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KNOWLEDGE BROKERING

Main messages

- Knowledge brokers are the links between different entities or individuals that otherwise would not have a relationship such as policy makers and researchers. Their core function is connecting people to share and exchange knowledge.
- Knowledge brokering has developed as a way of overcoming the major impediments inherent in making links between large bureaucracies with complex and inflexible structures and traditions using interpersonal linkages through charismatic, knowledgeable and highly trusted individuals.
- The knowledge brokering function needs to have a set of aims and objectives and clear guidelines that will work for both policy makers and researchers.
- Knowledge brokers' awareness of the systems of policy making and government is the key to successful knowledge transfer. This knowledge needs to be gained through on the job experience, not simply a placement or secondment.
- Knowledge brokers should be individuals with high credibility who are seen as impartial and trustworthy in the eyes of both researchers and policy makers. They need extensive experience in the area of interest, research credibility and policy level experience, authority and presence, skills in negotiation, communication, networking and relationship building and the ability to know when to 'make a pitch'.
- Knowledge brokering activities need the support of a collaborative environment, a network of brokers, and sufficient resources and processes to identify and capture knowledge.
- Most examples of knowledge brokering are based in Government funded, intermediary organisations which work with networks of organisations and policy makers.
- Locating brokers in an intermediary organisation is a way of balancing objectivity and relevance, managing conflicts of interest and safeguarding the integrity of both researchers and policy makers.
- While knowledge brokers have a role to play, we should not lose sight of the fact that knowledge transfer is an essential role for all stakeholders in the research process. Systems for linking research to action are fundamental in a national health research system.

CONCENTRATING ATTENTION - MAXIMISING CLARITY AND DEFINITION

FOCUS on...

With the aim of informing primary health care policy and practice in Australia about specific issues, this publication summarises key relevant literature.

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Introduction

Knowledge brokering is one of the mechanisms offering promise in enhancing use of research in policy making. Knowledge brokers are “the links between different entities or individuals that otherwise would not have a relationship. Their core function is connecting people to share and exchange knowledge.”¹ While knowledge brokering can link researchers with practitioners, communities or other groups, this paper focuses on knowledge brokering between research and policy.

Use of research is now explicitly included in many government policies. Developing a more systematic approach to linking policy-makers and researchers to ensure that research answers the needs of end-users is one of the objectives of the second phase of the Primary Health Care Research Evaluation and Development Strategy.

The introduction of the Research Quality Framework (RQF)² in Australia is leading researchers to focus on the quality and impact of their research. Research impact is regarded as highly desirable, and policy advisors are keen for relevant research to be identified, funded, undertaken rigorously, disseminated well and packaged appropriately for uptake. However, the RQF policy does not address the processes by which individual findings or bodies of work become available and accessible to policy makers, nor are the cost of such processes usually covered by research funds. Knowledge brokering potentially has a role in increasing the use of research in policy making, and therefore increasing research impact.

This paper considers the following issues:

- what is knowledge brokering?
- related concepts
- models of knowledge brokering
- the evidence for effectiveness of knowledge brokering
- issues in knowledge brokering
- an overview of the knowledge brokering role
- the future for knowledge brokering.

What is knowledge brokering?

Knowledge brokering can be a role played by a person engaged in linking researchers and policy makers or it can be an activity or process by which knowledge transfer, knowledge exchange, linkage and exchange or knowledge translation takes place.

While models of knowledge brokering vary considerably, a number of key features are discernable. Foremost of these is the role of making connections between groups of people to facilitate the use of research evidence in policy making. Knowledge brokers build relationships and networks, and are well informed and up to date on what is happening in their domain.

Secondly, knowledge brokers are trustworthy subject experts with a high level of credibility. They are not advocates or lobbyists for a cause, neither is their role simple communication of information. Beyond this, the role varies a great deal. Many more people engage in knowledge brokering activities than have the title knowledge broker.¹

Individuals who undertake knowledge brokering activities vary greatly in seniority, background and other characteristics. They may be respected and trusted opinion leaders or champions, academics, policy officers, or communications specialists. They may be employed part time or full time, by joint funding bodies, or as or consultants. They may be located in an intermediary organisation or at the centre of a network. Knowledge brokers can focus their work at network, project, program or issues level. The knowledge brokering role can also include research synthesis, providing research summaries in ordinary language, convening seminars and meetings, maintaining links and networks, maintaining a repository and databases and locating policy relevant research.

Related concepts

A number of concepts describe aspects of the process by which research informs health policy. The terms are often used interchangeably or with different meanings by different groups as outlined below.

Knowledge management. The concept of knowledge brokering developed in the field of knowledge management. During the 1990s thought in knowledge management moved from an emphasis on codification (storage of documents in databases) to looking at how knowledge can be shared, developed and stimulated through interpersonal approaches. In this context, the theorist Etienne Wenger³ developed the concept of communities of practice; networks of individuals with an interest in a subject area who share and develop ideas. A knowledge broker makes a link between two communities of practice, bringing new ideas in from the outside. Wenger describes the role as complex:

*'It requires translation, coordination and alignment between perspectives. It requires enough legitimacy to influence the development of a practice, mobilise attention, and address conflicting interests. It requires the ability to link practices by facilitating transactions between them, and to cause learnings by introducing into a practice elements of another. Toward this end, brokering provides a participative connection - not because reification is involved, but because what brokers press into service to connect practice is their experience of multi-membership and the possibilities for negotiation inherent in their participation.'*³

Knowledge networks. The Communities of Practice concept has been further developed in business, as a way of encouraging innovation and creativity.⁴⁻⁶ It has also moved into health care and become aligned with the evidence based medicine movement and its call for evidence based health policy. Knowledge networks facilitate the sharing of ideas, experiences and research findings through structured and coordinated interpersonal networks of researchers, practitioners and policy makers and thus the movement of research into policy and practice.

