture of the consequences of LTC interventions for the quality of life and wellbeing of the person (Brazier and Tsuchiya, 2015). Secondly, the nature of the needs and circumstances of LTC recipients mean that additional considerations might need to be incorporated into the process used in LTC for deciding about service funding and prioritisation.

The present section reviews a number of important factors which should be reflected when assessing the suitability of state funding for LTC interventions using a CET approach. They include the special characteristics of LTC recipients, the equity implications of funding decisions, and the impact of funding LTC services on the levels of risk faced by individuals and society.

4.1 The Characteristics of LTC Recipients

HTA organisations worldwide have shown the need to reflect specific characteristics of patients and others when making health care funding decisions. This can be illustrated by looking at the English example, and the way in which NICE has made recent funding decisions.

NICE is responsible for providing guidance to the National Health Service (NHS) in England and Wales regarding the funding of new technologies and their use. NICE uses established standard methodology for the evaluation of clinical and economic characteristics of the technology (Littlejohns et al., 2009; NICE, 2014). As outlined in its methods guide, a range of clinical criteria are evaluated during a NICE appraisal and the submission of cost-effectiveness evidence is an integral part of the process. In addition to economic and clinical criteria, patient perspectives and evidence, as well as the perspective of carers and members of the NHS are taken into consideration via the consultation and stakeholder submission processes (Cerri et al., 2014). NICE emphasises the roles of social values in decision making especially during appraisal of effectiveness and cost-effectiveness evidence. The social value principles considered by NICE include principles of bioethics, i.e.: moral principles, principles of justice, procedural justice; as well as promoting equality and avoiding discrimination (NICE, 2008).

As noted above, NICE has recently become the first HTA organisation to be responsible for assessing LTC interventions. It has produced a 'Social Care Guidance Manual' against which all subsequent social care guidance assessments are to be considered. This manual stipulates that cost-effectiveness analysis should be considered when assessing social care interventions, and provides extensive detail on the appropriate estimation of costs and outcomes associated with the intervention and its comparators. As there is no investment threshold for social care, the guidance manual notes that judgement should be based on the economic evidence provided. It also states that considerations such as promoting equality and social value judgements should also be taken into account in funding decisions (NICE, 2014).

In the health care area, NICE has increasingly recognised that some conditions may require much higher (i.e. more generous) cost-effectiveness funding thresholds. In 2009, it introduced increased flexibility when appraising treatments which may extend patient survival towards the end of life and a threshold of £50,000 per QALY for these interventions was applied. Furthermore, in 2017 it was proposed that medications for very rare diseases would be appraised against a sliding scale starting at £100,000 and increasing to a maximum of £300,000 per QALY. Treatments costing up to £100,000 per QALY would be funded automatically while those with higher costs would be considered through

NHS England's process for prioritising other highly specialised technologies (NICE, 2017; Timmins, 2017). NICE has also been found to be more flexible in its application of cost-effectiveness thresholds to, for example, cancer therapies (Cerri et al., 2014).

The variability in the valuation of care outcomes depending on patient characteristics is further illustrated by the patterns of health expenditure in most developed countries during people's final year of life, which account for a much higher share of life-time healthcare expenditure than would be justifiable purely on cost-effectiveness grounds (Luce and Rubenfeld, 2002). Such investments can appear to be particularly irrational from an economic point of view because of the very short expected payback period.

An explanation for the apparently excessive WTP for treatments provided to patients at the end of life suggested by researchers is that wealth has no value to a dead individual, and therefore that spending resources on extending life has close to zero opportunity costs. Researchers have also distinguished between individual and societal values, noting that the latter may exceed the individual value because of altruism or solidarity leading to reluctance to deny access to medical care towards the end of life. In fact, Fischer et al. (2018) found that funding decisions in support of expensive end of life treatments in fact reflect what tax payers and health insurance contributors consider as best options. Their discrete choice experiment[4] on a sample of Swiss adults (n=1529) found public support for a hypothetical, expensive terminal cancer treatment. This support was identified regardless of whether the method of payment implied out-of-pocket payments or through increases in social health insurance contributions.

