Understanding the limited impact of economic evaluation in health care resource allocation: A conceptual framework

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Abstract

Concern has increasingly been expressed at the low level of impact that economic evaluations have on the priority setting decisions they are designed to inform. The concern to maximise the impact of economic evaluation in health care is reminiscent of research utilisation debates rehearsed in the various policy studies disciplines. This paper draws on selected themes and frameworks from this literature in order to explore issues and map out an agenda relating to the uptake and use of cost effectiveness analysis in health policy decisions. The authors consider the implications for health economics, and other policy-related research and evaluation, of adopting either a rational or interactive model of research utilisation. Economic evaluations can be normative or descriptive decision tools. The choice of approach will reflect the assumed model of research utilisation and has implications for overcoming barriers to impact on policy. There is an underlying conceptual link between the rational model of research utilisation, the normative approach to economic evaluation and a focus on barriers to the accessibility of published analyses. In contrast, acknowledgement of an interactive and incremental policy process predisposes the analyst to a more descriptive approach and suggests the importance of broader systems, process and ethical barriers to the use of economic evaluation. We address the crucial issue of the importance of establishing objectives and discuss how this issue effects how those seeking to influence policy should proceed. Finally, we discuss indirect or ‘enlightenment’ models of research utilisation and the implications of these for the community of health economists.

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1. Introduction

The techniques of economic evaluation in health care have developed considerably over recent years [1,2] and are designed to inform the efficient management of scarce health care resources. However, research into local policy decision-making in the UK has reported moderate or low levels of use of economic evaluation information [3,4], and similar findings are reported in a number of European health care systems [5,6]. In a US context, use of formal cost-effectiveness analysis (CEA) in technology coverage decisions is, if anything, even more rare [7–9]. This low level of use occurs despite evidence suggesting that decision mak-
ers appreciate the potential value of cost-effectiveness information to the policy process [4,5,10]. The concern to maximise the impact of economic evaluation in health care is reminiscent of research utilisation debates rehearsed in the various policy studies disciplines. In this paper we draw on selected themes and frameworks from this literature in order to explore issues and map out an agenda relating to the uptake and use of CEA in health policy decisions. Crucial issues such as the absence of goal-consensus and the interactive nature of the policy environment are discussed, as are the implications of these for our understanding of both what the barriers to use of CEA are and how these might be overcome. The paper is structured first to consider a rational problem-solving model of research utilisation, and then moves on to consider the interactive model. Finally, we discuss the potential for indirect research utilisation and how the community of analysts – in this case health economists – might more actively pursue such an approach.

2. Rational models of research utilisation and normative economics

2.1. The problem-solving model

The principles underpinning evidence-based medicine have recently been discussed in the context of health care management and policy making [11,12], and the aspiration towards evidence-based policy decision-making evokes a conception of research utilisation defined by Weiss as the ‘problem-solving model’ [13]. In this model, empirical and analytical research evidence is applied directly to a policy problem and, whether ‘off the shelf’ or directly commissioned, research supplies the information required to enable the decision to be made. For the rational, problem-solving model to apply, the recommendations of an economic analysis, for example, would need to be implemented directly by the relevant policy maker and would be seen as the primary influence on the decision reached. In this process it is assumed that decision makers are able and willing to act on research findings and that there is understanding and agreement on the objective of the policy decision. This clarity and consensus on objectives enables the researcher to provide the evidence and analysis which is appropriate to the policy problem. The researcher’s focus is thus confined to the generation of empirically based research and decision recommendations to guide directly the policy making process. In this way, ad hoc or historical policy making practices are replaced with an instrumentalist approach whereby decision makers adopt the most appropriate means to achieve a stated aim. The assumption that increasing and improving the knowledge base of decisions will bring about corresponding rationalisation of the decision-making processes, and its outputs, is at the heart of the evidence based approach. In policy studies, this has been termed the ‘rational comprehensive’ model [14].

This approach to policy making is a feature of recent public sector policy statements which make reference to the importance of evidence at the expense of the politics of ideology [15]. An example in the UK of an attempt to adopt a rational, evidence-based approached to policy decision-making is the National Institute for Health and Clinical Excellence (NICE) which commissions new health economic analyses to inform its technology appraisal process. Each decision taken by NICE, concerning the recommendation of a new technology for routine use in the NHS in England and Wales, is informed by a systematic review of clinical effectiveness data and an economic evaluation of its cost-effectiveness. This problem-solving approach is made possible by an explicit delimiting of decision criteria. For example, issues of affordability and implementation of decisions taken are deemed not to be of central concern to the Institute’s Appraisals Committee, leaving them to focus primarily on evidence of effectiveness and cost-effectiveness. In principle then, the NICE appraisals process can be seen as an example of the problem-solving model.