Knowledge utilisation is a term most often used in studies of research use in policy making. This body of research includes the finding that research is most likely to be used if policy makers have been involved in its development.⁷ Interpersonal connections between researchers and policy makers are now seen as vital to the best use of research in policy making.

Knowledge transfer refers to strategies for transferring research findings to policy makers. Lavis⁸ refers to three approaches to getting research into policy: producer push, user pull and knowledge exchange. Knowledge transfer is a one-way producer push strategy focussed on dissemination. It refers to a linear process through which research, that is conceptualised and conducted by researchers, is handed over to the end users. The focus is on finding the best dissemination strategies to get research noticed and used.

Knowledge exchange refers to a two way interactive relationship between researchers and policy makers. It differs from knowledge transfer in that it is highly interactive, with an emphasis on interpersonal contact. Policy makers are involved in the research at all stages, developing the ideas based on policy need, serving on advisory committees, and using the findings. This term is used in Australia at the Australian Biosecurity CRC.⁹

Knowledge translation is a term used by the World Health Organization to refer to their knowledge exchange approach. Knowledge translation is an interactive process, with policy makers and researchers building relationships and networks for sharing research findings and stimulating new work.¹⁰ The World Health Organization defines knowledge translation as:

*'The exchange, synthesis and effective communication of reliable and relevant research results. The focus is on promoting interaction among the producers of research, removing barriers to research use, and tailoring information to different target audiences so that effective interventions are used more widely.'*¹¹

Linkage and exchange is similar in meaning to knowledge exchange and knowledge translation. Linkage and Exchange names the widely influential model used by the Canadian Health Services Research Foundation.⁷ The model goes beyond interaction and involves policy makers as partners in the research, formulating the research question, serving on an advisory committee and (hopefully) incorporating the results into their decision making processes. This model is being used by the Australian Primary Health Care Research Institute (APHCRI).¹²

Research brokering is a term used mostly in the United States to describe the roles of a variety of individuals or organisations which have diverse roles in linking research information to policy. These may be Government relations officials, think tank researchers, congressional staff, policy analysts, policy specialists from advocacy organisations or communications/media specialists.¹³ The term has also been used to refer to the advocacy role of 'think tanks' and the function of knowledge networks.¹⁴⁻¹⁶

Models of knowledge brokering

The term 'knowledge brokering' is strongly related to the concepts of knowledge transfer, knowledge translation, linkage and exchange and knowledge networks. Within each of these traditions knowledge brokering has been interpreted in different ways. This has resulted in a number of different models of knowledge brokering. These models of knowledge brokering include the following, which are examined in more detail below:

- an early Canadian *producer push* model
- a *user pull* model located in the Scottish Civil Service
- the Canadian *linkage and exchange* model of knowledge brokering and its adaptations
- the Sax Institute *consulting model* in NSW
- a *research synthesis* model developed in the Netherlands
- *knowledge network* models as used in some Cooperative Research Centres
- rapid response units (demand brokering) in the World Health Organization
- a *knowledge exchange team* model.

Producer push

The knowledge transfer approach developed by Lavis^{8,17} in 2003, gives an organising framework for developing a knowledge transfer strategy. He provides five questions which should be answered by the strategy:

- What should be transferred to decision makers (the message)?
- To whom should research knowledge be transferred (the target audience)?
- By whom should research knowledge be transferred (the messenger)?
- How should research knowledge be transferred (the knowledge transfer process and supporting communications infrastructure)?
- With what effect should research knowledge be transferred (evaluation)?¹⁷

Lavis located the knowledge broker as a possible messenger under 'by whom', stressing the importance of credibility and trust. He aligned the concept of knowledge brokering to the use of opinion leaders and experts, who have been trained in academic detailing. In another paper Lavis⁸ advised that these opinion leaders may be drawn from the target audience.

The Canadian Population Health Initiative¹⁸ has used Lavis's framework to provide an environmental scan of research transfer strategies being used by a sample of 17 Canadian research organisations. Several organisations used Research Transfer Officers with specialised knowledge in communications, journalism or public relations to create and maintain links with policy makers.

User pull

A variation of the knowledge transfer model is used in Scotland, at the Scottish Executive for Social Research. This pilot project was developed at the policy level to gather research to bring into policy making.¹⁹ Their unique 'user pull' model of knowledge brokering is based on using 'brokerocrats' to maintain networks of researchers in order to gather research to inform policy.

The Scottish Academy for Health Policy and Management (SAHPM) pilot project tested the

theory and practice of knowledge transfer at a corporate and department level in the Scottish Executive, exploring new ways to work with the academic and practice communities. This pilot project ran from 2003 to 2005 and was staffed by a director, a principal researcher, an administration officer and steering, reference and delivery groups. The project aimed to adopt and develop knowledge management and knowledge transfer activities in order to explore the best ways of bringing together policy makers and the academic community to support health policy development and implementation in Scotland.

