



Primary
Health
Care
Research &
Information
Service

Issue 2: 2005

December 2005

FOCUS on...

Towards
better
policy and
practice in
Primary
Health
Care.

B Beacham
L Kalucy
E McIntyre

FOCUS on... is
published by the
Primary Health Care
Research & Information
Service

FOCUS on... is printed
by Flinders Press,
Adelaide

ISSN: 1832-9721

UNDERSTANDING & MEASURING RESEARCH IMPACT

Main messages

- Research impact refers to the value and benefit associated with using the knowledge produced through research, and being involved in conducting research.
- Knowledge produced through research can be used in three main ways - instrumentally, conceptually and symbolically. Instrumental use influences direct changes in policy, practice and behaviour. Conceptual use influences changes in levels of knowledge, understanding and attitudes. Symbolic use is about persuasion, leading to action or inaction.
- The conceptual use of knowledge produced through research is more important to the day-to-day professional activity of professionals and managers in government agencies than symbolic use, which in turn are more important than instrumental use.
- Factors in the users' context are the main predictors of the uptake of research knowledge by government officials.
- Measuring research impact is a challenging endeavour because of its multi-dimensional, unpredictable, non-linear and contingent nature.
- Meaningful approaches to measuring research impact should relate to the main ways research is used and the range of forms in which research impact occurs. They should also acknowledge the contribution of activity occurring at different stages of the research cycle and in both the researcher and user settings.
- Effective measurement of research impact needs to incorporate assessment of conceptual and symbolic use of research knowledge as well as instrumental.
- Capacity for effectively measuring research impact is still developing; however experience so far provides some valuable learning for methodological, practical and policy activity.

CONCENTRATING ATTENTION - MAXIMISING CLARITY AND DEFINITION

FOCUS on...

With the aim of informing primary health care policy and practice in Australia, this research summarises examples of key recent research findings identified by the authors. Feedback and suggestions for future issues in this FOCUS on... series are welcomed.

PHC RIS
Flinders University, Adelaide
Ph: +61 8 8204 5399
Email: phcris@flinders.edu.au
Web: www.phcris.org.au

Introduction

“The research impact agenda puts greater requirements on researchers and research bodies to demonstrate utility and value to funders (and to the public more generally) for investments in their projects and programs.”

The current interest in measuring research impact is driven by the ‘accountability agenda’ world wide. This agenda puts greater requirements on researchers and research bodies to demonstrate utility and value to funders (and to the public more generally) for investments in their projects and programs.¹ In the health sector this activity is becoming increasingly important when funding for research and development is often seen to be in competition with spending on direct health services.²

In Australia pressure to demonstrate research impact comes through a number of channels. The Wills Review of Health and Medical Research³ identified a potential virtuous cycle between government, research and industry, where increased investment in research and enabling initiatives could deliver benefits to all Australians. The subsequent Investment Review of Health and Medical Research⁴ undertaken in 2004 checked on progress towards achieving this virtuous cycle, and recommended vastly improving capacity to translate research into effective policy and practice. One recommended strategy was funding policy-and-practice-focused research, which has a goal of delivering insight into improvements in delivery of health outcomes. It involves top-down and bottom-up initiated research focused on driving changes in the health system or underlying population health in the short to medium term. The Investment Review identified the potential returns on national investment in health and medical research as consumer benefits in terms of extending and improving the lives of Australian people, and producer benefits by providing economic benefit through more knowledge-based jobs.

The Research Quality Framework announced during 2005, was set up to ensure government resources provided to carry out research are directed to areas of research excellence and research impact and benefits to Australia (retrieved 7 September 2005 from http://www.dest.gov.au/sectors/research_sector/policies_issues_reviews/key_issues/research_quality_framework/rqf_preferred_model.htm#The_RQF_PREFERRED_Model). Approaches to putting the framework into practice are currently being developed, with a preferred model released for consultation in September 2005.

The second phase of the PHCRED Strategy, announced in July 2005 by The Hon Christopher Pyne, Parliamentary Secretary to the Commonwealth Minister for Health and Ageing has enhancing research informed practice and policy as one of its goals (retrieved 7 September 2005 from <http://www.health.gov.au/internet/ministers/publishing.nsf/Content/health-mediareel-yr2005-cp-pyn046.htm?OpenDocument&yr=2005&nth=7>).

