Health Technology Assessment 2001; Vol. 5: No. 3

Methodology

Executive summary

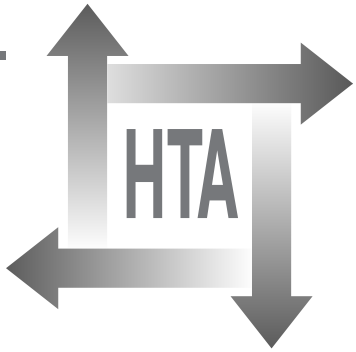
Equity and the economic evaluation of healthcare

F Sassi*
L Archard
J Le Grand

Department of Social Policy and LSE Health, The London School of Economics and Political Science, London, UK

* Corresponding author

Health Technology Assessment
NHS R&D HTA Programme



Executive summary

Background

Cost–benefit and cost-effectiveness analysis techniques have been applied extensively to healthcare resource allocation problems since the 1960s. Hundreds of economic evaluations are currently published every year in major medical and health services research journals and are easily available to potential users. However, the role played by such evaluations in healthcare decisions is still very limited due to a number of supply-side and demand-side factors, among which the nature and the assumptions of the methods used are of primary importance. In particular, much attention has been placed in recent years on the limited ability of cost–benefit and cost-effectiveness analysis to reflect social values. Despite having been developed as normative tools, economic evaluation techniques tend to guide decision-makers towards the maximisation of health gains within a resource constraint, regardless of which individuals or population groups may benefit from a health intervention or perhaps be penalised by that intervention. Distributional effects seem to have been completely neglected in existing economic evaluations, thus ignoring the equity dimension of resource-allocation problems.

Aims

The aims of this project were threefold:

- to review the methodological solutions proposed for addressing equity concerns through economic evaluation and to determine whether these are consistent with the theoretical foundations of economic evaluation, whether they are practically viable, and whether their adoption would be sufficient to confer normative strength to the results of economic analyses
- to assess whether and how the potential distributional effects of resource allocation decisions have been taken into consideration in existing economic evaluations
- to examine the cost-effectiveness and the distributional implications of selected healthcare policies currently in use in the UK, with the aim of identifying possible equity–efficiency trade-offs and determining how these have been dealt with in the absence of appropriate analyses.

Methods

First, a systematic review of the methodological literature and of the evidence about individual and collective preferences towards different equity dimensions in health and healthcare was conducted. The solutions proposed for incorporating an equity dimension into economic evaluation were described and assessed in the light of the theoretical foundations of economic evaluation and of revealed preferences for alternative distributions.

A systematic review of empirical economic evaluations published in five sample years (1987, 1992, 1995, 1996, 1997) was then conducted using electronic search strategies specifically developed and tested for the systematic retrieval of economic evaluations from the main literature databases. Studies were examined by means of a checklist devised for the purpose of identifying whether these had answered key distributional questions.

Finally, three case studies of healthcare policies adopted in the UK were conducted using a combination of literature review and primary research methods. The three policies were: cervical cancer screening, the central allocation of kidneys for renal transplantation, and neonatal screening for sickle cell disease. The cost-effectiveness of each of the three policies was examined alongside distributional implications, regarding socio-economic status in the first case study, age in the second, and ethnicity in the third.

Results

The methodological solution for addressing distributional concerns in economic evaluation that has attracted the interest of health economists more than any other involves weighting health outcomes for specific equity dimensions (e.g. age, socio-economic condition). Other solutions that were explored include the use of willingness-to-pay measures, the person trade-off technique (all belonging to the normative category – following a general distinction between 'normative' or 'positive' made by Mishan about allocation economics – as well as equity weighting) and a positive solution based on the tabulation of the effects of health interventions in different subpopulations.

The conclusion of this systematic review of the methodological literature is that the normative route to

addressing equity concerns through economic evaluation poses significant, if not insurmountable, theoretical and practical problems. Normative solutions can be based on the measurement of interdependent utilities, on the definition of a social welfare function, or both. The former alone is not consistent with cost-effectiveness techniques based on measures of health gain that do not necessarily reflect utilities for own consumption of healthcare and would lead to allocations that are arguably undesirable; whereas defining a social welfare function would involve extremely complex measurements that are far beyond the reach of existing studies of individual and collective values. A positive solution to addressing equity concerns seems a more appropriate way forward for economic evaluation. This would entail presenting essential information on the effects of health interventions in different population groups to decision-makers who would ultimately apply their own values and trade-offs and make decisions accordingly.