The examples discussed above relate specifically to health care systems, and the long-term care recipients include a wide range of individuals with diverse characteristics. However, a large proportion of them share some of the characteristics associated with "special cases" in health care funding decisions, such as the extreme levels of need, short life expectancies and the presence of incurable diseases such as dementia. The HTA experience described above is therefore relevant to the LTC area, and suggests that when developing funding rules for LTC services, and in particular when setting a social CET for LTC, decision-makers should carry out national consultation exercises to understand and reflect societal preferences about the needs and situation of people with LTC needs.

4.2 Equity Considerations

Decisions about the funding of LTC services are unlikely to affect all socio-economic groups in society equally, because for instance of the greater prevalence of disability amongst low income groups

[4] In a discrete choice experiment, participants are repeatedly asked to choose between a status quo characterized by a set of attributes and a hypothetical alternative with different levels of the same attributes. If price is among these attributes, WTP for them can be inferred from choices using econometric methods.

(Torres et al., 2016). Issues of inequality of outcome and access to care across socio-economic groups are therefore important and worthy of consideration by policy makers when deciding whether to fund a new LTC service.

In some LTC models, such as the English and French systems, issues of income inequality are addressed explicitly by the introduction of means-testing rules which ensure that the bulk of public resources are targeted on individuals from low income and wealth groups. Access to care is however a complex notion which often responds to factors other than the financial status of the care recipients, including the way in which the care system is organised and social or cultural expectations and preferences. Particularly in the domain of personal care, service provision often involves elements of management of the body and intimacy (Twigg, 1997), and the acceptability of personal care services can (and arguably should) be mediated by personal preferences as well as by cultural factors. Decisions about the introduction of specific services should therefore consider, in addition to issues of service affordability, factors related to the cultural acceptability or perceived appropriateness of care services by different groups in society (Levesque et al., 2013; Sekhon et al., 2017).

As indicated above, LTC systems might also want to prioritise certain individuals in need whose outcomes might be more socially valuable. In the context of health care decision-making, health benefit accruing to patients with diseases which have a large health burden are sometimes given additional weight compared to the improved health of other types of patients.

In practical terms, these equity preferences can be incorporated into the cost-effectiveness assessment models discussed above by weighting differently LTC outcomes or by imposing different cost-effectiveness thresholds for different groups. However, the application of equity weights in the assessment of LTC funding decisions is challenged by the lack of the requisite evidence. The CEA studies available rarely provide information about who gains and who loses from investing in an intervention or about trade-offs between cost-effectiveness and equity in the distribution of health-related outcomes.

The availability of this information is increasingly recommended in the HTA literature. Cookson et al. (2017) suggest two approaches for addressing equity concerns within cost-effectiveness evaluations in the health system: a) equity impact analysis, which quantifies the distribution of costs and effects by equity-relevant variables (e.g. socioeconomic status, location, ethnicity, sex, and severity of illness); and b) equity trade-off analysis, which quantifies trade-offs between improving total health and other equity objectives. Francis & Byford (2011) recommend the publication of full costs and outcomes on a range of population subgroups to support funding decision-making in the social care context.

Finally, some HTA assessment bodies take into account issues of territorial equity by examining the extent to which a funding decision for a new health technology might lead to inappropriate variation in the use of the technology across the country. In the LTC context, this would be equivalent to assessing the extent to which state funding for a new service would be distributed unevenly across

a country due to geographical variations in supply levels of the service, for instance related to issues of workforce supply or to significant differences in prices between areas.

4.3 Incorporating Risk into LTC Investment Considerations

The costs of long-term care services can be very substantial and pose a significant financial risk to the population as a whole. Analyses of English data, for instance, have suggested that approximately four-fifths of individuals reaching 65 years of age will incur some financial cost as a result of developing long-term care needs, and that 10% of then will face lifetime costs in excess of £100,000 (Fernández and Forder, 2010). The average lifetime social care costs for people reaching the age of 65 in England has thus been estimated to exceed £30,000 (Comas-Herrera and Wittenberg, 2009; Forder and Fernandez, 2009). In general, the cost in most countries of staying in a residential care for a number of years will deplete the assets of all but the richest service users.

The risk of catastrophic financial costs associated with long-term care needs has led to calls for LTC state systems to treat reducing financial risk as an important policy objective. Indeed, all collective funding systems provide an insurance against the risk of very high social care costs by sharing the payment of care expenditures among a large pool of contributors. Insurance benefits are therefore as relevant to tax-funded systems (universal or means-tested) as to private or social insurance systems, although they vary in the amount of insurance they provide, and in the proportion of the population covered by the scheme (Barr, 2012; Colombo et al., 2011).

