KNOWLEDGE BROKERAGE AND RESEARCH UTILISATION: A DISCUSSION DOCUMENT PREPARED FOR THE AUSTRALIAN GOVERNMENT DEPARTMENT OF HEALTH AND AGEING

PREPARED ON BEHALF OF APHCRI BY

Associate Professor Rhian Parker

Professor Philip Davies
Professor Meredith Edwards
Mr Nathaniel Ward

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AUSTRALIAN PRIMARY HEALTH CARE RESEARCH INSTITUTE

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Australian Primary Health Care Research Institute (APHCRI)

ANU College of Medicine and Health Sciences

Building 62, Cnr Mills and Eggleston Roads

The Australian National University

Canberra ACT 0200

T: +61 2 6125 0766

F: +61 2 6125 2254

E: aphcri@anu.edu.au

W: www.anu.edu.au/aphcri

AUSTRALIAN PRIMARY HEALTH CARE RESEARCH INSTITUTE

THE AUSTRALIAN PRIMARY HEALTH CARE RESEARCH INSTITUTE: KNOWLEDGE BROKERAGE AND RESEARCH UTILISATION. A DISCUSSION DOCUMENT

BACKGROUND

In mid 2009 the Australian Department of Health and Ageing (DoHA) funded the Australian Primary Health Care Research Institute (APHCRI) to undertake a project on Knowledge Brokerage (KB). The aim of the project was to develop a model through which APHCRI, DoHA and other key stakeholders could work together over the next iteration of APHCRI's contract for translating research evidence into Australian primary health care systems and services. The KB model would support the Commonwealth's health reform agenda through facilitating the dissemination of research findings to policy makers and enabling policy makers to pose research questions addressing their need for evidence to support policy development.

The KB project undertaken by APHCRI has three components;

- A comprehensive literature review

- A workshop of key stakeholders to identify different models of KB, work towards identifying the key components of successful models and to devise a framework to support effective knowledge translation

- A review of the processes used by APHCRI to fund research and the effectiveness of the synthesis and transfer of knowledge generated by APHCRI-funded research to date.

This document reports on the outcomes of these three components and offers recommendations for future action.

SUMMARY OF KEY POINTS AND RECOMMENDATIONS

REVIEW

- The literature review identified a number of models to explain knowledge brokerage and a number of terms that describe this process. These terms include; Knowledge Translation, Knowledge Transfer, Knowledge Exchange, Research Utilisation and Research Implementation. Despite these plethora of terms it is generally agreed that it is a process that aims at getting research knowledge into 'action' through informing practice setting and/or policy or decision making settings

- The literature review discusses what constitutes evidence and describes how explicit knowledge (research informed evidence) is one type of evidence and tacit knowledge (gained from experience) is another type of evidence. Both are utilised in decision making processes

- Interactive models of knowledge exchange are now favoured, and have largely replaced more linear 'push' and 'pull' models

- Barriers to knowledge exchange are also discussed with competing interests or values and 'cognitive', 'structural' and 'organizational' and 'cultural', constraints often acting as barriers to knowledge exchange and interaction

- Facilitators to knowledge exchange include 'generative capacity', 'disseminative capacity', 'absorptive capacity' and 'adaptive and responsive capacity' as well as personal interaction

- Strategies for knowledge exchange include 'knowledge mapping' and the use of 'knowledge brokers' to facilitate knowledge exchange

THE WORKSHOP

- The workshop comprised a series of presentations by a range of experts during the morning and the afternoon was devoted to smaller group work on barriers to obtaining policy relevant research, how to overcome those barriers and the main elements for an effective framework for knowledge exchange in the area of primary health care

- The workshop also identified capacity building strategies across the sectors to assist with building greater awareness of research within government and greater policy-awareness within the research community

- The workshop identified that there is no 'one size fits all' strategy for knowledge exchange and that strategies adopted should be monitored and evaluated so as to identify what works and what doesn't work

- There is a need to clearly articulate and agree a key set of protocols for interaction between and across the relevant government, research and third sector[*] organisations

- There is a need to identify and allocate the resources required to successfully implement a knowledge exchange strategy and to ensure that a continuous quality improvement cycle is embedded in the strategy

- There is a need to jointly prioritise interactive and policy-research knowledge exchange initiatives according to need and to the resources available

THE SURVEY

- In terms of APHCRI's past activities in this area, a survey of APHCRI-funded researchers, together with smaller samples of researchers who had applied unsuccessfully for APHCRI funding and users (or potential users) of research findings was conducted

- The survey found that in the past the respective roles of the APHCRI hub and spokes in relation to 'linkage and exchange'[†] were not consistently understood

- It also identified a widespread recognition among researchers of the need for, and importance of, 'linkage and exchange' but it does not appear to feature prominently in most researchers' minds when they are applying to APHCRI for funding

- Researchers' views on where 'linkage and exchange' efforts should best be targeted do not appear to be well-informed by an understanding of how policy is made. There is a heavy reliance on 'traditional' academic approaches to dissemination

- Barriers to effective dissemination that were identified by researchers included frequent changes among senior government officials – which can make it difficult for researchers to maintain effective networks – and lack of explicit funding for dissemination activities

- Factors identified as aiding dissemination included APHCRI's 1:3:25 format for reporting research findings - was widely acclaimed – and APHCRI's role in providing advice on, and establishing forums for, communication of research findings

- Research users identified the value of being able to access findings as and when required to support or justify a position ("user pull") rather than having them actively promulgated ("researcher push"). The potential for intermediary bodies to support such approaches was also highlighted

- Views on the impact of APHCRI-funded research varied. Researchers were able to identify some examples where their work had made a discernible impact on policy or

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[*] These organisations include non- government organisations, professional bodies and government sectors such as local government.
[†] 'Linkage and exchange' was utilised as a methodology for knowledge exchange by APHCRI from 2003-2009

practice. More commonly, findings were seen as having had a less direct, but no less powerful, impact by helping to shape the policy agenda. The tensions between evidence and politics were also noted.

RECOMMENDATIONS

- The terminology that describes the activity of knowledge translation and research utilisation needs to be defined and agreed by all parties. One possible term is Knowledge Exchange (KE) as this describes a two way process through which knowledge is shared between the research and policy world and the third sector

- A framework or model for operationalising KE needs to be developed and continuously evaluated to enable a better understanding of what strategies and activities are most effective

- Specific recommendations arising from the survey include:

    o the need to revisit and revise the respective roles of the APHCRI ANU and the APHCRI research network;

    o the scope for clearer and hence more enforceable requirements for KE plans to be made explicit in research proposals;

    o the opportunity for APHCRI and those whom it funds to develop a broader and more nuanced understanding of research users and how best to facilitate their uptake of research findings

- That the Department, APHCRI and PHC RIS meet as soon as is practicable to clarify respective roles and responsibilities of the two knowledge brokering organisations

- That the Department, APHCRI and PHC RIS agree a set of protocols which govern expected behaviour (e.g. where public officials agree to explain the policy context of research that is needed, as far as that is possible, including use of the Chatham House rule for interaction forums, where APHCRI agrees to the rule of "no surprises", and more generally protocols to gain clarity in respective roles and responsibilities

- That the Department, APHCRI at ANU and each member of the research network have one dedicated officer who engages in dissemination and knowledge brokering activities and becomes the link across the relevant sectors

- That PHC RIS and APHCRI maintains regular contact with these dedicated officers to ensure maximum coverage is given to APHCRI research through PHC RIS as well as APHCRI networks, to optimize existing infrastructure and networks

- That APHCRI, along with the Department, consider restructuring its Research Advisory Board (RAB) arrangements with a view to reducing the size of the Board but including more policy relevant expertise to set and monitor the research agenda

- Related, that APHCRI consider forming a reference committee of leaders of the research network to advise the RAB on priorities and progress on major research activities

- That APHCRI develop a knowledge exchange and communication strategy with a dedicated manager who would form part of the APHCRI executive

- That the Department, APHCRI and PHC RIS determine which KE functions have a priority and therefore require a reallocation or increase in funding

- That the Department consider which interactive and policy-research initiatives it wishes to give priority to.

KNOWLEDGE TRANSLATION: A LITERATURE REVIEW

Nathaniel Ward and Rhian Parker, Australian Primary Health Care Research Institute.

The purpose of this paper is to provide an overview of the main issues or themes that emerge from the literature on Knowledge Translation (KT). It begins with a discussion outlining the nature of KT and some of the issues surrounding the notions of evidence in this context. Strategies to overcome knowledge flow barriers in KT interventions are outlined and finally, a table of selected models and frameworks outlining the key components of KT is provided. The literature review was produced using an already existing data base, to which were added articles retrieved under the search terms knowledge transfer, knowledge translation, knowledge brokerage, and research utilization. Snowballing was also used, which culminated in a database containing 561 references.

KNOWLEDGE TRANSLATION: AN OVERVIEW

Knowledge translation, knowledge brokering, knowledge transfer, research utilization, and research implementation, among many others, are all terms that have been used to explain the transfer of research knowledge into policy and practice. The abundance of such terms has been remarked upon by more than one author and is generally noted as being one of the main reasons that the field itself is a little confusing [see 1, 2-4]. Despite some confusion related to the term and its cognates there is general agreement that KT is a process that aims at getting research knowledge into 'action'; the outcomes of KT interventions in this regard are, ideally, applied [3, 5-7]. The applications of such knowledge may be to inform 'practice' settings on the one hand or 'policy' or 'decision making' settings on the other [6, 8-10]. The assumption is that KT is necessary because there has traditionally been an under use of research knowledge in these arenas—a situation some of the literature suggests still persists [see 11]. The lack of connection between research knowledge and its application is often referred to as the 'know do gap' [12, see also13].

KT, then, is about research utilization (RU) There has been significant literature generated on the subject, and many models (see Table 1) have been developed to describe the types of utilization that are detailed in the literature [see 1, 14, 15-19]. The earliest of these were described as science, or producer, push models and user pull models respectively. In push models, it was felt that the existence of 'quality' research knowledge was enough for end users to take what they needed to inform either decision making or practice contexts. Pull models, by contrast, were models where the end users of any knowledge would set the parameters for the kind of information that they wanted, and would essentially contract researchers to get the information they identified was needed [see16, 20, 21].

More recently, push and pull models have been replaced by what are normally called 'interaction' models of RU, which developed in response to the recognition that neither the push nor pull models were sufficient to get research knowledge into practice [22, cf. 23]. Interactional models of RU are those in which the producers and users work together to set, among other things, research agendas and programs of research that would lead to the 'right kind' of research knowledge to directly inform the policy issue, or practical problem, that the knowledge is supposed to help solve. In addition, it is generally assumed that through better interaction between user and producer groups the 'know do' gap can be circumvented [see 24, cf. 25]. In part this is linked to an understanding, or assumption, that users and producers share 'different communities' or 'cultures' that work according to different sets of values [but cf. 26]. The clash of these value sets is seen as something that creates general barriers to effective RU [cf. 6, 27].

Part of the move to general interaction approaches involves an increasing recognition that the contexts for KT are much more complex that the more linear 'push' and 'pull' models were able to describe [see 21]. Discussions on the complexity of KT environments cover vast conceptual ground; not least is the understanding that these environments themselves are dynamic and subject to change. For this reason it is argued that the intervention itself must be adaptable and that there is no one size fits all KT strategy [see 28, 29]. Linked to ideas that KT should be dynamic is the call for evaluation of such interventions [cf. 30, 31]. It is suggested that a KT strategy should itself be monitored as part of this process, since in doing so barriers to the knowledge uptake process can be identified and overcome. Similarly, there is the need to evaluate the effectiveness of the intervention in its aftermath [cf. 14, see also 32].

On a deeper level, and beyond calls for trouble shooting KT as a process, there has been an increasing focus on the nuances within and across contexts. There are different articulations of this that range from thinking about contexts in terms of systems, more explicit focuses on networks, and even challenges for better theoretical constructs that allow looking beyond the extant interactional approaches all together [2, 33-36]. A key concern in this regard is with understanding notions of 'interested action' or 'power relations' that may either present barriers to research uptake or facilitate it [37-40]. Connected with these concerns are also concomitant issues of how best to communicate relevant research knowledge to target audiences, as well as with what the nature of such knowledge is more broadly [17, 41, 42].

