Health policy-makers' perceptions of their use of evidence: a systematic review

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Objectives: **The empirical basis for theories and common wisdom regarding how to improve appropriate use of research evidence in policy decisions is unclear. One source of empirical evidence is interview studies with policy-makers. The aim of this systematic review was to summarise the evidence from interview studies of facilitators of, and barriers to, the use of research evidence by health policy-makers.**

Methods: **We searched multiple databases, including Medline, Embase, Sociofile, PsychLit, PAIS, IBSS, IPSA and HealthStar in June 2000, hand-searched key journals and personally contacted investigators. We included interview studies with health policy-makers that covered their perceptions of the use of research evidence in health policy decisions at a national, regional or organisational level. Two reviewers independently assessed the relevance of retrieved articles, described the methods of included studies and extracted data that were summarised in tables and analysed qualitatively.**

Results: **We identified 24 studies that met our inclusion criteria. These studies included a total of 2041 interviews with health policy-makers. Assessments of the use of evidence were largely descriptive and qualitative, focusing on hypothetical scenarios or retrospective perceptions of the use of evidence in relation to specific cases. Perceived facilitators of, and barriers to, the use of evidence varied. The most commonly reported facilitators were personal contact (13/24), timely relevance (13/24), and the inclusion of summaries with policy recommendations (11/24). The most commonly reported barriers were absence of personal contact (11/24), lack of timeliness or relevance of research (9/24), mutual mistrust (8/24) and power and budget struggles (7/24).**

Conclusions: **Interview studies with health policy-makers provide only limited support for commonly held beliefs about facilitators of, and barriers to, their use of evidence, and raise questions about commonsense proposals for improving the use of research for policy decisions. Two-way personal communication, the most common suggestion, may improve the appropriate use of research evidence, but it might also promote selective (inappropriate) use of research evidence.**

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Introduction

Weiss and Weiss argue that, 'both decision-makers and social scientists behave as though social science research makes a genuine contribution to public policy'.[1] At the same time, many researchers are sceptical about the extent to which research is used and many policy-makers are sceptical about the usefulness of research. As Lindblom and Cohen suggest: '... in public policy making, many suppliers and users of social research are dissatisfied, the former because they are not listened to, the latter because they do not hear much they want to listen to'.[2]

Several theories have been put forward to explain the role of research in policy-making and common wisdom about how to improve the appropriate use of research is not hard to find, although empirical evidence to support it is difficult to find.[3] One source of such evidence is the perceptions of those involved in policy-making. The objective of this systematic review was to summarise the evidence from interview studies with health policy decision-makers that cover their use of research evidence in health policy decisions. We were particularly interested in identifying facilitators of, and barriers to, the use of evidence by health policy decision-makers as a basis for developing strategies to improve the appropriate use of research.

We found three previous non-systematic reviews that addressed policy-makers' use of evidence.[4–6] The first evaluated evidence regarding research utilisation in relationship to the 'two-communities' metaphor and six models of research utilisation.[3] The second review included 27 empirical studies with data relevant to the question of how to improve the utilisation of organisational research.[5] The third review was similar to the second, but less comprehensive.[6] In contrast to these

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earlier reviews, we have used a systematic approach to identify, select and synthesise relevant research. We have also focused the review on interview studies involving health policy decision-makers and their perceptions of the enablers of, and barriers to, the use of research evidence for policy decisions.

Methods

Search strategy

We searched PubMed using an iterative strategy, beginning with relevant articles that we had in our files and searching for related articles. Relevant articles from these searches were identified and new searches for related articles were performed. Additional articles were identified by hand-searching journals ($n=2$), personal communication ($n=3$), tracking references in articles and books ($n=7$) and searching in other electronic databases.

The following databases were searched in June 2000 using combinations of index terms and text words derived from relevant articles that we had previously identified: Medline from 1966; EMBASE from 1980; Sociofile (Sociological Abstracts) from 1963; PsychLIT from 1987; PAIS from 1972; IBSS (International Bibliography of the Social Sciences) from 1981; IPSA (International Political Science Abstracts) from 1989; HealthStar from 1992; ISI Web of Science from 1981; and the NHS National Research Register.

Knowledge: Creation, Diffusion, Utilization was hand-searched. Due to lack of availability, only 1979, 1980 (vols 1, 2 and 4), 1981–1984, 1985 (vols 3 and 4), 1987–1993, 1994 (vols 3 and 4) were hand-searched. *Knowledge and Policy* was hand-searched for 1995–1997 when it continued as *Knowledge and Policy: The International Journal of Knowledge Transfer and Utilization*, which was hand-searched for 1998–2000.

Selection criteria

We included interview studies and surveys with health policy decision-makers. We only included studies of health policy-makers responsible for decisions on behalf of a large organisation or jurisdiction. If others were also interviewed – most often researchers – decision-makers had to be explicitly defined as a subgroup within the study. Studies of clinical decision-making for individual patients were excluded.

The studies had to address decision-makers' use of research evidence in health policy decisions or on a broader range of policy decisions, if these included health policy decisions.

Data collection and analysis

Articles were retrieved if it appeared likely that they contained empirical data from interviews or if they otherwise appeared highly relevant. Three people reviewed a sample of 200 citations and abstracts, following which one person reviewed all of the citations and abstracts that were found and the reference lists of all of the retrieved articles.

The retrieved articles were assessed for inclusion by at least two people. When disagreements could not be resolved by discussion, a third person assessed the article. Studies that appeared relevant, but which were not, are included in a list of excluded studies (46 studies, available from the authors).

Two people extracted data from the included studies using a data collection form. The extracted data were summarised in three tables with the following information:

- Table 1 (characteristics): the study's objective; the type of interviews used; characteristics of the participants; the types of research evidence and the types of policy decisions that were considered.
- Table 2 (methods): the sampling frame and strategy; response rate; how the use of evidence was measured or assessed; how the determinants of use were measured or assessed.
- Table 3 (main results): identified the facilitators of, and barriers to, the use of research.

