



Using existing data to incorporate broader measures of benefit in economic evaluation

Emma Tassie

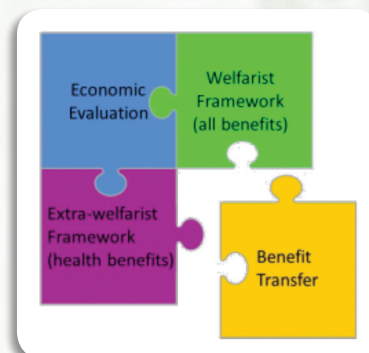
A long running debate exists surrounding the optimal approach to conduct an economic evaluation for decision-making: should an extra-welfarist or welfarist framework be adopted, and should they be used in isolation of one another or as complements to each other? Currently an extra-welfarist approach is used by major decision makers. This approach aims to maximise health benefits given the limited resources in a health system. The 'quality-adjusted life-year' (QALY) is the predominantly used measure of benefit. Generic preference-based instruments (e.g. EQ-5D) are frequently used to estimate the health-related quality of life element of the QALY. The advantages of generic instruments are their simplicity and applicability across disease conditions. However, the advantage of transferability is traded off by their failure to capture patient preferences, non-health attributes or the process of care.

Concerns about the extra-welfarist approach have renewed interest in the welfarist approach. The welfarist approach aims to maximise society's welfare with respect to a societal budget constraint. It is based on the premise that rather than using pre-elicited general public values (as is typical for extra-welfarism) values should be elicited from service users for all benefits of health care, assuming that individuals are the best judge of their own welfare. Stated preference methods offer a welfarist alternative to generic instruments by valuing all relevant benefits in terms of willingness to pay (WTP).

Despite recognition that economic evaluations should consider broader measures of benefit, major decision makers commonly request and only fund an extra-welfarist approach using pre-existing QALY values. Measuring WTP is resource intensive because a new valuation study is required for each economic evaluation. Other sub-disciplines of economics use a benefit transfer method when conducting an original valuation study is not feasible.

Benefit transfer synthesizes results from previously published studies and with adjustment, using all available and relevant information, predicts an estimate in a new study setting that is different in type, location or time from the original studies. In doing so, benefit transfer could overcome time and budget constraints that prevent a new valuation study being carried out. The large increase in valuation studies in health economics now provide enough data for this PhD to test if a benefit transfer is applicable to a healthcare setting.

This research area is innovative to healthcare and has the potential to advance economic evaluation methodology, as estimates could be used as complements to (or in place of) generic preference-based instruments estimates of QALYs. This thesis could facilitate an accessible transition from an extra-welfarist to welfarist framework within economic evaluations.



Broadening the valuation space in Health Technology Assessment: the case of monitoring individuals with ocular hypertension

Rodolfo Hernández

The economic evaluation component of health technology assessments (HTA) often defines value in terms of health related quality of life, with many HTA agencies requiring the use of EQ-5D based Quality Adjusted Life Years (QALYs). These approaches do not capture value derived from patient experience factors and the process of care. In my PhD thesis I widened the valuation space beyond this limited perspective using monetary values generated from a discrete choice experiment (DCE) to account for factors around patient experience and the care process. I then explored alternative ways to incorporate these willingness to pay (WTP) estimates into a decision analytic model to conduct cost-benefit analyses. The case study was the monitoring of individuals with ocular hypertension at risk of developing glaucoma (i.e. a chronic eye condition that, if untreated, could lead to blindness).

The DCE included attributes for relevant health outcomes (e.g. risk of developing or progressing glaucoma and treatment side effects), patient experience factors (e.g. communication and understanding with the health care professional) and process of care (e.g. monitoring setting). WTP estimates were obtained using a number of econometric specifications (i.e. conditional logit, mixed logit in preference-space and WTP-space - rarely used in health economics).

The decision model chosen was a discrete event simulation and five monitoring strategies were compared: 'Treat All' at ocular hypertension diagnosis with minimal follow-up; biennial monitoring (either in primary or secondary care) with treatment according to predicted glaucoma risk; and monitoring and treatment according to the UK National glaucoma guidance (either conservative or intensive).

While the standard cost-utility analysis using EQ-5D implied 'Treat All' was most likely to be cost-effective, the cost-benefit analysis with broadened valuation space identified, consistently across different econometric specifications, 'biennial hospital' as the best choice.