Part of this complexity is connected with more fine grained ways that RU is understood. The user pull, producer push and interactive models have already been mentioned. However, underlying these are models that help to provide a more multi-dimensional view of RU. Three of the more salient models are described as being 'Instrumental', 'symbolic' and 'conceptual'. With instrumental use, research results are directly applied to a problem. In this regard such use can be seen as forming the basis of decisions in the short term. Symbolic, sometimes called political use, is where research output is used to bolster or support a decision that has already been made. Another way of understanding this is as knowledge being used as a tool to advance political self-interest. Finally, conceptual use occurs when research knowledge, while not necessarily used for application to an immediate problem, influences future decisions either directly or indirectly. In this sense conceptual use occurs when knowledge has influenced decisions makers' cognitive or thinking processes, which will have long term implications for making decisions [43-45]. These different types of utilization are thought to occur simultaneously in decision making settings, although their ratios will vary across different domains [see 15]. As already mentioned, these three models represent only the more salient types discussed in the literature, and therefore do not exhaust all possible configurations of RU [see 18 for a discussion of other models].

EVIDENCE-WHAT IS IT?

With concerns over the complexity of KT environments there is also an equal concern with understanding how to implement evidence within them, as well as related discussions on what constitutes evidence in such environments [34, 46, 47]. For some, evidence is defined narrowly in terms of being results produced from systematic research that increase knowledge more generally [17]. Others take a broader view, framing evidence as being a product of research based activities and different realms of both preference and experience [2, 9]. The conceptual underpinnings of how evidence is understood here in part boil down to different types of knowledge as being either 'tacit' or 'explicit' [cf. 48, 49-51, see also 52]. Tacit knowledge encompasses that knowledge which is gained through personal or professional experience [53]. Tacit knowledge in this regard is different from what might be understood as 'rational scientific knowledge'; it is held in public understandings and cannot be codified [54, 55]. Explicit knowledge might be that produced by research activities that has been disseminated and understood across a particular area of intellectual or public endeavour; it is cognitive and can be stated [17, 54]. These two conceptualizations of knowledge are not mutually exclusive, in reality there is interplay between the two through differing contexts [cf. 38, 56]. There is even some suggestion that KT itself is concerned with turning tacit knowledge into explicit knowledge, although this can be a difficult task [57, cf. 58, see also 59].

However defined, the interplay between 'evidence' and context becomes a central problematic. Part of this is the idea that whatever evidence may be it is more than just something that can be framed in traditional ways as 'objective' and therefore neutral in a positivist sense [17]. Some literature suggests that constructions of evidence relies quite heavily on wider social values and constraints which then inflect how or whether knowledge is used by different groups [see for example 19, see also 40, and 60]. In this way, configurations of evidence, and what counts as good 'quality research based knowledge' have as much to do with how such knowledge acquires 'value' as it does with whether or not it was produced through rigorous research practice [cf. 37].

The question then becomes one of how evidence or knowledge accrues the value that will mean it will be used. Alternatively, it also means that attention should be paid to the ways in which knowledge becomes less valuable and thus less likely to be selected for implementation [see 41]. Here it is also recognised that even where different groups within the same sphere of interest have a stake, it does not necessarily follow that evidence will be valued equally by all parties. Sometimes this may be to do with competing interests around an issue the evidence is meant to inform [11, 40]. There is also some suggestion that evidence becomes more valuable if those for whose use it is intended feel a sense of 'ownership' of it [4, 6, 7, 17, 61]. In these senses ideas of 'quality' are less straight forward than they appear at first glance, since quality of evidence may also have much to do with subjective or even qualitative judgements as well as being inflected by more personal considerations on the part of the user.

But because 'quality' is also connected to usability there is a concern that evidence is presented in formats appropriate to its purpose. This is a question of 'tailoring' evidence for 'fit' to its use context [57, 62-64]. In these terms ideas of quality become more that just ones concerned with whether information was produced in a robust way. They become also questions of how much detail is necessary in what is transmitted. Too much detail can become too cumbersome for some purposes, or not enough can make it too impoverished. Necessarily, these considerations form part of how knowledge gains or decreases in value. Coupled with this is an assertion of the need to think about the ways in which knowledge is being transmitted as well as who the intended audience is to be [10, 17, 42, 65].

To summarize the main themes discussed in the previous two sections: KT is about getting research knowledge into action. In this sense it has an applied focus, and is concerned with both the utilization of research as well as trying to address the underuse of research evidence. Currently, interactive models are favoured, and have largely replaced more linear 'push' and 'pull' models. With the rise of interactive approaches there has been a corresponding recognition that KT environments are complex spaces that involve, among other things, equally complex interactions including those related to issues of 'power'. As such notions of what counts as 'evidence' are inflected in subtle ways through its interplay with context. The interplay with context is also connected with finer grained understandings of RU, the most salient of these being instrumental, symbolic and conceptual use. In addition, such complexity is also linked to the way that knowledge accrues or decreases in value. Such value is also in many ways linked to its perceived usability, which is in turn connected to ideas of 'fit' to its use context.

BARRIERS AND FACILITATORS TO EFFECTIVE KNOWLEDGE TRANSLATION

The different strategies for effective KT also involve an understanding of potential barriers to successful implementation or knowledge [see also 11, see 66]. There are a range of potential barriers or impediments that might occur within a given KT setting. These include things like competing interests or values mentioned above. In addition, they might also be related to 'cognitive', 'structural' and 'organizational', or 'cultural', constraints [see 56, 67]. An example of a cultural constraint can be seen in settings where strong professional boundaries exist within networks that inhibit knowledge sharing. This amounts to an acknowledgement that certain professional settings are 'embedded' in contexts that have been historically constructed and

evolved over time [see 33]. Cognitive constraints can refer to the intrinsic motivations of actors, often governed by incentives, to cooperate and thus share knowledge [see 56]. In part cognitive constraints might be thought exist within in the 'two communities' of researchers and users, since inherent in this idea is the notion of different incentives driving each group [see 6, 17, 67, 68, 69]. Structural constraints are those that relate to capacities to interact as well as broader infrastructural considerations including those that relate technologies for communicating or mediating information [see 56].

The barriers commented on above by no means exhaust the range of impediments to the KT process. There is some suggestion that that the 'volume' of research evidence presents a hindrance to effective research uptake [70]. Here problems arise in implementation of research, not because there is not enough information, but rather there is such an abundance that it is difficult to locate that which is relevant for a particular problem. In some ways the barrier here is not just a 'translational issue', but one of 'knowledge management', similar to those that occur within the kinds of structural constraints mentioned above. A further barrier to KT relates to what can be called 'timeliness' of research knowledge produced [see 13]. Research timeframes can often be long and by the time the information is available it may be of little use for the purpose for which it was produced. Barriers of timeliness are considered in part to reference differing values between the two communities of research producers and research users [see 71]. In addition, some barriers may only become apparent or arise in the process of the KT intervention itself [cf. 41].

Understanding the notion of 'barriers' also requires an understanding of 'facilitators' to research use. Conceptually understanding what counts as facilitators can be tricky, since in many ways they are the inverse of the kinds of constraints discussed above as being structural, cultural or cognitive. An example of thinking about facilitators can be seen in the idea that different organizational contexts have 'capacities' that will influence, or aid, in the uptake of research information. Parent et al [35], for example, outline four organizational capacities that help to facilitate research uptake: 'generative capacity', 'disseminative capacity', 'absorptive capacity' and 'adaptive and responsive capacity'. The generative capacity is thought to be based on the intellectual and creative capabilities of a system's members, research infrastructure and its alliances. It indexes an organization's ability to discover or improve knowledge and the processes, technologies, products and technologies that derived from such knowledge. Disseminative capacity refers more simply to a system's ability to translate and effectively disseminate knowledge through social or technological network, and may also include an ability to appropriately contextualise and format knowledge. Absorptive capacity on the other hand, is a systems ability to recognise the value of new external knowledge, then assimilate and apply it in ways that are relevant for stakeholder groups. Finally, adaptive and responsive capacity is the ability of being able to continuously learn and renew the elements of an already utilised knowledge transfer system so as to constantly change and improve it. The literature also suggests that high degrees of interaction are also another form of facilitator [cf. 16, 31, 44, 66, 72].

STRATEGIES FOR KNOWLEDGE TRANSLATION

Part of KT strategies, then, involves firstly assessing where potential barriers might be as well as an on going commitment to assessing blockages in knowledge flows during the course of an intervention. One of the key concerns here is with 'mapping' the context. An example of mapping that would take stock of the complexity of the intervention terrain is seen in the idea of knowledge value maps (KVMs). KVMs operate on two levels; a more general level where all of the interested parties in an issue are identified, and a more fine grained level where these parties are mapped as having particular alliances. In terms of the latter level, particular values and interests should be able to be charted that might mean different groups in the terrain are working at cross purposes [11]. One example of evaluating knowledge flows during an intervention is seen in the idea of 'knowledge mapping'. Knowledge mapping involves creating a set of interconnected maps about different knowledge domains in a KT intervention to gauge its effectiveness. The assumed advantage to this is that when blockages or barriers are identified through the mapping process, the KT strategy itself can be adapted [41].

Increasing cooperation and interaction between producers and users of research knowledge is another general strategy put forward to overcome barriers to knowledge flows. This is advocated as something that should be ongoing throughout the KT process, and underpins the notion of creating 'partnerships' in KT [5, 66, 73]. The types of interaction would vary during an implementation, but one of the first is the idea that producers and users should jointly set research priorities that are relevant to the issue being addressed. There are at least two ways that this is thought to be beneficial. The first is that it is assumed to address problems with the 'fit to use context' issue. With users having good levels of involvement in setting priorities the type and quality of evidence should be high. As a related benefit this may also help to increase feelings of 'ownership' creating shared levels of vested interest in the intervention. Secondly, it is thought that such ongoing interactions will create a shared learning experience for both parties. Each should ideally gain an appreciation of the respective environments in which each group operates [cf. 25].

Another strategy related to increased cooperation and interaction to overcome is that of creating and capitalizing on 'Communities of Practice' (CoPs). CoPs are said to be self-organised and voluntary, as well as being focused collectives that work towards common understandings on a particular issue [74-77]. There are a number of assumptions behind the use of CoPs in KT, among these are the ideas that they will use resources in an efficient way, that they can "elucidate and transfer best practices, cultivate partnerships, develop professional skills, and promote rapid dissemination of knowledge within teams and groups with a common purpose" [76]. In addition to this, CoPs are assumed to evolve work contexts around shared identities that are conducive to facilitating knowledge flows. As with other forms of cooperation part of this construction of shared identities could be a sense of 'ownership'.

Central to any KT intervention is the issue of how research findings can be effectively transmitted to those for whom it is most relevant. One of the more popular strategies advocated in the literature is the use of skilled facilitators, often referred to as knowledge brokers. The use of knowledge brokers goes hand in hand with creating settings where fruitful interactions between user and producer groups can occur, and is certainly part of a move to bridge the gap between these groups as 'two communities'. Superficially all knowledge brokers have a role as 'go betweens', but there are a variety of other roles that they may play. They may for instance be 'knowledge mangers' by helping to synthesize research findings and transmitting it in appropriate ways to the user group. Alternatively, they may act as 'linkage agents' where the role requires fostering and building connections between user and producer groups. Finally, knowledge brokers might act as 'capacity builders' by enhancing users' access to knowledge and providing them with training that could lead to 'positive social outcomes' [78]. These three conceptions of knowledge brokers are by no means mutually exclusive; they may over lap in different KT settings. The assumption behind the use of such facilitators, though, is that effective transfer of knowledge is thought to occur more readily when there are face to face interactions [5, cf. 13, 79]. Given the intermediary role of knowledge brokers there is also a general assumption that they should be both trusted and have expertise in the field of knowledge they are dealing with [see 16].

Questions of how research findings should be communicated are also important. While Part of the knowledge broker's role might entail this communicating knowledge, there is also an issue of how, or through what other mediums, research should be presented to facilitate greater likelihood of it being successfully picked up [see 6, see also 37, and 42]. Key here is the notion that appropriate mediums for transmission should be related to the context. One example might be the use of 'lobbying' as a strategy for getting research findings into the political arena, since this is a style of communication appropriate to, and understood in, political settings [37]. Alternatively, the use of web or data base technologies might be considered appropriate for settings that have an 'existing research culture', since end users of research will be familiar with this way of engaging with information [see 63]. Due to the complexity of interventions, however, it may be that more than one transmission or communication tool is necessary. This is a question not just of the mediums used for transmission, but also speaks to the levels of detail required for the use context. In other words, it is connected to notions of how best to 'tailor' evidence commented on above.