2.2. Normative economics

In the context of health economics analysts conducting research to inform resource allocation policy decisions, the model of research utilisation assumed by the researcher will influence the approach taken to generating evidence. It is helpful to consider the normative–positive division of activity undertaken by economists. Positive economics has to do with what is, while normative economics has to do with what ought to be. Positive economics is a social science, and focuses on value-free descriptions of and predictions
about economic relationships. By contrast, normative economics has a moral or ethical aspect, deals with values, and as such goes beyond what a science can say. It is the branch of economics that incorporates value judgments about what particular policy actions should be recommended to achieve a desirable goal. Thus, in conducting a normative analysis, the aim of the economist is to indicate the nature of the resource allocation decision that ought to be followed if certain objectives are to be achieved. An important prerequisite for such a normative stance is that the analyst has a good understanding of the objective function (i.e. what should the health service be seeking to achieve) and the decision rules to be applied. As Culyer points out, the process of agreeing objectives is not necessarily straightforward:

In the real world ... policy makers and most other people who seek economic advice do not have well-articulated ideas of their objectives. One of the first tasks of a cost-benefit analyst, for example, is usually to seek to clarify the objectives – even to suggest some. [16, p. 254]

Many health economists have taken Culyer at his word and propose that the objective of health care services should be to maximise population health benefits, possibly with some adjustment for equity concerns [17]. Research over the last 20 years on the measurement and valuation of health has resulted in a measure of health that can be operationalised for use in policy making, i.e. the quality-adjusted life year (QALY) or quality-adjusted life expectancy (QALE). The decision rule, therefore, for many normative health economic analyses, is to advocate investment in those technologies that produce the largest QALY gains for a given level of cost. In order to inform such decisions, normative analyses tend to provide results in the form of incremental cost-effectiveness ratios (ICERs) and cost-effectiveness acceptability curves (CEACs).

This tendency towards a normative economics framework correlates with the rational model of research utilisation inasmuch as it assumes a given objective function and a linear process of applying research into policy. Clearly it is possible that the values and objectives assumed by the researcher do not mirror those of the decision maker – where this is the case then research utilisation is unlikely to be the outcome.

2.3. Problems with the problem-solving model

A number of commentators have raised concerns about the problem-solving model of research utilisation and the fundamental assumptions upon which the model is based. Klein [18], for example, calls into question the likelihood of establishing single, agreed objectives in decision scenarios. Whilst many economists may adopt a normative view that the problem-solving model has much to recommend it, it has to be recognised that the real world rarely lives up that aspiration. For example, in a review of UK studies into factors effecting evidence-based policy-making, Elliott and Popay [19] conclude that many policy problems are often intractable or not clearly enough delineated to be tackled directly and comprehensively. They also find that research evidence is frequently unlikely to be sufficiently clear-cut and unambiguous to translate directly into policy. In a recent study, Al et al. [20] found, in a Dutch context, that decision makers objectives were rarely simply to maximise health from available resources.

The gap between these direct conceptions of research implementation and the more complex reality of the policy environment has been identified in recent work in the field of health economics. Drummond and Weatherly [21] talk in terms of researchers occupying a ‘scientific paradigm’ and decision makers a ‘policy paradigm’. Further, in interviews with national level health policy decision makers in Australia, Ross [22] found that far from reflecting a problem-solving, research-led model, decision-making was subject to multiple influencing factors including: political considerations, administrative arrangements, equity concerns, societal opinion, and the values and attitudes of decision makers. In a UK context, Coast presents findings of qualitative interviews with professionals from health care and related sectors, and her data indicate that at a meso policy level the process of decision-making can be characterised as:

a system of equivocation involving a complex set of interactions in which there are a number of obstacles. [23, p. 168]

Here even the phrase ‘decision maker’ is called into question by evidence of practices designed to postpone, defer or ‘pass on’ difficult decisions. The more high-
profile the policy body the more this already complex picture is influenced by external stakeholders including the media.