The model centred on the development of networks and communities of practice. The team discussed evidence requirements and key dates with directors, policy makers and administrators to enable the team to facilitate timely support, and created communities of practice to link with SAHPM objectives. The team worked with policy officers to identify the evidence resources and expertise available to them through funded research centres, and created strategic connections with Scottish universities and academics. Meetings, academic round tables and other knowledge sharing and consultation events were held to discuss evidence requirements with 'evidence providers'. Much effort was put into building relationships in European and International research networks.

Observations and learning experiences are discussed in the project report. The project confirmed the large gulf between academic and bureaucratic cultures with potential for cultural and communication misunderstandings between policy and academic communities.

A significant observation was that the Scottish Research Quality Framework worked against activities such as networking and knowledge brokering which facilitated the use of research in policy making, as it only rewarded academic excellence in the form of publications. There was no reward for work carried out for the policy community. Another significant finding was that researchers did not seem to be aware of the existence of a professional group of social researchers, economists and statisticians, located in government, whose work focuses on acting as intermediaries between the academic and policy worlds. This group currently has the role of 'brokerocrat' as an add-on to their mainstream work program.

The work of the pilot project suggested that knowledge brokers' awareness of the systems of policy making and government is the key to successful knowledge transfer and that this knowledge needs to be gained through on the job experience, not simply a placement or secondment.

The authors recommend use of two types of knowledge brokers.

- 1 The first, 'brokercrats', work within government. Their role is to identify opportunities for the evidence to contribute to the policy cycle, identify the potential convergence of Ministerial interest, policy administrator engagement and emerging research agendas, and then bring people together around a strategically brokered project.
- 2 In some situations it can be advantageous for a broker to be able to work without the constraints of the civil service. To address this, the SAHPM team recommend a second type of specialist knowledge brokers, whose careers are focussed on knowledge transfer rather than research, to work 'within the gap' to relieve the tensions which occur when policy makers and researchers work together. This knowledge broker would assemble and disassemble bridging structures as required and liaise with 'brokercrats' who would ensure that information would be used once it crosses the gap. The team doubts that researchers can play this brokering role as they generally lack understanding of policy development and implementation. For this reason they do not recommend secondment or funding of academics to play this role.

The successful pilot of this project resulted in the establishment of a Knowledge Transfer Team in 2005. The team leads the Scottish Executive on knowledge transfer issues, provides advice on knowledge transfer to other Departments and facilitates collaborations and partnerships.¹⁹

Linkage and exchange

Knowledge brokering is a key element in the Linkage and Exchange model, developed by Jonathan Lomas of the Canadian Health Services Research Foundation (CHSRF). The model is based on evidence that "Bringing decision makers who can use the results of a piece of research into its formulation and conduct is the best predictor for seeing the findings applied", and that the one on one encounter is the most efficient way to transfer research findings to decision makers.⁷ The Canadian Health Services Research Foundation (CHSRF), which was formed in 1997 to facilitate evidence based decision making in the Canadian health sector, funds health research which requires at least one decision maker actively engaged in management or policy making in the area under study, to participate in the research team. A key feature of the Linkage and Exchange model is the relationship that is developed between researchers and policy makers, who work together in defining research

questions in response to policy need. Policy makers sit on the Advisory Committee for the research and then incorporate the results into their policy processes as appropriate. This process requires careful management to protect the integrity of both researchers and policy makers as detailed below.

In 2002 the CHSRF performed a National Consultation on knowledge brokering with the aim of refining the concept.¹ The CHSRF model of knowledge brokering locates it firmly within a linkage and exchange or knowledge transfer framework but defines the role of bringing people together as its key feature. Importantly, given that many more people do knowledge brokering than have that role in their job title, they moved the concept from an emphasis on the role of the knowledge broker to the activity of knowledge brokering, or bringing together entities or individuals who would not otherwise have a relationship in order to facilitate knowledge transfer.

*'... the researcher who takes the trouble to seek out a health system administrator with new findings is doing knowledge transfer but not brokering. That same individual running biannual meetings between her researcher colleagues and the policy branch of a provincial health ministry is acting as a knowledge broker. A communications specialist who translates research into plain language and packages it in an accessible, quick answer format is working on dissemination strategies but not brokering. The same communications specialist acting as a liaison for the ministry, building a network of academic contacts and helping policy planners to develop evidence gathering projects is brokering. Brokers then are the links between different entities or individuals that otherwise would not have a relationship. Their core function is connecting people to share and exchange knowledge.'*¹

A key recommendation of the consultation was that the activities of knowledge brokering were largely unrecognised and that they needed to be brought out into the open and supported with a collaborative environment, a national network of brokers, sufficient resources and processes to identify and capture knowledge.

By 2004 learnings from the early knowledge brokering projects were accumulating.²⁰ The relationships being built had to be purposive and have stated goals and desired outcomes. There was increased recognition of the role of the knowledge broker as activist and the important role of trust in the relationships being built. The knowledge base needed by the knowledge broker was becoming more apparent.

By 2005 the CHSRF were moving their attention towards the evaluation of knowledge brokering.²¹ A number of projects have been funded but at the time of writing no evaluation findings were available.