CONCLUSION

Knowledge Translation is about effectively translating research knowledge into applied settings. Many models have been described to explain KT and research utilization, but currently interactive approaches that emphasise cooperation between research producer and research user are favoured. This turn to interactive approaches acknowledges that KT environments are complex and dynamic, and because of this evaluation needs to be built into any intervention. Part of understanding this complexity is also being aware that KT environments involve issues of power and interested action that may provide 'barriers' to research use. In part such barriers can be related to ideas of their being 'two communities'—those of the producers and users— who have different sets of values, which are in part governed by differing incentives. For this reason notions of what counts as 'evidence' are equally complicated and are connected to ideas of how knowledge accrues or is valued. This in turn is related to how evidence is 'tailored' to fit its use context, as well as how knowledge should be best transmitted and to whom. There are many strategies that might be employed to overcome barriers to successful KT, and these include mapping strategies, creating partnerships and CoPs, the use of facilitators, and selecting appropriate mediums for communicating knowledge to the appropriate user group.

Table1: Selected Models and Frameworks

Model/Framework	Brief Description	Components
Knowledge Mapping *Ebener et al 2006*	Helps to elucidate/assist in analysis of complex processes and plays role as technique for identifying flaws/gaps in KT process. Consists of set of associated maps: • research priorities • research proposals • research in progress • completed research • policy making • knowledge from practice	Created with reference to visual framework: • function of map • knowledge type • recipient • visualization type Mapping steps: • Acquire Data • Manipulate Data • Store Data • Process Data • Visualize Data
Knowledge to Action (KTA) *Graham et al 2006*	Attempts to take into account whole process of getting knowledge into action with the process divided into 2 conceptual elements: knowledge creation and the action cycle. There is an emphasis exchange between relevant stakeholders resulting in action.	Phases in Knowledge creation: • Knowledge enquiry • Knowledge synthesis • 3rd generation knowledge (knowledge products/tools) phases in action cycle: • Identify problem • Identify, review, select relevant knowledge

		• Adapt knowledge to local context • Assess barriers • Select, tailor, implement interventions • Monitor use • Evaluate outcomes • Sustain use
Interfaces and Receptor Model *Hanney et al 2003*	Deals with the assessment of utilization of health research in policy making. Attempts to allow a range of key issues to be integrated into analysis. The 'receptors' in the model are policy makers, and all the interfaces are those between research producers and research receptors. Knowledge brokers work at the interfaces between the two groups.	3 key components: • Focus on the need for multi layered analysis • Appreciation that researchers and policy-makers have their own values and interests • An emphasis on the receptor 3 interfaces: • Priority setting/needs assessment. • Research commissioning • Dissemination/knowledge transfer
Knowledge Transfer *Lavis et al 2003*	A framework for knowledge transfer strategies. Contains 5 elements—organized around 5 questions—and illustrates how opportunities for improving transfer for research organizations exist.	Framework: • Message: What should be transferred to decision makers? • Target audience: To whom should research knowledge be transferred? • Messenger: by whom should it be transferred? • Knowledge-transfer processes and communications support infrastructure: How should research knowledge be transferred? • Evaluation: with what effect should it be transferred?
Promoting Action on Research Implementation in	Getting research into practice requires systems change. Successful implementation a function of nature and	Features/assumptions of framework: • Evidence encompasses codified and non-codified sources of knowledge

Health Services Research (PARIHS) *Kitson et al 2008*	type of evidence, qualities of context in which evidence is being introduced and the way the process is facilitated. Can be used as evaluative/diagnostic tool by researchers/practitioners to evaluate relatively successful KT. Elements represented on continuum of high to low.	• Melding/implementing evidence in practice involves negotiating/developing shared understanding about benefits, disbenefits, risks/advantages of new over old • Some contexts more conducive to successful implementation of evidence over others • Emphasis on need for appropriate facilitation
Participatory Knowledge Action Translation (PAKT) *McWilliam et al 2008*	Identifies agency as an attempt to address the barriers and facilitators of KT, there are three levels of focus, which also includes an action cycle .During action cycle groups involved will ideally evolve communities of practice.	Levels of Focus: • Organizational effort • Team effort • Individual effort Action cycle (sequential): • Consider evidence & opportunities • Reflect on barriers/facilitators • Brainstorm and prioritize strategies • Implement & evaluate change • Institutionalize and diffuse change
Dynamic Knowledge Transfer Capacity Model (DKTC) *Parent et al 2007*	A framework to identify components for social systems to generate, disseminate and use knowledge.	Focuses on four capacities: • Generative capacity • Disseminative Capacity • Absorptive Capacity • Adaptive and Responsive capacity
Knowledge Value Mapping (KVM) *Rogers et al 2009*	KT should take stock of complexities of fields, groups, organizations, institutions, and relations/boundaries that will affect knowledge flows. KVM framework is a strategy to elucidate all relations of relevant groups from sources of knowledge to use. Highlights all possible paths of knowledge and incentives/disincentives	Based on 2 constructs: 1) Knowledge value Collectives (KVC): • Connected set of social actors for specific content area. The definition of a content area is the result of convention and the actors must recognise its criteria.

	that may affect the process. Outcome is a map of system of mediations and corresponding content map. *Value* in labels indicates that content of knowledge claims do not determine all possible implications of knowledge. Social actors have different priorities/roles that create nuanced relationships with content.	2) Knowledge value alliances (KVA): • Subsets of the KVC tied by direct sharing of content but also linked by explicit agreements to pursue common goals. Their detection within KVC helps formulate hypotheses about dynamic knowledge flows in the KVC.

AUSTRALIAN PRIMARY HEATH CARE RESEARCH INSTITUTE (APHCRI) AND PRIMARY HEALTH CARE RESEARCH AND INFORMATION SERVICE (PHC RIS)

KNOWLEDGE BROKERING WORKSHOP 24 NOVEMBER 2009

REPORT ON OUTCOMES AND NEXT STEPS

PREPARED BY PROFESSOR MEREDITH EDWARDS

1. NATURE AND PURPOSE OF WORKSHOP

Thirty people (half of whom were researchers) participated in the workshop which was held in Brisbane on 24 November 2009. A list of attendees, the program outline, background papers and presentations are attached.

Participants were informed of the main purpose of the Workshop by the Director of APHCRI, Robert Wells namely, to devise a knowledge brokering framework for the next five years to assist APHCRI and PHC RIS implement an effective action-based program. Associate Professor Libby Kalucy, the Director of PHC RIS noted the importance of working out ways of better linking researchers to "users" of research while building on existing structures.

The morning session consisted of a series of presentations by a range of experts and the afternoon was devoted to smaller group work on: barriers to obtaining policy relevant research, how to overcome those barriers and the main elements for an effective framework for knowledge brokering in the area of primary health care.

2. MAIN BARRIERS TO OBTAINING POLICY-RELEVANT RESEARCH

The barriers identified differed depending on whether workshop participants came from a policy, research or another background.

(A) POLICY-MAKER PERSPECTIVE.

- Vicki Murphy from the Department of Health and Ageing stated that currently policy makers were willing to use evidence in policy processes but that evidence was only one of many factors taken into account in making decision - others include political disposition, public opinion and cost considerations. She indicated that frequently evidence is needed at very short notice so there is a demand for easy to access and existing research. Yet often there is little knowledge of which expert(s) should be contacted on what topic.

- Deborah Frew, Director of Knowledge Programs at the Sax Institute gave the results of interviews with NSW health policy makers and researchers which found, amongst other things, that 87% of policy makers believed research was not presented in a useful way and that only 5% considered that local research was both relevant and presented in a useful way.

- Professor Phillip Davies, noted from his recent survey work of APHCRI researchers and research users that the main motivation of researchers is to do research and that researchers lacked sophisticated knowledge of the policy process.

(B) RESEARCHER PERSPECTIVE

Throughout the day, researchers raised several potential barriers to more interaction with policy makers:

- lack of knowledge of who to contact in government and how to go about that.
- lack of academic incentive to undertake research other than for peer-reviewed journals.
- lack of funding for translation of research
- fear of being co-opted, losing independence, and intellectual property issues,
- a "firewall" between researchers and public servants.
- lack of understanding of the role of APHCRI as a hub and how it related to its "spokes".
- the inability of policy makers to clarify what research they actually wanted
- lack of corporate memory

(C) OTHER PERSPECTIVES

Participants acknowledged a real tension between producing high quality research and meeting user needs quickly. Cultural differences across the sectors were discussed throughout the day. The issue of where citizens fit into both the process of developing policy and research agendas was raised as well as accountability issues, particularly when non-government organizations were involved in these processes.

To overcome these barriers, there was a general acceptance about the need for more interactive processes across the sectors through the use of knowledge brokering, action-based networks and increase in the quantity and quality of longer term relationships between the research and policy sectors.

These perspectives accord with the findings in the relevant literature about the difficulties of getting research used in policy, given the different sectoral cultures (e.g see Edwards 2004). The early and positive conclusion from the workshop (and from Phillip Davies' survey) was that workshop participants' understanding of these perspectives allowed the focus for the day to move onto dealing with issues such as: how best to get interaction across the sectors, what particular mechanisms should be used, and who should be involved and when in the policy and research processes.

3. KNOWLEDGE BROKERING FRAMEWORK

Knowledge Brokering is essentially a role played by an individual or organization linking researchers and policy makers. "Knowledge brokering" has been defined as "all the activity that links decision makers with researchers, facilitating their interaction so that they are able to better understand each other's goals and professional cultures, influence each other's work, forge new partnerships, and promote the use of research-based evidence in decision-making".(CHSRF quoted in Lomas 2007). Knowledge brokers are "intermediaries" and APHCRI, PHC RIS and the Sax Institute all undertake this role in different ways. PHC RIS activities as an information service mainly focus on making existing PHC research accessible and readily available to policy users, while APHCRI knowledge brokering activities relate mainly to new research funded through APHCRI

Participants discussed in small groups the main elements in a framework for knowledge brokering which would be relevant in the primary health care sector and could be considered by both APHCRI and PHC RIS.

The following main elements were identified:

(a) *use of Interactive mechanisms* throughout both research and policy processes

(b) new research funded through APHCRI responds to demand – 'demand pull" research which is accessed or initiated in response to the needs of policy users

(c) *all relevant stakeholders are involved* when needed during the research as well as the policy process. Apart from members of research teams, stakeholders can include policy makers, professional groups, consumers, NGOs, media, advisory groups, social networks etc

(d) roles and responsibilities are clear as research is developed and translated into policy and in all brokering roles

(e) *differing cultures across the sectors are accepted and respected.*

(f) *existing structures are built on* – using both APHCRI and PHC RIS experience and resources

(g) *flexibility is essential* –so that the approach can be varied and refined to meet the needs of specific situations, and in response to lessons learnt about what works best, .

In relation to the first element, interactive processes include:

- researchers with other researchers and across relevant disciplines

- researchers with policy practitioners - from assisting in articulating the nature of the policy problem and setting the policy agenda, informing new policy development through to implementation and evaluation.

- policy practitioners with researchers - from identifying the research questions relevant to the policy context, through research design, to the final product of research and its dissemination

- policy practitioners and researchers with other stakeholders - throughout the main research and policy processes, as appropriate.

Professor Mark Evans of the ANZSOG Institute for Governance, University of Canberra, illustrated how action-based knowledge networks which involve the above types of interaction and regular dialogue enhanced both policy and research outputs. Discussion in workshops identified a number of mechanisms for greater interaction facilitated by APHCRI and/or PHC RIS as knowledge brokers (see below).

4. IMPLICATIONS FOR APHCRI AND PHC RIS AND NEXT STEPS

Lomas has explained how the Canadian Health Services Research Foundation (CHSRF) adopted its knowledge brokering role over the last ten years in the way that links those leading both research and decision-making processes (Lomas 2007).