In focusing on *Understanding and measuring research impact*, this paper covers:

- 1 Aspects of health research impact
 - what does research impact mean
 - the users of research and the types of research use
 - factors influencing research use and approaches to increase research use
- 2 Measuring the impact of health research
 - challenges for measurement
 - forms of research impact
 - determining approaches and criteria
 - approaches to measuring research impact
 - learnings from practice.

1 - Aspects of health research impact

1.1 What does research impact mean?

The term research impact describes the effects and outcomes, in terms of value and benefit, associated with the use of knowledge produced through research. Some⁵ argue that research use or utilisation is not quite the same as research impact. In their view ‘the concept of payback [research impact] is broader than use or utilisation including knowledge at one end of the spectrum and valuation of the impacts of research use at the other’.⁵

Multiple terms are used to refer to the concept of research impact. These include research ‘benefit’, ‘payback’, ‘translation’, ‘transfer’, ‘uptake’ and ‘utilisation’.^{2,6,7,8,9,10,11,12,13,14}

In this paper we use a broad definition of the term, recognising the different ways research knowledge can be used, and the range of possible effects and outcomes that may occur as a result of this use. We acknowledge that this broad definition may not always be feasible when measuring research impact in practice. For example, researchers at McMaster University, Canada, argue the use of research knowledge to inform decision making (not a change in health status) is the most appropriate measure of the impact of research that can be assessed in the health sector (retrieved 7 September 2005 from <http://www.researchtopolicy.ca/documents/printManager.asp>).

1.2 Users of research and types of research use

1.2.1 Users of research

Knowledge produced through research can be used individually, organisationally and at the system level.¹³ In the health sector in these setting the main types of users of research knowledge are the public, patients and health consumers, civil society, non-government organisations, clinical service providers, health system managers, researchers and policy makers.¹⁵

1.2.2 Types of research use

An understanding of the different ways research can be used is critical to approaches to measuring research impact¹³ (Table 1). This understanding also assists in:

- indicating areas on which any subsequent assessment approaches should focus
- informing the scope of measurement activity (e.g. assessment in relation to contribution to knowledge, decision making or broader public good benefits),
- highlighting the factors appropriate to measure
- identifying what criteria would be most relevant to use.¹

Research can be used either directly or indirectly.^{17,18,19} For instance, research knowledge can be used directly in decision-making related to policy and practice. Indirectly it can contribute to the formulation of values, the creation of new understandings and possibilities and the quality of public and professional discourse and debate.¹⁷

Different types of research use represent attempts to describe the many ‘routes to influence’ of research knowledge.¹⁷ These different types are complementary and can simultaneously play a significant role in research impact in government agencies.¹⁹ This view highlights the cyclical, iterative nature of the process of research use

Table 1: Main types of research use, their characteristics and key area of influence

Type of research use	Basic characteristics	Key area of influence
Instrumental	Direct/linear	Changes in policy, practice and behaviour ^{17,19,20}
Conceptual	Indirect/enlightenment	Changes peoples’ level of knowledge, understanding, and attitudes ^{17,19,20}
Symbolic	Indirect	Attempts to sway people in a persuasive way. Can lead to mobilisation of support for action, or inaction, and wider influence ^{19,20}

Acknowledgement

The idea for a paper addressing measurement of research impact was initially proposed and outlined by Professor Mark Harris and Gawaine Powell-Davies of the Centre for GP Integration Studies at University of New South Wales in 2004, after a meeting of the Australian Primary Health Care Research Institute, the National Institute for Clinical Studies and the Primary Health Care Research and Information Service (PHC RIS). The idea has been carried forward in this paper by PHC RIS, with their support and encouragement.

“An understanding of the different ways research can be used is critical to developing approaches to measuring impact.”

and impact rather than a straightforward linear process.¹³ Three main types of research use are presented in Table 1.