NICE itself represents only a partial adoption of the problem-solving model. A number of commentators have begun to question, either implicitly or explicitly, the extent to which NICE adopts an evidence-based approach [24,25]. NICE’s decisions are justified with reference to evidence but also to the extensive stakeholder consultation undertaken for each appraisal. However, there is a question mark over the compatibility of evidence based and pluralistic approaches to policy decision-making [26] and a danger that evidence – or in this case cost effectiveness analysis – may be retrospectively invoked to support decisions taken on other grounds. There is a need for qualitative exploration of the processes involved in reaching decisions and the role of both evidence and deliberation in that. Overall, there is a growing realisation that interventions by health economists in the area of research utilisation have not always addressed the totality of factors which influence policy makers or accounted for the complexity of health care decision-making processes [27].

3. The interactive model and positive economics

Given the likelihood that policy-makers seek information not just from researchers but from a variety of sources, it appears that Weiss’s ‘interactive model’ of research utilisation carries greater descriptive power than the problem-solving model [13]. The interactive model illustrates how decisions are based on negotiated compromise and the balancing of competing interests, rather than solely on the available evidence base. Decisions taken will reflect consultation, experience, political insight, pressure and judgement, and the influence of research evidence is diluted by these other inputs and imperatives. The social influences model [28] is a corollary of this approach that emphasises the impact of habits, customs, norms and conventions, especially in situations where the uncertainty of outcomes for decision options is high. Interactive and social influences models acknowledge that decisions are subject to the influence of power relations in which multiple actors with competing preferences form alliances to exert influence over the decision-making process. For example, a recent study of priority setting and drug reimbursement in Finland found that ‘there appeared to be hidden, non-technical rationales behind many decisions’ [29]. In this context, policy change proceeds on a piecemeal and incremental basis. Rational prescriptions for policy change are subject to political bargaining and institutionalised practices. A plethora of disconnected policy solutions may be promoted at any one time without any over-arching logic or pattern. This phenomenon – described as ‘disjointed incrementalism’ by Lindblom [14] – frustrates the attempt of rationalists who seek an overhaul of, or even substantive change to, a policy area.

In contrast to the national level policy decision-making bodies such as NICE, an interactive and incremental approach is more explicitly reflected in the decisions taken on adoption of new technologies at a local level. In a UK context, decisions at this level will be made by bodies such as drugs and therapeutics committees, prescribing committees and in some cases priorities networks, with representation from relevant local health organisations present [30]. Such committees tend not to have resources to commission reviews and new analyses, and nor are they able to distance themselves from issues relating to the implementation and affordability of the decisions they take [31]. In addition, committee members will explicitly represent the interests of their organisations and so the context is one of competing interests and the necessity to satisfy a number of potential objectives and imperatives. Thus, the problem-solving model, supported by normative analyses, is rarely seen, and disaggregated research findings are likely to be of greater practical value to such decision-making bodies.

3.1. Positive economics

Given the potential for disagreement between researchers and policy makers on objectives for health care investments, and the disjointed context of decision-making, a less value laden and more disaggregated approach to economic analysis may be of greater value [32]. Within economics, positive analysis generates information on the likely costs and benefits associated with alternative courses of action. In contrast to normative approaches, positive economics seeks to forecast and predict observable factors. It provides information that can help address resource alloca-
tion problems, but is not undertaken with the intention of making recommendations concerning any particular policy – it simply identifies the likely observable consequences. Dowie [33] describes such research as knowledge-generating, as opposed to decision-making technologies. A distinguishing feature of positive analyses is that agreement concerning objectives, between the researcher and decision maker, is not a prerequisite. In addition, there is no a priori requirement that a single objective or policy outcome be specified. Positive health economic analyses might involve the use of a profile, or cost consequence approach to reporting results. This is where the predicted impacts of the intervention in question are detailed, typically in a tabular form, without attempts necessarily to summarise or aggregate across different dimensions [34]. This process can be applied to both resource use/costs items (including specific health care service use and costs, and productivity losses) and health outcomes (including disease symptoms, life expectancy and quality of life). Kernick is a strong advocate of such a positive approach:

Cost consequence analysis emphasises the importance of presenting data on costs and benefits in disaggregated form, implying a recognition of the value judgement from decision makers and an acceptance that benefits and disadvantages cannot always be condensed into a single output measure. [35, p. 314]

It would be naïve to suggest that this approach is completely value free as the analyst has to decide on which aspects of cost and benefit to focus, and how such data might be presented. However, there is clearly greater onus placed on the decision maker to bring values to bear in processing the research evidence and then arriving at a policy position.