Tables 1, 2 and 3 are included only in the online version of the journal, and may be viewed free of charge at http://www.catchword.com/rpsv/catchword/rsm/13558196/v7n4/s8/p239.

Results

More than 3000 references were found. Seventy studies appeared relevant on the basis of title, keywords and abstracts. Twenty-four studies reported in 26 articles met the inclusion criteria. Although non-English language papers were not excluded from our search, all the included papers were in English. The studies were undertaken in the USA ($n=10$), both the USA and the UK ($n=1$), the UK ($n=3$), Canada ($n=3$), Australia ($n=1$), Burkina Faso ($n=1$), Mexico ($n=1$), The Netherlands ($n=1$), Pakistan ($n=1$), South Africa ($n=1$) and Sweden ($n=1$).

Search strategy

The study designs varied. Face-to-face interviews, telephone interviews and postal questionnaires were used with open-ended, semi-structured and structured interviews (Table 1). Most of the studies focused on one or a few cases, with widely varying policy questions and types of evidence. Generally the participants were poorly described, but most of the studies interviewed people with apparent responsibility for making important policy decisions, such as people in 'upper level positions' and 'senior managers'. Staff members who appeared to have less responsibility for decisions were also included in several studies. Twenty-one of the 24 studies examined the role of evidence in actual decision-making processes. The other three studies examined hypothetical decisions. All studies measured perceptions of use or hypothetical

use rather than actual use of research evidence. Five of the included studies did not report how many policy-makers were interviewed. The remaining 19 studies interviewed a total of 2041 policy-makers (median 58, range 16–479).

Study methods

The included studies were all limited with respect to the generalisability of their results. Three studies interviewed a representative sample of health policy decision-makers drawn from a clearly described sampling frame.[17,18,34] Most studies reported how many decision-makers were included and their positions, but the relation between the included policy-makers and the system from which they were drawn was rarely described. Three of the 24 included studies met all of our methodological criteria:[17,18,34] i.e. clearly described the sampling frame and the relationship of the included policy-makers to this; had a response rate of at least 60%; and clearly described how the use of evidence and the determinants of how evidence was used were measured or assessed (Table 2). Seven studies partially met our criteria (Table 2, last column). The other 14 studies did not adequately describe the methods that were used.

Measurement or assessment of the use and determinants of use of evidence was mostly descriptive. Most studies included a list of what the investigators perceived to be barriers to, or facilitators of, the use of evidence. It is unclear which barriers and facilitators the decisions-makers found most important and which barriers and facilitators were considered. Six of the 24 studies rated variables that appeared to determine the use of evidence (Table 2).[9,14,17,18,35]

Facilitators and barriers

Many of the studies used open-ended questions. The respondents and investigators used different words to describe facilitators of, and barriers to, the use of research evidence. However, several common factors were described across studies. These are summarised in Table 3. A detailed version of this table, including the exact words used in each of the included studies, is available from the authors. The most commonly mentioned facilitators of the use of research evidence in policy-making were:

- Personal contact between researchers and policy-makers (13/24).
- Timeliness and relevance of the research (13/24).
- Research that included a summary with clear recommendations (11/24).
- Good quality research (6/24).
- Research that confirmed current policy or endorsed self-interest (6/24).
- Community pressure or client demand for research (4/24).
- Research that included effectiveness data (3/24).

The most commonly mentioned barriers to the use of research evidence in policy-making were:

- Absence of personal contact between researchers and policy-makers (11/24).
- Lack of timeliness or relevance of research (9/24).
- Mutual mistrust, including perceived political naivety of scientists and scientific naivety of policy-makers (8/24).
- Power and budget struggles (7/24).
- Poor quality of research (6/24).
- Political instability or high turnover of policy-making staff (5/24).

Based on the findings of these studies, personal two-way communication between researchers and decision-makers should be used to facilitate the use of research. This can reduce mutual mistrust and promote a better understanding of policy-making by researchers and research by policy-makers. It can inform researchers about what the decision-makers consider timely, relevant questions and policy-makers about how to obtain valid answers to these questions. However, the frequently identified facilitators, including personal two-way communication, may not be easy to establish – for example, because of political instability or high turnover of policy-making staff.

Discussion

The strengths of this review include an extensive and systematic literature search, explicit inclusion criteria and a systematic and transparent approach to collecting and presenting data from the included studies. Every included study was read and appraised by at least two of the authors. The limitations of our review largely reflect the limitations of the literature we reviewed.

Because much research in the social sciences is poorly indexed in electronic databases, we may have missed relevant studies. Personal communication with investigators in the field yielded only three additional studies and, although we attempted to contact the authors of all of the included studies, only three responded and no additional references were identified through these contacts.

The limitations of the included studies with respect to sampling and generalisability are not surprising in light of the fact that most of the studies were qualitative and were not necessarily intended to include representative samples. Moreover, given the diversity of contexts in which health policy decision-making occurs, it is not possible to obtain a generalisable sample. Nonetheless, inadequate descriptions of the participants and contexts for many of the included studies make it difficult to interpret the results.

No factor was mentioned in more than 13 of the 24 studies as a facilitator or barrier, even when similar factors were grouped together. This variation can in part be explained by the fact that some of the studies focused on specific factors that were identified a priori and therefore may have excluded other factors. Another source of variation is the fact that most studies focused

on specific cases and factors were considered only in relationship to those cases. For example, in a study focusing on the use of an economic evaluation, it is more likely that financial constraints would be considered as a barrier. In a developing country study, it is more likely that international support would be considered as a facilitator. In a study focusing on an issue on which interest groups have a strong position, it would be more likely that decision-makers would consider alliances with interest groups as a facilitator or a barrier.