The picture resulting from the review of empirical studies was extremely disappointing. None of the economic evaluations examined in the review provided enough information to allow decision-makers to judge the distributional consequences of alternative resource allocations. The studies examined were unsuitable for assessing any of three key distributional effects:

- the effects of switching between the (mutually exclusive) interventions compared in an evaluation
- the effects of providing an intervention selectively to a subset of the overall population that may potentially benefit from that intervention
- the effects of prioritising between interventions competing for a given pool of resources.

Only half of the economic evaluations reviewed measure outcomes that can be meaningfully used in comparisons of cost-effectiveness ratios across interventions. Only about one in eight of these studies report some information on the characteristics of the population that may benefit from the interventions appraised. A larger number of studies report information on the effects and cost-effectiveness of interventions in specific patient subgroups defined in terms of age, gender, risk profile or ethnic group. This information may help in assessing distributional effects of the second type mentioned above. However, these cost-effectiveness ratios should be calculated through direct comparisons between patient groups rather than indirectly, through comparisons of alternative interventions in different groups, as in all the evaluations reviewed.

The three case studies show that a different emphasis on the equity dimension has been placed in different policy choices, and the equity principles that seem to have guided such policies vary significantly. The policies examined do not always reflect the social values elicited by the empirical studies reviewed in the first part of this report. This appears to be the case even when the process through which a policy is developed is more explic it and the evidence base is relatively strong (as in the renal transplantation case study), although it is probably fair to say that a wider availability of information on the likely distributional consequences of alternative policy options would, in many cases, have led to different policy choices.

Conclusions

The main conclusion of this project is that existing economic evaluations do not represent an adequate guide to resource allocation decisions when the distributional effects of such decisions may be relevant. Not only do they not address explicitly the equity dimension, but they do not even provide the information that decision-makers would need to make a judgement on the desirability of alternative allocations.

Recommendations for future research

The normative route advocated by many as a means of addressing equity concerns through the development of existing economic evaluation techniques does not appear to be a viable solution at present. The evidence base about social values for alternative distributions is largely insufficient, and empirical research methods aimed at determining suitable social welfare functions need to be strengthened (particularly with regard to framing effects and multi-dimensional measurements). The research required to close these gaps will inevitably take several years to complete, and economic evaluation cannot wait for the uncertain outcomes of such research. Methodological developments aimed at incorporating an equity dimension into economic evaluations are required as a matter of priority. Therefore, a short-term solution is proposed, based on existing approaches not widely applied in practice. These involve the systematic gathering of information about the expected distributional effects of resource allocation decisions (e.g. characteristics of the populations that may benefit from the health interventions appraised, information on the effectiveness and cost-effectiveness of the interventions in different subgroups). This information should be presented to decision agents who will weight such effects on the basis of their own objective functions. It would seem reasonable to pursue this solution for the immediate development of economic evaluation, while more theoretical, methodological and empirical research is undertaken to determine the viability of a normative approach.

NHS R&D HTA Programme

The NHS R&D Health Technology Assessment (HTA) Programme was set up in 1993 to ensure that high-quality research information on the costs, effectiveness and broader impact of health technologies is produced in the most efficient way for those who use, manage and provide care in the NHS.

Initially, six HTA panels (pharmaceuticals, acute sector, primary and community care, diagnostics and imaging, population screening, methodology) helped to set the research priorities for the HTA Programme. However, during the past few years there have been a number of changes in and around NHS R&D, such as the establishment of the National Institute for Clinical Excellence (NICE) and the creation of three new research programmes: Service Delivery and Organisation (SDO); New and Emerging Applications of Technology (NEAT); and the Methodology Programme.

Although the National Coordinating Centre for Health Technology Assessment (NCCHTA) commissions research on behalf of the Methodology Programme, it is the Methodology Group that now considers and advises the Methodology Programme Director on the best research projects to pursue.

The research reported in this monograph was funded as project number 96/24/03.

Criteria for inclusion in the HTA monograph series
Reports are published in the HTA monograph series if (1) they have resulted from work commissioned for the HTA Programme, and (2) they are of a sufficiently high scientific quality as assessed by the referees and editors.

Reviews in *Health Technology Assessment* are termed 'systematic' when the account of the search, appraisal and synthesis methods (to minimise biases and random errors) would, in theory, permit the replication of the review by others.

The editors and publisher have tried to ensure the accuracy of this report but do not accept liability for damages or losses arising from material published in this report. They would like to thank the referees for their constructive comments on the draft document.

Copies of this report can be obtained from:

The National Coordinating Centre for Health Technology Assessment,
Mailpoint 728, Boldrewood,
University of Southampton,
Southampton, SO16 7PX, UK.
Fax: +44 (0) 23 8059 5639 Email: hta@soton.ac.uk
http://www.ncchta.org ISSN 1366-5278