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Increasing the Impact of Economic Evaluations on Health-Care Decision-Making

by Douglas Coyle

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Health-Care Decision-Making

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Abstract

Although there is a substantial amount of literature recording the increasing number of economic evaluations of health care interventions, there is little discussion of the level of impact such studies have had on decision-making. In this paper the evidence relating to impact which does exist is examined. The implication from this is that social science research has made little direct impact on health-care decision-making.

Theories relating to the process of research utilization in decision-making are examined to ascertain why research may fail to be of influence. This leads to the conclusion that a major determinant of the level of impact made by research are the actions of the researchers. The paper concludes with recommendations to researchers on how to increase the level of influence made by studies.

Introduction

Although there is substantial literature recording the increasing number of economic evaluations ¹ relating to health care provision there is little evidence of the impact of these studies on the efficiency of the health-care sector. The published reviews of evaluations have been more concerned with the methodological quality of these studies rather than the effect they have had on health-care decision-making. Attempts, such as the survey of researchers by Alban (1982, 1987), to ascertain the impact of economic evaluations are limited and have led to the conclusion that economic evaluations have made little direct impact on decision-making. A more detailed discussion of the impact of economic evaluations and how this can be increased is required.

The purpose of this paper will be to address the issue of to what degree economic evaluations make an impact on decision-making. In section 1, the process by which research information can be utilised in the decision-making process will be examined and will be related to the perceived lack of impact made by health services research in general. In section 2, previous literature which has addressed the issue of impact made by economic evaluation will be reviewed. Section 3 will consist of a consideration of the factors which are believed to influence the level of impact which have been raised in the previous sections. This will lead to conclusions about the level of impact and how this could be increased.

2. Research Utilisation in the Health Services

Initial estimations of the utilisation of all forms of health services research appear to mirror those concerning economic evaluations in being less than optimistic about the role research plays in formulating policies. For example, Klein (1989) comments that policy-making in the NHS is a paradox in that the NHS was founded on the basis of being :-

" dedicated to rationality yet appears to be contemptuous of the tools of rationality offered by research".

Cochrane (1973) commented on the lack of clinical evidence to measure the effectiveness of many common clinical practices with the sole justification for many procedures being that of unsubstantiated "clinical opinion". This is highlighted by the wide discrepancies reported in clinical practice both across countries and within the U.K. itself ². Such variations in practice may be the result of differences in the interpretation of scientific information by clinicians (Lomas, 1988). However, they may equally be caused by either an ignorance of clinicians of the information available or by the research information available being open to alternative interpretations. The methods for clinicians to learn of the new information available - e.g. continuing medical education - have been criticised as being ineffective in altering clinical behaviour (Schroeder et al., 1984).

There is evidence that clinical evaluations may have at most a moderate effect on clinical behaviour. A study of a sample of French GPs examined their awareness and their response to a number of randomised control trials, which were regarded as important as they

addressed a frequent or severe health problem - e.g. breast cancer, recurrence of gastric ulcer and myocardial infarction (Reveilleau et al., 1991). The majority of GPs were unaware of the various trials - with a range of non-awareness from 56% to 98%. The percentage of GPs who knew the results of a trial was at the most 3%. Whether or not individuals were aware of a trial, or the results of the trial, did not seem to have any effect on prescribing patterns. The results of studies such as the above beg the question of why the clinical trials fail to influence decision-making. This issue was not addressed in the French study but is crucial when considering impact made on clinical behaviour by research.

There may be a rationale behind why the research referred to, and research in general, fails to influence decision-making. By examining the process by which decision-makers (DMs) are influenced by research information, the key factors which determine the degree of utilisation can be identified and used as a basis from which to discuss the degree of impact health services research, in general, and economic evaluations, in particular, have had on the decision-making process. Parson's theory of action (Parson, 1951) has been adapted for discussion of the process by which research evidence may be utilized (Beyer & Trice, 1982). The utilisation process can be identified as a series of four steps (Fig. 1). First, for research to be utilized in the decision-making process it must initially be disseminated amongst relevant decision-makers. Secondly, this research must be designed so that decision-makers recognise that it concerns a decision which they may take. Thirdly, decision-makers must be able to understand both the message contained within the research and how this relates to the decision to be made. Finally, decision-makers need to be influenced by the research when making a decision.

