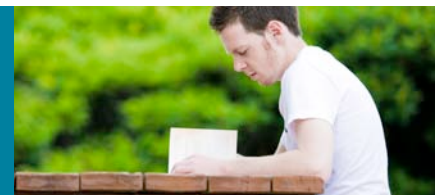




KNOWLEDGE TRANSLATION

A Synopsis of the Literature 2008

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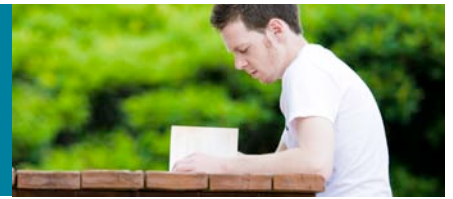
ACKNOWLEDGEMENT

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Alberta Health Services - Alberta Mental Health Board. Alberta Mental Health Research Partnership Program. (2009). *Knowledge Translation: A synopsis of the literature 2008*. Edmonton, AB: Harrington, A., Beverley, L., Barron, G., Pazderka, H., Bergerman, L. & Clelland, S.

Background

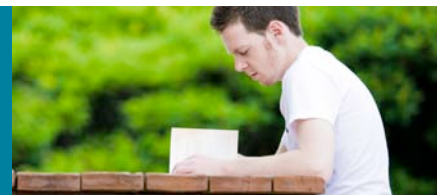


Within mental health and the health care system more broadly, there has been increasing recognition of and concern over the disconnect between what is known as effective practices (i.e., theory, science, research) and what is actually done (i.e., policy and practice). For example, Sussman, Valente, Rohrbach, Skara and Pentz (2006)¹ estimated that it takes about one to two decades for original research to be incorporated into routine health practice. The ramification of this research-practice divide is patients/clients are not receiving the best possible care and limited health care resources are wasted on inefficient, harmful or ineffective interventions. Therefore, the need to identify ways in which to increase the use of evidence based research by policy makers and service providers has become paramount.

The purpose of this document is to synthesize the key approaches, strategies, learnings, and resources aimed at increasing the linkages between research and decision making/practice processes.

¹ Sussman, S.; Valente, T.W.; Rohrbach, L.A.; Skara S. & Pentz, M.A. (2006). [Translation in the health professions: Converting science into action](#). *Evaluation and the Health Professions*, 29(1), 7-32.

Definitions and Terminology



A number of different terms have been used independently and interchangeably to refer to the concept of increasing the flow and uptake of information between researchers and stakeholders. Commonly used terms include:

TERM	DEFINITION
Knowledge Translation	<p>“Knowledge translation is a dynamic and iterative process that includes synthesis, dissemination, exchange and ethically sound application of knowledge to improve the health of Canadians, provide more effective health services and products and strengthen the health care system.”</p> <p style="text-align: right;">Canadian Institute for Health Research (CIHR) http://www.cihr-irsc.gc.ca/e/29418.html accessed February 5, 2008</p>
	<ul style="list-style-type: none"> ▪ This term is gaining prominence in Canada ▪ CIHR’s definition or a variation of it is used most frequently
Knowledge Transfer	<p>“a process by which relevant research information is made available and accessible for practice, planning, and policy-making through interactive engagement with audiences. Knowledge transfer is supported by user-friendly materials and a communication strategy that enhances the credibility of the organization. Where relevant, knowledge transfer reinforces key messages from the research.”</p> <p style="text-align: right;">Program in Policy Decision-Making McMaster University http://www.researchtopolicy.ca/whatwehavelearned/develop_brokers_approach.asp accessed February 5, 2008</p>
	<ul style="list-style-type: none"> ▪ Has fallen into disfavor in the health sector ▪ Critics of the term say it implies a unidirectional flow of knowledge and that it does not consider the use or uptake of knowledge ▪ Term is used outside the health care field
Knowledge Exchange	<p>“Knowledge exchange is collaborative problem-solving between researchers and decision makers that happens through linkage and exchange. Effective knowledge exchange involves interaction between decision makers and researchers and results in mutual learning through the process of planning, producing, disseminating, and applying existing or new research in decision-making.”</p> <p style="text-align: right;">Canadian Health Service Research Foundation http://www.chsrf.ca/knowledge_transfer/index_e.php accessed February 5, 2008</p>
	<ul style="list-style-type: none"> ▪ Seems to be replacing Knowledge Transfer ▪ Popularized by CHSRF ▪ Definition addresses the unidirectional criticism lobbed against knowledge transfer.
Research Utilization	<p>“A specific kind of knowledge utilization whereby the knowledge has a research base to substantiate it. It is a complex process in which knowledge, in the form of research, is transformed from the findings of one or more studies into instrumental, conceptual, or persuasive utilization.”</p> <p style="text-align: right;">Knowledge Utilization Studies Program – U of A http://www.kusp.ualberta.ca/glossary.cfm accessed February 5, 2008</p>

TERM	DEFINITION
	<ul style="list-style-type: none"> Commonly used in Nursing Focused on moving research into action
Implementation	<p>"Methods to assure the use of evidence-based programs and other innovations with fidelity and benefit to consumers."</p> <p>The National Implementation Research Network http://www.fpg.unc.edu/~nirn/ accessed February 5, 2008</p>
	<ul style="list-style-type: none"> Concerned with the uptake of knowledge Described by Lomas (1993) as an active process Goal: change attitudes and behaviours
Diffusion of Innovations	<p>"the process by which an innovation (e.g., new idea, technology, product, practice, program, or research evidence) is spreads through the population."</p> <p>Atlantic Health Promotion Research Centre http://www.ahprc.dal.ca/kt/glossary.cfm accessed February 5, 2008</p>
	<ul style="list-style-type: none"> Focus on how generated knowledge is communicated to broader groups Described by Lomas (1993) as passive and non-directed Goal: increase awareness
Dissemination	<p>"The spreading of knowledge or research, such as is done in scientific journals and at scientific conferences."</p> <p>Knowledge Utilization Studies Program – U of A http://www.kusp.ualberta.ca/glossary.cfm accessed February 5, 2008</p>
	<ul style="list-style-type: none"> focus on how generated knowledge is communicated to broader groups described by Lomas (1993) as more active and targeted to specific populations goals: increase awareness and change attitudes

The multiplicity of terms used to describe the concept/process of moving research into practice has complicated working in this field. While a universal term may not be desirable or feasible, what is needed is for individuals to articulate their understanding of the concept upfront and recognize that these definitions are socially and politically situated.

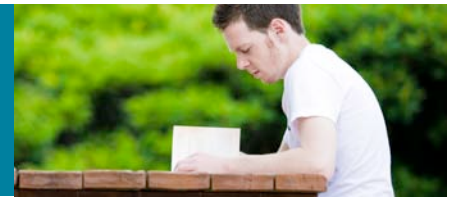
In summary, the concept of increasing the exchange and uptake of evidence based research by stakeholders is:

- broad in scope
- context dependent
- complex
- encompasses all steps between the creation of knowledge and its application
- two-way, interactive and iterative
- more focused on academic research although there is increasing recognition of experiential evidence or internal knowledge

Source:

1. Graham, I. D.; Logan, J.; Harrison, M. B.; Straus, S. E.; Tetroe, J.; Caswell, W. & Robinson, N. (2006). Lost in knowledge translation: Time for a map? *The Journal of Continuing Education in the Health Professions*, 26(1), 13-24.