Two theoretical perspectives were dominant in the literature. The first perspective draws analogies between the relationship of researchers and policy-makers, and the relationship between the natural sciences and the humanities. From this perspective, problems with communication between researchers and policy-makers are large and difficult to overcome.[9,36] This is often referred to as the 'two-communities thesis' or the 'two cultures'. The other perspective focuses on the concept of the 'use of research'. It addresses how the word 'use' may have fundamentally different meanings.

The 'two-communities thesis'

The 'two-communities thesis' postulates the existence of two camps that lack the ability to take into account the realities or perspectives of one another. Caplan et al found that social scientists see themselves as rational, objective and open to new ideas;[9] they see decision-makers as action- and interest-oriented, indifferent to evidence and new ideas. Decision-makers, on the other hand, see themselves as responsible, action-oriented and pragmatic; they see scientists as naive, jargon-ridden and irresponsible in relationship to practical realities. Two-way communication between the two camps can facilitate a mutual understanding of a policy question and the kind of knowledge that is needed. This requires that researchers and decision-makers agree on which questions can be answered on the basis of research evidence and which require political judgement. This does not imply that research alone can answer policy questions, since these will always require some political judgement. The aim of two-way communication is to help ensure that research appropriately informs judgements for which policy-makers are accountable, not for researchers to assume the role of policy-makers.

The results of this review support the 'two communities thesis', since the most commonly identified facilitator of the use of evidence was personal contact between researchers and decision-makers. It is further supported by the most commonly mentioned barriers to the use of evidence, absence of personal contact and mutual mistrust between decision-makers and researchers. Personal two-way communication may also be a necessary precondition for other facilitators. For example, without personal two-way communication it may be difficult for researchers to understand what decision-makers regard as timely, relevant or good quality research.

On the other hand, this review is mostly based on information from one side of the two camps: the decision-makers. It is not surprising that decision-makers find it easier to use evidence that they have had an opportunity to influence through two-way communication with the researchers. Additionally, the included studies do not clarify whether decision-makers use only the research they want to use. Decision-makers may use evidence that supports their own ideology or their own political programme.

The 'two-communities' thesis sheds light on an important possible paradox inherent in the results: the factors that facilitate use of research may not necessarily be factors that researchers should seek to enhance. If what is required for research to be used is that researchers do what the policy-maker wants them to do, then research may fail to fulfil one of its most important functions, namely to be objective, reliable and unbiased.

What is 'use' of evidence?

Along with the 'two-communities' thesis, the question of what is meant by the concept of the 'use' of evidence is the most commonly discussed theoretical issue in the literature on knowledge utilisation. The most frequent categorisation of different types of use in this review is direct ('instrumental' or 'engineering'), selective ('symbolic' or 'legitimating') and enlightening ('conceptual') use of evidence. Direct use of evidence refers to specific use of research results. It indicates that, if research results are relevant for a solution, the results should directly affect the solution without much adjustment. Enlightening use of evidence refers to research that helps to 'establish new goals and bench marks of the attainable'[37] and helps to 'enrich and deepen understanding of the complexity of problems and the unintended consequences of action'.[38] Selective use is strategic, involving use 'to legitimate and sustain predetermined positions'.[5]

The different definitions of 'use' contribute to the difficulty of interpreting the results of the studies included in this review. A health policy decision-maker who defines use as direct use is likely to report less use of research evidence than decision-makers who also include selective or enlightening use of evidence. Many of the studies have addressed different kinds of use and found that health policy decision-makers refer to use in all three of the above ways.

The degree to which evidence is used directly, in an enlightening way or selectively may vary in relation to:

- Different types of decision-makers: upper, middle and lower level.
- Different types of policy questions: vague and complex, or focused and simple.
- Different issues: adoption versus implementation, or decision versus action.

The degree to which evidence was directly used varied across studies. One study found that 40% of the use of evidence was direct, defined as the 'primary source in the policy formulation process'.[9] Another study found only 7% direct use.[2,12] The study that found 40% direct use was in a context where 94% of all the research used

had been commissioned. The study with only 7% direct use did not cover examples of commissioned research. This suggests that expecting direct use frequently may be unreasonable, particularly for research that is not commissioned. A third study, not included in this review, found that local administrators, close to programme operations, reported more direct use of evidence than federal-level decision-makers.[39]

Enlightening use of evidence is more difficult to assess than direct use. Decision-makers may interpret this as no more than a question of whether they consider research to be of value. One study found that 60% of decision-makers 'used' evidence in this way.[9] Self-reported selective use of research, on the other hand, may be difficult to elicit in interviews because it puts decision-makers in a bad light, although it is commonly perceived as a problem by researchers and others. Research that confirms current policy or supports community pressure may facilitate selective use. Personal contact may also facilitate selective use of research.

Conclusions

From the results of this review of 24 studies that met our inclusion criteria, based on 2041 interviews with policy-makers, researchers who wish to increase the use of the results of their research should: have personal and close two-way communication with decision-makers; provide decision-makers with a brief summary of their research with clear policy recommendations; ensure that their research is perceived as timely, relevant and of high quality; include effectiveness data; argue that the results of their research are relevant to current policy and demands from the community. They should avoid getting involved in power and budget struggles and be aware of the high turnover of policy-making staff. Of course, if the aim is to increase appropriate (direct or enlightening) use of research rather than selective use, these strategies will often not be effective, as well as being difficult to implement.

If the results from the interview studies with decision-makers are taken literally, use of evidence will be facilitated by timely and relevant research that gives decision-makers the answers that they want. However, they may not always be able to get what they want, since researchers should, and it is to be hoped will, insist on using methods that protect against bias. If decision-makers and researchers start to talk together about the barriers and facilitators found in this review, a more reflective, appropriate and cooperative way of working together, which values both relevance and validity, may evolve.