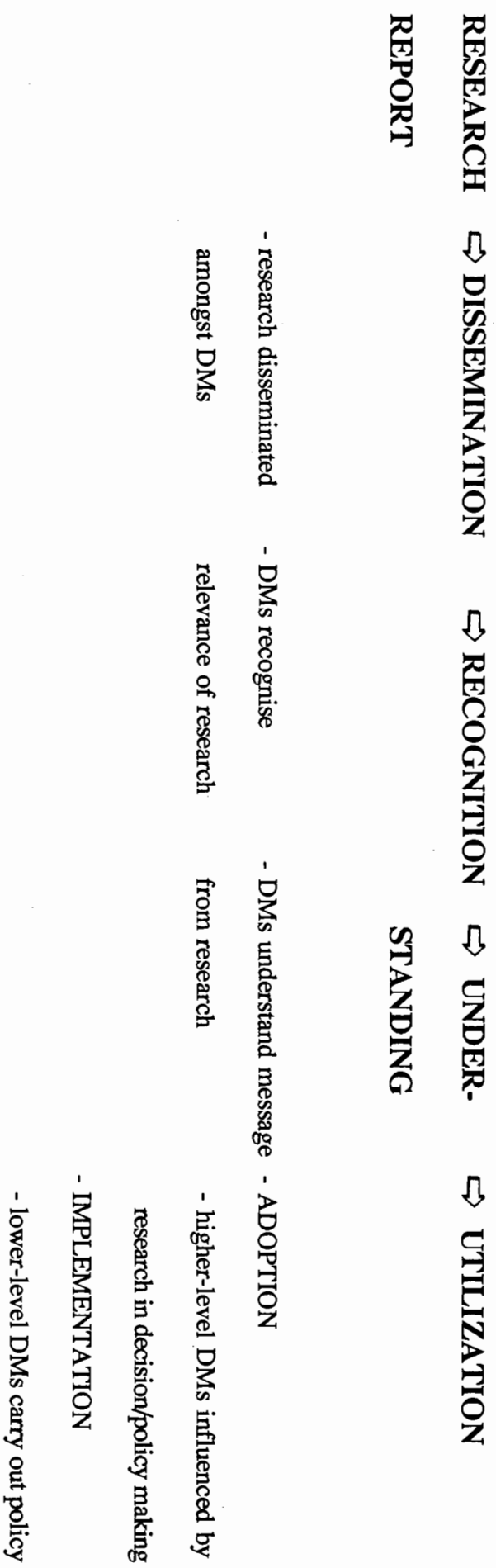


Figure 1 : A Simple Model of Research Utilization (based on Beyer and Trice 1982)

In the U.K., although there is evidence of an increasing amount of health services research, there is no formal policy for providing research evidence in the context of decision-making ³. There is little basis to believe that research information has played a role in the shaping of the structure of the NHS. The 1989 NHS Review (Department of Health, 1989) appears to have been formulated without any regard to the research evidence available, and without any attempt to commission research on the likely results of its implementation ⁴.

In the U.S.A. there is evidence of a more optimistic picture of the role that research has to play in health-care decision-making. Researchers appear to be concerned with considering methods to improve the adequacy of research in relation to the increasing role it has been given rather than the perpetual non-consideration of research evidence in decision-making (Fox, 1989). The publication of research evidence has become a routine requirement for decisions involving health care policy to be made. For example, in 1989 the U.S. Government created the Agency for Health Care Policy and Research, for which Patient Outcomes Research Teams (PORTs) undertake research on the effectiveness of health care services to aid and, ultimately, influence health care decision-making (Salive et al., 1990). However, given the lack of response by clinicians to the results of the ISIS trials (ISIS-3 1992), it is debatable whether research information actually influences decision-making in the U.S.A..

Klein (1989) has given three arguments for U.K. health service researchers to be less pessimistic about the relevance of their research to decision-making and to have more understanding of the process of decision-making.

i. Researchers often lack self-criticism of their work.

Unlike other scientific forms of research, social science research is unlikely to give "clear-cut" answers concerning the issues addressed. It is unlikely for instance that the setting from which a study is based will perfectly mirror that from which a decision is made. Thus, results of studies are often open to interpretation. The more ambiguous results are, the less likely they will be to influence policy. Also, to influence decision-makers a study must be both easy to understand and appear relevant to the decisions that are being taken. A study which is "technically advanced" or of high academic standard published in an esoteric journal may not always be appropriate.

ii. Researchers fail to acknowledge that the information provided by their research will not be the only relevant source of information decision-makers will receive when considering decisions.

If decision-makers are influenced by evidence relating to the decisions they make, they will make decisions based on the weight of evidence available, not by one single study. Thus, each source of information - e.g. economic evidence, deputations from pressure groups - will be given due consideration and the degree to which it will influence the final decision will depend on the weight given to it by decision-makers. Although decisions may appear to be contrary to research recommendations it does not imply that the research has made no impact on the decision-making process.

iii. Researchers may be naive about the relationship between research and the political process.

For research evidence to be acceptable it is necessary that the value judgements made are similar to those for whom the research is aimed for. The Black Report (Townsend & Davidson, 1982) is an example of how research based on underlying value judgements antagonistic to those of the audience, i.e. the U.K. Government, for which it was aimed at will not be of influence in decision-making. The report was commissioned by the previous Government to assess the extent of inequalities in the provision of health-care in the U.K. and possible remedies. The final report concluded that inequalities in health status had been increasing and that the primary reasons for this were inequalities in the distribution of income and wealth. The recommendation of the report, designed to alleviate these inequalities with the overall aim of a redistribution of wealth, was rejected by the incumbent Conservative government as its fundamental proposals were against the prevailing Conservative ideology. Also, the value judgement on which the recommendations were made, that there should be equality in health status, was inherently different to that espoused in the objectives of the NHS, that of equality in access to health-care.