What follows takes account of those activities, adds some governance considerations of particular relevance to APHCRI and includes suggestions for action arising from the Workshop and the Facilitator's perspective. Given that the lack of incentives to interact was raised by Workshop participants as a real issue, particularly for researchers, it is interesting to note that Lomas found in the Canadian context that neither universities nor health service providers provide much incentive for ongoing interactions. This is a broader challenge to confront in Australia if there is to be fully effective knowledge brokering in primary health care (for suggestions see for e.g Howard 2008; Edwards 2009)

SETTING THE RESEARCH AGENDA

APHCRI and PHC RIS are both funded until 2014 under Phase Three of the PHCRED Strategy, which will be closely aligned with the Draft National Primary Health Care Strategy with National health reform goals. Both organisations have a role in identifying research priorities and gaps. APHCRI is involved in commissioning research and linking policy-makers' needs with interests of academics, providers and other stakeholders. But it appears that the role of APHCRI as a hub

and how it specifically relates to its stakeholders is not as clear as it could be. The extent of interaction with researchers and policy makers appears to need enhancing so that there is more of a role for policy practitioners in the setting of the research agenda and monitoring its progress as well as the involvement of researchers in clarifying the policy problem and being involved at critical stages in policy development. There is also a key role here for the APHCRI Advisory Board which needs to include people who have the necessary expertise to know what research to seek and fund which best meets policy priorities (see suggestions under (f) below).

FACILITATING RESEARCH-POLICY INTERACTION

The CHSRF experience suggests that for each research project, decision-makers in the health sector are included as co-investigators and also that research syntheses produced to support decisions are co-produced by researchers and people who could implement the results. It also places masters and doctoral students in the health service as part of their training.

Many mechanisms can be used to facilitate interactions and dialogue (see also (d) below). In the UK ESRC context, secondments of academics into the civil service ("Placement Fellowships") have been evaluated as particularly successful (NAO 2003; CST 2008). A mechanism popular with Workshop participants and also found elsewhere to be popular with senior policy officials is the use of roundtables or workshops across the sectors. Decision-makers, for several reasons, appear to learn well if such forums are well designed (ANZSOG 2007; Edwards 2009; ESRC 2009). Senior officials in Australasia particularly liked this mechanism for brainstorming emerging issues as well as discussing "how to" type issues. Saunders notes that round tables can be particularly valuable in breaking down the cultural divide and can lead to "mutually respective conversations" (2005:384).

These forums do not occur without considerable time, effort and dollars so it is suggested that APHCRI talk with the Department of Health and Ageing about what is possible given cost constraints.

COMMUNICATION AND DISSEMINATION RESEARCH STRATEGY

The CHSRF produces plain language research summaries that potential users can understand. It also supports virtual knowledge networks including both researchers and decision makers on major priority research projects and supports this with regular face to face interactions. It would seem sensible to ensure that part of the funding for each research activity (or hub), include an amount for dissemination and more generally knowledge brokering activity. The same cost caveat applies as in (b) above. Considerable costs would be involved if part of the strategy is for APHCRI is to be involved in "road-shows" out to regional areas.

It is important that the communication and dissemination strategy that the brokering organizations adopt includes processes to ensure that communication comes regularly from the relevant department(s) so that the context for research is clearly understood as are the difficulties that might be encountered in the decision-making process. In addition, an important part of the strategy needs to be building up good relationships with relevant community stakeholders who may wish to be involved in the research before it is finalized for government.

APHCRI might wish to consider that its executive contributes to the communication strategy and is kept constantly informed about it, e.g by appointing a communication manager as part of its executive group.

CAPACITY BUILDING ACROSS THE SECTORS

A number of activities can assist both in building greater awareness of research within government and policy-awareness within the research community (see ESRC 2009). APHCRI, PHC RIS and the Department could consider:

- Masters and doctoral training placements (as above)
- Secondments of researchers into government and policy officers into universities (see ESRC; ANZSOG) e.g a "researcher in residence" inside of government or "executive in residence" in academia.

- Professional development programs around the policy development and research processes including training courses that consist of a mixture across the sectors (see, for example, training programs at the Evidence Network, Kings College, London)

- Better Practice Guides (e.g on how a good research hub would operate in a policy environment; how to develop good relationships with public officials; policy development processes; research-use training workshops (Lomas 2009) and more generally guides assisting on developing the policy literacy of researchers

- Mentoring arrangements e.g. between new and more experienced and policy-savvy researchers, or between researchers and a policy advisor at critical stages in the research, such as identifying key messages for policy

- A journal which could include regular sections on knowledge brokering experiences and lessons and could be produced within the Department.

MONITORING AND EVALUATING

As the literature review identifies there is no 'one size fits all' strategy. The research knowledge broker needs to pay attention, alongside of government, to monitoring and evaluating what is working. Trialing and monitoring different arrangements (e.g for different research projects) could be considered, if funds permit. Relevant here is a set of SUPPORT tools for evidence-informed policy published in December 2009 by Lavis et al (2009). It is to be noted that the CHSRF provides self-assessment checklists for decision-makers to they can check the extent to which they have the organizational capacity to use research (Lomas 2007).

SOME GOVERNANCE ISSUES

- Clarifying roles and responsibilities of APHCRI and PHC RIS

  o There is a need for APHCRI and PHC RIS to agree and make public their respective roles and responsibilities. For example, one of PHC RIS current activities is synthesising research to provide a rapid response to a request from policy. APHCRI commissions specialised researchers to conduct longer term more detailed syntheses. Who is best at doing what into the future needs clarification in areas such as dissemination, engagement and capacity building.

  o The following diagrams illustrate the current arrangements for APHCRI and a possible proposed model.

  o Current "hub" and "spokes" (Figure 1)

  o Possible linkage and exchange framework for APHCRI and PHC RIS (Figure 2)
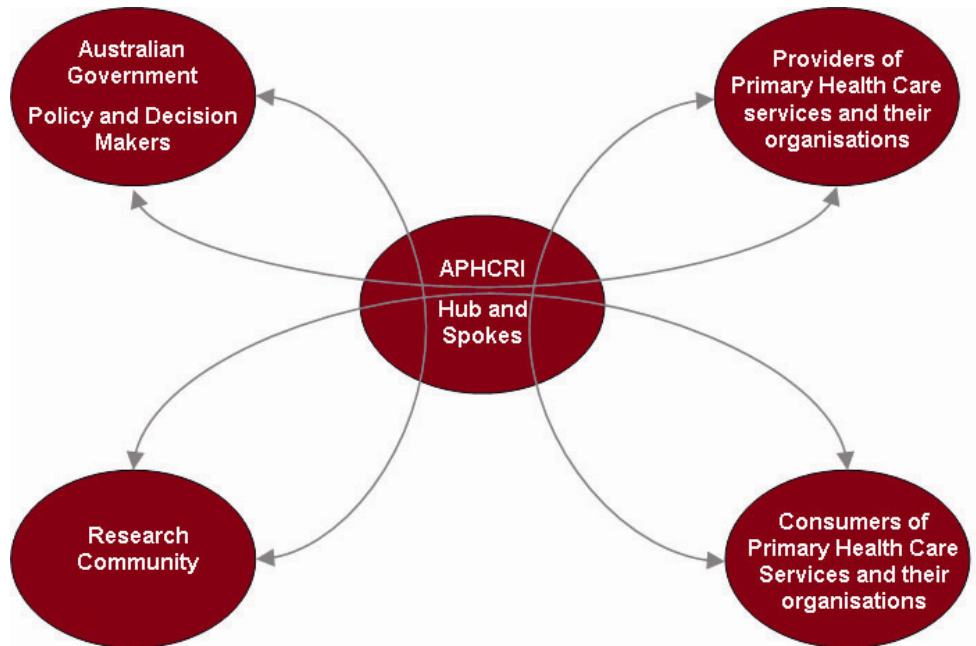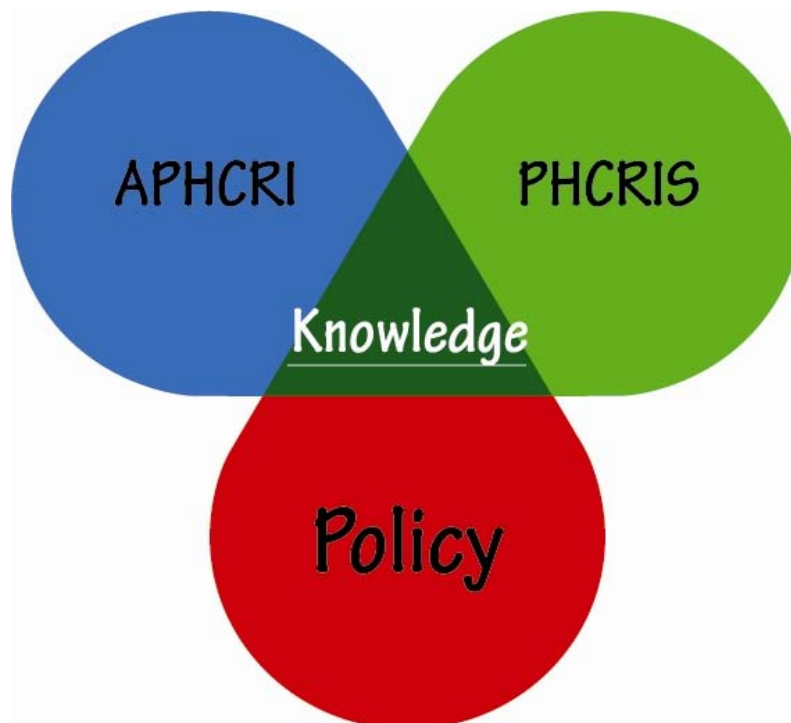
FIGURE 1

FIGURE 2

- Reconsidering the role of the APHCRI Research Advisory Board (RAB);
  - The RAB receives and approves the annual research program in line with government priorities. A possible alternative model would be to have a smaller

board but with more relevant policy expertise which could receive advice from a more specialized committee of academic experts who lead major research hubs (including or as a separate advisory committee overseas experts)

o Given more interaction across the sectors as the research program is developed, the process of producing the APHCRI research agenda could benefit from a series of roundtables between relevant public officials with leaders of major research hubs

- Governance processes could be improved by a set of protocols which govern expected

  interactive behaviour;

  o for example where public officials agree to explain the policy context of research that is needed, as far as that is possible (including use of the Chatham House rule) for interaction forums and more generally protocols to gain clarity in respective roles and responsibilities.

5. Some Suggested Actions

The following are suggested actions arising from the workshop or the facilitator's observations:

- That the Department, APHCRI and PHC RIS meet as soon as is practicable to clarify respective and responsibilities of the two knowledge brokering organizations‡.
- That APHCRI meet with its main stakeholders early in 2010 to clarify respective research-related roles and responsibilities – particularly important is to clarify the role of the ANU based APHCRI in relation to the APHCRI research network
- That the Department, APHCRI and PHC RIS agree a set of protocols which govern expected behaviour (.e.g. where public officials agree to explain the policy context of research that is needed, as far as that is possible including use of the Chatham House rule for interaction forums, where APHCRI agrees to the rule of "no surprises", and more generally protocols to gain clarity in respective roles and responsibilities)
- That the Department, APHCRI at ANU and each member of the research network each have one dedicated officer who engages in dissemination and knowledge brokering activities and becomes the link across the relevant sectors§
- That PHC RIS and APHCRI maintains regular contact with these dedicated officers to ensure maximum coverage is given to APHCRI research through PHC RIS as well as APHCRI networks, to optimize existing infrastructure and networks
- That APHCRI, along with the Department, consider restructuring its RAB arrangements with a view to reducing the size of the Board but including more policy relevant expertise to set and monitor the research agenda (e.g an ex CEO with relevant experience and/or senior representative of a relevant agency)
- Related, that APHCRI consider forming a reference committee of leaders of the research network to advise the RAB on priorities and progress on major research activities
- That APHCRI develop a communication strategy with a dedicated manager who would form part of the APHCRI executive
- That the Department, APHCRI and PHC RIS determine which of the following brokering functions of an external agency (in this case APHCRI and/or PHC RIS) have a priority and therefore require a reallocation or increase in funding (based on Clark and Kelly 2005)

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‡ To follow on from earlier meetings, plans are being made for a joint meeting in May in Canberra with the Department, PHC RIS and APHCRI with John Lavis from McMaster University to clarify roles.
§ These arrangements may need to be revisited as PHCRED Phase Three develops during 2010, as other entities are likely to replace University departments of general practice and rural health which have been funded until 2010 under the PHCRED Research Capacity Building Initiative

- o Bring researchers and decision-makers together to exchange information and work together (e.g. funding of round tables, including in regional areas)
  - o Help groups communicate and understand each other's needs and abilities
  - o Promote the use of evidence in planning and delivering health services (e.g. develop plain language research summaries)
  - o Monitor and evaluate knowledge brokering practices to identify successes or needed changes
  - o Assist decision-makers establish their priorities (e.g. brain storming workshops)
  - o "navigate" or guide decision makers through sources of research
  - o Help decision makers find or commission synthesized research; and
  - o Create knowledge networks of researchers and decision makers who have common interests in primary health issues (e.g. on-line with moderation)
- That the Department consider which of the following interactive and policy-research initiatives it wishes to give a priority to:
  - o Roundtables with researchers for brainstorming emerging issues and setting agendas; working out "how to" issues and, more generally, monitoring existing policies.
  - o Placements for masters and doctoral students (e.g. compare ESRC initiatives)
  - o Secondments of researchers into government and policy officers into universities (see ESRC; ANZSOG) e.g. a "researcher in residence" inside of government or "executive in residence" in academia.
  - o Professional development programs around the policy development and research processes (e.g. on research-use or the policy context) including joint training courses of stakeholders (see also Edwards 2004)
  - o Better Practice Guides (e.g. on how a good research hub would operate in a policy environment; how to develop good relationships with public officials; policy development processes; and more generally guides assisting on developing the policy literacy of researchers
  - o An evidence and policy type journal related to primary health care.