The studies included in this review address decision-makers' perceptions of their use of evidence. Some studies suggested document analysis as a way to check whether these perceptions correspond to what was done,[12,15,19,21,33] but none of the included studies did this systematically. Future research should combine interviews with document analysis, focus on commissioned research and clearly define what is meant by 'use' of research.

The methods that were used in the included studies and their diversity limit the extent to which any firm conclusion can be drawn from this review. In fact, one of the main conclusions of this review is that there is, at best, only limited support for any of the many opinions put forward in the literature on the use of research evidence by policy-makers. At the same time, given the diversity of the included studies, the policy-makers who were interviewed and the contexts in which they worked, it is striking that some factors were identified as frequently as they were.

Advice about how to improve the use of evidence by policy-makers is typically based on personal experience, supported by anecdotes. The results of this review provide a context in which to consider such advice. They provide a menu of factors to consider, but not a basis for any strong recommendations. Similarly, the two theories that are commonly used in these studies provide useful insights for understanding the perceptions summarised in this review and other opinions about the use of evidence by policy-makers, but there are limited empirical data to support these or other theories.

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Table 1 Characteristics of included studies

Country, year conducted (#year published), reference	Objective	Study design	Participants/level of policy-making	Types of evidence (from which decisions were made)	Types of decisions (hypothetical, perceived or actual)/types of policy	Comments
The Netherlands 1969–1971[7]*	The conditions and functions influencing utilisation of social policy research (p. 49)	Semi-structured surveys (p. 50)	Researchers and policy-makers that were responsible for incorporating the research results (p. 50). *N* = not stated	120 research projects on 'client-oriented' social research within industrial and labour relations, regional and urban planning, social welfare and public health (p. 50)**	Perceived (retrospective) decisions (p. 50)	*Revised version of paper presented in 1979 (p. 49) **40 out of the 120 projects were on social welfare and public health
USA 1973[8]*	What was done, what helped and what hindered the success for ten research projects under the National Institute of Mental Health** (p. 141)	Personal interviews (p. 141)	Principal investigator, other staff members, administrators and persons most likely to be utilisers (p. 141). *N* = not given	Five projects rated low and five projects rated high for 'success'** (p. 140)	Perceived use	*The interviews were done in either 1967 or 1968 (pp. 140–141) **Success defined as project that was directed to the original objectives, embodied in a clear and cogent report, candid enough to be replicable, and that the findings were disseminated adequately (p. 140)
USA 1973–1974[9] (p. vii) and USA 1973–1974[10]	Social science research utilisation and policy formation (p. vii). Awareness of research, knowledge of sources, information retrieval practice, interest in social indicators, evaluation of worth and objectivity, methods and measurement procedures, degree of confidence on findings, attitudes about use, factors that influence use (p. ix)	Personal interviews, open-ended and structured (pp. v, ix)	Upper-level decision-makers in the executive branch of the US federal government (pp. v, viii): 31 deputy under secretaries, 54 institute directors, 67 deputy assistant directors, 52 agency personnel. *N* = 204 (p. v)	575 reported instances of use, where 385 involved primary research sources (p. 8); 94% were either funded by the government, conducted by the government or both (p. 8)	Perceived (self-reported) use with specific follow-up questions when use was reported (p. 1). 15% of the use of knowledge was on health or welfare problems (p. 5)	'Most of the examples respondents offered to illustrate knowledge applications really involved the application of secondary source information' (p. 187)
USA 1977[#11]	'To examine the nature and degree of utilization of federal evaluation research' (p. 143)	Open-ended interviews, with different questions for the decision-maker and the evaluator (p. 143)	Three key informants from each of the 20 studies were interviewed: a project officer, the decision-maker (government level) and the evaluator (p. 143). *N* = 60 (p. 143)	20 national health care evaluations (case studies) with some systematic data collection, made between 1971 and 1974, based on 11 factors identified by the authors (pp. 142–143)	Perceived and self-defined use (p. 144). Health training, laboratory proficiency, neighbourhood health centres, health services delivery systems, alcoholism, loan forgiveness and training workshop (pp. 142–143)	
USA 1980[2]* and USA 1980[12]	Policy-makers' perceptions of the usefulness of social sciences research (pp. 165, 302)	Personal interviews, both open-ended and structured (pp. 168, 171, 303)	51 federal, 52 state (from ten states) and 52 local official decision-makers in upper-level positions (pp. 167, 303). *N* = 155	Each decision-maker read two abstracts (two-pagers) out of 50 for actual social science research reports** (pp. 168, 303)	Hypothetical decisions (i.e. 'relevant to the issues your office deals with') on mental health, alcohol and drug abuse** (pp. 166, 303)	*Not stated, but published April 1980. Reprinted from *American Psychologist* 1981. Based on the same research project as USA 1980[12] (but partly on other parts of the data) **The decision-makers were given different 'empirical' interventions (i.e. two-pagers) and are therefore difficult to compare on the effect variables