The rationale for government intervention has been underlined by the failure of the private insurance market to provide adequate (and affordable) cover against LTC financial risk (Brown and Finkelstein, 2007; Fernández and Nadash, 2015). Internationally, the use of private long-term care insurance has remained very limited, with the largest markets concentrated in the US, France and Israel (Le Corre, 2008). Both demand and supply factors have been identified as hampering the success of private insurance solutions, including issues such as information asymmetries and adverse selection, low risk-perception, reliance on informal care networks and erroneous expectations by consumers about the extent of state support with care needs (Finkelstein and Risk, 2007; Gleckman, 2007).

The need to protect the population against the financial consequences of developing long-term care needs was a key consideration for the establishment of LTC national insurance systems in Germany and France. Both systems thus sought to build a 'fifth pillar' of the social security system to protect against the financial hardships associated with the risk of developing a disability and chronic illness (Fernández and Nadash, 2015; Theobald and Hampel, 2013).

The need to reduce financial risks has also motivated important policy developments in means-tested LTC systems. In England, the 2011 independent Commission on Funding of Care and Support

set up by the Government and led by Andrew Dilnot[5] recommended the development of an insurance mechanism to pool the risk and protect people against exposure to high social care costs. The report proposed introducing a cap on private lifetime care costs set at between £25,000 and £50,000 (Dilnot et al., 2011). In the subsequent Care Act 2014, the government adopted proposals (still to be implemented) for a lifetime cap on private contributions to care costs in England set at £72,000, but excluding accommodation costs in residential care which would still remain the responsibility of private individuals[6].

The discussion above highlights the importance of reducing financial risk as a policy objective for the LTC system. This objective should therefore be valued and reflected in LTC funding decisions. Greater state funding support might be concentrated for instance on very costly (but cost-effective) services and thus more likely to lead to catastrophic care expenditures, or on those individuals faced with the highest lifetime care costs.

4.4 Other Considerations Affecting State Funding Decisions

We have reviewed above key factors which policy makers ought to consider, together with evidence about cost-effectiveness, when making decisions regarding the funding and prioritisation of LTC services. The literature has identified a further set of influences which play a part in determining funding decisions by HTA assessment bodies in the health care area (see for instance Cerri, Knapp and Fernandez, 2015). Three are particularly relevant to the LTC context:

- The anticipated budgetary impact of the introduction of the intervention in the care system, indicated by the size of the eligible population and the unit cost to the state of the service. Technologies likely to have a significant impact on the (financial or other) resources available to the care system if given to all patients for whom they are indicated are therefore less likely to receive funding. Alternatively, access to the technology is restricted to a subset of patients likely to benefit most from it.
- Criteria about the quality of the evidence submitted for consideration, including whether the evidence is based on randomised controlled trials (RCT), the number of such trials, the size of the population included in these studies, the length of follow-up, the statistical significance of the results, and the number of observational studies considered. In terms of the type of analysis carried out, a number of HTA organisations favour the use of cost-utility analysis. If applied to

[5] Launched on 20 July 2010, the Commission on Funding of Care and Support was an independent body tasked by Government with reviewing the funding system for care and support in England. In 2011, it provided advice and recommendations to Government on how to reform the system.

[6] The cap on care costs and changes to the means test were due to come into effect in 2016, but were delayed until April 2020.

the LTC context, these "technical" requirements about the quality of the evidence available would currently limit significantly the number of LTC services that could be assessed.

- Factors related to the decision-making process, including whether the views of patients are explicitly included in the assessment material. Given the emphasis on co-production and the importance of empowering service users and carers in the LTC system, involving them and other relevant stakeholders in the evaluation and decision-making processes would be an important priority for the assessment of LTC services.

5 Policy Implications

From a SI perspective, the prioritisation of funding across long-term care services should be based on the answer to the following question:

> What is the value for society of the benefits generated by different LTC services, and to what extent do these benefits offset the costs involved in the organisation and provision of the care?

Understanding the value for money of possible LTC investments is therefore crucial for prioritising funding across services, for making the case for future developments of the care system, and for making sure that the limited resources available achieve the greatest positive impact on society. At present, however, a significant lack of evidence undermines the implementation of cost-effectiveness assessment frameworks for informing public LTC investment decisions.