Instrumental use: Reflects a traditional view of decision making and the use of research knowledge in fairly direct, rational or linear processes. The instrumental use of research is consistent with an engineering explanation of knowledge utilisation, which stresses a problem/solution approach to research use. According to this perspective the production and uptake of research follows a linear sequence, from creation through dissemination to use. In practice, research has shown that only rarely will research impacts be direct, instrumental and clearly identifiable, such as when research is captured and codified in tools and instruments, for example guidelines, protocols or organisational processes.^{17,10} It has been suggested that instrumental use tends to be more frequent in private than in public organisations.¹⁰

Conceptual use: Reflects a more contemporary view, which recognises that much decision making is diffuse and characterised by ‘non-decisional processes’ and ‘the progressive establishment of new routines’.¹⁷ According to this perspective, research knowledge is seen as providing a ‘background of empirical generalisations and ideas that creep into policy deliberation’.¹⁷ The conceptual use of research takes into account notions of a ‘stock of knowledge’ or ‘knowledge reservoirs’ and views research as impacting on social beliefs, customs and values through various feedback loops and forward leaps.⁸ According to this view, research ‘punctures old myths, offers new perspectives and changes priority issues’, (retrieved 6 September 2005 from http://www.idrc.ca/en/ev-43607-201-1-DO_TOPIC.html). This view also acknowledges that many elements go into policy making, and it is naïve to expect that research results will overpower all other interests, ideological components and previous information in the issue area (retrieved 6 September 2005 from <http://www.unesco.org/most/weiss.htm>).

Symbolic use: Reflects an understanding that decision making can be based on reasons of interest, ideology or intellect.¹ According to this perspective, research knowledge is used as ‘ammunition to support the decisions made and being implemented’.¹ Research results in these circumstances are seen as representing ‘a collection of arguments, rather than data or evidence to be weighed’.¹

The conceptual and symbolic types of research use are consistent with an organisational and socio-cultural explanation of research utilisation, which stresses the social construction of knowledge¹⁹ and organisational and social factors (such as linkage between users and researchers and capacity to use research)¹⁰ that may hamper or facilitate the uptake of research.

A recent study found that the conceptual use of research was more important to the day-to-day professional activity of professionals and managers in government agencies than symbolic use, which in turn was more important than instrumental use.¹⁹ The results also showed that policy domains like health, social services and education rely more intensively on all forms of research use, than other policy domains.¹⁹ This indicates that effective measurement of research impact needs to incorporate assessment of conceptual and symbolic use as well as instrumental.

The knowledge utilisation literature emphasises that process factors associated with each type of research use play an important role in supporting (or inhibiting)

the impact of research. Because of this interrelationship, any measurement of research impact needs to take into account both outcome and process factors.^{17,1,10,13} Some examples of criteria used to measure these aspects of research impact are provided section 2.4 of this paper.

1.3 Factors influencing research use and approaches to increase use

There is a large body of literature about factors influencing research use in policy, managerial settings and practice, including potential barriers to the use of research by policy makers and the uptake of evidence by clinical health professionals. It suggests that key predictors of the uptake of research knowledge fall into three areas:¹⁰

- 1 Adaptation of research products to users' needs
- 2 Users' efforts to acquire research knowledge
- 3 Intensity of links between users and researchers

These areas form the basis of many contemporary approaches aiming to increase research impact. These approaches include interventions concerned with changing behaviour and encouraging linkage to foster more conceptual use of research in changing knowledge, understanding and attitudes.¹⁶ For example, the activities of the Canadian Health Services Research Foundation incorporate the following approaches, with an emphasis on linkage and exchange:¹²

- 1 'Producer push' – adaptation and reproduction of research results
- 2 'User pull' – user knowledge acquisition efforts and receptivity
- 3 'Exchange/collaboration' – linkage and exchange between researchers and users

Recent work into the extent and determinants of the use of university research in government agencies suggest that these approaches have a complementary function.¹⁰ This work indicated that factors in the users' context were the main predictors of the uptake of research by government officials, e.g. users' adaptation of research, users' acquisition efforts, links between researchers and users, and users' organisational contexts.¹⁰ This suggests policy initiatives aimed at improving research utilisation would be best served by having a strong focus on these factors.¹⁰

2 - Measuring the impact of health research

2.1 Challenges for measurement

Measuring research impact is recognised as a challenging endeavour.^{5,17,21} The challenges include that benefits and value from research knowledge may accrue slowly,²¹ are often unpredictable,² can be difficult to track or trace,^{2,17} and that benefit or value is contingent in nature.¹⁷ Furthermore, the criteria and indicators used to assess impact will always be dependent on the mission of a specific research group or institution.²⁵

Associated challenges include:

- a The impact of research has many possible dimensions,^{22,11} which may require:
 - Identifying the impact of research knowledge in a variety of settings, for example on researchers; policy, managerial and professional practitioners; social behaviour or public discourse.¹⁷
 - Assessment across the types of research impact (instrumental, conceptual or symbolic), and of process factors associated with impact²
 - Assessing the effects of new knowledge on the value of old, ignored, used up or simply unrecognised research by lending new life to previous findings.²¹
- b Whilst it is relatively simple to measure outputs from research, it is far more complex to measure less tangible effects and consequences of research knowledge use. For example in their 2003 Performance Report, The Canadian Institutes of Health Research, identify that:

'while an agency can quite easily count research outputs such as the number of articles produced by the research, the number of students who trained in research while working on a given project or the number of potential users with whom the research collaborated, an analysis of the social and/or economic outcomes flowing from these outputs requires in-depth study' (retrieved 12 September 2005 from http://www.tbs-sct.gc.ca/rma/dpr/02-03/CIHR-IRSC/CIHR-IRSC03D01_e.asp pp 45).

The unpredictable, non-linear and contingent nature of research impact and its associated processes needs to be taken into account in approaches to measuring research impact.^{17,8}

“Whilst it is relatively simple to measure outputs from research, it is far more complex to measure less tangible effects and consequences of research knowledge use.”

2.2 Forms of research impact

Research impact can take a range of forms in the health sector, from contributing to knowledge and understandings through to influencing broader economic benefits to society⁵ (Table 2). When developing approaches to measuring the impact of research, different measures may be appropriate for different forms.⁵

2.3 Determining approaches and criteria

To account for the ‘unpredictable, non-linear and contingent nature of research impact’, it is proposed that measurement approaches and criteria are developed within a multidimensional framework,¹⁷ addressing:

- How research impact will be defined
- Where to look for research impacts (i.e. who are the research users?)
- When to look for impact (i.e. when did research take effect?)
- How to assess specific contributions made by research (i.e. was the research knowledge really the key factor in any changes?)

Table 2: Forms of research payback [impact]⁵

Forms	Descriptor	Potential type of research use
Knowledge	Contribution to information and understandings	<i>Conceptual</i>
Benefits to future research and research use	The better targeting of future research	<i>Instrumental</i>
	The development of research skills, personnel and overall research capacity	<i>Instrumental</i>
	Critical capability to utilise appropriately existing research including that from overseas	<i>Conceptual</i>
	Staff development/educational benefits (including practitioner receptivity to research and findings from research)	<i>Conceptual</i>
Political and administrative benefits	Improved information basis on which to take political and executive decisions	<i>Conceptual</i>
	Other political benefits from undertaking research (including deflecting criticism/delaying immediate decision making and justification of a political position)	<i>Symbolic</i>
Health sector benefits	Cost reduction in the delivery of existing services	<i>Instrumental</i>
	Qualitative improvements in the process of service delivery	<i>Instrumental</i>
	Increased effectiveness of services	<i>Instrumental</i>
	Equity, for example improved allocation of resources at an area level, better targeting and accessibility	<i>Instrumental</i>
	Revenues gained from intellectual property rights	<i>Instrumental</i>
Broader economic benefits	Organisational development	<i>Conceptual</i>
	Wider economic benefits from commercial exploitation of innovations arising from research and development	<i>Instrumental</i>
	Economic benefits from a healthy workforce and reduction in working days lost	<i>Instrumental</i>

Two potential frameworks for determining criteria are provided below:

1 Key questions for designing a measurement approach¹⁷

- How is impact assessment to be focused? (e.g. will the focus be on the research environment; user environment or on uptake initiatives?)
- Who are the key stakeholders of the measurement effort and why do they want information?
- What is the assessment primarily for? (e.g. for learning (assessments emphasise process) or for judgments (assessments emphasise outputs and outcomes?)

2 A three step process for assessing research impact, including determining measurement criteria²³

Step 1 - Identify target audiences for the research knowledge funded or produced:

- general public
- patients and their families
- clinicians
- managers
- research and development officers
- public policy-makers.

Step 2 – Select the appropriate category of measures based on who has been actively promoting research use among these target audiences

- 'producer-push' - if researchers have led effort
- 'user-pull' - if decision-makers have led efforts
- exchange - if researchers and decision makers have jointly led efforts.

Step 3 – Select measures given the resources available to measure impact and other constraints

- process measures if limited resources available (e.g. number of papers published)
- intermediate outcome measures if sufficient resources are available to conduct a survey (e.g. changes in awareness)
- outcome measures if sufficient resources are available to conduct case studies that can assess whether research knowledge was used in the context of competing influences on decision-making process and how the research knowledge was used (i.e. whether it was used in instrumental, conceptual or symbolic ways).