Knowledge Translation Models and Processes



Several models and frameworks have been put forth to describe and illustrate the knowledge translation process. To date no one model has been generally accepted as superior and many represent different perspectives and areas of emphasis in the knowledge translation process.

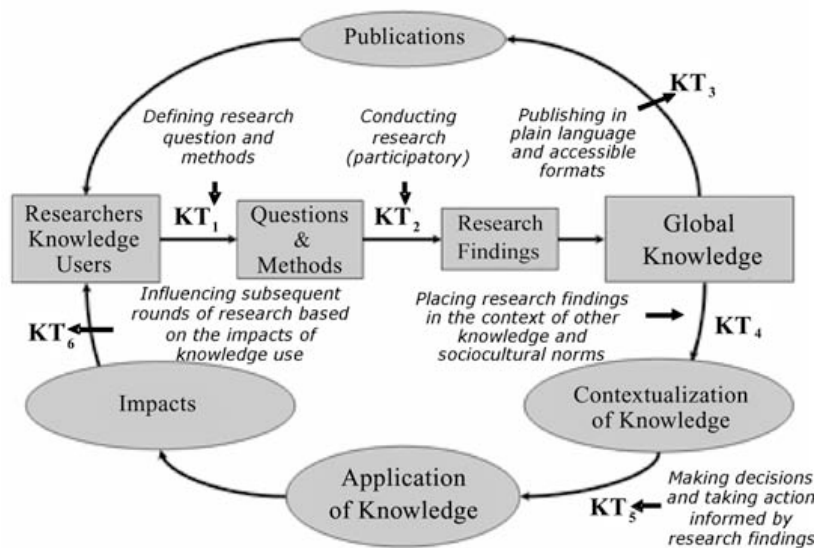
CIHR KNOWLEDGE TRANSLATION MODEL

The Canadian Institute for Health Research has two models related to knowledge translation. The first model [The Knowledge Cycle](#) informs CIHR's thinking about knowledge translation in their work. What is evident in this model is the importance of research in this process. The second model [Knowledge Translation within The Research Cycle](#) focuses on how knowledge translation is an integral part of the research cycle. Within the research cycle, CIHR identifies six opportunities where there is occasion for knowledge exchange that go beyond the basic approach of publication after research.

The knowledge cycle

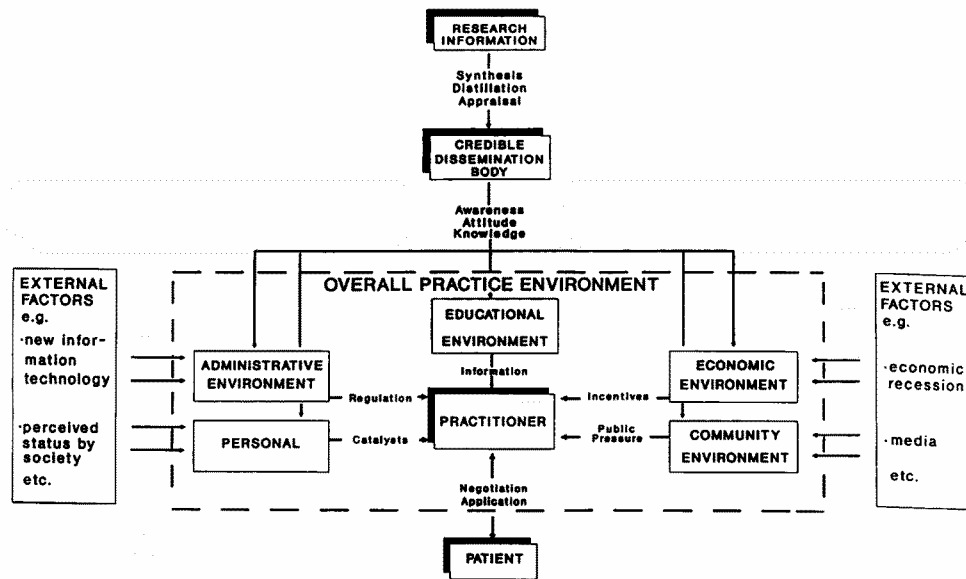


Knowledge Translation (KT) within the Research Cycle



COORDINATED IMPLEMENTATION MODEL

Lomas (1993) articulated *the Coordinated Implementation Model* which describes factors involved in physician behaviour change. The model draws upon four areas of study social influences literature, diffusion of innovation theory, adult learning theory and marketing theory. The key components of this model are the integration, or at least the acknowledgement, that factors outside of the immediate practice environment impact the individual clinician's adoption decision and subsequent implementation behaviour. The clinician faces demands (often competing) from economic, administrative, personal and community sources, as well as from her patients. External factors, such as new information technologies and social influences also come into play. Lomas' point is that the clinician is not a "blank slate" waiting for information, and the complexity of their unique situations, experiences and needs, will impact their adoption and implementation decisions.



Lomas, J. (1993). Diffusion, dissemination, and implementation: who should do what? *Annals of the New York Academy of Sciences*, 703(1), 226-237.

DIFFUSION OF INNOVATION THEORY

Rogers' theory describes the innovation-decision process and how the perceptions of potential adopters regarding the attributes or characteristics of an innovation influence diffusion of the innovation. The innovation-decision process consists of five stages that potential adopters pass through as they decide to adopt an innovation. In Rogers' view, innovations are more quickly adopted when they are: compatible with current values, beliefs, and ways of doing things; are seen to be more advantageous than the current practice (relative advantage); are easy to use (low complexity); are used by others (observability); and can be tested before a decision is made to adopt (trialability).

- (i) **knowledge** – becoming aware of the innovation
- (ii) **persuasion** – developing positive attitudes about the innovation
- (iii) **decision** – making a decision to adopt the innovation
- (iv) **implementation** – using the innovation
- (v) **confirmation** – continuing to use the intervention, adapting the innovation, or abandoning it

Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). New York: Free Press.

GOALS-BASED KNOWLEDGE TRANSLATION FRAMEWORK

Farkas, Jette, Tennstedt, Haley, & Quinn (2003) provide a conceptual framework for the dissemination and utilization of information along with examples of its uses. The framework identifies dissemination/utilization goals of exposure, experience, expertise, and embedding and relates each goal to specific users. Exposure strategies are knowledge dissemination methods that focus on the goal of increased knowledge. Experience strategies are knowledge utilization methods that focus on the goal of increased positive attitudes toward the new knowledge as well as increased knowledge. Expertise strategies are knowledge utilization methods that focus on the goal of increased competence. Embedding strategies are complex knowledge utilization methods whose goal is to increase the use of new findings or innovation over time. Most embedding strategies are focused on program or system-level administrators because these are the main agents of change and maintenance of change.