4. Accessibility and acceptability barriers

Within a rational problem-solving paradigm, policy makers are encouraged to select the policy option recommended by the normative research findings, and instances where research is not utilised are generally understood to result from limitations in the accessibility of research evidence. Here we use the term accessibility to refer to the availability of relevant research in a timely manner, the clarity of its presentation and the extent to which it can be understood by the policy makers. Several studies have highlighted the difficulties decision makers face in obtaining economic evaluations (for example [7]) due to the shortage of relevant economic analyses and problems with accessing those studies that are published. This is compounded by the funding and access difficulties inherent in commissioning new cost-effectiveness research that can be delivered in a timely manner [7,8]. The extent to which, within England and Wales, NICE has been able to operationalise a problem-solving model of research utilisation, stems in part from its ability to commission de novo economic evaluations to address specific technology appraisal questions – this does not appear to be a scenario that other policy making bodies have been able to achieve [36,37]. The final main accessibility difficulty highlighted in the literature concerns problems with study comprehension and interpretation – decision makers often struggle to understand health economic analyses given the concepts used, the language of such analyses, and the presentational styles adopted [4,9,38]. The research that has highlighted accessibility barriers as the main obstacle in utilisation of cost-effectiveness research tacitly assumes agreement between researchers and policy makers as to the objective of health care policy. Therefore, as Weiss indicates:

...when this imagery of research utilisation prevails, the usual prescription for improving the use of research is to improve the means of communication to policy makers. [13, p. 428]

Analysts seeking directly to influence policy require an appreciation of how policy institutions and processes operate – they are often largely autonomous of research communities. An awareness of the realities of the policy-making environment requires researchers to look beyond their own activities when attempting to overcome the barriers to use of research evidence in policy making. Increasing the accessibility of, for example, economic evaluations will not, by itself solve these problems. There is a second category of barriers pertaining to the acceptability of the research in question – the term ‘acceptability’ is used here to refer to all barriers that arise after economic evaluations have been accessed and understood. Research studies
can be seen to be less acceptable if decision makers view the analysis methods and/or approaches to be inappropriate. Sub-categories of this group of barriers are:

- scientific/technical acceptability;
- structural/institutional acceptability;
- ethical/political acceptability.

*Scientific or technical* acceptability refers to concern over bias and the influence on analysis results that might come from partisan sponsors of economic evaluations. Studies have also found *structural/institutional* barriers to implementation of economic evaluation results, especially at local decision-making levels. For example, budget holders operating within annual budgeting cycles may be under pressure to contain cost over and above promoting efficiency [3] and others experience difficulties redirecting resources across inflexible financial structures [6]. These barriers feature strongly in a study of regional decision makers in the UK [39] where interviewees claimed that savings identified in economic evaluations were frequently unrealisable in practice and health economists were perceived as being ill informed on issues such as block contracting agreements and the effects of secondary care costs upon primary care budgets.

In summarising the results of a number of connected studies of European health care systems, Hoffman et al. [5] emphasise issues of acceptability as being of greater significance than the accessibility of study recommendations. They conclude that:

...the most discouraging factors are not related to the intrinsic properties of the evaluation studies themselves ... but rather to institutional factors. It would appear that general institutional factors making up the organisation of the whole health care system (difficulties in transferring budgets, resources allocated on a budget rather than economic basis etc) are more responsible for restricting the use of economic methods than the immediate institutional context where the methods are used. [5, p. 12]

In an exposition of local health policy decision-making, McDonald [40] confirms the institutional barriers to use of economic evaluation, and goes on to address the ethical and political acceptability of health economics as a technique for the implementation of programmes of prioritisation. During her involvement with a UK Health Authority, she found that attempts to apply a rational, problem-solving approach to resource allocation resulted in a ‘paralysis’ caused, in part, by complex funding constraints but also by the political unacceptability within the UK National Health Service of the explicit rationing advocated by health economics. Rational approaches to the policy formulation were considered by decision makers to be less satisfactory than standard ‘non-rational’ practices of ‘muddling through’ in a context of resource scarcity.

5. Discussion

Normative and positive approaches to health economic analyses correlate, to some extent, with the binary of rational and interactive models of research utilisation. The requirement for agreement of purpose and objectives between researcher and decision maker is a defining premise of both normative economic evaluation and direct conceptions of problem-solving research utilisation. Positive approaches to evaluation, on the other hand, may be seen as more helpful to decision makers involved in policy processes that are marked by interaction and competing or multiple objectives. An understanding by the analyst of the nature of the policy environment into which the analyses are being placed is required. This will allow more informed choice to be made concerning the appropriate approaches to analysis and presentation of results. It should be noted that these two approaches are not, strictly speaking, mutually exclusive: the community of health economists is engaged in both positive and normative economics and results of an analysis may be presented in both disaggregated and summary form.