The failure of research to influence decision-making due to differing value judgements does not solely relate to higher-level decision-makers - e.g. health policy makers - but applies equally to lower-level decision-makers - e.g. clinical decision-makers. A common view of health policy researchers, that we should aim to maximise the benefit which can be attained with the resources available, may not necessarily tie in with the aims of the clinicians.

Following the arguments of Klein (1989), a distinction needs to be made between "direct" impact, where research evidence conspicuously alters decision makers' thinking on a certain issue, and "indirect" impact, where evidence provided by research is merely one of many forms of information that will be considered before reaching a decision. Research evidence may influence policy-making, but it does not necessarily follow that a change of policy will occur or that the change in policy will be implemented. The issue for concern should not be whether research is of direct influence in decision-making but rather what is the degree of influence (or the level of indirect impact) research has and how can it be increased.

In the specific context of economic evaluations what is required is an identification of those factors involved in the production of information which will determine the degree of consideration. This will be addressed after first assessing the evidence on the impact of evaluations by reviewing the previous literature which has considered this issue.

3. Evidence on The Impact of Economic Evaluations

3.1 Introduction

This section is a presentation of information relating to the level of impact economic evaluations have made on health-care decision-making which is available from both literature reviews of economic evaluations of health care interventions and surveys of researchers involved in these evaluations.

3.2 Reviews of the Literature

There has been an increasing number of economic appraisals with a complementary increase in the number of publications reviewing the nature of economic evaluation in health-care. Much of this literature involves discussion of the methodology of the appraisals and not necessarily the impact which they may have had.

Backhouse and colleagues (1992) compiled a bibliography citing 1887 references relating to health care economic evaluation published since 1964. The majority of these studies were from the USA, whilst the major topic of study was diseases of the circulatory system. The bibliography highlighted the increasing number of studies published - between 1970 and 1974 56 studies were published compared to 718 between 1984 and 1989. However, the bibliography did not address the issue of whether the increasing number of studies was indicative of an increase in the role of economic evaluations in the decision making process.

An earlier review of economic appraisals in health-care (Warner & Hutton, 1980) also found that there was an increasing number of studies being published but also concluded that there was no concurrent increase in the quality of studies. However, there was only a brief discussion of the role these studies were having on influencing health-care decision-making, but it was argued that the level of the quality of a study was not a prime determinant of the level of influence a study would have. Economic incentives and political concerns were considered to be more important than quality in determining whether an economic evaluation influenced decision-making.

A review of the prevalence of economic appraisals being conducted alongside clinical trials found that of the over 50 000 randomised controlled trials published between 1966 and 1988 only 121 included economic analysis (Adams et al., 1992). The majority of a sub-sample of these studies (51), which were assessed for their quality, were found to be of a poor methodological standard. Although the authors stated that economic analysis conducted within randomised trials can provide important information to decision-making the impact which the studies examined had on decision-making was not addressed.

Two reviews of economic appraisals in the U.K. (Drummond, 1981, Drummond et al., 1986) also found evidence of an increasing number of studies being conducted and a relatively larger increase in the number of studies relating to diagnosis and treatment. In the second of these reviews Drummond et al. (1986) separated evaluations into six categories :- studies evaluating the burden of diseases, and studies evaluating alternatives in prevention, diagnosis, treatment, location of care and health services organisation.

Certain burden of disease studies were identified as contributing to decision-making (e.g. Holtermann and Burchell (1981), and the studies reviewed by Chapalain (1978)). Certain studies evaluating alternative methods of disease prevention also appeared to be of influence in decision-making (e.g. Willems et al., 1980, Patrick & Woolley, 1981 and Koplan et al., 1979). Similarly, certain studies comparing alternative locations for health-care, especially relating to the switch from institutionalised to community care (Weisbrod et al., 1980, Wright et al., 1981), were found to have some influence as regards decision-making, as were certain studies comparing alternative methods of health-care organisation (e.g. Lowson et al., 1981). However, despite the increasing number of studies produced, there was little evidence quoted of any impact made by economic evaluations comparing alternative methods of diagnosis or clinical treatment.

In a further review of economic appraisals of health technology in the U.K., (Drummond & Hutton, 1987) health authorities and other decision-makers appeared to have a substantial role in commissioning and conducting economic appraisals. The U.K. Department of Health was identified as a commissioner of a significant proportion of appraisals (Table 1). Several of the appraisals the DH commissioned concerned important policy matters - e.g. the appraisal of the heart transplant programme. The DH is also instrumental in the funding of research departments (e.g. at the universities of Brunel and York) as well as actual research projects.

In assessing the role of economic appraisal of health technology in other EEC countries (Drummond (ed.), 1987), it was noted that in smaller EEC countries, conducting economic evaluations may be too costly and, therefore, decisions could only be based on

appraisals relevant to other countries. Thus, there is a need to investigate how to conduct appraisals so that their results can be extended so as to be appropriate to other settings. In certain countries (e.g. Belgium) there was also evidence of steps being taken to educate physicians in the methods and relevance of economic evaluation. This could be seen as an attempt to increase the level of impact research has in decision-making.