As discussed in this report, to a large extent this shortfall in evidence reflects the complexity of the long-term care system, and specifically to the large number of outcome dimensions of LTC services that ought to be considered, the intangible nature of many of these outcomes, the technical challenges involved in the identification of the specific contribution of services to outcomes and the long timeframe required for observing fully costs and outcomes. It also responds to a lack of evaluation tradition in the LTC sector, in particular when compared against the very large number of evaluations carried out of healthcare interventions. On the positive side, these are all challenges that can be overcome if the necessary resources are made available for collecting additional LTC evidence.

Leaving aside the methodological and data issues above, it could be argued that the most fundamental shortfall in our evidence base for developing prioritisation assessment systems in LTC is the lack of consensus regarding society's willingness to pay for the most important (but largely intangible) outcomes associated with LTC services, such as their impact on the quality of life and wellbeing of service users and their carers. Significant advances are being made in the development of outcome indicators which capture more holistically the range of impacts of LTC services on

individuals' well-being, but little is known of the value placed by society (for example, as represented by the state) on such outcomes, and how such values might differ across EU member states.

It is therefore not surprising that in stark contrast with the healthcare sector, no government in the EU has implemented a structured process for assessing the societal value for money of care services in order to inform LTC funding decisions. However, the HTA experience provides valuable lessons and can help identify possible models for the development of investment assessment scales for LTC. Four key recommendations include:

- To map (and collect evidence about) the full set of negative and positive effects (outcomes) associated with the provision of LTC services, so that a full picture of their impact on society can be developed.
- To monetise those outcome dimensions which are amenable to monetisation, as this will simplify the comparison of outcome and costs. Monetisation is likely to be more feasible for outcome dimensions regarding impacts on labour force participation, effects on the use of other public services and impacts on state revenues.
- To use estimates of the contribution of services to outcomes in the cost-effectiveness assessment. The assessment of allocation of resources should not be done on the basis of raw outcomes, as these are likely to reflect mostly the need-related characteristics of service recipients, rather than the contribution of the care system to observed outcomes. Estimating the contribution of services to outcomes might require the application of sophisticated statistical modelling techniques.
- To involve all relevant LTC stakeholders to discuss the appropriateness and derivation of a Cost-Effectiveness Threshold which defines the maximum willingness to pay for unit improvements in key LTC outcomes such as impact on wellbeing and quality-of-life.

The recommendations above are important for estimating the likely social cost-effectiveness of LTC services. However, as noted in Section 6 of this report, state funding decisions should bear in mind other important considerations, and in particular:

- Whether care outcomes for particular groups of service recipients might be valued differently in view of their particular needs.
- The distributional consequences of funding decisions, and whether they impact on inequalities across socioeconomic groups or on geographical inequalities.
- The impact of funding decisions on risk, and in particular on the risk of catastrophic expenditures linked to the use of long-term care services.
- The impact of funding decisions on the financial (and other) resources of the care system.

The tasks involved in the implementation of the steps outlined above, and generally in the development of LTC funding assessment frameworks, are significant. However, the complexity of the task should not be interpreted by researchers and policy-makers as an excuse for capitulation. Indeed, the benefits of success in terms of increased transparency in the allocation process,

improvements in the societal value of the care system and improvements in the case for further expansion of the LTC system should be more than worth the effort.

6 References

Barr, N.A., 2012. The economics of the welfare state, 5th ed. Oxford University Press, Oxford ; New York.

Brazier, J., Tsuchiya, A., 2015. Improving Cross-Sector Comparisons: Going Beyond the Health-Related QALY. Appl. Health Econ. Health Policy 13, 557–65.

Brown, J., Finkelstein, A., 2007. Why is the market for long term care insurance so small? J. Public Econ. 91, 1967–1991.

Cerri, K.H., Knapp, M., Fernandez, J.-L., 2015. Untangling the Complexity of Funding Recommendations: A Comparative Analysis of Health Technology Assessment Outcomes in Four European Countries. Pharmaceut. Med. 29.

Cerri, K.H.K.H., Knapp, M., Fernandez, J.-L., 2014. Decision making by NICE: examining the influences of evidence, process and context. Heal. Econ Policy Law 9, 119–141.

Colombo, F., Llena-Nozal, A., Mercier, J., Tjadens, F., 2011. Help Wanted?: Providing and Paying for Long-Term Care, OECD Health Policy Studies. OECD Health Policy Studies.