2.4 Learnings from practice

Although capacity for effectively measuring research impact is still developing, there are some examples where research impact has been measured. One such example is the work led by the National Institute of Clinical Studies (NICS) where they sought to gather feedback from recipients of NHMRC grants. Findings, based on a response rate of 54% (63/117 grant recipients responded), showed that while 73% had published journal articles discussing findings from research funded by the grants and 77% had presented at conferences/seminars, only 19% had so far resulted in changes in clinical practice.²⁶

A project assessing research impact from 115 Departments of Health and National Health Service research and development projects,² found that:

- Research impact occurs at various stages in the research utilisation cycle
- It is difficult to show how far behaviours may have changed as a result of research findings alone.
- Some impacts result directly from *processes of conducting research*, rather than only from the effects or outcomes of research use.
- Impact factor analysis may underestimate the payback from some applied projects in that no account is taken of the journals which nevertheless may be widely read.
- Bibliometric measures (associated with journal impact factor) were not well correlated with 'benefit' score; i.e. almost half of the projects in this study that did not have any journal publications had benefit score, indicating they had impact on policy or practice through dissemination by means other than journal publication and/or being applied in the unit in which the research was conducted.
- A well designed questionnaire might be a useful and sufficiently reliable technique to obtain a broad brush picture, even though case studies provide a fuller and more reliable direct comparison of individual projects.
- Assessing research impact can contribute to research governance, and if research impact is to be maximised then time and effort has to be invested.
- If measurement occurs against a broad definition of research impact (Table 2) it would be quite unreasonable to expect most projects to demonstrate impact in all forms.

The process of undertaking a study of factors that improve the use of research in social policy revealed that:

“Bibliometric measures (associated with journal impact factor) were not well correlated with ‘benefit’ score for research impact.”

- Most information is not available in records or documents, necessitating personal contact (retrieved 6 September 2005 from <http://www.unesco.org/most/weiss.htm>)
- Surveys need to be relevant and tailored to roles individuals play in research impact activities (retrieved 6 September 2005 from <http://www.unesco.org/most/weiss.htm>)

Reflections from a Research Unit for Research Utilisation seminar¹⁴ highlighted:

- The need to step beyond using measures of research impact that are straight forward, quantifiable and readily accessible.
- The importance of intermediate outcomes in measuring research impact, because the influence of research on ultimate outcomes is difficult to disentangle.
- The need to evaluate interventions - processes and behaviours – that encourage research impact, and to build interactive cultures that promote two-way flows of information.
- The need to find a balance between impact oriented research and basic research, i.e. in an environment of increasing expectations of accountability the need to protect research that does not have immediate or direct impact.

2.5 Models for measuring health research impact

Meaningful approaches to measuring research impact rely on understanding the main ways research can be used and the range of forms in which research impact occurs. Ideally, they should acknowledge the contribution of activity occurring at different stages of the research cycle and in both the researcher and user settings.

They also need to be purposeful, pragmatic and cognisant of the complexities involved.²⁷ In practice, this may mean that when a more comprehensive approach to measuring research impact maybe too complex and expensive, relative to the likely benefits, adopting a few key approaches would be useful. These include:

- Using an expert panel to provide an informed opinion about impact
- Developing a file to record personal testimonies
- Conducting detailed assessments from case studies
- Developing proxy measures of impact.

Two examples of comprehensive models for measuring research impact relevant to health are provided below:

Model 1: Input/output model for assessing research impact⁵

This model (Table 3) identifies inputs and outputs according to different stages of the research cycle.⁸ The approach acknowledges that activity at different stages of the research cycle contributes to research impact. Effects or outcomes are conceptualised as primary, secondary or final impacts depending on the stage of research through which they occur. The model represents an attempt to combine elements of a rational, linear model with a more interactive model.⁸ It offers some possible measures or data sources for effects or outcomes occurring at different stages and in different forms.

Model 2: Producer-push, user-pull and exchange model for assessing research impact²³

This model (Table 4) incorporates aspects of producer-push, user-pull and exchange outputs in decision making. This enables assessment of research impact according to whether the active role in promoting research use in decision making is played by researchers (producer-push measures), decision-makers (user-pull measures) or both researchers and decision-makers (exchange measures).²³ The model also groups outputs according to whether they capture a process associated with the pursuit of research impact (e.g. number of papers published), an intermediate outcome (e.g. a change in awareness about a particular issue) or a final outcome (e.g. a decision to select one policy alternative over others because research knowledge exists to support its effectiveness).²³

Conclusion

Capacity for effectively measuring research impact is still developing; however experience so far provides some valuable learning for methodological, practical and policy activity.