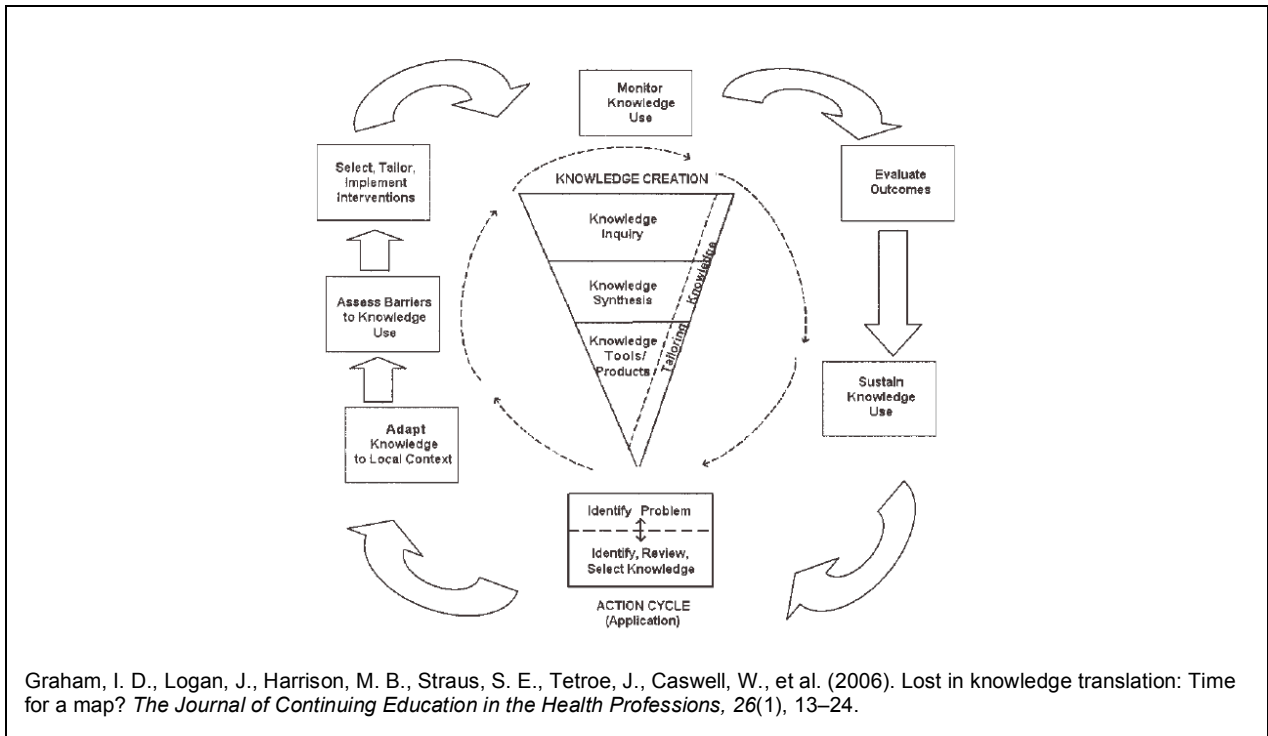
Table 1. Summary of Knowledge Dissemination and Utilization Framework: Exposure, Experience, Expertise, and Embedding

Strategy	Exposure	Experience	Expertise	Embedding
Goal	Increased knowledge	Increased knowledge and positive attitudes	Increased competence	Increased utilization over time
Target Population Researchers	Articles, seminars, E-mail; web-based information	Mentorship	Internships, manuals	Ongoing availability of experts, ongoing research funding
Providers Administrators	Conferences, popular media, electronic user groups	Videos, internships, program visits	Manuals, training programs	Programmatic, systems-level technical assistance, organizational development, ongoing supervision, advocacy
Consumers/Families	Popular media, community lectures, Web-sites	Role models	Manuals, training programs	Ongoing support meetings, feedback tools

Farkas M, Jette A, Tennstedt S, Haley, S.M. & Quinn, V. (2003). Knowledge dissemination and utilization in gerontology: an organizing framework. *The Gerontologist*, 43(spec. 1), 47–56.

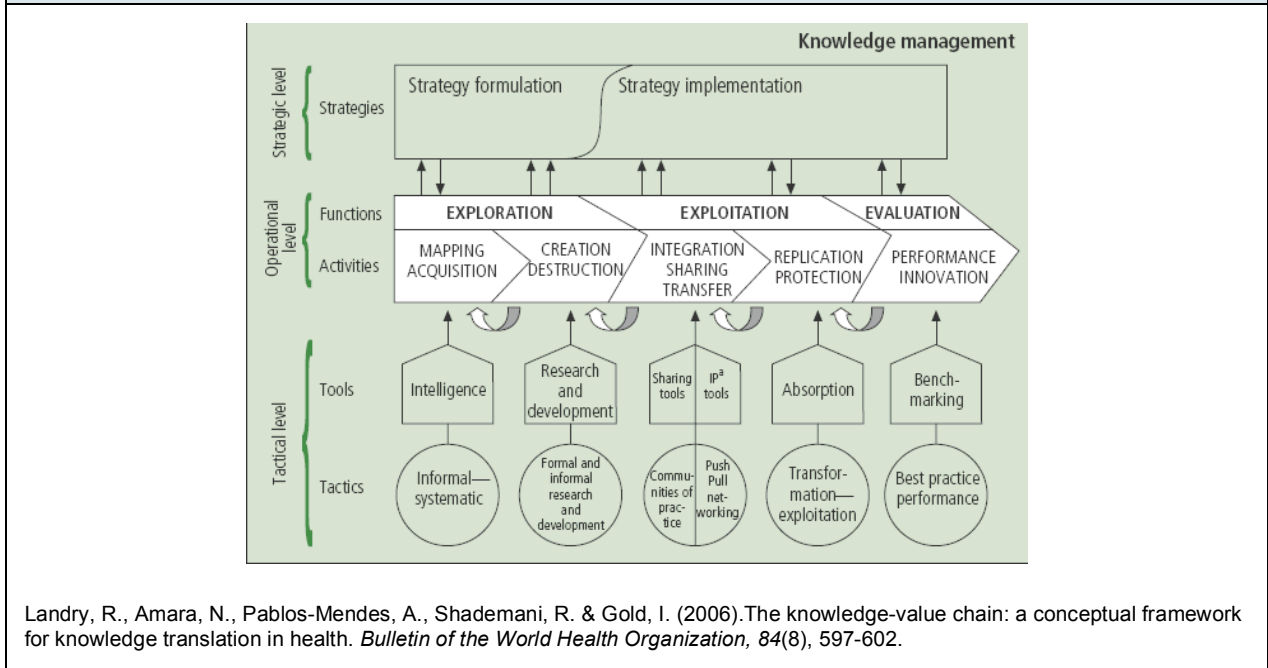
KNOWLEDGE TO ACTION PROCESS

Graham, Logan, Harrison, Straus, Tetroe, Caswell & Robinson (2006) proposed a knowledge-to-action process conceptual framework that could be useful for facilitating the use of research knowledge by several stakeholders, such as practitioners, policymakers, patients, and the public. The KTA process has two components: (1) knowledge creation and (2) action. Each component contains several phases. The authors conceptualized the KTA process to be complex and dynamic, with no definite boundaries between the two components and among their phases. The phases of the action component may occur sequentially or simultaneously, and the knowledge-creation-component phases may also influence the action phases.