Linkage and Exchange in Australia: Australian Primary Health Care Research Institute (APHCRI)

This linkage and exchange model has been adapted in Australia by the Australian Primary Health Care Research Institute (APHCRI)¹² in their Stream Four Research Program. The APHCRI linkage and exchange model goes beyond linking researchers and policy makers and seeks to engage and link the broad policy, provider, academic and consumer communities in all its activities to ensure the relevance of questions to the 'real world' is high and that the improved dialogue, relationships and mutual understanding will facilitate the transfer of research evidence into policy.^{22,23} A high priority is placed on commissioning research syntheses to inform policy making.²⁴

The Research Advisory Board includes senior policy advisors from both Commonwealth and State jurisdictions as well as participants from other 'communities' (providers, provider organisations, consumers and the wider research community). Research topics are built on consultations with policy advisers, and the criteria used to assess applications reflect an emphasis on policy and provider expertise as well as more usual 'academic' criteria.

The model addresses a number of identified weaknesses in the linkage and exchange model. Research funding includes an allocation for linkage and brokering activities before, during and after the project. They also invest in linkage and exchange infrastructure and personnel and fund structured research workshops bringing policy advisors and researchers together, providing the base for personal relationships to develop. The workshops are designed to allow early results to be known, seeking to address the need for timeliness. There is a clear focus on capacity building at the nexus between research and policy. While this includes elements aimed at developing knowledge brokers, they have opted not to use the term due to its lack of clarity.²⁵

Sax Institute consulting model of knowledge brokering

The Sax Institute in Australia^{26,27,28} is a coalition of New South Wales research groups which develops

and maintains partnerships with a range of health policy and service delivery organisations to identify research priorities and support health policy decision making. The Sax Institute model of research transfer is also based on the Linkage and Exchange model and includes the hosting of

forums for researchers and policy makers, termed 'Health Policy and Research Exchanges'.

The Institute's Getting Research into Policy and Practice (GRIPP) program was established to develop new models for linking research with policy and practice. Under the GRIPP program the Institute developed the Evidence Check system in 2005 that aims to assist policy makers to commission syntheses of evidence to inform a policy issue. Evidence Check has three components:

- a commissioning form
- knowledge brokers who are available to liaise between policy and research environments during the process of commissioning the review, including articulating the question, scoping the size and feasibility of the review and negotiating contracts
- a research register to identify researchers who can conduct reviews.²⁷

The brokers are independent consultants with experience in senior levels of government, working across policy and research environments, an excellent understanding of research and the ability to assess research studies and excellent high level communication and negotiation skills. They are selected through an expression of interest process and operate on a contractual basis with the Sax Institute who recommends 'best fit for purpose' brokers in response to client requests.

One example of their use of brokers is a research project about the medical workforce that they brokered on behalf of NSW Health. This process involved: engaging a knowledge broker to assist in defining research questions; coordinating a collaborative meeting involving policy makers and researchers to discuss the background to and specifications of the project; and managing the process of calling for applicants to conduct the project through our research networks.

The Netherlands Organisation for Health Research and Development (ZonMw) synthesis model

In the Netherlands a group called ZonMw²⁹⁻³¹ acted as a broker by synthesising the results of six studies on sub-fertility care, complemented them with a systematic review of the area and an analysis of the major concerns of user groups and the policy context. They then convened a collaborative event during which researchers and user groups could interact and come to evidence based, context informed recommendations for action. The focus was on the interactive process rather than on research transfer.

Knowledge network models

A recent Canadian development is the Canadian Public Health Network which has melded a knowledge brokering model, based on linkage and exchange, with a network model to develop a network of researchers, policy makers and practitioners with a knowledge broker as 'animateur' of the network.³² They bring together all parties in communities of practice using a number of on-line technologies, including computer assisted telephone link ups, for the purpose of discussing hot topics and facilitating the use of research in policy and practice.

Knowledge transfer is currently generating considerable interest in Australian higher education. The importance of research transfer and community engagement was made clear by the Federal Minister of Education The Honourable Julie Bishop in her Keynote address to the Knowledge Transfer and Engagement Forum in Sydney in June 2006. Ms Bishop sees knowledge transfer as "the process of engaging with business, government or the community to generate, acquire, apply and make accessible knowledge for quantifiable economic benefit for the community."³³

A report commissioned by the Department of Education, Science and Training provides a strategic analysis of knowledge exchange networks and how they can support this agenda. The crucial role of knowledge brokers in the network is made explicit:

*'Knowledge Exchange Networks based on the transfer of knowledge through electronic web based technologies have limited impact without the involvement of people and organisations performing the role of facilitator and/or broker. Paradoxically, the greater the opportunity for the transfer of knowledge through the Internet, the greater is the need for skilled facilitators, trusted advisers and what has been termed 'honest brokers', who can bridge the cultures and interests of academic and industrial researchers and who can ensure create a high level of engagement and commitment between parties to an exchange.'*³⁴

The role played by knowledge brokers in the networks created by two Cooperative Research Centres is highlighted below.

The Australian Biosecurity Cooperative Research Centre for Emerging Infectious Diseases: a scoped model

Cooperative Research Centres (CRCs) are Commonwealth Government funded collaborative ventures between government, research and industry organisations and universities. The Australian Biosecurity CRC for Emerging Infectious Diseases has a four level model of knowledge brokering, with a number of nominated individuals acting in part time brokering roles. In all cases knowledge brokering is a part of another role although knowledge brokering activities are specified in job descriptions.^{9,35} This model emphasises coordination, and specifies the scope of the knowledge brokering role. Brokers are:

- network based, such as the Australian Wildlife Health Network and the Communicable Diseases Network and responsible for increasing coordination across the system and keeping tabs on the big picture
- project based, sitting on the reference group to oversee a particular research project and work with researchers and end users to match research and needs
- program based, coordinating programs such as Education and Training or Technologies to Enhance Detection, with brokering being part of their linking role
- issues based, coordinating responses in the educational and research programs, keeping all parts of the CRC responsive to high priority issues such as the West Nile Virus.