continued

Table 1 *continued*

Country, year conducted (#year published), reference	Objective	Study design	Participants/level of policy-making	Types of evidence (from which decisions were made)	Types of decisions (hypothetical, perceived or actual)/types of policy	Comments
USA 1982[13]*	To observe the impact that decision complexity, and amount of information available, had on the quality of the decision process (p. 187)	Structured, semi-structured and open-ended questionnaires combined with a controlled experiment. Consequences of complexity were examined by effects of information load and number of decision alternatives (pp. 187, 193, 194)**	Experienced public and private sector managers from six mid-career programmes at Harvard, MIT, Stanford and the Washington Public Affairs Center (pp. 187, 188). $N = 132$ (p. 188)	Each decision-maker received a long memorandum describing a problem, presenting evidence useful in analysing the problem, and posed a decision to be made based on real people and events (p. 188)	Two hypothetical decisions: one on the state's Department of Health and Rehabilitative services and one on a methadone maintenance programme in New York City (pp. 188–189). Decision had to be made from available information within 1 hour 45 minutes (p. 193)	*Reprinted from the *Journal of Policy Analysis and Management* 2: 66–87 (p. 185) **The experiment was based on six different versions of each of the two cases. The six different versions of the cases varied in information complexity. Each decision-maker had only one decision to make at only one level of complexity (pp. 189–190, 193)
USA 1983#[14]	To determine some of the factors that influence administrators' use of evaluative data in decision-making, and to examine the types of decisions (p. 79)	Structured and open-ended postal questionnaires (pp. 79–80)	Directors in community mental health centres in Florida and North Carolina (p. 79). $N = 42$	Conducted studies on programme effectiveness or impact during the last 12-month period (p. 81)	Perceived (i.e. reported) use (pp. 80–81)	
Sweden 1984–1985[15] (p. 152)	Different ways of using social research: instrumental, political/conflict, enlightenment, interactive, and tactical (pp. 141, 143–144)	Interviews (p. 152)	Social workers, management directors, local and national politicians in 15 Swedish cities and communes (p. 152). $N = 90$ (p. 152)	Documents that the respondents referred to. These documents were also analysed by the authors (p. 152)	Perceived/retrospective decisions (p. 152)	
USA 1990[16]	To determine what type of information decision-makers use, and how ideology and interests influence the use of information (p. 109)	Personal, semi-structured interviews (p. 112)	Local planning committees and government employees in two rural communities in the Pacific Northwest (p. 110). $N = 27$ (p. 110)	Sources of information used in community health care planning, and the assessment of the strategic planning process (p. 112)	Perceived use (p. 112)	
USA 1991#[17]	What factors influence the use of evaluation research (on health and human services) in congress (p. 508)*	Structured telephone interviews (p. 513)**	Congress members and their staff (p. 512). $N = 100$	Each decision-maker chose one study they were familiar with (p. 515)	Perceived use (p. 515). Evaluation studies from the Department of Health and Human Services that deal with national health programmes (pp. 507, 515)	*Use is defined here as both instrumental (direct implementation), conceptual (it changed the way of thinking) and persuasive (used to convince others, p. 516) **The interviews lasted 15–40 minutes (p. 514)
UK 1991[18]	Use and reasons for use/not use of the *Effective Health Care Bulletin* (pp. 51–54)	Structured and open-ended postal questionnaires (pp. 50–51)	District general managers, directors of public health and directors of planning/commissioning in UK district health authorities or commissioning consortia (p. 50). $N = 172$ (p. 51)	*Effective Health Care Bulletin* No. 1, 1991, on screening for osteoporosis to prevent fractures (p. 50)*	Perceived use of information and hypothetical decisions, change of opinion and confidence to act on information in the bulletin (pp. 52–54)	*Respondents were questioned about a bulletin that had been previously posted to them (pp. 51, 52)

continued

Table 1 *continued*

Country, year conducted (#year published), reference	Objective	Study design	Participants/level of policy-making	Types of evidence (from which decisions were made)	Types of decisions (hypothetical, perceived or actual)/types of policy	Comments
USA 1993–1994[19]	The role of research information in policy development (p. 29)	Questionnaires (p. 13), open-ended telephone interviews (p. 14) and semi-structured telephone interviews (p. 14)	Key informants* in states that changed cost-sharing policies for prescription reimbursement limits and co-payments (p.14). *N* = inadequately described	Research publications and comments (p. 25)	Perceived/retrospective decisions (p. 25)	Only 2–3 pages out of 21 were relevant (p. 25ff) *Informants included Medicaid drug programme administrators, directors or policy analysts, pharmacy consultants and legislators (p. 15)
UK 1994–1995[20,21]	'To identify factors which facilitate or impede evidence-based policy-making' (p. 29)	In-depth interviews (using a topic guide) (p. 29 and response to a letter)	Lead policy-makers, GPs and researchers in nine different case studies at a local level in the NHS (pp. 29, 31). *N* = 28	Social research (p. 42 in the project report)	Perceived decisions. Policy on the interface between R&D and commissioning at the health authority level (p. 30)	
Mexico 1994–1995[22]	'The relationship between health research (and researchers) and health policies (and policy-makers) in four vertical health programmes in Mexico' (p. 104)*	Open-ended ('in-depth') interviews with a common interview protocol (p. 106)*	'Researchers and policy-makers from different institutions and levels of responsibility' (p.103). *N* = 67	Use of research publications 'where we knew that there was at least some interaction between researchers and decision-makers' (p. 105)	Perceived** use of evidence concerning AIDS, cholera, family planning and immunisation in governmental programmes (p. 103)	*Personal communication gave additional information on this issue **It is difficult to discern whether the decisions were perceived or hypothetical, since there are no actual decisions mentioned
Australia 1995[#23]	Decision-makers' awareness and use of economic evaluations in health care (p. 103)	Interviews, open-ended and structured (not stated if postal, telephone or face-to-face) (p. 105)	Senior managers in the Federal Department of Health, Housing and Community Services, New South Wales State, the Health Department (p. 104). *N* = 34 (p. 105)	Use of economic evaluations for pricing on drugs, screening, radiology, transplants and scanning (p. 105)	'Perceived use of economic evaluations' (p. 104)	
USA 1996[#24] and USA 1997[#25]	To determine whether the process of (social science) information utilisation varies across different areas (i.e. service provision and financing) (pp. 16–17)	Structured interviews (p. 16)*	Federal, state and local policy-makers at different levels dealing with finance and services (p. 16). *N* = 479 (p. 16)	No specific report, but 'infotype' refer to programme evaluation, demonstration project, statistical data and policy analysis (p. 34)	Perceived/retrospective decisions (p. 17)	*Open-ended interviews were used to obtain basic background information about the policy process. The structured interviews built on the open-ended interviews (p. 33)
Pakistan 1998[26]	The role that research plays in experiences in linking research with policy (p. 77)	Open-ended in-depth interviews (p. 77)	Decision-makers from government, the central ministry of health, the planning commission and provincial health authorities (p. 77). *N* = 16 (p. 77)	Not stated	General perceptions. Closest focus on child health problems such as co-trimoxazole, maternal mortality, vitamin A, breastfeeding and polio (pp. 77, 79)	
UK 1998[27]*	The impact that the *Effective Healthcare Bulletin* has inside the NHS organisation (p. 1)	Telephone interviews, structure not mentioned (p. 1)	Health authorities** (p. 2). *N* = 34	Two specific bulletins: June 1997 and October 1997 (p. 1)	Hypothetical decisions (e.g. 'it influenced the development of our policy, although this has been going on for some time') (p. 10)	*The date is not clearly stated, but it is 1998 or 1999 **Trusts and GPs are included in the study, but are not relevant in this review