Table 1: Commissioners of Economic Evaluations in the U.K.

Independent Research	
Purely (?) independent	24
With some DHSS/NHS input	9
With some industry input	<u>3</u>
	36
DHSS/MRC/SHHD	20
Health Authorities	4
Others/ Don't knows	8

DHSS = Department of Health and Social Security / Department of Health

MRC = Medical Research Council

SHHD = Scottish Home and Health Department

3.2 Surveys of Researchers

Surveys have been used to assess whether or not researchers believe their work influences health-care decision-making. Such surveys have also been used to determine what factors researchers believe determine the level of impact their work has. As an economic

appraisal may be only one of several factors considered when health-care decisions are made, any review of the published literature may not reveal the degree of influence studies have had. If a decision taken seems to be in line with the implicit recommendations of an appraisal it need not follow that the appraisal was of influence. Conversely if a decision taken appears to contradict an appraisal it does not follow that the appraisal was not considered in decision-making. By surveying researchers, an insight into the reasons why certain appraisals influence decision-making can be gained.

Patton et al. (1977) identified a range of determinants of the level of impact a study has on decision-making by conducting a follow-up study of twenty federal health evaluations. One factor identified was that studies often failed to make an impact because they were completed after a decision had to be made. Also logistical problems such as difficulties in finding appropriate data, appeared to restrict both the scope and number of studies being conducted. Political factors such as the aims and objectives of decision-makers and their ability to control the decision-making process appeared to influence the level of impact made by completed studies. As social science research generally fails to give clear-cut answers to policy questions the relevance of and message within such research can be open to interpretation and how this is interpreted will be influenced by political factors.

Personal factors were also identified as possible determinants of the level of impact studies have. Evaluators may have certain aims for conducting research other than influencing decision-making such as prestige and the desire for academic publications. The pursuit of these aims may be inconsistent with improving the level of impact made by their

work. Alternatively the personal characteristics, such as reputation, of the evaluator may affect the degree to which the research carried out is considered by decision-makers.

Alban (1982, 1987) addressed the issue of "what is the use of economic evaluations?" by surveying a sample of researchers who had been engaged in conducting economic evaluations. The surveys were designed to elicit information on the impact of studies and to test three hypotheses relating to the degree of influence of economic evaluations :-

- " - it is important for the use of analysis that those - the decision-makers - who are in a position to make use of the results get involved in the study - or directly initiate it.
- it is important for the use of the analysis that it is carried out in cooperation with people who work in the health-care sector.
- it is important for the use of analysis that its existence is known - both within the health-care sector and beyond. "

As the 1982 survey involved only a moderate number of studies no definitive conclusions concerning the degree of impact economic evaluations have on decision-making were made. Only certain of the selected studies, primarily studies of screening programmes, were identified as having made any impact on decision-making. This finding was consistent with the results of Drummond et al. (1986) and was partially replicated in a follow-up survey (Alban, 1987), where five of the twenty-eight studies were identified as having made a major impact on any relevant decisions taken.

In the initial survey, less than half the respondents gave the aim of carrying out their study as to "influence directly what was happening" or to "indicate the value of economic appraisal". Thus, the success of economic evaluations can be measured by different criteria, such as success in the "personal sphere" (e.g. by establishing one's reputation, by being asked to join committees and by publishing articles). There is then an obvious concern that one reason for the lack of impact made by economic evaluations is that this may never have been the intention behind their production.

The major conclusions of Alban's work, common throughout the literature, are that researchers are pessimistic about whether their work influences decision-making and the more decision-makers are involved in a study, then the greater the possibility that a study will influence decision-making.

Ludbrook (1984) surveyed researchers involved in economic evaluations conducted in-house in the NHS. The primary objective of this survey was to ascertain the level and quality of such appraisals. To meet this objective, a brief but broad questionnaire was sent to previous students of a correspondence course in health economics who it was felt had a sufficient knowledge of and interest in economic appraisal.

Forty out of forty six respondents identified instances where they felt decisions had been taken without recourse to an economic appraisal, when it was felt an appraisal would have been of benefit. Examples of such instances were decisions affecting the prioritising of services, implementing cuts and service planning, as well as in relation to clinical and non-clinical support services. Reasons for the non-commissioning of appraisals were divided into

four categories :- political, organisational, perception and technical. Political factors referred to the degree of influence of medical and professional staff. These factors as well as organisational factors - e.g. the necessity to make immediate decisions - were the dominant reasons for non-commissioning.

Twenty-three out of forty-six respondents gave incidents of when appraisals commissioned were not completed. The major reason given for non-completion were logistical problems such as the lack of information. However, in some instances, there was a reluctance to commit resources to complete a study or there was a need to make a decision before the results of the appraisal were known.

The Ludbrook survey provided evidence of the role of economic appraisal within the NHS. Its findings though need to be qualified by the fact that only 52% of those approached responded to the survey. It can be assumed that the inclusion of those who failed to respond would lead to greater pessimism over the role of in-house appraisals.