AUSTRALIAN PRIMARY HEALTH CARE RESEARCH INSTITUTE

REVIEW OF APHCRI'S RESEARCH FUNDING PROCESSES AND THE TRANSFER OF KNOWLEDGE FROM APHCRI-FUNDED RESEARCH

Report prepared for the Australian Primary Health Care Research Institute by:

Professor Philip Davies, Ms Fairlie McIlwraith, Associate Professor Fran Boyle, Dr Allyson Mutch, Dr Julie Dean, Ms Sian Cosgrove

School of Population Health, The University of Queensland.

Executive summary

The School of Population Health, University of Queensland was contracted by the Australian Primary Health Care Research Institute (APHCRI) to review the processes used by APHCRI to fund research and the effectiveness of the synthesis and transfer of knowledge generated by APHCRI-funded research. This report presents the results of that review.

There is a substantial body of literature on the use of evidence to inform policy in primary health care. Processes such as synthesis, knowledge transfer, and 'linkage and exchange' have been widely discussed and analysed.

One of APHCRI's goals is "to facilitate the uptake of research evidence in primary health care policy and practice". APHCRI funds research which produces knowledge. The ways in which that knowledge is transferred to users and, in turn, helps to shape policy and practice is thus an area of significant importance to APHCRI. The extent to which its funding processes themselves help or hinder knowledge transfer is also an important consideration.

In order to gain insights into such issues a telephone-based interview survey was carried out in November and December 2009. The survey encompassed 23 APHCRI-funded researchers, together with smaller samples of researchers who had applied unsuccessfully for APHCRI funding and users (or potential users) of research findings.

Respondents were generally positive in their assessment of APHCRI's funding processes. Concerns raised were relatively minor and originated in the main from unsuccessful applicants.

The respective roles of the APHCRI hub and spokes appear to have been defined more by practice than theory and, as a result, are not consistently understood.

There is widespread recognition among researchers of the need for, and importance of, linkage and exchange but it does not appear to feature prominently in most researchers'' minds when they are applying to APHCRI for funding.

Researchers' views on where linkage and exchange efforts should best be targeted are often somewhat naive and do not appear to be well-informed by an understanding of how policy is made. There is a heavy reliance on 'traditional' academic approaches to dissemination.

Barriers to effective dissemination that were identified by researchers included frequent changes among senior government officials – which can make it difficult for researchers to maintain effective networks – and lack of explicit funding for dissemination activities.

Factors identified as aiding dissemination included APHCRI's 1:3:25 format for reporting research findings - was widely acclaimed – and APHCRI's role in providing advice on, and establishing forums for, communication of research findings.

For their part, users identified the value of being able to access findings as and when required to support or justify a position ("user pull") rather than having them actively promulgated ("researcher push"). The potential for intermediary bodies to support such approaches was also highlighted.

Views on the impact of APHCRI-funded research varied. Researchers were able to identify some examples where their work had made a discernible impact on policy or practice. More commonly, findings were seen as having had a less direct, but no less powerful, impact by helping to shape the policy agenda. The tensions between evidence and politics were also noted.

Specific recommendations arising from the survey include the need to revisit and revise the respective roles of the APHCRI hub and spokes; the scope for clearer and hence more enforceable requirements for linkage and exchange plans to be made explicit in research proposals; the opportunity for APHCRI and those whom it funds to develop a broader and more nuanced understanding of research users and how best to facilitate their uptake of research findings.

Further details on these, and other, issues arising from the survey are set out in the report that follows.

Background

The Australian Primary Health Care Research Institute (APHCRI) is an initiative of the Australian Government as part of the Primary Health Care Research, Evaluation and Development (PHC RED) strategy and is supported by a grant from the Australian Government Department of Health and Ageing. APHCRI's mission is to 'Provide national leadership in improving the quality and effectiveness of primary health care through the conduct of high quality priority-driven research and the support and promotion of best practice.' The three research priorities for APHCRI are innovation in:

- state/federal relationships;
- funding arrangements for new or existing services/models; and
- organisation and linkages within the primary health care sector.

APHCRI's structure is based on a 'hub and spoke' virtual-institute model. The 'hub' is the administrative and strategic component physically located at the Australian National University (ANU), and the 'spokes' are the external researchers contracted and funded by APHCRI to address questions formulated by APHCRI's Research Advisory Board. Research questions are about high-priority topics in primary health care, and are organized thematically into streams. Expert Review Committees, which are overseen by the Research Advisory Board, are formed to assess proposals from potential spokes for each new research stream.

Each spoke has a coordinating investigator who liaises with the hub. Reporting is to be in plain English in a non-academic style suitable for decision-makers in policy and practice, using the 1:3:25 model. This comprises a one-page summary of main points, a three- page executive summary, and the full report in twenty-five pages (a longer additional report may also be included). Spokes are responsible for dissemination of their research findings.

The review

The School of Population Health, University of Queensland was contracted by the APHCRI to review and assess the processes used by APHCRI to fund research and the effectiveness of the synthesis and transfer of knowledge generated by APHCRI-funded research. Data collection for the review was carried out by surveying:

- APCHRI-funded researchers;
- unsuccessful applicants for APHCRI funding; and
- intended primary health care users of research findings.

Literature review

Evidence-based decision-making in primary health care

In primary health care, the use of evidence in policy and practice came to prominence in the wake of evidence-based medicine, shifting the focus from the individual-clinical level to the population-policy level (Dobrow, Goel, & Upshur, 2004; Nutley, Walter, & Davies, 2003). A key driver has been how to make the best use of limited resources to provide equity of health care delivery.

What is meant by 'evidence', however, is open to interpretation. Evidence can be broadly defined as the best knowledge from a range of sources currently available (including grey literature, expert advice, etc.), or more narrowly as knowledge gained from formal scientific investigations (generally associated with a hierarchy of evidence that places meta-analysis of randomized controlled trials at the apex).

There are many different decision makers within primary health care. They include policymakers, community and hospital health-system managers, directors and boards of non-government organisations, as well as other stakeholders including clinicians, consumers, their families and the general public.

In the world of government, decision-makers must balance information and influence from many different sources including experience, expertise and judgement; resources; values; habit and tradition; lobbyists, pressure groups and consultants; pragmatics and contingencies (Davies, Nutley, & Walter, 2008; Greenhalgh & Russell, 2006). However, including evidence in the policy-making process not only leads to better-informed decisions but also makes values and political motives more explicit (Lavis, Becerra Posada, Haines, & Osei, 2004).

Synthesis and transfer of knowledge

The bringing together of evidence (which may be qualitative and/or quantitative) from diverse sources to form a synthesis is seen as a way to provide the fullest understanding of a topic under review (Mays, Pope, & Popay, 2005). The question of what is 'good evidence' is central to synthesis and transfer of knowledge, because the tension between quality evidence and useful evidence is inherent in the process (Mays et al., 2005). Synthesis is a skill that requires the identification of quality evidence (as against poor evidence that should be excluded), and the balancing of the quality of the evidence (i.e. internal validity), against the usefulness of the evidence (i.e. external validity) (Mays et al., 2005; Saunders, 2006). Synthesis of these two values is in itself a value-laden activity.

There is a growing understanding that synthesis should be an interactive process between researchers and decision-makers involving reinterpretation of evidence according to context and a partnership where the decision-maker takes over the lead role from the researcher as the process concludes (Lomas, 2006; Pope, Mays, & Popay, 2006).

Knowledge transfer from researchers to decision-makers is fundamentally about positioning research knowledge as a key determinant in decision-making (Adily, Black, Graham, & Ward, 2009; Ward & Parker, n.d.). Other authors (Gravois Lee & Garvin, 2003; Mitton, Adair, McKenzie, Patten, & Perry, 2007); maintain that the term 'knowledge exchange' should be extended to 'knowledge transfer and exchange' to more accurately capture the interactive process that should occur. A variant of this extended term is 'linkage and exchange', and this is the term commonly used by APHCRI.

Linkage and exchange

Lomas (2000:240) is a prominent champion of linkage and exchange which he describes as '*a tool for moving research into policy*'. Researchers and end-users (i.e. decision-makers) are seen as inhabiting different worlds with distinctly different cultures and even a different language (Edwards, 2004; Ferguson, 2005; Hollander Feldman, Nadash, & Gursen, 2001; Lomas, 2000). This disconnect is sometimes referred to as '*the know-do gap*' (Lomas 2007:129; Ward and Parker n.d.).

Commonly identified barriers to connecting research with policy/practice relate to communication difficulties and time constraints (Canadian Health Services Research Foundation, 1999; Ginsburg & Gorostiaga, 2001; Innvaer, Vist, Trommald, & Oxman, 2002). On the supply side, researchers are seen as lacking comprehension of the policy process and how they fit in this process (Edwards, 2004). They are also seen as being ineffective in communicating their work to decision-makers. This perspective is confirmed by study findings about use of evidence in NSW health policy. Campbell and colleagues from the Sax Institute (2009:5) reported that of the policy-makers 'who thought research was relevant, most (87%) '*believed that the research was not presented in a useful way. In total, only 5% of the interviewees felt that local research was both relevant and presented in a useful way.*'

Two ways of bridging the know-do gap are a personal approach involving face-to-face interactions (Innvaer et al 2002; Lomas 2000, 2007; Walter et al 2005), and codifying /communicating using electronic sources (Nutley et al., 2003). Lomas (2000, 2007) argues that

a knowledge broker who links the two worlds of research and policy/practice is an effective way of providing a personal approach. However, there has been very little supporting evidence (Campbell et al., 2009; Mitton et al., 2007). Indeed, a randomized controlled trial of Canadian health departments found that emailing tailored, targeted messages was more effective than a knowledge broker; and for those departments with a high research culture, access to an online registry of research evidence was more effective (Dobbins et al., 2009). Moreover, Ginsburg and Gorostiaga (2001) point out that having a knowledge broker depends on there being two cultures, and argue that the separation of researchers and decision-makers into two spheres is over-stated as both groups are heterogeneous with many over-laps between them (e.g. careers, ideas, physical settings).

Once again there is confusion about terminology. If knowledge brokering is an activity with a specific skill set (Coleman, 2007), it may – depending on context - be carried out to various degrees by researchers and decision-makers; and where necessary by a person (or organisation) dedicating their time to researcher broking. However, researchers appear to have been reluctant to engage in this activity (Adily et al., 2009; Campbell et al., 2009).

Linkage and exchange is a process – described as a dance by Edwards (2004) – in which dialogue is essential and context matters (Bowen and Martens. 2005). For researchers, the message is that dissemination strategies should go beyond formal academic publication and include: informing those who decision-makers listen to about their findings (e.g. mass media, community organisations); networking (attending and presenting at conferences and workshops, meeting with key stakeholders), and any other communication strategies (including electronic) that engender trust (Dobbins et al., 2009; Gold, 2009; Innvaer et al., 2002).

Lomas (1993:226) considers that dissemination is '*almost a launching* and '*implies targeting and tailoring the information for the intended audience*'. It also implies a realistic view of what is achievable. Dissemination to decision-makers may be instrumental (specific and direct), conceptual (general and indirect), symbolic (justification), or not applicable (Lavis et al.,2003, see also Innvaer et al., 2002; Nutley et al., 2003).

Potential users in policy and practice will want '*to extract different things from research and each* [will] *have different preferences for the format of dissemination*' (Lomas. 1997:2). For example, in regard to reports, legislators prefer brief overviews, and administrators may prefer a summary but also require detail relevant to their role. For all end-users, however, length and academic writing style are potential barriers (Coleman. 2007). The 1:3:25 reporting model is seen as a way of meeting the requirements of various decision-makers; and a study of senior managers and policy-makers by Lavis and colleagues (2005) found support from both groups for the 1:3:25 format of reporting.

