

## COMMENTARY

# Not just about costs: the role of health economics in facilitating decision making in aged care

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## Abstract

This commentary discusses how health economic techniques can usefully be applied to inform clinical and policy decision making in the aged care sector from two perspectives: firstly, in relation to the measurement and valuation of the costs and benefits of new and existing health care technologies and modes of aged care service delivery and secondly, in relation to the facilitation of autonomy and patient choice.

**Keywords:** *health economics, economic evaluation, quality of life, preferences, choice, elderly*

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## Introduction

The fundamental economic problem of limited resources coupled with unlimited claims upon those resources holds particular resonance for aged care given the projected huge growth in demand for aged care services. Factors other than an ageing population, including increasing affluence coupled with a desire for greater autonomy and choice, are creating new pressures and challenges [1]. Necessarily, the measurement of costs plays a central and important role in determining the value for money of new health care technologies and modes of aged care service delivery. However, decision makers are increasingly recognising the importance of information relating to health benefits in addition to information relating to costs in determining the value for money of health care interventions. The measurement and valuation of health has therefore become an important component of economic evaluation in health care.

## Health economics and economic evaluation

The resources used to provide aged care services are scarce, and decisions about what services to provide, to whom, where and when usually have resource and cost implications. For example, making more resources available

for elective joint replacements for older people means that fewer resources will be available to provide aged care services such as dementia assessment and care. Inevitably, there will be lost opportunities (or opportunity costs) since such decisions will potentially have major implications for health.

The overall aim of economic evaluation is to aid decision makers to make efficient and equitable decisions about the allocation of scarce resources by comparing the costs and benefits of health care interventions [2]. There has been an increasing use of economic evaluation to inform policy making over the last decade through the establishment of organisations such as the National Institute for Health and Clinical Excellence in the UK and similar agencies in other countries [3, 4]. This has resulted in a corresponding increase in the need for data relating to the costs and benefits of new and existing health care technologies and modes of aged care service delivery.

## Measuring costs and benefits

Ideally, economic evaluations should include all potentially relevant costs and benefits over time [2]. However, for practical reasons, choices must be made about the most salient costs, benefits, time frame and the alternatives to be considered within a study. Typically, economic evaluations are

conducted from the perspective of the health care system and costs reflect the value of changes in resource use which are attributable to the intervention. In many instances, a new intervention will be more costly but will result in increased health benefits relative to existing alternatives. The decision problem therefore concerns whether the increased costs represent good value for money. The dominant form of economic evaluation is cost utility analysis which summarises results in terms of the additional cost per quality-adjusted life years (QALYs) gained.

### Valuing the benefits of health care in elderly populations

There are a number of instruments to measure health and functional status in older people such as the Sickness Impact Profile, Nottingham Health Profile, Barthel Index, Lawton Instrumental Activities of Daily Living Scale and Frenchay Activities of Daily Living Index [5]. However, these instruments are not suitable for the estimation of QALYs for cost utility analysis. The instruments use simple summative scoring algorithms which are not preference based, are often reliant upon the views of clinicians (rather than the patients themselves) and typically contain items which are not normally associated with the measurement and valuation of health for economic evaluation.

Generic preference-based measures of physical and mental health such as the Assessment of Quality of Life (AQoL) and the EuroQoL (EQ-5D) have become the most popular mechanisms for the estimation of QALYs for cost utility analyses [4]. The SF-6D preference-based algorithm also enables the estimation of QALYs from individual responses to the SF-36 and SF-12 instruments [4]. Generic preference-based measures of health comprise two main elements: a descriptive system for completion by patients or members of the general population comprising a set of items with multiple response categories covering the different dimensions of health-related quality of life and an off the shelf scoring algorithm which reflects society's strength of preference for the health states defined by the instrument. The scoring algorithms are anchored on the numerical scale required to construct QALYs, where full health is one and zero is equivalent to death.

Although there is no accepted gold standard scaling method for eliciting health state values for the estimation of QALYs, historically health economists have tended to favour the choice-based valuation methods of Standard Gamble and Time Trade Off [4]. The SF-6D preference-based algorithm is based upon health state values from a general population sample using the Standard Gamble valuation method whilst the scoring algorithms for the AQoL and the EQ-5D are based upon health state values from a general population sample using the Time Trade Off. Recently, there has been an increasing interest in using discrete choice experiment (DCE) methodology to estimate values for health states, principally on the basis that such

methods may be less complex to administer and more easily understood and interpretable by members of the general population including older people [4].

Evidence relating to the application of generic preference-based measures of health in older people suggests that the EQ-5D has higher completion rates relative to the AQoL and SF-6D [6, 7], although in comparison with the EQ-5D, the SF-6D has been found to be more sensitive, particularly for milder health problems [7]. The instruments were all designed for self-completion, but there are strong arguments in favour of interviewer administration to reduce cognitive burden and help in promoting understanding, particularly in frail older people. Coast *et al.* found that the expected probability of requiring interviewer administration of the EQ-5D increased with age and reductions in cognitive functioning [8]. Similarly, Brazier *et al.* reported that many older women experienced difficulties completing the SF-36 and recommended interviewer administration as a potential solution [7]. In older people with moderate or severe cognitive impairment, proxy responses may be the only mechanism for obtaining this information [9, 10].