Cooperative Research Centre for Freshwater Ecology (Australia)

Like the Biosecurity CRC above, this CRC was a joint venture with many industry partners.³⁶ The CRC employed seven full time knowledge brokers, who were independent scientists located in public water agencies, as well as having senior researchers devote 10% of their time to knowledge brokering activities. Knowledge brokers were people with a strong technical base and strong communication skills who synthesised and packaged existing knowledge and created overview materials on emerging issues.³⁵ They:

- maintained a repository of all reports and papers published by the CRC and were familiar with the research being undertaken
- provided 'Joint Problem Solving Workshops' for industry partners and researchers
- designed and delivered training programs to update professional staff in the water industry
- managed consultancy activities
- worked with research teams to develop knowledge exchange plans
- and helped with internal communication across projects, programs and sites.³⁵

The knowledge brokering approach yielded mixed results, and depended very much on the individual. The Cooperative Research Centre for Freshwater Ecology has now been replaced by eWater CRC, which has shifted from providing industry partners with policy advice towards providing them with technology, mainly software for decision support and prediction. The approach of using knowledge brokers is less appropriate for this, but the eWater CRC may use it in the future as the demand from their partners for knowledge brokering has not fallen away.

Rapid Response Units (Demand Brokering)

The August 2006 Bulletin of the World Health Organisation³⁷ mentioned knowledge brokering briefly as only a minor activity whereby trusted individuals build relationships between researchers and research users. Lavis, Lomas and their colleagues developed a framework for assessing country level efforts to link research to action. They write about 'push models', 'user pull' models which researchers can facilitate by packaging their research, 'linkage and exchange' models, and then propose a fourth approach which integrates efforts through large scale knowledge translation platforms which include push, pull and exchange approaches. Importantly, this fourth model includes a rapid response unit that provides written summaries of the evidence, or telephone consultations about the best research.

The WHO is also using this rapid response unit model for their Health Evidence Network (HEN). A presentation at a Cochrane Collaboration Colloquium in 2005 stated that:

*'Time and experience has shown that bridging the gap between producers of evidence and users of evidence continues to be a serious challenge ... WHO/Europe feels that it is necessary to move away from the traditional, reactive approach of 'knowledge brokering' to a more pro-active approach better described as 'demand brokering' or 'health intelligence'.*³⁸

HEN provides a website containing summarised information from a wide range of sources and provides a rapid response question and answer service for policy makers. After receiving a request HEN mobilises a team of specialists who search for

existing evidence in the area and use it to develop a synthesis report. The report is then reviewed by the HEN team, external peer review and a quality control panel.³⁹

Victorian Catchment Management Council: a Knowledge Exchange Team Model

The Victorian Catchment Management Council has drawn heavily from knowledge management in their model of knowledge brokering, which they define as "the human force behind knowledge exchange, transfer, adoption, and in some cases priority setting and generation".⁴⁰ The Catchment Knowledge Exchange is a knowledge brokering service run by a team of knowledge brokers for a network of collaborating organisations which comprise the Victorian Catchment Management Council. Partnerships between organisations are formalised through memoranda of understanding.

The aim of the Knowledge Exchange team is to provide "readily available evidence to support decision making for improved natural resource management outcomes". Activities include: knowledge synthesis, maintenance of data sets, document management, dissemination, holding workshops, seminars and conferences, communicating knowledge to policy makers, identifying knowledge gaps, forming collaborative partnerships to generate, disseminate or collate knowledge and to embed knowledge management practices within existing procedures.

This is a very different model from those given above. It seems to have more in common with a knowledge management, clearinghouse or even a library role, and building interpersonal relationship to facilitate the movement of evidence into policy does not appear to be part of the role.

The evidence for the effectiveness of knowledge brokering

Evaluation of knowledge brokering is a high priority, to provide evidence to justify committing substantial resources to knowledge brokering activities. The Canadian Health Services Research Foundation is currently funding a number of knowledge brokering projects. No findings from these studies are yet available, but they are being evaluated to assess whether they have:

- stimulated the implementation of structures, processes or people in health services organisations with the purpose of linking researchers with decision-makers and facilitating their interactions
- increased the appropriate use of high quality research evidence in the decision-making process of demonstration site organisations.⁴¹

Finding effective measures to evaluate the success or otherwise of knowledge brokering is proving a challenge. Australian Biosecurity CRC²⁰ documents its difficulty winning support for knowledge brokering due to difficulties in measuring and evaluating its effectiveness. Process measures such as continued use of the knowledge broker are feasible, but measuring return on investment is difficult.

The Australian Government Department of Education, Science and Training is currently considering ways of measuring knowledge transfer in the context of developing better 'engagement' of universities with their user communities. Reports by Philips KPA and John Howard^{42, 43} discuss this in detail. They caution that if institutions are to be genuinely responsive to the needs of the users of research knowledge then knowledge transfer activities will be uniquely shaped according to those needs. A focus on meeting the requirements of a measuring system may prevent the university from creating the culture change necessary for good knowledge transfer.^{42,43}

While evidence of effectiveness is currently lacking, the concept of knowledge brokering is supported in a number of studies of research use by policy makers which give an indication of successful methods of knowledge transfer.