Peacock and Richardson [41] indicate that raised awareness of research and the findings from empirical work can, even when not implemented, help to bring about greater rationality and use of evidence in decision-making. This can be seen as part of the longer-term impact of health economics as a set of fundamental principles – an argument which recalls Weiss’s ‘enlightenment’ model of research utilisation or what has been described as ‘conceptual’ research use [42]. This refers to more diffuse influence such
as policy agenda setting and shaping perceptions of the complexity and consequences of decisions taken. Health economists have hitherto tended to focus on direct or instrumental utilisation. However, this may overlook the longer-term influence of the economics discipline on health care resource allocation and underplay opportunities to have greater impact in the future. Enlightenment use is much more difficult to measure than direct use but this does not mean its influence should be dismissed. Weiss’s enlightenment model of research utilisation helps us to understand that health economics, despite limited direct use, may be part of a broader process of making decision-making more explicit and more rational. Both interactive and enlightenment models suggest a role for the health economist beyond solely the production of research findings.

Much valuable work has been done on techniques for reducing or bridging the gap between researchers and decision makers. A review of studies by Invaer et al. [42] suggests that ‘personal contact’ between researchers and decision makers is one of the most commonly reported facilitators of evidence usage. Lavis et al. [43] argue that such interaction enables researchers to improve the production of analyses whilst simultaneously enhancing their adaptation by policy makers. These prescriptions for closer contact between researchers and decision makers need to avoid naivety: we have seen that other barriers exist. Also, incentives and rewards for researchers are unlikely to recognise outcomes which fail to influence the ‘specifics’ of policy but over time effect ‘the beliefs and assumptions that underlie it’ [44]. However, it appears especially important for CEA, which is so often seen as ‘a smoke-screen for cost-cutting efforts’ [45], that broader debate about the principles of both the discipline and the role of decision makers that might use it is undertaken. Resource scarcity is not an academic invention – it is a major driver of health care policy and activity but one which tends not to acknowledged, often because of the likely political fall-out that will ensue. This is partly a result of the unstable political relationships between researchers and other key interests groups in the rationing debate; policy and management, clinical opinion, and the public. How these relationships are managed is of crucial importance to ensuring the future synergy between those producing and those using cost-effectiveness analyses.

6. Conclusions

In this paper, we have explored some of the reasons for the moderate impact on health policy of economic evaluation research. We have divided reported barriers into two broad categories: those relating to the accessibility and those relating to the acceptability of economic evaluations. Much of the health economics literature to date has concentrated on barriers of accessibility of economic evaluation results. This suggests a view that improvement in the process by which evaluations are communicated to decision makers, and the capacity of such policy makers to follow their recommendations, ought to be the focus of attention if impact is to be maximised. In other words, the emphasis is on tweaking the process at both research and policy ends in order to support rational implementation of research findings. A focus on barriers to the acceptability of economic evaluation directs us away from such an approach. Instead, we see that barriers to research use derive from substantive disjuncture between researchers and decision makers in terms of objective functions, institutional contexts and professional value systems. Decision makers, particularly those operating in a local health context, may lack the capacity to commission or implement normative economic evaluations and a more disaggregated approach may be of greater value.

Barriers to accessibility are well understood and have been addressed to some extent, particularly in the UK at a national policy level where the ability to generate, access and interpret economic evaluations has increased. Acceptability issues such as system rigidities, value conflict and competing objectives are more difficult to overcome as this requires broader changes to the macro-political and institutional environment of health care policy making. The experience of NICE might suggest that, even where accessibility barriers are to some extent addressed, a technocratic, rational approach needs to be modified in order to satisfy the demands of the political environment.

The literature in this area charts a growing realisation of the conditions and contingencies of the health decision-making environment. There has been a move away from an assumption of policy involving simple, rational choices to a realisation of an interactive process with competing aims and considerations. This is welcome – if health economists are to exert greater
influence over health care decision-making then there is a need to acknowledge the realities of an interactive policy environment, and maybe for this to be routinely incorporated into the training and work-based experiences of such analysts. The enlightenment model of research utilisation highlights the potential for indirect and gradual influence, and therefore the need to actively ‘jockey for a position of influence within the policy process’ [19]. Research communities – particular those engaged in economic evaluation – can be part of a debate which gradually re-frames prioritisation debates so that over time the issue of scarcity can be more explicitly addressed.

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