KNOWLEDGE VALUE CHAIN FRAMEWORK

Landry, Amara, Pablos-Mendes, Shademani & Gold (2006), uses knowledge management literature to develop and propose a knowledge-value chain framework in order to provide an integrated conceptual model of knowledge management and application in public health organizations. The knowledge-value chain is a non-linear concept and is based on the management of five dyadic capabilities: mapping and acquisition, creation and destruction, integration and sharing/transfer, replication and protection, and performance and innovation.



LADDER OF RESEARCH UTILIZATION

Landry, Amara, & Lamari (2001) conceptualized the process of research use as a hierarchical scale called the "Ladder of Research Utilization". The higher level achieved on the "ladder", the more successful the degree of translation. Landry et al.'s research focus is on understanding what factors are involved in researchers climbing up one stage of the ladder to the next, and why some succeed while others fail.

Stages of the Ladder of Knowledge Utilization

- | | |
|---------|---|
| Stage 1 | Transmission: I transmitted my research results to the practitioners and professionals concerned. |
| Stage 2 | Cognition: My research reports were read and understood by the practitioners and professionals concerned. |
| Stage 3 | Reference: My work has been cited as a reference in the reports, studies, and strategies of action elaborated by practitioners and professionals. |
| Stage 4 | Effort: Efforts were made to adopt the results of my research by practitioners and professionals. |
| Stage 5 | Influence: My research results influenced the choice and decision of practitioners and professionals. |
| Stage 6 | Application: My research results gave rise to applications and extension by the practitioners and professionals concerned. |

Landry, R., Amara, N., & Lamari, M. (2001). Climbing the ladder of research utilization: Evidence from social science research. *Science Communication*, 22(4), 396–422.

MODELS OF RESEARCH UTILIZATION

Weiss (1979) reviewed the social science research to explore the different understandings/ models of how knowledge gets transferred into policy. Weiss's work has been adapted and modified by other authors.

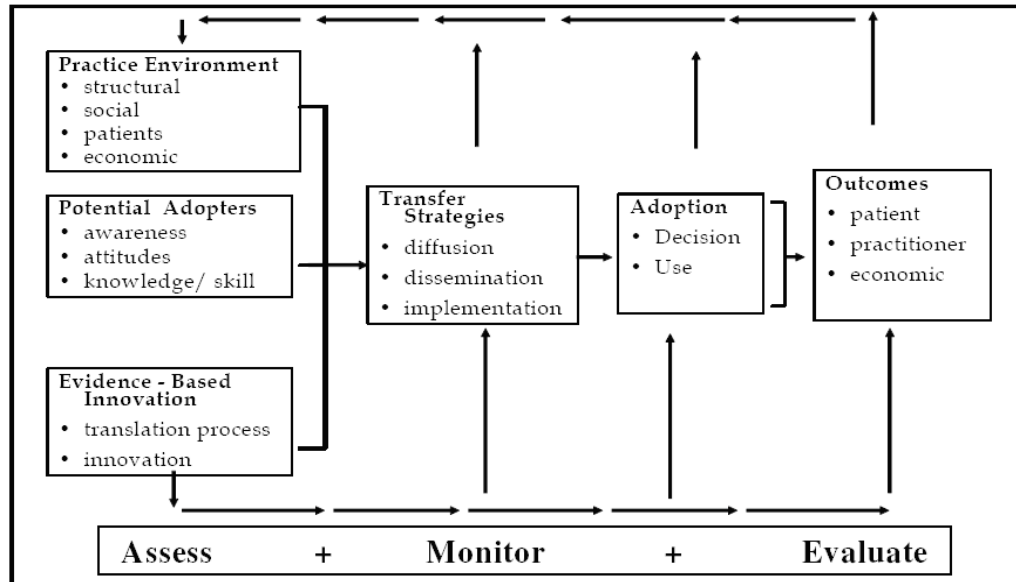
- **Knowledge Driven Model/Science Push Model/Technical Model:** stresses that the existence of knowledge is seen to lead directly to its use, based on the assumption being that if an idea/finding is good enough, it will be used.
- **Problem-Solving Model/Demand-Pull Model/Economic Model:** direct application of results to solve a problem that was previously identified by the 'user'
- **Interactive Model:** policy-makers seek information from a variety of sources, including social scientists, and the process of decision-making and research-to-policy dynamics involves interconnectedness and multiple-way exchanges;
- **Political Model:** constellations of interests or opinions predetermine the positions of policy makers, and research is used as ammunition to support these positions;
- **Tactical Model:** research is not being used for its content, but rather the fact that it is being done is used by policy makers when pressed to take action on a particular issue;
- **Enlightenment Model:** concepts and theoretical perspectives that social science research has engendered permeate the policy-making process.

Weiss, C.H. (1979). The many meanings of research utilization. *Public Administration Review*, 39(5), 426-431.

MODELS OF RESEARCH UTILIZATION

Developed by Logan and Graham (1998) the Ottawa Model of Research Use (OMRU) is a logic model approach for planning dissemination and knowledge utilization and for managing results. It features six primary elements and requires attention to a continuous assessment, monitoring, and evaluation process.

The Ottawa Model of Research Use



Logan J. & Graham I.D. (1988) Toward a comprehensive interdisciplinary model of health care research use. *Science Communication*, 20(2), 227–246.