A workshop, including members of local health authorities and the DH, was organised to complement the survey. A major problem identified by the workshop (Ludbrook & Mooney, 1984) was the desire of clinicians to preserve clinical freedom and the misconceptions held concerning economic appraisal. The survey revealed that a major factor restricting the conducting of appraisals was the influence held by clinical staff, but once appraisals were initiated this influence appeared to diminish. The recommendation from the workshop to resolve this problem was to educate clinicians and other decision-makers of the need to use health care resources efficiently and the appropriateness in certain instances of

economic evaluations as an aid for such resource allocation and this can be further achieved by encouraging cooperation between clinicians and appraisers.

3.4 Conclusions

The impact of economic evaluations in the form of directly influencing health-care decision-making has been difficult to detect. However, there is evidence of the increasing number of studies performed which implies that impact is taking place not in the sense of directly influencing policy but by becoming part of the information considered when decisions are made - i.e. evaluations are of indirect rather than direct impact. The recent reforms of the U.K. health service although introduced without any supporting research information, may create an environment which will increase the utility of economic evaluations as incentives for decision-makers to act efficiently increase.

Much of the literature reviewed includes little comment concerning the issue of impact or has been concerned solely with direct impact. To measure the level of indirect impact made by economic evaluations we would need to know the weight which decision-makers give to various forms of research information. This would not be feasible by merely reviewing the studies published as this would give no indication of the weight of thought given. Nor could this be accomplished by a study which compares the results of evaluations with the relevant decision taken. The level of indirect impact can only be monitored by studying the actions of decision-makers or to a lesser extent by obtaining the opinions of researchers concerning the degree to which their studies have been of influence.

4. Factors Determining the Level of Impact

4.1 Introduction

In section 3 factors which have been put forward as determinants of whether studies are of direct impact on health care decision-making are identified. These factors can be examined to see if they can be considered determinants of the level of indirect impact studies have and, thus, whether they can be seen as means by which to increase the level of indirect impact.

4.2 Problems in Producing Economic Evaluations

Logistical problems in the production of the evaluation, such as acquiring the relevant data, limits both the conduct and completion of economic evaluations (as identified by Ludbrook (1984)). Conducting an economic appraisal involves the use of scarce resources which might otherwise have been allocated to health care, or other evaluations or research activities. Such resource use will intensify if there are problems in acquiring suitable data for an appraisal. Therefore, it is necessary to target appraisals to areas where improving the efficiency of services will make significant impact on the health care budget.

The results of completed evaluations may be questioned because of logistical problems incurred during their production. For example, Culyer and Maynard (1981) in conducting an economic appraisal of cimetidine found that although there was a large number of clinical evaluations available none was suitable to supply the data required for their appraisal. Thus,

due to deficiencies within the design of the clinical trials, the authors were unable to include all treatment options (Weisbrod, 1983).

The time taken to conduct an economic appraisal can vary significantly. In the survey by Alban (1987), studies varied in duration from 6 months to 9 years. Ludbrook found that a factor which may restrict the availability of economic appraisals to assist decision-making was that decisions may need to be taken quickly without the necessary time to conduct an appraisal. For example, an evaluation of alternative locations for care of the elderly (Fordyce et al. 1981) received initial interest from the local NHS but a decision by the local health board was taken before the study was completed.

Logistical problems in producing relevant information and the inability to produce research information on time, are not an explanation of why evaluations that overcome these problems make little impact on decision-making but can to some extent explain why certain decisions are made without an evaluation being conducted.

4.3 The Dissemination of Research Evidence

Reviews highlighting the increasing number of economic evaluations being conducted have observed the increasing number of studies published in medical journals. Warner and Luce (1982) observed that the percentage of published economic evaluations published in medical journals rose from 40.2% (1966-1973) to 62.7% (1974-78). Drummond and Hutton (1987) found that publication in medical journals was the main dissemination method for economic evaluations in the U.K..

There has been criticism of health economic researchers in that much of their publications do not appear in peer reviewed journals. However, as much of the work of researchers is of a multi-disciplinary nature there is difficulty in getting articles published in the more respected economic and medical journals. Journals may only allow papers in short format which will lead to difficulties in including all relevant information. This may be due to a failure to recognise the role that economic evaluations could have in assisting health-care decision-making.

The problems in disseminating economic evaluations may be as a result of the one-off nature of studies. As studies are generally funded by individual project grants rather than research centres receiving programme funding, economic evaluations may not be established as routine evidence required for clinical decision-making. Thus, the more evaluations conducted, especially those which are adequately funded, will help to establish the relevance of economic evidence and will improve the dissemination of evidence and, thus, the impact on decision-making.

Thus, if researchers undertake that their study results reach relevant decision-makers and are presented in such a way that decision-makers can recognise the importance of the study and can interpret its results, the impact of research may be increased. The level of impact may be increased by targeting the results of their research at the relevant decision-makers - e.g. through professional journals. Also, researchers should consider the level of understanding of their discipline by the decision-makers and should present results accordingly⁵.