The cost-benefit analysis conducted in this manner allowed for factors beyond health related quality of life that are commonly used in standard cost-utility analysis for health care decision making in the UK. My thesis proposes an approach to broaden the valuation space that can be promptly used for economic evaluation within HTA. Researchers should be attentive of the valuation space considered in their economic evaluations and choose wisely the approach to be used (e.g. cost-utility analysis and/or cost-benefit analysis). I look forward to taking this research forward in future work.

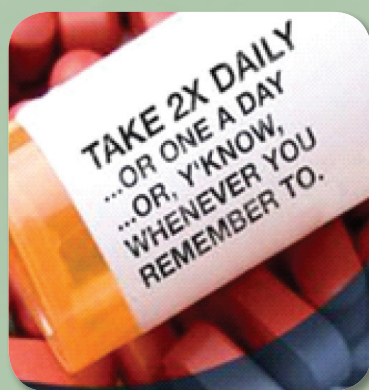


Patient–doctor interaction and time inconsistency

Alastair Irvine

The NHS in Scotland spends around £1 billion (8% of the health budget) on prescription drugs. Yet, evidence suggests that global adherence to medication is close to 50%. Current practices are therefore generating economic and financial losses. Losses are economic because individuals would likely be better off if they adhered to treatment. They are financial because we could deploy spending on non-adhered treatments elsewhere to improve patient outcomes.

These facts motivated my PhD, titled '*Patient-doctor interaction and time inconsistency*'. I am in the third year of my doctoral research, which explores two potential sources for non-adherence. The first is time preferences, where HERU has a long history of research. Time preferences describe how individuals choose between things that happen in the future. They can allow for time inconsistency: agreeing to a course of action, but not following through (non-adherence). The second is the role of the patient-doctor interaction: how information differences between patients and doctors can be a cause of non-adherence. The literature has predominantly focussed on the former, suggesting that patients make mistakes. Is there a way to adapt how doctors and patients make decision to account for potential time inconsistency?



My first project analyses how doctors make decisions for themselves or their patients in a national sample of Scottish GPs. There was a clear indication that doctors rate the same health state very differently for themselves compared to their patients. The second project models how time inconsistency might arise from the patient doctor interaction: if doctors over-estimate how bad a patient finds a health state, they will prescribe treatments that are more intense than the patient would have chosen. This drives non-adherence. The third project, a lab experiment now being developed, tests aspects of the model.

One implication is that we should recognise people might not want to be in 'full health'. With the right information, decisions not to eat healthily or follow through on medication are valid preferences. Secondly, if they would prefer to adhere then we can demonstrate ways of adapting to this in the absence of a compelling commitment device. Our work on time inconsistency will point to new ways of training, or helping doctors and patients make decisions to better achieve their health aims, and improve efficiency in the health system.



Health care preferences and deliberation: the citizen's perspective

Ruben Sakowsky

Health economists often aim to generate data about what people value in order to inform important social decisions. Yet the way in which the discipline focuses on individual self-interested preferences sometimes bears little resemblance to how collective decisions are made in the real world.

When we make decisions as a group and for the group, we engage in a process political philosophers call deliberation. We think about what we want and for what reasons, think about and enquire what other people prefer, and try to find a compromise we can all live with. Most importantly, we operate under the expectation that we should supply others with good reasons for why we, as a group, should or shouldn't do something - and expect others to do the same. Typically, this process goes beyond a simple bargaining process in which every single agent just states his or her preferences and then seeks to achieve the solution most closely matching this outcome in a straightforward negotiation. To the contrary, the reasons we give and engage with are often altruistic or take the good of the group into account.

Just imagine a group of people - Alice, Bob, and Chelsea - discussing whether they would rather go to a sushi restaurant or a pizza place for dinner. Alice might prefer sushi for herself, but learning that Bob is allergic to fish, she quickly changes her mind. Bob might have a clear preference himself, but refrains from being too assertive because he thinks that it is now Chelsea's time to choose. In other words, both Alice and Bob go beyond reasons of individual self-interest and invoke considerations that involve the needs of other people as well as conceptions of fairness.

In the spirit of the late Professor Gavin Mooney's work, this PhD project seeks to find ways in which some features of these deliberative processes can be incorporated into the way in which we elicit the health care preferences of people. Especially for societies with public health care systems, deciding how the health care system should be shaped is a matter of genuine collective decision-making. It is about a society deciding for itself what it wants society's common project to look like. An endeavour of this scale is in need of a wide variety of tools and methods to facilitate this decision-making process. This PhD will hopefully enable us to both add to the collection of tools that are available to citizens as well as improve existing methods.