In 2003 Landry and his team⁴⁴ conducted a large scale survey of 833 government officials from Canadian Government agencies to determine an answer to the question "What determines the use of university research in government agencies?" It is important to note that this study was not restricted to the health portfolio.

The results showed that, in the area of health, the intensity of links between policy makers and researchers is of great importance. Policy context and the background and acquisition efforts of the policy maker are also of great importance in determining research use. Designing research

to focus on the needs of policy makers does not influence uptake, neither does the adaptation of research reports to increase their readability.

The other major relevant source of evidence is the systematic review by Innvaer and his team of 24 interview studies of the use of research evidence by policy makers.⁴⁵ This review found that the most commonly reported facilitators of research use were:

- personal contact (13/24 studies)
- timely relevance (13/24 studies)
- summaries with policy recommendations (11/24 studies)
- quality of the research (6/24 studies)
- that the research confirmed current policy (6/24 studies).

The barriers given were:

- absence of personal contact (11/24 studies)
- lack of timeliness or relevance (9/24 studies)
- mistrust or political naivety of the researchers (8/24 studies)
- power and budget struggles (7/24 studies)
- poor quality research (6/24 studies)
- political instability or staff turnover (5/24 studies).

A further study by Lavis⁴⁶ of research use in eight policy projects found that published research was used in three projects and unpublished research used in one project. Of the three projects using published research all three had had contact with the researchers. In two of these cases it had been through a 'receptor site' located in the Health Department which had the specific function of establishing and maintaining links with researchers.

Landry's study⁴⁴ supports the concept of knowledge brokering as a way of establishing and maintaining those links but does not support the linkage and exchange model of knowledge transfer in which the research is designed to suit the needs of policy makers. The same could be said of Innvaer's⁴⁵ systematic review, in which personal contact is the most important factor, and trust is a ranking factor. Timely relevance of the research also ranks highly, suggesting more support for linkage and exchange, while research summaries with policy recommendations are also supported.

Issues in knowledge brokering

Overcoming structural impediments

The Canadian Health Services Research Foundation held a workshop in 1999⁴⁷ to tease out the issues arising in linkage and exchange models. Clearly there were many major structural impediments within government, research funding organisations and universities which inhibit linkage and exchange from taking place. While the workshop identified a clear consensus about the need for knowledge brokers it was less clear where the responsibility for such a role lies and where the resources and structures required to support such a role would come from.

Impediments identified included:

- lack of acknowledgement of brokering and linkage activities in research funding formulas and lack of recognition of the costs involved in maintaining links before and after funded projects
- disincentives to linkage and exchange built into the reward systems for academic promotion and tenure which recognises academic excellence and publications but not implementation of research in policy
- lack of investment in linkage and exchange infrastructure, personnel, and institutions
- reforms and resource constraints which reduce the capacity of health service organisations to incorporate evidence based decision making
- frequent staff turnover in Governments and difficulty identifying relevant contacts, with no obvious point of entry
- mutual poor understanding and incompatibility of timelines and organisational processes.

Recommendations included:

- a review of university incentive structures
- research programs of longer duration which incorporate linkage and exchange activities
- funding programs which support the development of skills and infrastructures in research, linkage and knowledge transfer

- for policy making bodies, a receptor function should be established to identify and prioritise needs, receive research and manage relationships with stakeholders such as researchers
- funding bodies should support linkages in their processes, expectations and rewards.⁴⁷

Support structures

A number of lessons learned about knowledge brokering from WHO knowledge translation initiatives are outlined by Nuyens and Lansang.⁴⁸ They stress that systems for linking research to action are an essential component of the research process and the *raison d'être* of a national health research system and that all stakeholders should be involved in these systems.

Knowledge brokering has developed as a way of overcoming the major impediments inherent in making links between large bureaucracies with complex and inflexible structures and traditions, and getting around these dysfunctional structures using interpersonal linkages through charismatic, knowledgeable and highly trusted individuals. Ways of supporting models of knowledge transfer/ exchange/ translation/ linkage and exchange are still in their early stages however, it is clear that knowledge brokers cannot operate in the absence of support structures.

The models of knowledge brokering presented in this paper provide some different examples of how knowledge brokering can be supported. The Scottish model located the broker within Government, the Canadian Health Services Research Foundation funds the location of brokers within the health service or research sector in funded demonstration projects, and the two Australian CRCs, the Victorian Catchment Management Framework and the Sax Institute locate brokers within a Government funded collaborative network. Similarly, the Netherlands Organisation for Health Research and Development (ZonMw) provided the institutional support. Van Kammen raises the question of what the most appropriate institutional requirements are to close the know-do gap and recommends "a professional institutional brokerage at arms length from the policy makers and the research community but with high credibility and the mandate to carry out the interactive push-pull strategy."³¹ She recommends locating brokers in an intermediary organisation as a way of handling the tension between scientific rigor and relevance to policy making. Even the Scottish Executive which

used 'brokercrats' located in Government advocated a second type of independent broker located outside the constraints of the civil service.