4.4 Methodology

Many authors (e.g. Culyer, 1985) have argued that there is a need to improve the methodology of the appraisals being produced. This implies that a major reason for the lack of impact of studies is poor methodology and by improving the over-all quality of work greater impact will be made. This view is mirrored by Stoddart (1984) who states that a major determinant of the lack of impact is "the lack of consensus in the literature regarding variables to be included in economic analysis".

However, concern over methodological quality may be over-stated for the design of a study which will be of relevance to decision-makers may not equate to what is deemed high academic standard. Mooney and Henderson (1984) contend that the output/outcome measures employed in economic evaluations were often inappropriate in that they are not the measures which were of interest to decision-makers. Also, in circumstances whereby a decision on resource allocation needs to be taken quickly an evaluation of a high methodological quality may take too long to complete and a less rigorous evaluation may be more suitable. Also, the conventional wisdom is that in economic evaluations resource use should be measured from a societal viewpoint - i.e. should include costs to the hospital sector, community sector and the patient. However, decision-makers, such as health authority or hospital managers, will be more likely to be concerned about the financial implications of a treatment solely from their own viewpoints.

Consideration must also be given to both the form of analysis adopted and the hypothesis addressed within studies. In a cost-effectiveness analysis, the benefits from

treatment are measures by a single unit of outcome (e.g. life years gained or positive screenings). Thus, as only a narrow spectrum of the possible outcomes of treatment are measured, comparisons can only be made between treatments for the same or very similar conditions. In a cost-utility analysis, the benefits of treatment can be multi-dimensional, by measuring the utility gained from treatment - e.g. Quality-adjusted Life Years (e.g. Williams, 1985). Thus, comparisons of treatments across a greater range of conditions can be made - e.g. by the use of cost-per-QALY league tables. The methods employed to measure the utility gained from therapy are not without criticism (Loomes & MacKenzie, 1989, Donaldson et al. 1988) but their relevance to decision-makers can be questioned. Thus, although in cost-effectiveness analysis a less complex measure of benefit is employed, its relevance to and suitability of use by decision-makers may be greater.

Increasing the academic standards of evaluations need not necessarily lead to an increase in the influence evaluations have on decision-making. An evaluation of "poor" quality may well be the most appropriate to influence policy. Burden of illness studies, for example, often appear to influence decision-making yet such studies have often been criticised regarding their appropriateness and usefulness in decision-making ⁶.

Of the seventeen researchers surveyed by Patton et al. (1977), only four believed that the methodological quality of a study was "very important" as a determinant of the degree of influence which that study will have. Thus, the methods by which decisions are taken may be more relevant, in determining the degree of impact studies make, than methodological quality.

4.5 Clinical "Freedom"

Ludbrook (1984) found that the major reason that completed studies failed to influence decision-making was the intransigence of medical and professional staff in allowing economic considerations to interfere with clinical freedom. Traditionally it is argued that a clinician's primary responsibility should be with the patient before him and not with those in the future. Therefore, clinical decision-making should be based on what treatment would be of maximum benefit to this individual patient and not on the basis of what treatments would give the maximum benefit to society given the health-care resources made available.

Studies relating to health policy matters (e.g. the decision over funding of community rather than institutional care) appear to influence decision-making more than studies relating to clinical decision-making, whilst studies of prevention appear to have had greater direct impact in decision-making than those evaluating alternatives in therapy (Drummond et al., 1986). This can be interpreted as clinicians being less willing to be influenced by economic arguments than other decision-makers when considering changes to clinical practices. However, they may be more willing to consider economic evidence when a decision is to be made over introducing new services - e.g. a breast cancer screening programme.

There is increasing evidence that clinicians recognise that the resources to treat all patients to the best of their abilities can not be made available and, therefore, there is a need in clinical decision-making to consider the costs as well as the effectiveness of treatments. As physicians become more aware of the necessity for cost control they may recognise CEA and CBA as the "most rational, humane basis" to implement any cost control initiatives and

should "hardly fear such efforts but should welcome and cooperate actively in them" (Fuchs, 1980). This is illustrated by the increasing number of appraisals conducted by clinicians appearing in medical journals and by the evidence that general practitioners believe cost should be considered when choosing treatments for patients (Ryan, 1990).

4.6 Incentives and Regulations

There is concern that physicians may be inducing patients to demand more health-care than they would if given all the relevant information available. Studies that have reported that operations per capita appears to be positively correlated with physician density lead to support this notion of supplier induced demand (Cromwell & Mitchell, 1986). Such behaviour may be a result of incentives existing which encourage this behaviour - e.g. the income of the physician is determined by the number of patients treated. Also, there may be little incentive for the physician to consider the costs of treatment when making clinical decisions.

There are two possible forms of action which may be taken to try to make clinicians consider the cost-effectiveness of the various alternatives available before making decisions. Firstly, it may be possible to provide regulations forcing clinicians to consider cost as well as the benefit of treatment in treatment decisions. Alternatively it may be possible to provide incentives to the physician to act in this way. The degree to which such incentives and regulations are introduced may determine the level of influence held by research information.

In the U.K., the waiting list initiatives, the indicative prescribing scheme and GP practice budget holding are Government incentives for improving the efficiency of health

services. The U.S. health insurance companies requirement that decisions on treatment are reviewed by a second physician and the common practice of Governments in limiting the drugs available for prescribing, can be seen as attempts to introduce regulations to control clinicians behaviour.