New Staff and PhD's in HERU

Michail Bitzios joined HERU as a Research Fellow in October 2016 and currently contributes to the Health Behaviour and Inequality theme. He holds a PhD in Agri-Environmental Economics from the University of Kent and an MSc in Agricultural Economics from the University of Reading. Michail's previous research focused on the application of discrete choice experiments (DCEs) as well as the employment of qualitative techniques that will improve understanding of choices in stated preference methods. He is involved in research projects investigating potential changes in food culture, social norms and dietary choice towards a more sustainable, balanced and healthy diet and lifestyle.



Attakrit Leckcivilize joined HERU as a Research Fellow in October 2016. Prior to HERU, he was a Research Fellow at the Institute of Labour Economics, Leibniz University of Hanover. His research interests are labour economics, applied econometrics and health economics - particularly in developing countries. He has also worked with researcher teams in several projects at the Thailand Development Research Institute (TDRI) concerning the role of health care financing on poverty reduction in Thailand. Attakrit works across the Health Behaviour and Inequality and the Workforce and Organisation of Care themes. He holds a Master of Science and a PhD in Economics from the London School of Economics and Political Science.



Daniel Kopasker joined HERU as a Research Fellow in October 2016 after submitting his PhD thesis at the University of Aberdeen. He is an applied econometrician whose work focuses on the intersection of health and labour economics. Daniel also holds an MSc in Economics from the University of Edinburgh, and an MA (Hons) in Economics from the University of Dundee. Daniel is working on the European Union MUNROS project, with Bob Elliott and Christine Bond.



Emma Tassie joined HERU as a full time PhD student in October 2016. Her PhD aims to incorporate broader measures of value in economic evaluation through the use of existing data. She has been awarded a studentship by the Institute of Applied Health Sciences at the University of Aberdeen and is supervised by Verity Watson, Graham Scotland and Stirling Bryan (joint position in HERU and University of British Columbia). Emma graduated from University College Cork in 2010 with a BA (Hons) in Economics and Sociology and in 2011 with an MSc in Health Economics. Prior to beginning her PhD, Emma worked as a research assistant in HERU where she conducted economic evaluations alongside randomised controlled trials and developed health economic models to accompany systematic reviews.



New Funding.....

Professor Alison Avenell and colleagues in our sister unit the Health Services Research Unit (HSRU), along with **Dwayne Boyers** from HERU, were awarded a National Institute for Health Research (NIHR) grant entitled '*REBALANCE: Review of Behaviour and Lifestyle interventions for severe obesity: an evidence synthesis*'. This 20-month project secured funding of £530,873.

Dr Neil Basu and colleagues from the Institute of Applied Health Sciences (IAHS), University of Aberdeen, including **Paul McNamee** of HERU, were successful in securing funds from Arthritis Research UK. This project will look at 'Lessening the impact of fatigue: therapies for inflammatory rheumatic disease (LIFT)'. Total funding awarded is £735,536 and the project will run for 42 months.

Selection of Recent Presentations.....

The **Nordic Health Economists' Study Group (NHESG)** held their annual conference in August at the University of Southern Denmark. The meeting was organised by the Centre of Health Economics Research (COHERE) and was the 37th NHESG meeting.

Alastair Irvine, Nicolas Krucien and **Ben Sakowsky** attended and presented their research:

Irvine, A., Pol, M. van der and Phimister, E. 'Time inconsistency and paternalistic patient-doctor interaction'.

Krucien, N., Burton, C., Elliott, A., Entwistle, V., Porteous, T. and **Ryan, M.** 'I postpone decision making whenever possible: Accounting for decision making styles in individuals' choices for healthcare programmes'.

Sakowsky, R., Ryan, M. and Entwistle, V. 'Normative frameworks of health care valuation: democratic deliberation as an alternative to individual preference elicitation'.



In September, **Mandy Ryan** was invited to speak at the **Hospinnomics Annual Workshop** in Paris. The workshop topic was 'Public decisions versus individual decisions' and Mandy gave two presentations:

- Understanding individual choices in health: an application of discrete choice experiments.
- Behavioural economics: challenges in applying discrete choice experiments.