Balancing objectivity and relevance

The defining feature of a knowledge broker is their ability to bridge the two cultures of policy making and research so consideration needs to be given to where they are located and to whom their primary loyalties are given. If a knowledge broker is a staff member of a research unit a number of issues arise.⁴⁹ Researchers need to maintain sufficient distance so as not to be seen by their peers as an agent of government and policy makers must be seen as not giving favourable treatment to one group. Conflicts of interest need to be managed and safeguards need to be in place to protect the integrity of both researchers and policy makers.⁴⁹ Innvaer points out that:

*'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.'*⁴⁵

Frenk⁵⁰ offers some suggestions on achieving a balance between this tension. He suggests having both decision makers and researchers on the research organisation's governing board to enhance relevance. At the same time he advocates adopting peer review mechanisms and granting researchers freedom from interference once a set of pertinent projects has been agreed upon.

Goering et al⁴⁹ also address the issue of how to manage the relationship between researchers and policy makers, which requires time and resources on both sides. Goering's research unit, the Health Systems Research and Consulting Unit in Canada, was awarded funding in the form of a Chair Award. In developing the program, they allocated 50% of funds for a Knowledge Broker position and to support an annual meeting to bring together policy makers and researchers. The broker works with the partners to identify knowledge transfer needs and to design and implement activities to meet those needs. Goering outlines a number of measures the group has taken during a project to resolve tensions and protect the integrity of all parties.

These include:

- regular meetings between partners to complete a needs assessment and develop a joint work plan
- discussion of cultural differences, procedural differences and definition of concepts and terms of engagement in order to educate each other and build trust
- establishment of an arms length relationship in order to protect the objectivity of the research. Ministry staff participated in the advisory committee as individuals, not representing the official views of Government
- having clear terms of reference for the advisory committee with unambiguous definition of roles, responsibilities and accountabilities. The researchers were responsible for the final product
- holding a forum to discuss the findings of the research. This was structured by the Ministry as a large stakeholder consultation that would be informed by the research. An external facilitator ran the forum. Sessions were framed as opportunities for decision making bodies to receive the research and to interact around any questions or clarifications
- a clear statement by policy makers that an evidence based policy was not going to be a direct result of the effort. This was to balance stakeholder tensions during the policy making process.⁴⁹

Ethical issues and credibility in knowledge brokering

Problems may arise due to asymmetries in knowledge, when the user does not know if the knowledge broker is transferring the full range of research knowledge available, when the broker does not know what problems are on the agenda to be solved, and when the broker does not know the research. Breton et al³⁵ point out that:

'Delegation of authority to the knowledge broker by the user provides not only an incentive to identify knowledge but also an incentive to act unacceptably.'

They give as an example university offices of research transfer in Canada which only transfer research that can be commercialised and appear to be more interested in the protection of intellectual property rights than in its transfer.

Useful resources are a *Knowledge Broker Code of Practice* and *Guidelines for Knowledge Brokers* developed by The Sax Institute.²⁶

The importance of credibility is a major theme in the literature. In a qualitative study of credibility in knowledge brokering, Jacobson⁵¹ describes many dimensions, including:

- scientific credibility, which involves honesty in gathering, analysing and presenting information and not 'fudging' data
- expertise defined as knowledge, skill and experience
- authority, presence or confidence
- a neutral or impartial stance in a political context
- transferability, which means credibility though affiliation with credible organisations or groups
- context dependent credibility or ability to be credible to several groups of stakeholders.

Jacobson also emphasises that the credibility of the knowledge broker is constantly under review by users though such tactics as assessing whether the questions they ask reflect a superior knowledge of the topic or whether recommendations are reasonable. If a knowledge broker loses credibility their evidence based recommendations are less likely to be implemented. There is a great deal of

'credibility work' to be put into establishing and maintaining credibility and this is a big part of a knowledge broker's role.

A number of other writers stress credibility as a major requirement of a successful knowledge broker. Breton³⁵ adds that longevity of experience in the sector is vital. Lavis¹⁷ aligns the concept of credibility with the use of opinion leaders in clinical decision making environments and refers to research by Hayward et al⁵² showing that an authoritative endorsement by a respected physician organisation or a respected colleague has been shown to influence physician adoption of clinical practice guidelines.

A challenge to the "Two Communities" theory

The knowledge brokering literature frequently refers to the 'Two Communities' theory which derives from work done in the 1970's on the perceived failure of social science research to make an impact on social policy in the USA.⁵³ This theory suggests that the problematic relationship between research and policy making is the result of different cultures in which they operate. Accordingly, knowledge brokering is seen as a way of bridging the gap by using interpersonal relationships to bypass cultural and structural impediments to the use of research in policy making.

*'The two communities construct remains dominant whenever the following assumptions continue: that the researcher and the research organisations are outside the policy process; that the point of persuasion is at the interface between the research worlds and the policy worlds; and, that the locus of power is in the policy world- the research community only has power when it is bestowed on it at the discretion of the policy community.'*⁵³

Based on an analysis of how policy makers use evidence, Brendan Gibson suggests that the Two Communities theory is simplistic and inadequate to explain the way research and policy makers relate to each other.⁵³ He suggests several alternative ways of moving research evidence into policy which challenge the role of knowledge brokering.⁵³ One could:

- attempt to influence the beliefs of the advocacy coalitions who lobby policy makers
- increase the Government's perceived responsibility for the issue and stress the risks which could be avoided through the use of the research evidence
- look at the language used to frame policy questions, and how some versions of the truth are accepted while others are marginalised, and attempt to influence this
- stimulate change through local action and working with community groups and the media, as policy may follow, rather than lead change.