PROMOTING ACTION ON RESEARCH IMPLEMENTATION IN HEALTH SERVICES FRAMEWORK

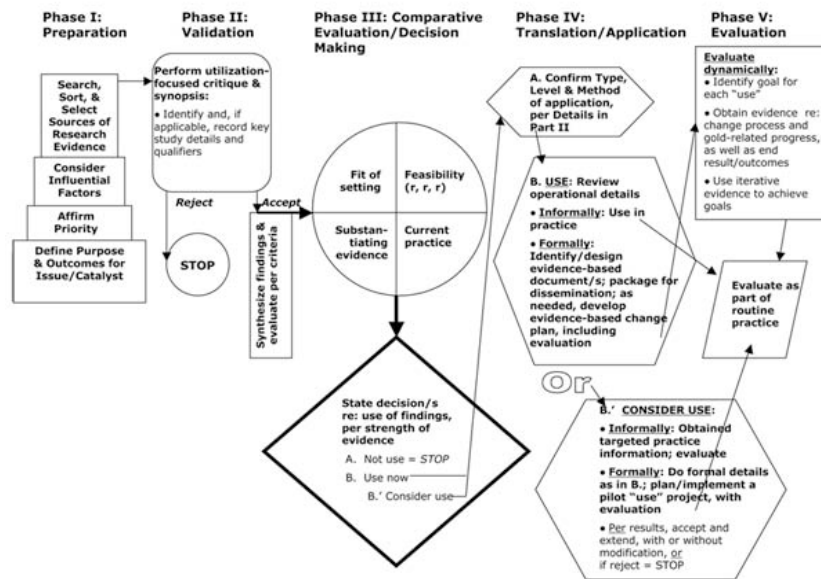
Rycroft-Malone, Kitson, Harvey, McCormack, Seers, Titchen & Estabrooks (2002) proposed a conceptual model describing the implementation of research in practice. According to the model, a successful implementation of research into practice is a function of the interplay of three core elements: (1) the level and nature of the evidence to be used, (2) the context or environment in which the research is to be placed, and (3) the method by which the research implementation process is to be facilitated. These three elements have equal importance in determining the success of the research use. Each of the elements is positioned on a low-to-high continuum, and the model predicts that the most successful implementation occurs when all elements are on the high end of the continuum.

Evidence	Context	Facilitation
<ul style="list-style-type: none"> • Research • Clinical Experience • Patient Experience 	<ul style="list-style-type: none"> • Context • Culture • Leadership • Evaluation/Feedback 	<ul style="list-style-type: none"> • Facilitator • Purpose • Role • Skills & Attributes
Low		High

Rycroft-Malone, J., Kitson, A., Harvey, G., McCormack, B., Seers, K., Titchen, A. & Estabrooks, C. (2002). Ingredients for change: revisiting a conceptual framework. *Quality and Safety in Health Care*, 11(2), 174-180.

THE STETLER MODEL OF RESEARCH UTILIZATION

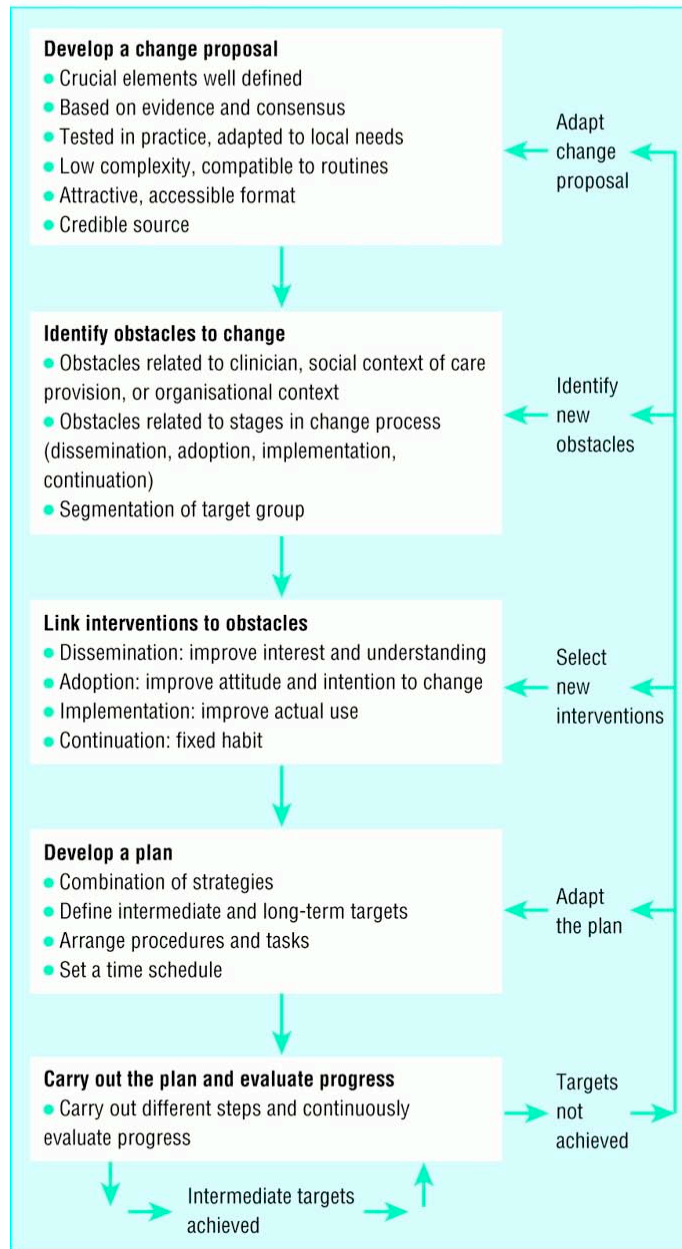
The Stetler Model of Research Utilization is the practitioner-oriented model, expected to be used by individual practitioners as a procedural and conceptual guide for the application of research in practice. This model consists of two parts. The first part is the graphic model containing five phases of research utilization. The second part contains clarifying information and options for each phase.



Stetler, C.B. (2001). Updating the Stetler model of research utilization to facilitate evidence-based practice. *Nursing Outlook*, 49(6):272-9.

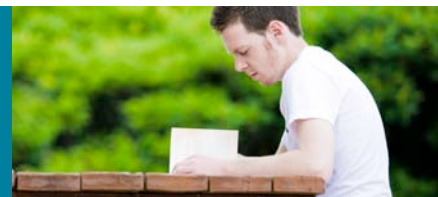
STEPWISE, CYCLICAL PROCESS OF CHANGING CLINICAL PRACTICE

Drawing upon some of the theoretical approaches to change (Educational, Epidemiological, Marketing, Behavioural, Social interaction, Organisational, Coercive) Grol (1997) developed a general model to guide clinical practice change.



Grol, R. (1997). Personal paper: Beliefs and evidence in changing clinical practice. *British Medical Journal*, 315(7105), 418-421.

Barriers and Enablers to Knowledge Translation



BARRIERS

Several explanations as to why research is not making its way into policy and practice decision making have been discussed in the literature. Many are based on the two communities theory (Caplan, 1979)² which postulates that researchers and the users of research are from two completely different environments or cultures. The differences in perspectives, roles and goals create a gap in understanding such that these communities find it difficult or impossible to relate to each other. Below is a list of some of the challenges identified in the literature by the different groups involved in knowledge translation.

For Researchers

- Disincentives built into the reward and recognition systems for researchers to engage in knowledge translation.
- Research takes time but policy makers want information now.
- Inflexible peer review and funding criteria that do not recognize how much time is required to create effective linkages.
- A difference in culture where universities tend to promote “openness” in contrast to decision makers who must operate with greater secrecy.
- Researchers receive little training in, and are not exposed to, the needs of decision making organizations and processes.
- The areas of interest of government are not clearly defined and openly identified.
- There are fears that research results will be abused by some decision makers who are interested only in results that support a pre-determined position.