Table 3: Input/output model for assessing research impact^{5,2}

**QALYs = Quality adjusted life years*

Stages of research	Stage	Effects or outcomes	Data sources/measures
<p><u>Interface (a):</u> Needs assessment; Project specification, selection & commissioning</p> <p><i>Important considerations:</i></p> <ul style="list-style-type: none"> • Financial inputs • Experience of researchers • Existing knowledge base 	<i>Primary</i>	<ul style="list-style-type: none"> • Publications (articles and research report) • Patents • Development of staff with research experience • Enhanced capacity to absorb research from elsewhere • Research provides basis of better targeting of further research 	<ul style="list-style-type: none"> • Peer review, including assessment of whether research report meets objectives • Bibliometrics • Patents analysis • Number of PhDs
<p><u>Interface (b):</u> Dissemination (presentation to key user groups, including informal dissemination)</p> <p><i>Important considerations:</i></p> <ul style="list-style-type: none"> • Desirability of interactive relationships • Appropriateness of processes to tasks 	<i>Secondary</i>	<ul style="list-style-type: none"> • Translation/adoption as: policy or administrative decisions; clinical guidelines; training packages; improved allocation of resources; setting of health targets; how-to manuals; criteria used by evaluative & inspecting bodies; commercial development 	<ul style="list-style-type: none"> • Survey of decision makers (central & local levels) to establish if they were influenced by the research • Examination of official statements, guidelines, evaluative criteria etc to assess how far they reflect and cite research findings
<p>Application; implementation or adoption</p> <p><i>Important considerations:</i></p> <ul style="list-style-type: none"> • Changes in practitioner behaviour need to occur before effects are realised [could be regarded as an effect or outcome of an earlier stage] 	<i>Final [tertiary]</i>	<ul style="list-style-type: none"> • Health & social welfare gain • Cost savings • Increased efficiency & improved quality • Customer & producer satisfaction • National economic benefit from commercial exploitation & healthy workforce 	<ul style="list-style-type: none"> • QALYs* • Cost savings • Increased service effectiveness • Surveys of consumer/ producer satisfaction • Reduction in working days lost

Table 4: Producer-push; user-pull and exchange processes - Outputs and measures²⁴

Type of measure	Effects/outcomes	Data sources/measures
Producer-push (researcher setting)		
Process outcomes	<ul style="list-style-type: none"> Number of products published (e.g. peer-reviewed papers) Number of products targeted at specific decision-makers (e.g. summaries of take-home message from a body of research) Number of interactions with decision-makers held at request of researchers (e.g. academic detailing visits, policy briefings) 	<ul style="list-style-type: none"> Researcher's CV, literature search Researcher's calendars and research organisation files
Intermediate outcomes	<ul style="list-style-type: none"> Decision-maker's awareness of research (and its source), knowledge of research (and its source) attitudes towards research (and its source) 	<ul style="list-style-type: none"> Surveys of, or structured interviews with, decision-makers
Final outcomes	<ul style="list-style-type: none"> Decision-maker's self-reported use of research Decision-maker's actual use of research in the context of competing influences on the decision-making process 	<ul style="list-style-type: none"> Surveys of, or structured interviews with decision-makers, document reviews Unstructured interviews of decision-makers, observations of processes, analyses of data collected for other purposes (e.g. admin. data, minutes)
User-pull (user setting)		
Process outcomes	<ul style="list-style-type: none"> Number of information requests by decision-makers Number of web hits by individuals with domain names suggesting a decision-maker organisation Number of newsletter subscriptions from individuals with mailing addresses for decision-maker organisations Number of interactions with decision-makers held at request of decision-makers Number of research projects commissioned by decision makers 	<ul style="list-style-type: none"> Research organisations files Research organisation's websites records/counters Research organisations files Researcher's calendars and decision-maker organisation's files Research organisation's files, researchers CV
Intermediate outcomes	<ul style="list-style-type: none"> Decision makers awareness of research organisation's expertise, knowledge of research organisation's expertise, attitudes towards research organisation's expertise 	<ul style="list-style-type: none"> Surveys of or structured interviews with decision-makers
Final outcomes	<ul style="list-style-type: none"> Decision-makers self-reported use of research organisations as an information source Decision-maker's actual use of researcher organisations as an information source 	<ul style="list-style-type: none"> Surveys of, or structured interviews with, decision makers, document reviews Unstructured interviews with decision-makers, observations of processes, analysis of data collected for other purposes
Exchange		
Process outcomes	<ul style="list-style-type: none"> Research organisations involve decision-makers in the research process Decision-making organisations involve researchers in decision-making processes 	<ul style="list-style-type: none"> Research organisations files Decision-making organisation's files
Intermediate outcomes	<ul style="list-style-type: none"> Decision-maker's and researcher's assessment of how they were involved in the decision-making process 	<ul style="list-style-type: none"> Survey of, or structured interviews with decision-makers
Final outcomes	<ul style="list-style-type: none"> Research organisation's research reflects (at least in part) the research needs and context of decision-makers Decision-making organisation's decisions reflect (at least in part) the research available to them 	<ul style="list-style-type: none"> Research organisation's files & survey or interviews with decision-makers Decision-making organisation's files and survey or structured interviews with researchers