Further research is required to determine the degree of cognitive impairment beyond which older people are unable to provide 'valid' ratings of health-related quality of life for generic preference-based instruments. This threshold level will differ between instruments given their variability in relation to item content, formatting and instrument length. Further research is also required to determine who should be the appropriate proxy in such instances, e.g. next of kin, family caregiver, paid care provider or health care professional, whilst also recognising the potential for proxy assessment to impact upon study results given that proxy responses are unlikely to be equivalent to the responses of people with cognitive impairment [9, 10].

### Moving beyond health in the economic evaluation of aged care services

There are strong arguments to suggest that the benefits of health care extend beyond health, particularly in the context of aged care services to include quality of life more broadly. A recent innovation in this regard is the newly developed ICECAP (Index of Capability for Older People) [11, 12]. The ICECAP adopts a capabilities approach to the measurement and valuation of the benefits of health and social care interventions in aged care.

The ICECAP is based upon a series of in-depth qualitative interviews with the elderly to find out what mattered to them in terms of their quality of life. Five conceptual attributes were found to be important: attachment, role, enjoyment, security and control. In common with the generic preference-based measures of health, the ICECAP also has an 'off the shelf' scoring algorithm. This is based upon the values of older people aged 65 years and was generated using DCE methodology. The ICECAP has been developed to enable measurement and valuation of quality of life in

older people at specific time-points and to examine change over time within the framework of economic evaluation [11]. Some early evidence for the construct validity of the ICECAP has been produced [12]. However, more research is required to establish its reliability in sub-groups of older people with different conditions and in different cultural settings and to examine its sensitivity to change.

### Promoting patient choice: a role for DCEs?

Quality in aged care has been defined as the degree to which services match needs and preferences [1]. This necessarily incorporates issues relating to quality of care in addition to quality of life and raises questions relating to how aged care services should be provided in order to best meet the needs and preferences of older recipients and their families. For example, should rehabilitation be offered in centralised clinics rather than at home, which might reduce waiting times and increase staff efficiencies but increase travel time, or have other disincentives such as increased chance of hospital readmission, for older patients?

The baby boomer generation is anticipated to have much higher expectations for choice in the provision of aged care services relative to previous generations. Therefore, techniques for systematically engaging older people to establish their preferences in relation to these types of questions are likely to become more important. DCEs offer one such approach. DCEs are an attribute-based measure of the benefits of health care based upon two key assumptions. Firstly, that health care interventions, services or policies can be described by their characteristics (or attributes). Secondly, an individual's valuation depends on the levels of these characteristics [13]. DCEs were first introduced into health economics in recognition that health care consumers are typically concerned with many aspects of health care beyond health outcomes [14]. Such factors may include waiting time, location of treatment, type of care (for example, surgical or medical) and staff providing care (for example consultant or specialist nurse). DCEs allow investigation of the trade-offs between such process and health outcomes attributes [13, 15]. As noted previously, DCEs have also more recently been applied in the valuation of health states [11].

Whilst there has been an exponential increase in the application of DCEs in health care in recent years, DCE studies within populations of older people remain relatively rare [11, 13, 15]. We are currently conducting a number of DCEs to establish the preferences of older people in relation to alternative modes of service delivery in rehabilitation following hip fracture, transitional care following a hospital stay and the introduction of virtual reality as a rehabilitation tool. Our preliminary findings point towards high acceptance levels and good reliability and validity of the technique in older populations. However, further work should be undertaken to more formally investigate the reliability and validity of the DCE approach in older people

including the acceptability of the approach in different elderly populations, the threshold level of cognitive ability required to reliably complete a DCE and, where cognitive impairment precludes completion, who is the most appropriate proxy respondent.

### Conclusions

In summary, health economics has much to offer geriatric medicine, not only in the estimation of costs and cost effectiveness of health care technologies and modes of aged care service delivery but also in relation to the facilitation of quality and patient choice. In a debate piece published in this journal, Metz and Labrooy [16] conclude that:

'In a healthcare system which promotes choice and in which finance increasingly follows the patient, a speciality that is seen to be less attractive will face declining demand and resources, whatever its clinical virtues. Geriatric medicine needs to reinvent itself if decline is to be avoided.' (Age Ageing 2005; 34: 554)

Health economics provides valuable tools which can help in facilitating reinvention. Geriatricians should understand health economic concepts and techniques and include them in their daily clinical and research practice.

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### Key points

- An ageing population, coupled with a desire for greater autonomy and choice, is creating new pressures and demands for the aged care sector.
- Economic evaluation compares the costs and benefits of new and existing health care interventions and is a useful and important tool to inform clinical and policy decision making.
- Measuring the benefits of health care for economic evaluation in elderly populations presents specific challenges for researchers due to increasing frailty and cognitive impairment.
- DCEs offer a promising approach for systematically engaging older people in relation to their preferences for the provision of aged care services.
- Geriatricians should understand and include health economic techniques in their daily clinical and research practice.

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### Conflicts of interest

None declared.

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