For Policymakers

- Nascent culture for using research
- Extremely short timeline available to use research results as an integrated management and decision making function
- Ever-changing visions, priorities, expertise, and personnel.
- Not sure how to access researchers
- Research is one source of information to consider and may conflict with constituents etc.
- The low level of research literacy among most decision makers makes it difficult for them to resolve either the real or apparent contradictions in results from different researchers. This often leads to a lack of confidence for decision makers in using research as a management function.
- Politicians often look for immediate results— an answer—that is not compatible with the researchers’ need for time to do research properly, and to be cautious in interpreting the results.

For Healthcare Organizations and Service Providers

- Lack of infrastructure to conduct or use research.
- Lack of access to information
- Too much information to process
- Little power to modify practices within the organization
- Contradicts practice experiences
- Research language difficult to understand
- Organizations have a limited capacity to participate in the research process.
- Lack the experience or background needed to lead them in the research process or change process.
- Given the scarce funding available, different or competing priorities make it difficult to collaborate with other organizations or to identify research priorities for the research community.
- Environments not receptive to change
- The instability of funding and programming has made it hardly worthwhile for these organizations to build long-term relationships with researchers in a particular area.
- Issues and topics of importance, at any given point in time, are different between researchers and decision makers. The researcher’s concept of relevance is not necessarily the same as the decision maker’s.

² Caplan, N. (1979). The two communities theory and knowledge utilization. *American Behavioural Scientist*, 22(3), 459-470.

Source:

1. Tsui, L.; Chapman, S.A.; Schnirer, L. & Stewart, S. (2006). *A handbook on knowledge sharing: Strategies and recommendations for researchers, policymakers and service providers*. Edmonton, AB: Community-University Partnership for the Study of Children, Youth and Families.
2. Canadian Health Services Research Foundation. (May, 1999). *Issues in linkage and exchange between researchers and decision makers: Summary of a workshop convened by the Canadian Health Services Research Foundation*. Ottawa, ON: Author.

ENABLERS

Although there is no all-encompassing approach for effective knowledge translation there are certain factors that contribute to research uptake, many of which are interrelated.

Early and ongoing involvement

Engaging knowledge users at the start of and throughout the life of a research project has been identified as key to increasing research uptake. The reasons for which involvement is important are:

- increasing understanding and respect for each others roles/realities;
- building trust, commitment, and sustainability;
- increasing likelihood that research is relevant, timely, and credible; and
- building relationships.

Frequent face-to-face interactions

Face-to-face exchanges between these key stakeholders and researchers allow for nuance and dialogue, the building of trusting relationships, and the sharing of tacit knowledge

Incentives are essential to encourage knowledge exchange

According to CIHR KT is most successful when there are tangible benefits for all partners have the possibility of making concrete gains towards their own priorities, shared or otherwise. Incentives could involve funding to support researchers in knowledge translation or change reward and recognition systems of universities. Organizations could provide opportunities, time and rewards to staff who take part in research activities.

Adequate time

Relationships, trust, and understanding take time to develop and when diverse groups are at the table a research plan may take longer to formulate. This can be a difficult task within the constraints of research funding cycles and particularly in the early stages, when existing funding models and mechanisms rarely support the constant tending that new relationships need. Without such vigilance, however, misunderstandings can arise, commitment can be doubted and research and KT activities can be seriously undermined.

Build capacity

Capacity building-to enhance efforts to uptake and use research and practice innovations can make the difference between the success or failure of a KT initiative. Researchers need to develop skills, experience and confidence to be able to interact productively with many audiences. Policy makers and user need to understand the research process and how to make use of research. Knowledge brokers have been suggested as an integral resource.

Clarify roles and expectations

Different partners bring different backgrounds, understandings, assumptions and experiences to the table, which need to be articulated, acknowledged and respected from the start of the process. Formal agreements, which detail expectations and resources to be provided, can be useful, but must be supported by trusting and open relationships.

Use active, effective and multifaceted dissemination strategies

Passive strategies that have traditionally been used by researchers to communicate research findings such as, journal publications, print materials, and didactic conferences or workshops have been shown to be ineffective. The use of more active, even interactive, strategies to implement research-based recommendations seems to be necessary to ensures uptake these might include: Educational outreach visits, interactive continuing education, social marketing, personal involvement and use of highly respected leaders of opinion. Essentially the message needs to be based on the audience needs/preferences, delivered by someone they trust/respect

and in a format/language they are comfortable with. Depending on the target audience different strategies will need to be employed.

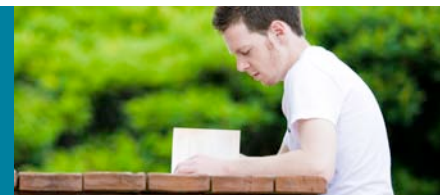
Knowledge Brokers

Of growing interest in the Knowledge Translation literature is the idea of knowledge brokers/facilitators whose role is to serve as an interface or link between researchers, research users and policy/decision makers. Currently the effectiveness of this role in facilitating research uptake is being examined.

Sources:

1. Barwick, M.A.; Boydell, K.M.; Stasiulis, E.; Ferguson, H.B.; Blasé, K. & Fixsen, D. (2005). *Knowledge transfer and evidence-based practice in children's mental health*. Toronto, ON: Children's Mental Health Ontario.
2. Pyra, K. (2003). *Knowledge translation: A review of the literature*. Halifax, NS: Nova Scotia Health Research Foundation.
3. Tsui, L.; Chapman, S.A.; Schnirer, L. & Stewart, S. (2006). *A handbook on knowledge sharing: Strategies and recommendations for researchers, policymakers and service providers*. Edmonton, AB: Community-University Partnership for the Study of Children, Youth and Families.
4. Provincial Centre of Excellence for Child and Youth Mental Health. (2006). *Knowledge exchange: A review of the literature from the perspective of child and youth mental health*. Ottawa, ON: Author.

Knowledge Translation Activities



Numerous vehicles for knowledge translation have been mentioned in the literature. These have included:

- Virtual libraries/encyclopedias
- Electronic newsletters, bulletins, listserv, reminders
- Discussion forums
- Social Marketing/Media Relations/Opinion Leaders
- Tailored messaging/products
- Knowledge Brokers/Research Exchange Officers
- Roundtables
- Networks
- Briefs/Reports/Summaries
- Media Advisories
- Conferences/Workshops/ Presentations/Symposiums
- Meetings
- Websites
- Training Sessions
- Journals

Research on the effectiveness of different approaches to sharing knowledge has yet to demonstrate any one approach to be superior to another although research has shown that passive dissemination of information is ineffectual if the goal is to change practice and multifaceted interventions versus single intervention are more effective. Much of the research on effectiveness has focused on changing health professionals' practices with particular emphasis on physicians. Recognizing that no knowledge translation method will be effective in all situations several authors have proposed guidelines or questions that can be used by researchers or knowledge generators to enhance knowledge translation/dissemination strategies. Two frameworks are generally referenced in relation this:

Lavis, J. N., Robertson, D., Woodside, J. M., Mcleod, C. B., & Abelson, J. (2003). How can research organizations more effectively transfer research knowledge to decision makers? *The Milbank Quarterly*, 81(2): 221-248.