References

- 1 Hanney, S.R., Gonzalez-Block, M.A., Buxton, M.J., & Kogan, M. (2003) The utilisation of health research in policy-making: concepts, examples and methods of assessment, *Health Research Policy and Systems*, 1, 2.
- 2 Buxton, M., Hanney, S., Packwood, T., Roberts, S., Youll, P. (2000) Assessing benefits from Department of Health and National Health Service Research & Development, *Public Money & Management*, Oct-Dec, 29-34.
- 3 Commonwealth of Australia. (1999) *The Virtuous Cycle: Working together for health and medical research*. Health and Medical Research Strategic Review, Canberra.
- 4 Commonwealth of Australia. (2004) *Sustaining the Virtuous Cycle for a healthy, competitive Australia*. Investment Review of Health and Medical Research, Canberra.
- 5 Buxton, M., & Hanney, S., (1996) How can payback from health services research be assessed? *Journal of Health Services Research & Policy*, 1(1), 35-43.
- 6 Ferguson, B., Kelly, P., Georgiou, A., Barnes, G., Sutherland, B., & Woodbridge, B., (2000) Assessing payback from NHS reactive research programs, *Journal of Management in Medicine*, 14(1), 25-36.
- 7 Grant, J., Cottrell, R., Cluzeau, F., & Fawcett, G., (2000) Evaluating 'payback' on biomedical research from papers cited in clinical guidelines: applied bibliometric study, *British Medical Journal*, 320, 1107-1111.
- 8 Hanney, S., Packwood, T., & Buxton, (2000) Evaluating the benefits from health research and development centers: A categorization, a model and examples of application, *Evaluation*, 6(2), 137-160.
- 9 Huberman, M., (1989) Predicting conceptual effects in research utilization: looking with both eyes, *Knowledge in society: The International Journal of Knowledge Transfer*, 2(3), 6-24.
- 10 Landry, R., Lamari, M., & Amara, N., (2003) The extent and determinants of the utilization of university research in government agencies, *Public Administration Review*, 63(2), 192-205.
- 11 Lavis, J.N., Ross, S.E., & Hurley, J.E., et al (2002) Examining the role of health services research in public policymaking, *The Millbank Quarterly*, 80(1), 125.
- 12 Lomas, J. (2000) Using 'linkage and exchange' to move research into policy at a Canadian Foundation, *Health Affairs*, 19(3), 236-240.
- 13 Nutley, S., Davies, H., Walter, I., & Wilkinson, J., (2004) Developing projects to assess research impact, Report of Seminar 25-26 November 2004. Retrieved 12 September 2005 from <http://www.st-andrews.ac.uk/~ruru/publications.htm>
- 14 Walter, I., Nutley & Davies H. (2004) Assessing research impact, Report of Seminar 15-16 January 2004. Retrieved 12 September 2005 from <http://www.st-andrews.ac.uk/~ruru/publications.htm>
- 15 WHO (World Health Organization). (2004) *Linking Research to Action*, in World Report on Knowledge for Better Health: Strengthening Health Systems, World Health Organisation, Geneva.
- 16 Walter, I., Nutley, S., Davies, H. (2003) Developing a taxonomy of interventions used to increase the impact of research. Retrieved 12 September 2005 from <http://www.st-andrews.ac.uk/~ruru/publications.htm>
- 17 Davies, H., Nutley, S., & Walter, I. (2005) Assessing the impact of social science research: conceptual, methodological and practical issues, a background discussion paper for ESRC Symposium on Assessing Non-Academic Impact of Research, May 2005. Retrieved 6 September 2005 from <http://www.st-andrews.ac.uk/~ruru/ESRC%20Assessing%20non%20academic%20impact%20180405.pdf>
- 18 Estabrooks, C.A. (1999) Modelling the individual determinants of research utilization, *Western Journal of Nursing Research*, 21(6), 758-772.
- 19 Amara, N., Ouimet, M., Landry, R. (2004) New evidence on instrumental, conceptual and symbolic utilization of university research in government agencies, *Science Communication*, 26(1), 75-106.
- 20 Nutley, S., Walter, I., & Davies, H. (2002) From Knowing to Doing: A framework for understanding the evidence into practice agenda, *Discussion Paper 7*, Research Unit for Research Utilisation, University of St Andrews. Retrieved 11 September 2005 from <http://www.st-and.ac.uk/~cppm/home.htm>
- 21 Nutley, I., Davies, H., & Walter, I. (2003) Evidence Based Policy and Practice: Cross Sector Lessons from the UK, Keynote paper presented at the Social Policy Research and Evaluation Conference, Wellington NZ. Retrieved 12 September 2005 from <http://www.st-andrews.ac.uk/~ruru/publications.htm>
- 22 Kilpatrick, H.E. Jr. (1998) Some useful methods for measuring the benefits of social science research: Impact Assessment Discussion Paper no 5. Retrieved 6 September 2005 from <http://www.ifpri.org/impact/iadp05.pdf>
- 23 Brownson, R., & Simoes, J. (1999) Measuring the impact of prevention research on public health practice, *American Journal of Preventative Medicine*, 16(3S), 72-79.
- 24 Lavis, J., Ross, S., McLeod, C., & Gildiner, A. (2003) Measuring the impact of health research, *Journal of Health Services Research & Policy*, 8(3), 165-170.
- 25 Council for Medical Sciences. (2002) The societal impact of applied health research. Towards a quality assessment system. Royal Netherlands Academy of Arts and Sciences, Amsterdam. Retrieved 18 November 2005 from www.knaw.nl/cfdata/publicaties/pdf/20021098.pdf
- 26 Easton, E. (2005) Survey into the Clinical Application of Research Findings. National Institute of Clinical Studies. Retrieved 29 November 2005 from <http://www.nicsl.com.au/resources.ashx/knowledge.reports/7/Documents.7.File/8B672CDDC57EA3935CFAD671AA94A1F5/TQA+Research+report+for+NICS.pdf>
- 27 Davies, H., Nutley, S., & Walter I. (2005) Approaches to assessing the non-academic impact of social science research. Report of the ESRC symposium on assessing the non-academic impact of research. Retrieved 12 November 2005 from <http://www.st-and.ac.uk/~ruru>