Impact of research findings

Innvaer and colleagues' (2002) review of the use of evidence by policy makers in the health sector (involving a meta-analysis of 24 studies) found that because the conception of 'use' as being one or two or all of the three main categories (i.e. instrumental, conceptual, symbolic) varied considerably, and because there was no cross check on policy makers' perceptions, it was difficult to accurately determine the impact of research findings. However, the two most common barriers cited were absence of personal contact with researchers and lack of timeliness or relevance of research. The importance of personal relationships to decision-makers was confirmed by Bowen and Martens' (2005) extensive Manitoba study, but they also highlighted that barriers in the decision making sphere could also be organisational as well as personal.

Research funding process

The Canadian Health Services Research Foundation (CHSRF) has some similarities to APHCRI. In CHSRF's commissioning process, they have equal representation of researchers and decision-makers on the research application panel as a way of overcoming perceived bias towards methodological purity over usefulness (Lomas 2000). A requirement of funding is that the research team includes at least one decision-maker, in policy or management, who concurrently

works in the study area. Collaboration between the researchers and the decision makers is expected throughout the entire life of the project. If necessary, the Foundation will work with researchers to obtain an acceptable level of methodological rigour.

Methodology

The study involved semi-structured telephone interviews with researchers who had sought APHCRI funding across streams 1-13. The interviews investigated the views of both funded and un-funded researchers regarding the APCHRI's hub and spoke funding processes and the transfer of knowledge resulting from APHCRI-funded research.

Participants

APCHRI-funded researchers

All researchers who had been successful in achieving APCHRI funding were invited by email to participate in a telephone interview. All funded researchers were contacted to ensure sufficient numbers of interviewees were available within the relatively short project timeframe The invited interviewees did not include those who received seeding grants of $10,000 (stream 2). In total, invitations to participate in the research were emailed to 28 APCHRI-funded researchers.

The characteristics of those who had emailed a response within a two week period were then considered, to ensure maximum variability and thus optimise investigation of converging and diverging themes and concepts (Rice & Ezzy, 1999). The characteristics considered were: location (state and rurality); institutional affiliation; and number of APHCRI grants held. In keeping with the qualitative approach, the goal was not to recruit a representative sample but rather a sample of participants reflecting as wide a range of views and experiences as possible. An additional interviewee from an Australian state not represented in the initial group of respondents was sent a second email inviting participation to optimise representativeness.

In total 23 researchers who had gained APHCRI funding were interviewed. The characteristics of APCHRI-funded researchers were:

- eight based in Victoria, seven in New South Wales, three in Queensland, two in the Northern Territory, and one based in each of Western Australia, South Australia and the Australian Capital Territory;
- 17 were located in metropolitan areas;
- 16 held multiple APCHRI grants;
- 17 were from one of Australia's 'Group of 8' universities or in the first 10 according to the 2008 Shanghai Jiao Tong Academic Ranking of World universities or the 2008 THES-QS Top World 200 Ranking Times Higher Education Supplement University Rankings.

Unfunded

Eighteen researchers who had applied unsuccessfully for APCHRI funding were invited by email to participate. Again, they were located across a range of Australian states and academic institutions. Recruitment of participants from this group was more difficult. This is perhaps not surprising as, unlike the funded researchers, members of this group had had no formal engagement with APHCRI. A total of five interviews was carried out.

Despite the small number of interviewees, saturation of data did seem to be reached as no significant new themes emerged. Participants were located in Queensland (2), Western Australia (2) and the Northern Territory (1). Two of the researchers who had not received APCHRI-funding had applied for multiple grants, three were from higher ranking universities and two were located in metropolitan areas.

Research Users

The study also sought to obtain information from users (or potential users) of APHCRI-funded research. Approaches were made to, and written or verbal responses received from:-

- three Divisions of General Practice- representing both metropolitan and rural divisions;
- the Australian General Practice Network – the a national body representing local Divisions of General Practice; and
- staff of the Royal Australian College of General Practitioners.

Feedback from the above has been reflected in the results and discussion presented below.

In light of APHCRI's existing contacts with Commonwealth, State and Territory Governments it was agreed that they would not be included in the research user survey.

Interview schedule

The interview schedule included questions exploring the participants' understanding of the term 'linkage and exchange', APCHRI's application processes and hub and spoke model, the anticipated principal 'users' of findings, and formal dissemination strategies developed for the project proposal. APCHRI-funded researchers were asked additional questions regarding research users' involvement in the research process, the 1:3:25 model of reporting, dissemination strategies, and changes in policy/practice attributable to the research. Researchers not successful in gaining APCHRI funding were asked additional questions regarding research users' involvement in developing the proposal. Research users were asked about their awareness of APHCRI, perceptions of APCHRI-funded research quality and knowledge transfer processes, and views of good primary health care research including dissemination approaches. The interviews were piloted with two participants to help refine the questions and identify any shortfalls (Liamputtong, 2009), and data from these interviews were included in the analysis.

Interview process

Telephone interviews were undertaken by four researchers at The School of Population Health, The University of Queensland during November and December 2009. They were recorded using a digital voice recorder and transcribed in order to gain an accurate and complete record. The interview duration for APCHRI-funded researchers was between 20 and 52 minutes; for non-funded researchers 15-20 minutes; and for research users 20-40 minutes.

Data analysis

The data analysis consisted of several systematic stages of thematic analysis (Rice & Ezzy, 1999; Liamputtong, 2009). The first involved a preliminary review of data involving the research team meeting to identify key themes and categories, each particularly focusing on the interviews they had conducted. Two researchers, including the principal researcher, then reviewed the transcripts in detail to further examine sub-themes and dimensions. The data were collated in relation to each of the research questions, and both common and diverging themes identified for each through systematic coding. Some questions involving frequencies were analysed quantitatively (e.g. satisfaction with the 1:3:25 format). The second researcher reviewed the transcripts to identify any additional themes and subthemes, thus enhancing inter-rater reliability. The research team then engaged in final review of the findings. Any minimal differences in interpretation were resolved through team discussion.

Ethics

Participants were advised that APHCRI was not aware of who was being interviewed, that all interview data would be reported to APHCRI in de-identified format, and that APHCRI would be provided with a summary and synthesis of the interview data collected. All interviewees agreed to have their interviews recorded.

Results and discussion

Results from the survey are presented in this section under the following headings:-

APHCRI funding processes

- Applying for APHCRI funding
- The roles of APHCRI hub and spokes
- Meaning of the term 'linkage and exchange'
- Requirements for linkage and exchange

Transfer of knowledge from APHCRI-funded research

- Linkage and exchange with whom?
- Dissemination
- Impact

A number of quotes from participants are included to provide direct illustrations of themes. Each quote is referenced to the relevant funded researcher (F1, F2, etc), unfunded researcher (UF1, UF2, etc) or research user (User1, User2, etc).

APHCRI funding processes

Applying for APHCRI funding

Researchers were asked about the application process used by APHCRI to select projects for funding.

Most successful researchers considered that the application process was clear, straightforward and well-suited to the types of project that APHCRI seeks to fund:-

> You knew what was going to happen, when it was going to happen, and there were good limitations on the amount of material required. (F1)

> the criteria have struck quite a sensible balance between academic rigour and practical application and understanding of the worlds that we were dealing with (F21)

Unsuccessful researchers were more critical of the application process with two commenting that APHCRI's requirements were 'vague'.

APHCRI is viewed as dealing with applications in a timely, professional and efficient manner. Communication is good and decisions are made rapidly. Favourable comparisons were drawn with equivalent processes adopted by NHMRC and ARC.

The relative brevity of APHCRI's application template was welcomed as was APHCRI's willingness to provide advice to, and seek clarification from, applicants during the assessment process.

> To be able to re-cast your question is a useful thing. (F18)

Those researchers who had been involved in an 'iterative' application process, where research questions evolved though workshops and interactions with other researchers, found the experience particularly helpful.

There was some inconsistency in unsuccessful applicants' comments on the feedback they received from APHCRI. One respondent reported having received "fairly detailed feedback in writing" whereas others indicated that that APHCRI's feedback on unsuccessful applications had been unclear or even non-existent:-

> [We] didn't always get very clear feedback on why things didn't get funded, if they didn't. That would have been interesting. One that I put in that we thought was a very concise

and clear question and very worthy of answering didn't get funded and I never really was clear why it didn't get funded. (F18)

Researchers commented that, on occasions, the lead time for APHCRI grant applications was short and, as a result, afforded little time to build strong, cross-disciplinary and/or cross-institutional teams. It was suggested that APHCRI might try to schedule its funding rounds to avoid clashes with key NHMRC application processes. It was also suggested that the relationships between, and sequencing of, APHCRI's funding streams was not always clear and, as a result, researchers were sometimes unable to anticipate and prepare for future opportunities.

At least two of the interviewees commented on difficulties they had faced when completing the APHCRI application form electronically. It was suggested that:

> ...it might be better to have it completely electronic in terms of filling it in online as opposed to filling in a document that obviously wasn't [designed to be completed online]... things kept dropping out of the document from what I remember. (F16)

The roles of APHCRI hub and spokes

The majority (87%) of researchers questioned considered that the respective roles of the APHCRI hub and spokes were clearly articulated in the selection criteria. There were, however, many different interpretations, and in some cases uncertainty, as to how the hub/spoke relationship worked (or should work) in practice.

> ... in terms of how the hub will proactively engage in dissemination activities and how the spoke will work with hub and vice versa ... doesn't sort of loom large in my mind, specifically, what would occur (F8)

Researchers who had made two or more applications generally appeared to have a clearer understanding of their role, as a spoke, viz a viz that of the APHCRI hub. One interviewee said that:-

> [initially I] ... did not understand what it meant long-term, but ... once you have done it a couple of times it became clear (F17)

While for first-time applicants the model can be challenging:-

> I think there's some assumptions that are made around the whole model, that people will immediately understand what these spokes are and what the whole purpose of it is (F13)

Overall, it seems there may be some divergence between the formal specification and actual operation of the hub/spoke concept. Its implementation appears to have been guided by pragmatism on the part of individual researchers rather than by adherence to APHCRI's conceptual model.

For most researchers the APHCRI hub was viewed principally as a funder, a co-ordinator of spokes' inputs and a source of advice/expertise on dissemination of research findings. In contrast, few researchers appeared to see the hub as having a strong track record of conducting primary health care research in its own right. Recent examples where staff from the APHCRI hub have joined spoke-based teams were viewed positively.

There was some confusion as to whether the hub or individual spokes should have lead responsibility for disseminating research findings. Some researchers also considered that ANU was too prominent in the 'branding' and presentation of APHCRI-funded research.

The survey also sought to explore views on the characteristics of a successful spoke; in part because perceptions of what constitutes 'success' can also shed light on respondents' understanding of the spokes' role. In keeping with the apparent uncertainties regarding the functioning of spokes noted above, researchers often struggled clearly to characterise a successful spoke.

There was general agreement that APHCRI was rigorous in its management of research contracts. Consequently, completion of projects within time and budgetary constraints was typically identified as a key success criterion. Publications were also frequently cited as a measure of success for spokes.

Interviewees mentioned that it was clear linkage and exchange were '*absolutely integral to the success of the project*' (F14) but few appeared to look beyond the process aspects of linkage and exchange. Surprisingly, impact on policy or practice was seldom identified as a characteristic of a successful spoke.

It was suggested that a successful spoke can, itself, become the centre of a network of otherwise disparate groups of researchers (as well as members of reference groups, key informants etc.) who are involved in specific projects or areas of research.

It was again suggested that, for those new to APHCRI in particular, success criteria could be difficult to grasp:-

> ...new people who've not been an APHCRI spoke before, it's a bit of a baptism of fire for them, trying to understand the expectations, how this might work, how they can make linkage and exchange work in their particular project and how they might design that (F18)

Meaning of the term 'linkage and exchange'

Funded researchers were asked what the term 'linkage and exchange' meant to them in their role as an APHCRI spoke.

Roughly one third of those interviewed were quite vague about the meaning of the term:-

> I don't have a clear understanding of what it means...I expect it means a lot of different things to different people. (F15)

The majority, however, had a broad understanding of the goals of linkage and exchange with the work of Lomas and Mays being frequently cited as the source of that understanding.