The framework consists of five questions:

1. **What message do you want to transfer?** Develop a message that is: clear and compelling, evidence-based, perceived as relevant to your target group and action-oriented
2. **To whom should the message be delivered?** The target audience should be precisely specified and the message should be made specific to them and the context within which they work. It is important to learn about their needs, beliefs, current practices, and readiness for change. When selecting a target audience, one should consider who will be able to act on the basis of the research, who can influence those who act, and with which audience can the most success be expected.
3. **By whom should the message be delivered?** The messenger should be credible, both to the target audience and to researchers. Depending on the target group different messengers will be perceived as credible. For example, academic detailers and opinion leaders can meet this criterion for many clinical audiences.
4. **How should the message be delivered?** The mechanism used to transfer the message should be interactive when possible. Face-to-face meetings can work well for clinicians. Briefings or workshops can work well for managers and public policy-makers. Consider format, level of information, accessibility. Ensure that the knowledge transfer techniques you select are feasible within your budget, time and personnel constraints.
5. **With what effect?** Determine what you expect to change as a result of your knowledge transfer activities. Depending on what change you are looking for different evaluation strategies will be needed. For example, are you aiming to:
 - Increase awareness of your research findings?
 - Increase awareness of current issues on a topic?

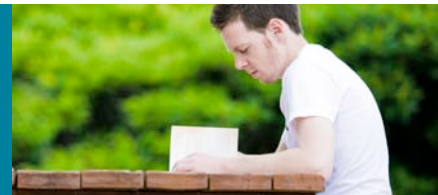
-
- Increase knowledge in a particular area?
 - Change service providers' beliefs or behaviours?
 - Influence a program or policy?

Jacobson, N., Butterill D., & Goering, P. (2003). Development of a framework for knowledge translation: understanding user context. *Journal of Health Services Research and Policy*, 8(2): 94-99.

The framework consists of five domains:

1. **The user group** – context within which the group operates (includes formal and informal structures), morphology, decision-making practices, access to and use of information (purposes, incentives, etc.) and experience with KT will all affect knowledge translation processes
2. **The issue** – its characteristics have an impact on the user group and on the KT process;
3. **The research** – Different user groups will have different orientations towards research.²⁸ That is, they may look for different things in research, judge it using different parameters and seek to use it in different ways. Knowledge translation may be facilitated to the extent that the researcher can understand the user group's orientation and frame the research in ways that will appeal.
4. **The researcher-user relationship** – early engagement is key to facilitating KT;
5. **The dissemination strategies** – awareness, communication and interaction. Researchers need to consider what strategies will be most effective for their target group in light of the other four domains. Researchers should consider user group needs and preferences while planning research, conducting research, interpreting research and disseminating research.

Measuring Knowledge Translation

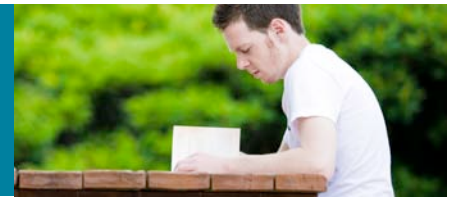


As the goal of knowledge translation is to increase the uptake of research into practice, determining whether a knowledge translation strategy was successful, why and in what context is essential. Evaluation of and measuring the impact of knowledge translation is an emerging field and most writers recognize that more work is needed in this area. Critical to the measurement of knowledge translation processes is the recognition that knowledge may be used in different ways. At least three types of knowledge use have been described in the literature **1) instrumental use**: which involves applying research results in specific and direct ways; **2) conceptual use**: which involves using research results for general enlightenment; and **3) symbolic use**: which involves using research results to legitimize and sustain predetermined positions (Beyer, 1997). In addition to the different uses of knowledge, knowledge can be implemented to differing degrees or take on different forms to suit the realities of the setting/context (Larsen, 1980). This has led Lavis, Ross, McLeod and Gildiner (2003) to suggest that we need to move beyond just examining *whether* research was used to explore *how* it was used.

In a systematic review of tools that are used to measure research utilization in nursing Estabrooks, Wallin and Milner (2003) observed that while some existing measures do exist (e.g. Champion & Leach's *Research Utilization Questionnaire*, Funk, Champagne, Tornquist, and Wiese's *BARRIERS to Research Utilization Scale*, Kiresuk's *Nonspecific KTU Intervention Scale*, and Lavis, Ross, McLeod & Gildiner's *Assessment Tool to measuring the decision-making impact of applied research*) the most common approach to measuring research utilization is to develop one's own measure, mostly in the form of a questionnaire/survey with likert scale responses (See Sudsawad, 2007, pp. 25-32, for descriptions of different approaches to measuring knowledge use). Estabrooks et al. (2003) concluded that the problems in measuring research stems from: a lack of an appropriate theoretical framework, lack of construct clarity, lack of explicit measurement, lack of advanced psychometric assessment theory, a presumption of linearity in the change process, and an absence of longitudinal work, this does not take into account the inherent weakness of likert reporting such as self-report, social desirability and recall biases.

Sources:

1. Beyer, J. M. (1997). Research utilization: Bridging a cultural gap between communities. *Journal of Management Inquiry*, 6, 17–22.
2. Champion V. L. & Leach A. (1989). Variables related to research utilization in nursing: An empirical investigation. *Journal of Advanced Nursing*. 14:705-710.
3. Estabrooks, C. A., Wallin, L. & Milner, M. (2003). Measuring knowledge utilization in health care. *International Journal of Policy Analysis & Evaluation*, 1(1), 3-36.
4. Funk, S. G., Champagne, M.T., Wiese, R.A., & Tornquist, E.M. (1991). BARRIERS: The barriers to research utilization scale. *Applied Nursing Research*, 4(1), 39-45.
5. Kiresuk, T. J. (1993). The evaluation of knowledge utilization: Placebo and nonspecific effects, dynamical systems, and chaos theory. *Journal of the American Society for Information Science*, 44(4), 235-241.
6. Larsen, J. K. (1980). Knowledge utilization: What is it? *Knowledge: Creation, Diffusion, Utilization*, 1, 421–442.
7. 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.
8. Sudsawad, P. (2007). *Knowledge translation: Introduction to models, strategies, and measures*. Austin, TX: Southwest Educational Development Laboratory, National Center for the Dissemination of Disability Research.



KEY KNOWLEDGE TRANSLATION LITERATURE

The Chair on Knowledge Transfer and Innovation at the University of Laval has provided a top 10 list of articles on knowledge translation.