FOCUS on... PHC RIS

The Primary Health Care Research and Information Service is an independent academic unit based at Flinders University in South Australia in the Department of General Practice. It is funded by the Australian Government Department of Health and Ageing.

PHC RIS contributes to improved primary health care policy and practice by increasing the exchange of information about Australian general practice and primary health care research, evaluation and development, among primary health care researchers, policy advisors, and the Divisions of General Practice Network.

We aim to:

Generate, manage and share information and knowledge that will inform, influence and enhance Australian primary health care practice, policy and research.

Create a better understanding of primary health care activities and research. Improve access to data and information and enhance knowledge and information sharing.

Suggestions, comments and feedback:

FOCUS on... is a PHC RIS publication and we would like to hear what you think of this product. Please forward your comments, feedback and suggestions for future topics to phcris@flinders.edu.au, or 1800 025 882.

To order PHC RIS publications:

Call: 1800 025 882

Visit: www.phcris.org.au/publications/orderform_frameset.html

All of our publications are available for download from our website.

Further information:

Primary Health Care Research and Information Service
Department of General Practice
Flinders University, Adelaide
GPO Box 2100
Bedford Park SA 5042

Ph: 08 8204 5399

Fax: 08 8204 4690

Email: phcris@flinders.edu.au

Web: www.phcris.org.au

PHC RIS Assist: 1800 025 882