A typical definition of linkage and exchange was:-

> Well, it's about interaction with decision makers and policy makers. I think it's about understanding each other's perspective and getting to know each other and who we are and how we think and building those bridges... (F18)

Other characteristics commonly included in definitions were the need to establish relationships with policymakers and practitioners and the importance of research being relevant (to the needs of end users):-

> The language of linkage and exchange seems to me to focus us on the, the transaction and not on the context in which the transaction occurs and the reason for the transaction. (F21)

In a few cases, the issue of researchers and research users having realistic expectations of each other and an understanding of each other's needs and priorities was also highlighted (echoing the observation made in the literature review):-

> ... one of the things I've learned through the APHCRI process is that the things that are actually possible in government... and how the process works is not something that we're terribly familiar with, nor I think were the policy people very familiar with how academic processes worked and how to make use of evidence. (F18)

> ...the expectation that each has of the other arise from rather different perspectives that lead to disappointments from researchers, and I expect from policy makers too. (F21)

Overall, the majority of researchers appeared to have some understanding of, and commitment to, the principles of linkage and exchange, especially as promoted by Lomas and colleagues at the Canadian Health Services Research Foundation. It was clear, however, that interpretations varied and that there was no discernible, common definition underpinning all APHCRI-funded

projects. Researchers typically viewed linkage and exchange as an adjunct to, rather than the driving force behind, their projects.

Requirements for linkage and exchange

A majority of researchers (67%) considered that APHCRI's requirements for linkage and exchange were clearly articulated during the application process but, as was the case with the hub and spoke model, there appeared to be many different interpretations of what it meant actually to **do** linkage and exchange.

> I think it was made clear...but how you were going to do it was not necessarily articulated. (F18)

One unsuccessful applicant commented that undue weight appeared to have been placed on the concept of linkage and exchange which, for those new to APCHRI at least, was a poorly defined and understood concept.

There were also differences among researchers in terms of their understanding of who the counterparty in the linkage and exchange relationship should be. Some researchers referred to linkage and exchange with other researchers rather than with research users.   The Australian primary health care research community is small and such relationships among researchers are clearly important but they are not the main focus of APHCRI's linkage and exchange efforts which is research users involved in policy and practice.

For several researchers demonstrating a commitment to linkage and exchange seems to have been more of a compliance activity, needed to secure APHCRI funding, rather than something which was internalised as a driving force behind their work:-

> ...we thought about what we considered important and wanted to work on, and then went searching for policy makers who might wish to be part of that, rather than it growing out of some kind of relationship of shared concern about this issue that already existed. So it was great to have [requirements for linkage and exchange] there, but, but it was I think for us and for a lot of people that I spoke to, it was put together a bit at the last minute. (F21)

It was noted that a 'one size fits all' approach to linkage and exchange is not realistic and that the methods adopted might need to vary depending on the research topic and/or potential users of a project's findings:-

> Obviously the extent to which you can undertake linkage and exchange depends very much on the nature of the project that you're working on (F7)

Transfer of knowledge from APHCRI-funded research

Linkage and exchange with whom?

As noted above, a few researchers suggested that the most important aspects of linkage and exchange were those that involved relationships with fellow researchers. Most, however, were clear that linkage and exchange was about the relationship between researchers and research users.

Interviewees' characterisations of research users varied greatly. The term most commonly used, by almost 90% of those interviewed, was 'policymakers'. Other groups identified as research users, although less frequently, were practitioners (i.e. health professionals), managers, educators and, in one case, service users. Some researchers identified multiple categories.

The term policymaker appeared often to be used to characterise a broad, non-specific group of government bureaucrats. Researchers were obviously aware that policymakers existed (and constituted a potentially significant group of research users) but seemed to have little or no familiarity with who they were or what work they did.

In most cases, the (Federal) Department of Health & Ageing was seen as the relevant government department with only limited reference being made to state/territory health authorities or other, non-health departments at federal or state/territory level.

In light of APHCRI's focus on primary health care it was surprising that Divisions of General Practice were seldom identified by researchers as potential research users. On the other hand, Divisions that were familiar with APHCRI and the research it funds were generally positive about its quality and relevance:-

> 'Relevance is extremely good – like the way it is formulated with emphasis on policy options (User3)

Similarly the RACGP (representatives of which were interviewed as potential research users) suggested that organisations such as theirs could provide a useful 'conduit' between researchers and practitioners.

Some researchers criticised what they perceived as APHCRI's unduly narrow view of primary health care. Two of those interviewed considered that APHCRI focused too narrowly on issues relating to Commonwealth Government responsibilities and failed to recognise the role played by State and Territory Governments in primary care. Others suggested that APCHRI had allowed its research agenda to be dominated by a medical view of primary care (and had tended to favour medically-qualified researchers) at the expense of other primary health care services such as nursing, pharmacy etc.

Users, for their part, highlighted the opportunity for APHCRI to fund more research into the organisational and systems aspects of primary health care service delivery.

The survey did not seek specifically to explore APHCRI's role in supporting Indigenous primary health care research however one experienced researcher suggested that unless/until APHCRI gained a better understanding of partners' needs it would "*continue to struggle with Indigenous health*" (F15)

There were only a few cases where researchers identified specific individuals or roles within the broad category of policymakers whom they perceived to be the principal users of their research:-

> I had in mind throughout this project the First Assistant Secretary Primary Care Development of Health and Aging. It was always the person, I never wrote anything... [unless]... I imagined writing to that person (F5)

> We had hoped that ... State Health Officers who were linked to those projects would also use the findings (F8)

In terms of seniority, two researchers reported that they had identified mid-level officials as the most appropriate partners in their linkage and exchange efforts:-

> these people that are in the middle kind of levels, they've got the grunt work, they've got to prepare something, their department has to prepare something for the next person up the chain by the end of the week or the end of the day or whatever, they're under an enormous work pressure ... you feel there's a connection there ... they're switched on people that would benefit from understanding all the stuff that we're doing. There would be stuff they would find really interesting ... (F3)

> I think we're talking about trying to influence a sort of middle level of bureaucrats and ... we're trying to provide a lot of information in a user friendly fashion for them (F1)

The challenge of identifying and then working effectively with research users is clearly significant for APHCRI-funded researchers (and hence for APHCRI itself). Currently most researchers appear to have a somewhat naive understanding of policymaking and policymakers. There is a perception that a small cadre of senior bureaucrats hold the key to policy and practice change and should be the prime target for knowledge transfer.

Discussion with researchers suggests that there may, in fact, be a trade off between the accessibility and 'research susceptibility' of research users on the one hand and their ability to

effect change on the other. Some researchers had succeeded in bringing their work to the attention of senior officials, and had clearly been able to influence policy and/or practice as a result. Others appeared to have adopted a less ambitious approach and sought instead to influence more junior bureaucrats, middle managers and those involved in the design and delivery of services at the local level. Although the latter group of research users have less immediate impact on policy they may be more amenable to using research and, over time, can play a part in shaping national agendas.

In discussing the practical difficulties of linkage and exchange, one research user suggested that neither party in the relationship was wholly without fault:-

> There is room for movement on both sides (User3)

Dissemination

Dissemination of research findings is an important aspect of linkage and exchange and the APHCRI '*Spoke Handbook*' states that researchers should "develop and implement dissemination strategies for APHCRI research projects and programs" (Page 5).

In fact, none of the researchers interviewed appeared to have prepared a formal, written dissemination strategy. While most appeared to have given some thought to the issue of dissemination their plans were rarely, if ever, documented. The approaches adopted appeared generally to reflect established academic practice with peer-reviewed publications and conference presentations clearly predominating.

> the normal, the usual suspects of conferences and, and general articles, but also other dissemination strategies such as reports to Government, you know using the 1:3:25 approach of APHCRI (UF1)

Researchers identified the lack of recognition afforded by universities as inhibiting dissemination of findings to policymakers and practitioners by other than established means. If such activities are not valued by researchers' employers then there is little incentive to invest time and effort in developing or applying the skills of effective linkage and exchange.

Publication of reports on the APHCRI web-site was seen as a key aspect of dissemination:-

> APHCRI put those reports up on the web and I believe they let – they use their network to disseminate information and the fact that they were on the web (F15)

> One assumes that's on the APHCRI website, and that's successful for everybody (F5)

APHCRI's 1:3:25 format for project reports was viewed extremely positively by researchers as a means to aid dissemination of research findings. Some researchers reported that it was a challenge to work within the page limits but they could clearly see the value in doing so. Where there were concerns they centred mainly on the feasibility of summarising an extensive research project in a single page and/or the need to place a cap on the length of the detailed (25 page) report which was seen as being aimed primarily at an expert readership.

Users were also enthusiastic about the 1:3:25 reporting format with one commenting specifically on how it was able to reflect the distinction between the process and outputs of research:-

> knowing how they did the research is interesting but knowing the outcome of those key messages, that's the most important part (User 1)

In at least one case, researchers had sought to present their findings more directly to targeted decision-makers:-

> we wrote a letter and attached our policy brief and we sent it to the Heads of Department and also to Commonwealth and Territory politicians, Cabinet Ministers... (F6)

Other researchers had adopted more proactive approaches in support of their dissemination efforts including arranging meetings with key people in government and/or relevant

organisations (e.g. Divisions of General Practice, Australian Practice Nurses, Australian Medical Association) to explain their research findings.

For many researchers dissemination did not just take place when a project was completed and involvement of potential research users as members of project reference groups, advisory committees etc was often seen as a powerful means to build and maintain links. More than 85% of those interviewed reported that they involved users in that way. In some cases, however, the effectiveness of such groups appears to have been questionable:-

> the reality is they rarely turn up, ones that you want because you want senior people who understand the setting and who are making decisions. And I know how busy they are and they often can't come. And they send along somebody who really doesn't know much ... and I must say ... it doesn't help you at all. It's very unhelpful. They sit there and they do nothing ... there might be one or two exceptions to that over the years but they don't even seem to go back and help you with the links. So it's a bit like it's tokenistic (F3)

> it's quite difficult for the policy makers and practitioners to engage, particularly if they haven't a lot of engagement with research before (F12)

> It became very evident from early on that the idea that the policy makers were going to be in the room with us was utterly flawed. They didn't turn up; they only sent really junior people. (F5)

Other barriers to effective dissemination that were identified by interviewees included lack of explicit funding for dissemination activities within APHCRI grants:-

> For every dollar you spend on research [you need] two dollars for dissemination (F11)

Researchers' views also reflected the conclusions of CHSRF and others by highlighting difficulties in establishing consultative/advisory mechanisms within the relatively short timeframe of an APHCRI-funded project.

The APHCRI Hub was seen by several researchers as being crucial to their dissemination efforts. In addition to its role in publishing reports on the web APHCRI had also provided advice or support to guide dissemination of research findings including, in some cases, arranging meetings with potential research users. The 'Conversations with APHCRI' initiative was seen as particularly helpful in that context.

Researchers also complimented APHCRI for offering financial support to travel and attend conferences at which findings could be presented, providing editorial assistance with reports, effecting introductions to international experts and helping researchers to gain an understanding of how the (Federal) Department of Health & Ageing operates.

Users highlighted the fact that dissemination requires particular skills and that some researchers communicate their findings better than others.

In general, the dissemination processes that users viewed as being most effective were conference presentations and face-to-face meetings, followed by web-based summaries and professional media.

Some users suggested that they were less interested in dissemination of research findings as and when they emerged but rather found value in being able to access and draw upon research findings in relation to specific issues that arose in the course of their work:-

> I don't think I know of anyone who actively uses the research, although we access the information on an ad hoc basis (User 4)

> keeping that information up there so that we can rely on it (User 1)

The notion of dissemination by means of 'user pull' as opposed to 'researcher push' was discernible in several users' responses although in at least one case, the practical difficulties of locating relevant research findings in a timely manner were also highlighted:-

> you spend a lot of time trawling it to find the bits you want (User 2)

Impact

Researchers were also asked to identify any changes in policy/practice that could be attributed (either directly or indirectly) to their APHCRI-funded work.

Many researchers suggested that it is difficult to establish direct causal links between research findings and changes in policy or practice.

> Policy people don't reference where they go for ideas or whether something caught their eye when they were thinking about an issue. (F18)

> policy and practice changes usually result from multiple input and it's hard to say that it was specifically related to what we were doing (F15)

> Governments and Health Authorities never want to attribute back to the originator of ideas (F7)

> I wouldn't say that it's single-handedly changed anything, I think it's just reinforced and supported (F14)

Impact was often viewed as having occurred indirectly, by means of research findings shaping the broader policy agenda or by influencing people who then go on to influence policymakers via submissions to enquiries etc.