continued

Table 1 *continued*

Country, year conducted (#year published), reference	Objective	Study design	Participants/level of policy-making	Types of evidence (from which decisions were made)	Types of decisions (hypothetical, perceived or actual)/types of policy	Comments
UK and USA 1998[#28]*	How UK and US purchasers value and use research assessing health technology and clinical effectiveness (pp. v, 1)	Semi-structured telephone interviews (p. 4)	UK: 14 non-medical health authority purchasers, seven public health physicians, nine GPs. USA: 13 public officials from 11 states, nine private sector purchasers, three consultants. *N* = 55 (p. 4)	Access to and use of health technology assessment/ clinical effectiveness information (pp. 4, 11)	Perceived use (p. 1)	*Stated 1999 (p. 3)
Canada 1998–1999[29]	A case study of cross-sectoral resource allocation in the human services system in Prince Edward Island (p. 4)	Semi-structured and open-ended interviews and focus groups (pp. 13–16, Appendix 1)	Key informants holding different positions within the five health regions, the Department of Social Services and various sectors (p. 4), all regions, all sectors and management levels (p. 13). *N* = 58 (p. 9)	Not stated	Perceived decisions on cross-sectoral resource allocations (p. 5)	
Burkina Faso 1999[30]	A case study on how research played a role in decision-making about 'Shared Care'* for childhood illness (pp. 19–20)	Semi-structured interviews (p. 20)	Ministry of Health officials (p. 22). *N* = not given	Workshops and research papers that the authors had provided Ministry of Health officials with during previous years (p. 21)	Perceived use of the provided scientific information in decision-making (p. 20)	*'Shared care' is about improved contact and collaboration between health centre staff and mothers (p. 20)
South Africa 2000[31]	Barriers against and mechanisms for improving the vitamin A research–policy–action connection (p. 55)	Semi-structured interviews (p. 55)	Key informants that were relevant role-players (p. 55). *N* = not stated	Not stated	Perceived use (p. 55)	
Canada 2000[32]*	To assess the influence of information about the health consequences of unemployment and insecurity on policy-making (p. 5)	Structured, semi-structured and open-ended telephone interviews (pp. 5, 9)	Policy-makers in the health and employment sectors of all three levels of Canadian government, and executive directors of ten Canadian non-governmental organisations (p. 5). *N* = 48 (p. 5)	Not stated	Perceived/retrospective usefulness of past research information about the health consequences of unemployment and insecurity on policy-making (p. 5)	*Stated date for working paper is March 2000
Canada 2000[33]	To understand whether, how, and under what conditions health services research plays a role in provincial policy-making (p. i)	Both personal, semi-structured interviews and surveys (pp. 8, 11)	Key informants within a variety of key health policies in two Canadian provinces (Ontario and Saskatchewan) (p. ii). *N* = 22 (p. 18)	Not stated*	Actual and perceived decisions within the fields of health services jurisdiction, financial arrangements, programme delivery arrangements and programme content (pp. 7, 13)	*It is not stated what kind of evidence was used, but references to direct use of evidence in decision reports, reporting on actual use of research, implies that evidence was used (pp. 13, 18–19)

GPs, general practitioners; MIT, Massachusetts Institute of Technology; NHS, National Health Service; R&D, research and development.