4.7 The Commissioners of Economic Evaluations

The commissioning of a study by the relevant decision-makers would suggest that they believed that the study would be of assistance in decision-making. In the survey by Ludbrook (1984), only a minimal number of completed studies reported by respondents failed to influence decision-making. Also, both the burden of illness studies previously cited were commissioned by the relevant decision-makers.

This fuels the hypothesis that the closer the decision-makers are to the production of appraisals the greater the likelihood of influencing decision-making. However, this appears more relevant in the context of health policy making in that decisions are taken by one person or body and it is that person or body who commissions research to aid their decision-making. In lower-level (clinical) decision-making there are usually several decision-makers involved. To change public policy may only require that one decision-maker be influenced but to change clinical policy several decision-makers (both managers and clinicians) will need to be influenced. Thus, the commissioning of research by a lower-level decision-maker will not increase the influence of research unless other decision-makers believe such research to be relevant.

Conversely, research commissioned by any outside agency - e.g. a drug company - is likely to have a lower level of direct impact primarily because if the relevant decision-makers considered that it would be of use in decision-making they would have commissioned the research themselves. This argument can be related to the recent reforms regarding GP prescribing habits (Dept. of Health, 1990). There is recognition of the role that CBA/CEA should have in improving the efficiency, but the Government did not see the funding of such studies as their responsibility but that of the pharmaceutical industry. As discussed above, the regulations for licensing new pharmaceutical products in the U.K. does not include any requirements for cost-effectiveness ⁷. This can be compared to the situation in other countries such as Australia where there is a requirement to provide information on the cost-effectiveness of a new drug before it can be reimbursed.

4.8 The Role of the Political Process

CEA and CBA can be seen as a "systematic" approach to the problem of allocating scarce resources. However, in the context of this problem there are many factors - e.g. political and social - which may be difficult to analyze in a systematic fashion. As well as clinicians, there may be other interest groups who may press for certain decisions to be made. Decisions affecting health care provision may be made not on the basis of improving health service efficiency but for political gain. Therefore, the need for there to be incentives and/or regulations for decision-makers to behave efficiently applies equally to higher-level decision-makers as it does to lower-level clinical decision-makers.

Hence, an economic evaluation may only be of influence when the majority of decision-makers have efficient provision as one of their major objectives and/or the means of obtaining an efficient outcome does not conflict with other political goals. Given that decision-makers will have other aims and objectives without the relevant incentives or regulations it is unlikely that efficient provision will be such a major objective.

4.9 The Researcher

The final and possibly greatest influence on the level of impact made by economic evaluations is the actions of those who conduct the research. In the survey of researchers conducted by Alban it was found that influencing decision-makers was by no means the sole reason why researchers conducted evaluations. However, for those researchers who are concerned with the influence their work has there are certain factors within the control of researchers which can increase the level of impact their studies have.

If the researchers prime aim is to influence policy then results should be disseminated to those individuals who make policy. Thus, research dissemination should be based on the principle of how best to reach the target audience. Researchers must also consider the degree of understanding of the target audience of the methods of economic evaluation. If it is felt that the relevant decision-makers may be inexperienced as regards economic analysis then the results should be presented in a form which recognises this. Thus, the recommendation made by Ludbrook and Mooney (1984), that clinicians require greater education concerning the relevance of economic evaluations, appears justified.

Thus, researchers must learn to be more pro-active by "selling" their research by disseminating their work to relevant decision-makers and by increasing the understanding of their work through educating decision-makers.