> each of the bits of work that have been funded by APHCRI, I think it's just one little cog in the wheel (F2)

> we saw a lot of those ideas and findings that had come out of our APHCRI research, fed into that [National Health and Hospitals Reform Commission] reform process (F7)

In those cases where APHCRI-funded research had achieved discernible impact it appears that success was less about formal processes (of research itself or of dissemination) but rather reflected the topicality of the issues concerned, the timing of dissemination efforts and the skills, contacts and profile of the individual researcher(s) involved.

> APHCRI do produce some good research, I have used it in the past and it is a resource that is underutilised. Some of it is not so good – depends on the individuals who publish. (User 4)

A particular problem that was identified by several researchers was the high rate of turnover among staff in government departments and the difficulties that created in terms of building relationships and establishing a sound knowledge base among policymakers.

There were, however, more sceptical views expressed by researchers with one describing the impact of their project as "*Not a bloody thing*" (F5) and another observing that policy change:-

> depends on the whims of politicians and evidence only has a small place to play in it (F15)

In general, researchers felt that the impact of their research was more at the conceptual level (i.e. influencing policy makers' and service managers' thinking) and to a lesser extent at the symbolic level (i.e. reinforcing and justifying policy and operational activities) rather than instrumental (Lavis 2003).

That view is borne out by comments from survey participants in Divisions of General Practice. They appeared to see research findings more as a means to support and/or justify their position on a particular issue rather than as a basis for effecting changes in policy or practice.

Another research user commented that impacts were sometimes limited by the fact that researchers often looked at "*one piece of the puzzle as opposed to the whole system*" (User 4) and that synthesis of research findings could hold the key to effective knowledge transfer. The typical GP or other primary care practitioner was unlikely to use research findings directly to guide his or her practice but was more likely to respond to findings that had been appropriately synthesised, or that were presented in response to a specific question.

Conclusions & Recommendations

The survey results are generally positive. APHCRI has clearly established itself as a trusted and respected player in the primary health care research field. Its processes are generally viewed as being efficient and effective and its commitment to linkage and exchange is widely recognised. While it is difficult to attribute positive changes in policy and/or practice to the findings of APHCRI-funded research, there is clear evidence that at least some of those findings have had an impact, albeit generally indirect.

Notwithstanding those generally positive comments, there are some areas where change may be appropriate.

Although the hub and spoke model adopted by APHCRI was generally viewed by researchers as being well-defined its practical operation seems to be more open to interpretation. Indeed, the survey provided little evidence that the model had added value to the research process. For most researchers, being a spoke was synonymous with receiving funding, while the hub itself was viewed primarily as a relatively passive funder and advisor on dissemination of research findings. There is clearly scope to revisit and revise the respective roles of the hub and spokes to ensure that they are more clearly delineated, distinct and mutually reinforcing.

Researchers found APHCRI's application processes to be relatively straightforward although unsuccessful applicants expressed some concerns at a lack of detail. Specifically, it appears that there may be scope to specify more clearly the requirements regarding linkage and exchange especially since such requirements are central to APHCRI's role and do not feature explicitly in other research funders' processes. Although successful applicants acknowledged the significance of linkage and exchange, and agreed that requirements were clearly stated, there seems to be significant variation in how those requirements are translated into practice. As a result there is no clearly recognisable and consistent approach to linkage and exchange among funded projects. That, in turn, makes it difficult to establish objective standards or yardsticks for such components of funding applications.

Unless greater clarity can be introduced there is a risk that linkage and exchange and the language that surrounds it may come to be viewed by prospective researchers as a form of 'black magic' which is invoked to discriminate against new applicants for APHCRI funding.

At the same time, it seems clear from the survey, that there is both a need and an opportunity for APHCRI to further develop its approach to linkage and exchange. At present many researchers appear to view linkage and exchange as secondary to their 'core' research activities. In some cases, it could be argued that they pay lip service to the concept as a means of gaining access to APHCRI funding. Since the centrality of linkage and exchange is one of the key factors that differentiate APHCRI from other funders, it is essential that requirement be made more explicit, and afforded greater weight, in future application processes.

One way in which linkage and exchange might be strengthened would be to make explicit a requirement that research users be involved in the development of research proposals. Such an approach would be less demanding than other funders' requirements for formal partnerships between researchers and users but would, at least, require researchers to think explicitly about who they considered to be the likely users of their research findings. At present, it seems to be all too easy for researchers simply to identify a generic category of 'policymaker' without necessarily knowing who those people might be, the capacity they have to influence policy or how they might make use of research findings in doing so.

There is a degree of ambiguity regarding the respective roles of APHCRI and researchers in dissemination of research findings. In some cases researchers complained that APHCRI was too prominent while in others, APHCRI's role in facilitating access to policymakers was greatly appreciated. Against the backdrop of rapid turnover among officials (which several researchers identified as being a problem) there may be merit in seeking to review the respective roles of researchers, APHCRI and research users.

APHCRI should also seek to expand the scope of its interfaces with the research user community. Faced with the current perception (in some quarters) that APHCRI is both too 'Commonwealth-centric' and too 'GP-centric' there would clearly be value in adopting a broader view of primary health care research users and their needs. There is also a need to develop a more nuanced understanding of the research user community as a whole. Researchers need to be helped to move away from their current focus on the generic policymaker as the person they seek to influence. It seems clear that research can be just as useful, and possibly has greater impact in the long term, if it seeks to influence middle managers and individual practitioners.

The current situation (illustrated conceptually in Figure 1 below) may be characterised as follows:-

- Most APHCRI-funded researchers appear to consider their findings should be presented to, and used by, policymakers.
- Researchers are not generally aware of the identity of the policymakers whom they seek to influence and have limited knowledge of policy processes.
- The (Federal) Department of Health & Ageing is usually considered, by researchers, to be the organisation where dissemination efforts should be targeted.
- APHCRI's close relationship with the Department reinforces its prominence among researchers.
- Rapid turnover of officials within the Department makes it difficult for researchers to build effective working relationships.
- Individual practitioners are a large and heterogeneous group and, with some exceptions, rarely have the time or inclination to consider or adopt research findings in their practice.
- State/Territory health administrations and their constituent bodies (such as Area Health Services), Divisions of General Practice and professional/peak bodies are rarely recognised by researchers as potential research users.

Figure 1: Current approach to dissemination
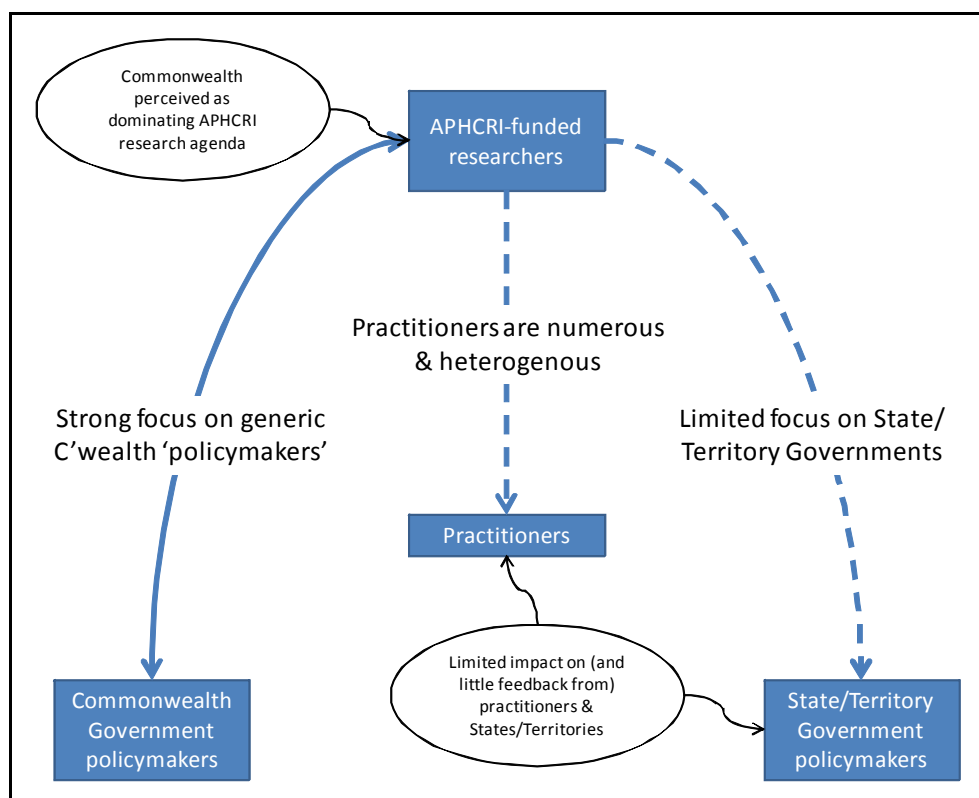
In light of the above, it may be appropriate for APHCRI to consider broadening its network of potential research users to include more 'intermediary' organisations which employ, inform or represent health professionals. Such organisations might include, as noted above, public sector health care provider bodies, Divisions of General Practice and professional peak bodies (

Figure 2).

Figure 2: Possible approach to dissemination via intermediary organisations
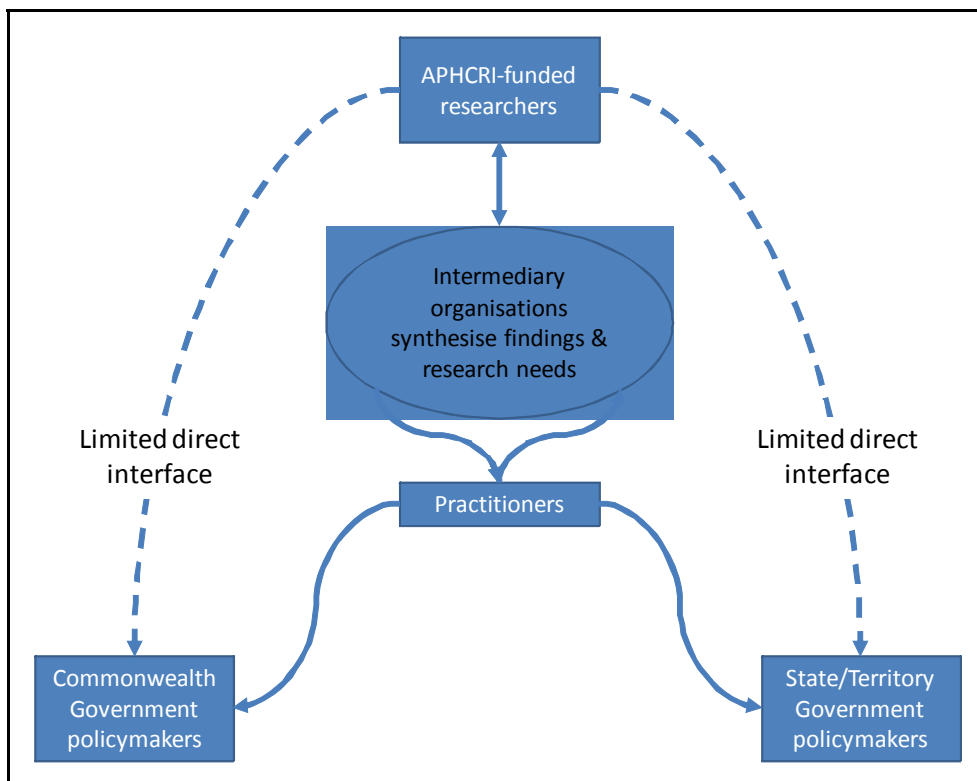
Increasing the focus of dissemination efforts on intermediary organisations could offer several advantages:-

- Research findings could be consolidated, synthesised or 're-packaged' into relevant forms for presentation to staff, members or other stakeholders associated with such organisations.
- Intermediary organisations are more likely to be aware of emerging policy issues and have up-to-date networks among the changing population of senior officials. Consequently they should be better able present research findings to policymakers in a targeted and timely manner.
- Intermediary organisations could also offer an effective means to consolidate information on research needs and opportunities from their staff, members and stakeholders and hence help to shape APHCRI's research program.

The APHCRI Hub itself might also be considered as one such intermediary organisation although it has understandably struggled to work effectively with the diverse range of practitioners and other players in the primary health care sector. There may thus be significant benefits in extending the intermediary role more broadly.

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