Table 2 Study methods

Study, reference	Sample frame (SF)[a] and sample strategy (SS)[b]	Response rate	Measurement of use of evidence	Measurement of determinants of use	Summary of description of methods (complete, partial, or not adequately described) and comments
The Netherlands 1969–1971[7]	SF: not stated SS: not stated	Not stated	A quantitative 4-point score weighted according to three decision levels, with summed score ranging from 0 to 18 (p. 51)	Two-way ANOVA (p. 66)	Not adequately described
USA 1973[8]	SF: not stated SS: not stated	Not stated	Descriptive	No statistical technique	Not adequately described
USA 1973–1974[9] and USA 1973–1974[10] (p. vii)	SF: partial (p. viii) SS: not mentioned, partly snowballed (p. viii)	95% (p. 24)	Both quantitatively rated and weighted (pp. 25, 28, 33, 35, 36) and qualitatively described (pp. 1–4)	Descriptive listing of ratings (pp. 28, 33, 35, 36) and MCA (multivariate regression) analysis (p. 27)	Partial It is stated that 'this report represent only a first summary of some of the highlights and more important findings' (p. vi). Subsequent reports not found
USA 1977[11]*	SF: partial (p. 143) SS: snowballed, partly random (p. 143)	Not stated	Descriptive	No statistical technique	Partial *The interviews appear to have been made between 1973 and 1976
USA 1980[2] and USA 1980[12]	SF: partial (p. 167) SS: not stated	90% (p. 167)	Both quantitative descriptions, rated and weighted and qualitative* (pp. 169ff, 303)	Descriptive listing of ratings (pp. 170–172, 174) and 25 variables analysed using factor analysis to develop five dimensions** (p. 304)	Partial *Both a 4-point (p. 168) and a 5-point weighted rating scale (pp. 173, 303). The qualitative rating comes from listing of most mentioned characteristics of usefulness **The five dimensions are listed in Table 3 under facilitators
USA 1982[13]	SF: Partial (pp. 187–188) SS: random sample* (pp. 187–188).	Volunteered (p. 188)	Quantitative listing of the decision quality of evidence – use on six different levels of complexity (pp. 195–208)	Listing of frequencies (pp. 196–198)	Partial *The 132 decision-makers were randomly distributed to two of 50 case studies and six different levels (p. 194)
USA 1983[14]	SF: not stated (p. 79)* SS: not stated (p. 79)*	65% (p. 79)	Quantitative listing and ratings (pp. 82–86)	Frequencies and rated importance (as very, moderately or not important) (p. 82)	*SF and SS complete if the study's focus considered only directors in Florida and North Carolina, and if there were only one director in each Community Mental Health Center
Sweden 1984–1985[15]	SF: not stated SS: not stated	Not stated	Qualitative and descriptive (pp. 146–150)	Listing of frequencies (pp. 145, 149)	Not adequately described The authors mainly discuss and demonstrate different ways of utilising research, as either: instrumental, political/conflict, enlightenment, interactive, or tactical (p. 144). '. . . using research "instrumentally" or for "enlightenment" purposes meant different things in different settings and different organizational positions' (p. 145)
USA 1990[16]	SF: partial (p. 110) SS: complete* (p. 110)	100% (p.110)	Qualitative and descriptive (p. 112)	Qualitative	Not adequately described *Complete refers to the 27 representatives in the two planning committees in the two communities. No further generalisation can be made on the basis of this sample
USA 1991[17]	SF: complete (pp. 513–514) SS: random sample (p. 513)	60% (p. 514)	Quantitatively descriptive, rated and weighted** (pp. 519–522)	Descriptive listing of weighted ratings (pp. 517–523) and multiple regression (pp. 518, 523–527)	Complete **Weighted on 3-point and 5-point scales
UK 1991[18]	SF: complete (p. 51) SS: random sample (p. 51)	73% (p. 51)	Quantitative rated descriptions (pp. 51–54)	Percentages (pp. 51–54)	Complete

continued

Table 2 *continued*

Study, reference	Sample frame (SF)[a] and sample strategy (SS)[b]	Response rate	Measurement of use of evidence	Measurement of determinants of use	Summary of description of methods (complete, partial, or not adequately described) and comments
USA 1993–1994[19]	SF: partial (p.15) SS: not stated	Not stated	Qualitative and descriptive (i.e. subjective view on key variables of policy change, any mention, no ranking) (p. 16)	Qualitative	Not adequately described Only Medicaid programmes with specific cost-containment policies in the last several years (p. 29)
UK 1994–1995[20,21]	SF: partial (pp. 461, 465) SS: snowballed (pp. 461, 465)	100% (all those approached for interview agreed to the interview)	Qualitative and descriptive (p. 31ff)	Qualitative	Not adequately described
Mexico 1994–1995[22]	SF: not stated* SS: not stated*	Not stated	Qualitative and descriptive (i.e. subjective view on key variables) (pp. 104, 106–108)	Qualitative	Not adequately described *Purposive sample (personal communications)
Australia 1995[23]	SF: partial SS: not stated*	Not stated	Quantitative and descriptive (pp. 105–108)	Qualitative	Not adequately described *Called 'purposive sampling frame' (p. 104)
USA 1996[24] and USA 1997[25]	SF: partial (pp. 16, 30–31) SS: combined random and snow-balled (pp. 30–31)	Not stated	Quantitative regression and a path model (p. 18)	Quantitative regression and a path model (p. 18)	Partial, but with a good description of SS and SF
Pakistan 1998[26]	SF: partial (p. 77) SS: not stated	Not stated	Descriptive (pp. 78, 80, 82)	Qualitative	Not adequately described
UK 1998[27]	SF: partial (pp. 1–2) SS: not stated (pp. 1–2)	Not stated	Qualitative and descriptive (i.e. subjective view on awareness, general perceptions and impact)	Qualitative	Not adequately described
UK and USA 1998[28]	SF: partial (p. 4) SS: not stated	Not stated	Qualitative and descriptive (pp. 12–22)	Qualitative	Not adequately described
Canada 1998–1999[29]	SF: partial (p. 16) SS: not stated*	Not stated	Qualitative descriptions and quantitative listings (pp. 18–30, 32–34)	Qualitative	Partial *A qualitative validation of the interviews is described (pp. 16–17)
Burkina Faso 1999[30]	SF: not stated SS: not stated	Not stated	Qualitative and descriptive (p. 22)	Qualitative	Not adequately described
South Africa 2000[31]	SF: not stated SS: not stated	Not stated	Descriptive	Qualitative	Not adequately described
Canada 2000[32]	SF: partial SS: not stated*	42% (p. 23)	Both quantitative and qualitative descriptions of barriers (pp. 11–14, 26)	Frequencies (p. 26)	Partial *Called 'a purposive sample of Canadian policy-makers' (p. 8)
Canada 2000[33]	SF: not stated SS: snowballed (p. ii)	88% (22/25) (p. 18)	Both quantitative and qualitative descriptions of facilitators (pp. i, ii, 35–37)	Qualitative	Not adequately described

[a]Sample frame: complete = the sample was described in relation to all the decision-makers in the context of the study; partial = incomplete information; not stated = no description.
[b]Sample strategy: complete sample, random sample, snowballed sample, or not stated.