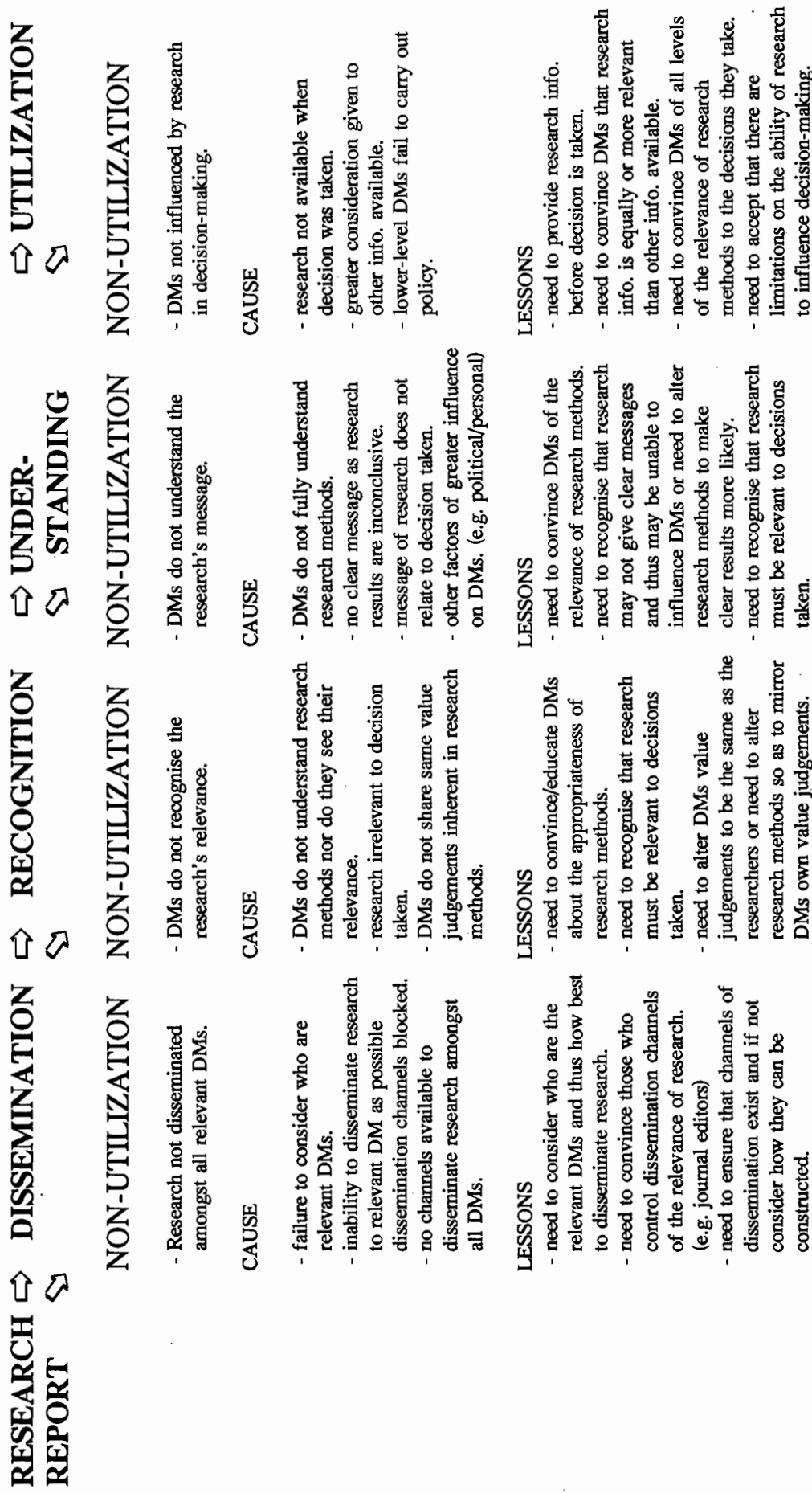


Figure 2 : An Alternative Model of Research Utilization

5. Conclusions

The simple model of research utilisation presented in Figure 1 appears unrealistic. Given the identification of factors which may affect the initial process of research utilisation and the distinction between the various forms of usage identified above a more detailed and complex image of research utilisation can be depicted (Figure 2).

That previous work identified little impact by economic evaluations in decision-making could be because of a failure to consider the level of indirect impact made by studies rather than the instances of direct impact. Thus, the following main conclusions can be made:-

1. The degree of impact of a study will be greater if the relevant decision-makers are involved in the conducting and/or the commissioning of the study. Thus, researchers must "sell" their research before it is started.
2. A study will only be one of various pieces of information available to decision-makers. Thus, researchers must aim to convince decision-makers of the relevance of their work.
3. decision-makers need to be concerned with using resources efficiently and must be aware of the usefulness of economic evaluations in this context for studies to be of influence. Thus, researchers must convince decision-makers of the necessity of making decisions on the basis of efficiency.

4. A study will only make an impact if it can be produced before the decision it concerns requires to be taken. Thus, researchers must adopt methodological standards that will enable an appropriate study to be conducted promptly.

5. The greater the number of relevant decision-makers who are aware of the study the greater the possibility of impact. Thus, researchers must disseminate their work appropriately.

6. The greatest determinant of the level of impact made by studies is not the actions of the decision-makers but the actions of the researchers.

Notes

1. For example, Backhouse et al. (1992), Drummond (1981, 86).
2. For example, Jennett (1988).
3. The only apparent official criteria is regarding the necessity of carrying out an option appraisal for all DHA capital expenditure programmes over £10 million (DHSS 1981).
4. This is argued by many authors (e.g. Williams (1989), Klein (1990)). However, one possible post-reforms scenario may be of a larger market for research information. The existence of the internal market may lead to increased competition which will affect how decisions are taken. Decision-makers may, therefore, need to become more receptive to research information if they are to compete efficiently (Klein 1990). This claim is disputed elsewhere as it is felt that the NHS reforms may restrict managers ability to authorise independent research (Carr-Hill and Blaxter 1990).
5. Consideration must be given to the situation whereby the dissemination needs of the decision-makers and the authors may conflict with the aims of the study sponsor - e.g. pharmaceutical companies - especially when the research can be seen as having "negative" results.
6. A critique of the usefulness of cost-of-illness studies can be found in an article by Shiell et al. (1987).
7. Thus, the Governments commitment to improving efficiency in this area can be argued to be half-hearted, probably to avoid further criticisms by the medical profession as received for the more contentious reforms.

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