Comas-Herrera, A., Wittenberg, R., 2009. Lifetime costs of social care services for older people in England. London.

Cookson, R., Mirelman, A.J., Griffin, S., Asaria, M., Dawkins, B., Norheim, O.F., Verguet, S., A, J.C., 2017. Using Cost-Effectiveness Analysis to Address Health Equity Concerns. Value Heal. 20, 206–212.

Davies, B.P., Fernández, J.L., Nomer, B., 2000. Needs, Processes and Service Packages: Post-Reform Community Care at the Case Management Level. PSSRU, University of Kent at Canterbury, forthcoming.

Devlin, N., Parkin, D., 2004. Does NICE have a cost-effectiveness threshold and what other factors influence its decisions? A binary choice analysis. Health Econ. 13, 437–452.

Dilnot, C., Support, C. on F. of C. and, Dilnot Commission, 2011. Fairer Care Funding: The report of the Commission on Funding of Care and Support. The Stationery Office.

Fernández, J.-L., Nadash, P., 2015. The long-term care financing problem, Long-Term Care Reforms in OECD Countries Successes and Failures.

Fernández, J.-L.L., Forder, J., 2010. Equity, efficiency, and financial risk of alternative arrangements for funding long-term care systems in an ageing society. Oxford Rev. Econ. policy 26, 713.

Fernandez, J.L., Knapp, M., 2005. Production relations in social care. Knapp, Martin Challis, David Fernandez, Jose-Luis Netten, Ann Davies, Bleddyn, Long-Term Care Matching Resour. to Needs. 171–183.

Finkelstein, A., Risk, L.T.C., 2007. The Market For Private Long-Term Care Insurance.

Fischer, B., Telser, H., Zweifel, P., 2018. End-of-life healthcare expenditure: Testing economic explanations using a discrete choice experiment. J Heal. Econ 60, 30–38.

Forder, J., Fernandez, J.L., 2009. Analysing costs and benefits of social care funding arrangements in England: technical report. PSSRU discussion paper 2644, Canterbury.

Forder, J., Malley, J., Towers, A., Netten, A., 2014. Using Cost-Effectiveness Estimates From Survey Data To Guide Commissioning: An Application To Home Care. Health Econ. 23, 979–992.

Francis, J., Byford, S., 2011. SCIE's approach to economic evaluation in social care. SCIE, London.

Gleckman, H., 2007. The role of private insurance in financing long-term care. Cent. Retire. Res. Bost. Coll. 7, 13.

Greve, B., 2018. Impact Map of Long-term Care Policies, SPRINT Working Paper D5.3, SPRINT. Brussels.

Greve, B., Lopes, A., Richards, A., 2018. Social Investment Criteria in the Field of Long-term Care, SPRINT Working Paper D4.1, SPRINT. Brussels.

HM Treasury, 2018. The Green Book Central Government Guidance On Appraisal And Evaluation.

Howley, P., 2016. Valuing the benefits from health care interventions using life satisfaction data. Heal. Econom. Data Gr. Work. Pap.

Huang, L., Frijters, P., Dalziel, K., Clarke, P., 2018. Life satisfaction, QALYs, and the monetary value of health. Soc. Sci. Med. 211, 131–136.

Le Corre, P.Y., 2008. Long Term Care Insurance: French and International Perspective. The Geneva Association, Geneva.

Leeuwen, K.M., Bosmans, J.E., Jansen, A.P.D., Hoogendijk, E.O., Tulder, M.W., Horst, H.E., Ostelo, R.W., 2015. Comparing Measurement Properties of the EQ-5D-3L, ICECAP-O, and ASCOT in Frail Older Adults. Value Heal. 18.

Levesque, J.F., Harris, M.F., Russell, G., 2013. Patient-centred access to health care: conceptualising access at the interface of health systems and populations. Int J Equity Heal. 12, 18.

Liljas, B., Lindgren, B., 2001. On individual preferences and aggregation in economic evaluation in healthcare. Pharmacoeconomics 19, 323–335.

Littlejohns, P., Garner, S., Doyle, N., Macbeth, F., Barnett, D., Longson, C., 2009. 10 years of NICE: still growing and still controversial. Lancet Oncol. 10, 417–424.