Gibson's work is starting to become influential and is cited in the (unpublished) South Australian Department of Health Draft Research Transformation Framework, which shows some blending of a Linkage and Exchange model with aspects of Gibson's alternative recommendations for influencing the policy process. Gibson's work is also strongly endorsed in a discussion paper by the Public Health Association of Australia⁵⁴ which recommends the development of alternative models of research transfer based on the more developed and complex model proposed by Gibson.

Role recognition

In Canada what is called knowledge brokering by some is often not defined as such by others. In fact many people who do knowledge brokering as part of other roles are often not recognised as such. Few people have the title of Knowledge Broker.^{55,20} In most cases knowledge brokering is not done full time or recognised and those that do it have few resources. For this reason, the Canadian Health Services Research Foundation have shifted the emphasis of their knowledge brokering work from the role of the knowledge broker to the activities of knowledge brokering.

An overview of the knowledge brokering role

At this stage it is possible to determine some of the features that a knowledge brokering organisation requires. Most examples of knowledge brokering appear to be based in Government funded, intermediary organisations which work with and coordinate collaborations or

networks of organisations and policy makers. Commitment from this network of collaborating organisations and policy making groups needs to be formalised through memoranda of understanding over sourcing information between participating organisations and the organisation hosting the knowledge broker. Ongoing funding is required in recognition of the resources required to enable links to be made and maintained, credibility to be earned and to remain up to date with developments in the field.

The knowledge brokering function needs to be well thought out with a set of aims and objectives and clear guidelines on a protocol for working with both policy makers and researchers. Those performing the role need to be located at a senior decision making level with connections to all levels of the organisation and with their role embedded in the organisation's management philosophy.³⁵

Knowledge brokers also need to have special qualities to enable them to bypass structural impediments. They need to be individuals with high credibility in the eyes of both researchers and policy makers. They need extensive experience in the area of interest, research knowledge and policy level experience, authority and presence, excellent negotiation and communication skills, networking skills, relationship building skills and the ability to know when to make a pitch, when to 'schmooze' and how to use stories to get their point across.²⁰ They also need to have 'hands on' experience of the systems of policy making and government.¹⁹

At the same time we need to be mindful of the need to work towards aligning organisational structures so as to optimise the opportunities for knowledge transfer.

The future for knowledge brokering

Structural challenges to successful knowledge brokering are not insignificant, reading between the lines in a number of papers and on websites. The Canadian Health Services Research Foundation website shows reduced discussion of knowledge brokering during 2006 with increased emphasis on a move towards greater involvement of communities, especially Indigenous communities, instead of the researcher/policy maker dyad. Specific knowledge broker roles have not continued when some CRCs have been refunded. However, the evidence derived from studies of the use of research in policy making leans towards the potential success for interpersonal models of moving research into policy.

Although boundaries between knowledge transfer or linkage and exchange, network facilitation and knowledge brokering are very blurred, a number of trends are discernable. One is the move towards network models of knowledge brokering such as the Canadian Public Health Network³² and the Cooperative Research Centres in Australia,⁹ with brokering located in a Government funded, intermediary, coordinating organisation. The six demonstration models of knowledge brokering funded by the Canadian Health Services Research

Foundation are also all based on collaborative models between several health service and policy making organisations which jointly employ a knowledge broker to achieve the objectives of the project. The broker is based in one of the collaborating organisations, in some cases a health care organisation. This trend is also evident in the rise of knowledge networks, such as the recently funded Australian Palliative Care Knowledge Network,⁵⁶ as a model for sharing knowledge among professionals, researchers and families and bringing research into practice.

Another trend is the move towards demand brokering as in the Health Evidence Network run by WHO Europe³⁹ and advocated by Lomas and Lavis in their country level model of knowledge translation.³⁷

Knowledge brokering by any name....

Breton et al³⁵ raise the point that knowledge brokering may be a new term for something that is common practice. Certainly the activities of knowledge brokering outlined above vary a great deal and overlap with activities undertaken by any number of clearinghouses, information services, and research groups. The Australian Primary Health Care Research Institute¹² located at the Australian National University performs some of these activities, and has been explicitly informed by the Canadian linkage and exchange model, without using the term knowledge brokering. The Primary Health Care Research and Information Service⁵⁷ also performs knowledge brokering functions. This FOCUS on... publication is one example; the General Practice and Primary Health Care Research Conference is another. This compilation of learning from knowledge brokering projects can potentially inform further development of these existing organisations.

Conclusion

Knowledge brokering has developed as a way of overcoming the major impediments inherent in making links between large bureaucracies with complex and inflexible structures and traditions using interpersonal linkages brokered through charismatic, knowledgeable and highly trusted individuals.

Evidence from Australia and around the world indicates that knowledge brokering forges closer links between the research sector and government, industry and the community. Although formal evaluation is not available at present, the models examined for this review are showing promise and a number of insights have been gained.

While a designated group of knowledge brokers may have a role to play, we should not lose sight of the fact that knowledge transfer is an essential role for all stakeholders, that structures and systems for linking research to action are essential and that any structures we build to support knowledge transfer must also be flexible enough to accommodate the dynamic strategies and activities in this complex domain.

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