Table 3 Main results

Study, reference	Facilitators to use of research identified in three or more studies	Barriers to use of research identified in three or more studies
The Netherlands 1969–1971[7]	Personal contact between researchers and decision-makers (p. 54) Research that includes a summary with clear recommendations (p. 60) Community pressure or client demand for research (p. 54) Research that confirms current policy or endorses self-interest (p. 65)	
USA 1973[8]	Personal contact between researchers and decision-makers (p. 141) Community pressure or client demand for research (p. 142) Timeliness and relevance of the research (p. 143) Research that confirms current policy or endorses self-interest (p. 143)	Absence of personal contact between policy-makers and researchers (pp. 141, 143) Lack of timeliness or relevance of research (pp. 142, 145) Mutual mistrust between policy-makers and researchers (p. 143)
USA 1973–1974[9] and USA 1973–1974[10] (p. vii)	Personal contact between researchers and decision-makers (pp. 33, 36) Timeliness and relevance of the research (p. 33) Good quality research (p. 33)	Mutual mistrust between policy-makers and researchers (p. 28) Absence of personal contact between policy-makers and researchers (p. 28)
USA 1977[11]	Personal contact between researchers and decision-makers (pp. 155, 158) Timeliness and relevance of the research (p. 145)	Power and budget struggles (pp. 149, 152) Political instability or high turnover of policy-making staff (pp. 159–160) Absence of personal contact between policy-makers and researchers (pp. 155, 158)
USA 1980[2] and USA 1980[12]	Good quality research Research that confirms current policy or endorses self-interest Timeliness and relevance of the research Research that includes a summary with clear recommendations	Absence of personal contact between policy-makers and researchers Mutual mistrust between policy-makers and researchers Power and budget struggles
USA 1982[13]	None of the facilitators were mentioned in the other studies	None of the barriers were mentioned in the other studies
USA 1983[14]	Community pressure or client demand for research (pp. 82, 84) Inclusion of effectiveness data (p. 82)	Not stated
Sweden 1984–1985[15]	Research that confirms current policy or endorses self-interest (pp. 146, 149) Research that includes a summary with clear recommendations (p. 148) Timeliness and relevance of the research (p. 149)	Power and budget struggles (p. 150)
USA 1990[16]	Research that includes a summary with clear recommendations (p. 114) Research that confirms current policy or endorses self-interest (p. 118)	Power and budget struggles (pp. 111, 115) Poor quality of research (pp. 119–122)
USA 1991[17]	Good quality research (p. 519) Timeliness and relevance of the research (pp. 519, 520) Research that includes a summary with clear recommendations (p. 519) Personal contact between researchers and decision-makers (p. 519)	
UK 1991[18]	Research that includes a summary with clear recommendations (p. 55)	Not stated
USA 1993–1994[19]	Good quality research (p. 27) Timeliness and relevance of the research (p. 27) Personal contact between researchers and decision-makers (p. 29)	Lack of timeliness or relevance of research Absence of personal contact between policy-makers and researchers (pp. 13–14, 27)
UK 1994–1995[20,21]	Personal contact between researchers and decision-makers (pp. 32–34) Timeliness and relevance of the research (pp. 32–34)	Political instability or high turnover of policy-making staff (pp. 31–32) Poor quality of research (p. 33) Lack of timeliness or relevance of research (p. 33)
Mexico 1994–1995[22]	Personal contact between researchers and decision-makers Timeliness and relevance of the research Research that includes a summary with clear recommendations Research that confirms current policy or endorses self-interest Community pressure or client demand for research Inclusion of effectiveness data (pp. 106–108, 109–113)	Mutual mistrust between policy-makers and researchers Absence of personal contact between policy-makers and researchers Political instability or high turnover of policy-making staff (pp. 107–111)
USA 1996[24]	Personal contact between researchers and decision-makers (p. 21)	
Australia 1995[23]	Personal contact between researchers and decision-makers (p. 107) Timeliness and relevance of the research (p. 108) Good quality research (p. 108) Research that includes a summary with clear recommendations (p. 108)	Poor quality of research (p. 106) Lack of timeliness or relevance of research (p. 106) Absence of personal contact between policy-makers and researchers (p. 106)

continued

Table 3 *continued*

Study, reference	Facilitators to use of research identified in three or more studies	Barriers to use of research identified in three or more studies
Pakistan 1998[26]	Not stated	Absence of personal contact between policy-makers and researchers (pp. 78, 82) Power and budget struggles (p. 80) Lack of timeliness or relevance of research (pp. 80, 82) Poor quality of research (p. 80) Mutual mistrust between policy-makers and researchers (p. 82)
UK 1998[27]	Timeliness and relevance of the research (p. 8) Research that includes a summary with clear recommendations (p. 13)	Lack of timeliness or relevance of research (pp. 8, 12)
UK and USA 1998[28]	Personal contact between researchers and decision-makers Good quality research Research that includes a summary with clear recommendations Timeliness and relevance of the research Inclusion of effectiveness data (pp. 3, 17–21)	Absence of personal contact between policy-makers and researchers Poor quality of research Lack of timeliness or relevance of research (pp. 5, 12–17)
Canada 1998–1999[29]	Personal contact between researchers and decision-makers (p. 32)	Power and budget struggles Lack of timeliness or relevance of research (pp. 33–34)
Burkina Faso 1999[30]	Not stated	Political instability or high turnover of policy-making staff (p. 21) Absence of personal contact between policy-makers and researchers (p. 22) Mutual mistrust between policy-makers and researchers (p. 23)
South Africa 2000[31]	Research that includes a summary with clear recommendations (p. 62) Timeliness and relevance of the research (p. 62)	Mutual mistrust between policy-makers and researchers (p. 63) Absence of personal contact between policy-makers and researchers (p. 61) Lack of timeliness or relevance of research (p. 61) Political instability or high turnover of policy-making staff (p. 61)
Canada 2000[32]	Not stated	Power and budget struggles Mutual mistrust between policy-makers and researchers Poor quality of research (p. 26)
Canada 2000[33]	Personal contact between researchers and decision-makers (p. i)	Not stated