Lopes, A., 2017. Conceptual Report on Long-term Care, SPRINT Working Paper D2.1, SPRINT. Brussels.

Luce, J.M., Rubenfeld, G.D., 2002. Can Health Care Costs Be Reduced by Limiting Intensive Care at the End of Life? Am. J. Respir. Crit. Care Med. 165, 750–754.

Malley, J.N., Towers, A.-M.-. M., Netten, A.P., Brazier, J.E., Forder, J.E., Flynn, T., 2012. An assessment of the construct validity of the ASCOT measure of social care-related quality of life with

older people. Health Qual. Life Outcomes 10, 21.

Ministry of Social Affairs and Health, 2012. Act on Supporting the Functional Capacity of the Older Population and on Social and Health Services for Older Persons 980/2012. Finland.

NICE, 2008. Social Value Judgements: Principles For The Development of Nice Guidance. London.

NICE, 2014. Developing NICE guidelines: the manual. London.

NICE, 2017. Changes to NICE drug appraisals: what you need to know [WWW Document]. URL https://www.nice.org.uk/news/feature/changes-to-nice-drug-appraisals-what-you-need-to-know

Rand, S., Malley, J., Towers, A.-M., Netten, A., Forder, J., 2017. Validity and test-retest reliability of the self-completion adult social care outcomes toolkit (ASCOT-SCT4) with adults with long-term physical, sensory and mental health conditions in England. Health Qual. Life Outcomes 15, 163.

Rand, S.E., Malley, J., Netten, A., 2012. Meas Measuring the Social Care Outcomes of Informal Carers.

Rand, S.E., Malley, J.N., Netten, A.P., Forder, J.E., 2015. Factor structure and construct validity of the Adult Social Care Outcomes Toolkit for Carers (ASCOT-Carer). Qual. Life Res. 24, 2601–2614.

Richards, A., 2018. Social Return on Investment Framework Application Guide to Long-term Care, SPRINT Working Paper D4.2, SPRINT. Brussels.

Richards, A., Linnosmaa, I., Jokimäki, H., Haula, T., 2018. Feasibility Framework Tool for Social Investment, SPRINT Working Paper D5.1, SPRINT. Brussels.

Sekhon, M., Cartwright, M., Francis, J.J., 2017. Acceptability of healthcare interventions: an overview of reviews and development of a theoretical framework. BMC Heal. Serv Res 17, 88.

Sidney, J.A., Jones, A., Coberley, C., Pope, J.E., Wells, A., 2017. The well-being valuation model: a method for monetizing the nonmarket good of individual well-being. Health Serv. Outcomes Res. Methodol. 17, 84–100.

Smith, D.H., Gravelle, H., 2001. The practice of discounting in economic evaluations of healthcare interventions. Int. J. Technol. Assess. Health Care 17, 236–43.

Theobald, H., Hampel, S., 2013. Radical institutional change and incremental transformation: Long-term care insurance in Germany. In: Ranci, C., Pavolini, E. (Eds.), Reforms in Long-Term Care Policies in Europe. Springer, New York, pp. 117–138.

Timmins, N., 2017. Ministers, not NHS England, should decide on the affordability of cost-effective new treatments.

Torres, J.L., Lima-Costa, M.F., Marmot, M., de Oliveira, C., 2016. Wealth and Disability in Later Life: The English Longitudinal Study of Ageing (ELSA). PLoS One 11, e0166825.

Twigg, J., 1997. Deconstructing the “social bath”: help with bathing at home for older and disabled people. J. Soc. Policy 26, 211–232.

Van Den Berg, B., Brouwer, W.B.F., Koopmanschap, M.A., 2004. Economic Valuation of Informal

Care: An Overview of Methods and. Source Eur. J. Heal. Econ. 5, 36–45.

Watt, A., Cameron, A., Sturm, L., Lathlean, T., Babidge, W., Blamey, S., Facey, K., Hailey, D., Norderhaug, I., Maddern, G., 2008. Rapid versus full systematic reviews: validity in clinical practice? ANZ J Surg 78, 1037–1040.

Acknowledgements

The authors would like to thank all those who provided valuable insights, comments and opinions.

The SPRINT Project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 649565

sprint

Social Protection Innovative Investment in Long-Term Care

Social Protection

Innovative Investment in Long-Term Care

www.sprint-project.eu

The SPRINT Project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 649565.