1. 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), 75-107.
2. Brown J. H. (2004). Facilitating research utilisation: A cross-sector review of research evidence. *The International Journal of Public Sector Management*, 17(6/7), 534-552.
3. Hanney, S. R., Gonzalez-Block, M., Buxton, M. J. & Kogan, M. (2003). The utilization of health services research in policy-making: concepts, examples and methods of assessment. *Health Research Policy and Systems*, 1(2):1-28
4. Innvaer, S., Vist, G., Trommald, M. & Oxman, A. (2002). Health policy-makers' perceptions of their use of evidence: A systematic review. *Journal of Health Services Research & Policy*, 7(4), 239-244.
5. Landry, R., Lamari, M. & Amara, N. (2003). Extent and determinants of utilization of university research in government agencies. *Public Administration Review*, 63(2), 192-205.
6. Landry, R., Amara, N., & Lamari, M. (2001). Utilization of social science research knowledge in Canada. *Research Policy*, 30(2), 333-349.
7. Lavis, J., Robertson D., Woodside, J. H., McLeod, C. B., & Abelson, J. (2003). How can research organizations more effectively transfer research knowledge to decision makers? *Milbank Quarterly*, 81(2), 221-248.
8. Lomas, J. (2000). Using linkage and exchange to move research into policy at a Canadian Foundation. *Health Affairs*, 19(3), 236-240.
9. Estabrooks, C. A., Floyd, J. A., Scott-Findlay, S., O'Leary, K. A. & Gustha, M. (2003). Individual determinants of research utilization: a systematic review. *Journal of Advanced Nursing*, 43(5), 506–520.
10. Santoro, M. D. & Gopalakrishnan, S. (2000). The institutionalization of knowledge transfer activities within industry–university collaborative ventures. *Journal of Engineering & Technology Management*, 17(3/4), 299-319.

The Atlantic Health Promotion Research Centre provides a list of key articles for those who are new to the knowledge translation field.

1. Lomas, J. (1997). *Improving research dissemination and uptake in the health sector: Beyond the sound of one hand clapping*. McMaster University Centre for Health Economics and Policy Analysis, Policy Commentary C97-1.
2. Lomas, J. (2000). Connecting research and policy. *ISUMA: Canadian Journal of Policy Research*, 1(1), 140-144 [On-line].
3. Lemieux-Charles, L., McGuire, W. & Ilsa, B. (2002). Building interorganizational knowledge for evidence-based health system change. *Health Care Management Review*, 27(3), 48-59.
4. Curry, S. J. (2000). Organizational interventions to encourage guideline implementation. *CHEST*, 118(2 Suppl.), 40-46.
5. Greenhalgh, T., Robert, G., MacFarlane, F., Bate, P. & Kyriakidou, O. (2004). Diffusion of innovations in service organizations: systematic review and recommendations. *The Milbank Quarterly*, 82(4), 581-629.

KNOWLEDGE TRANSLATION REVIEWS, SCANS, TOOLKITS, AND GUIDES

Given the recognized importance of closing the research practice divide numerous organizations and agencies have explored the topic of knowledge translation and have published workbooks, tool kits, literature reviews, environmental scans, syntheses, casebooks and resource guides.

BUILDING CAPACITY FOR HEALTH RESEARCH TRANSFER IN WESTERN CANADA: AN ENVIRONMENTAL SCAN (2007)

Commissioned by the Alberta Heritage Foundation for Medical Research, this document presents the results of an environmental scan on health research transfer in Western Canada. It has two main areas of focus: capacity-building (programs, initiatives, and resources in the area of research transfer); and research (research conducted on this topic). Additionally, for illustrative purposes, information is also provided on implementation (individuals and organizations that actually do RT work).

www.ahfmr.ab.ca/download.php/3df68e6c60c772d5ad579cfbd7dd02cc

COMPENDIUM OF KNOWLEDGE TRANSFER RESOURCES (2006)

Commissioned by the Nova Scotia Health Research Foundation this Compendium contains tools and/or resources to assist researchers, clinicians, policy-makers, and community groups with the following tasks:

- Assessing needs and identifying priorities for research;
- Promoting intersectoral collaboration in KT activities;
- Developing plans for disseminating research information;
- Developing targeted communication plans;
- Marketing and commercialization of knowledge; and
- Measuring the impact of KT activities.

[Compendium of Knowledge Transfer Resources Jan 2007\[1\].pdf](#)

Knowledge Translation: A Summary of Stakeholder Interviews

A report prepared for the Nova Scotia Health Research Foundation

<http://www.nshrf.ca/AbsPage.aspx?ID=1280&lang=1&siteid=1>

DEVELOPING A DISSEMINATION PLAN

Developed by Canadian Health Services Research Foundation this document list of some of the key elements that should be included in a dissemination plan. While this is not a detailed guide to developing a dissemination plan, it provides a good overview of some of the most critical things that should be considered.

http://www.chsrf.ca/knowledge_transfer/pdf/dissemination_plan_e.pdf

DEVELOPING AN EFFECTIVE DISSEMINATION PLAN (2001)

Published by the National Centre for the Dissemination of Disability Research, this guide provides a framework and strategies for developing effective dissemination plans. Although designed for disability researchers it is applicable to other groups.

<http://www.researchutilization.org/matrix/resources/dedp/Dissemination.pdf>

DOING MORE WITH WHAT YOU KNOW: A TOOL KIT ON KNOWLEDGE EXCHANGE (2006)

Developed by The Provincial Centre of Excellence for Child and Youth Mental Health at CHEO, this tool kit provides tools to help researchers choose and implement the most appropriate knowledge exchange strategies for their projects.

<http://www.onthepoint.ca/kec/know.htm>

EVIDENCE IN ACTION, ACTING ON EVIDENCE: A CASEBOOK OF HEALTH SERVICES AND POLICY RESEARCH KNOWLEDGE TRANSLATION STORIES (2006)

Developed for the CIHR Institute of Health Services and Policy Research this casebook is a collection of knowledge translation "stories" that illustrated both successful and less than successful examples of the collaborative development and practical use of health services and policy research.

http://www.cihr-irsc.gc.ca/e/documents/ihspr_ktcasebook_e.pdf

HANDBOOK ON KNOWLEDGE SHARING: STRATEGIES AND RECOMMENDATIONS FOR RESEARCHERS, POLICYMAKERS, AND SERVICE PROVIDERS (2006)

This handbook was created by the Community-University Partnership for the Study of Children, Youth, and Families (CUP) as a resource for those interested in knowledge sharing among researchers, policymakers, service providers, and the public.

http://www.cup.ualberta.ca/component/option.com_docman/task.doc_view/gid.58/Itemid.5/

IF RESEARCH IS THE ANSWER, WHAT IS THE QUESTION? (2001)

Developed by the Canadian Health Services Research Foundation this document outlines the steps needed to turn decision-maker issues into research questions.

http://www.chsrf.ca/knowledge_transfer/pdf/research_e.pdf

IMPLEMENTATION RESEARCH: A SYNTHESIS OF THE LITERATURE (2005)

Produced by the National Implementation Research Network, this monograph summarizes findings from the review of the research literature on implementation. The review process began by identifying literature reporting any efforts to collect data on attempts to implement practices or programs in any domain, including agriculture, business, child welfare, engineering, health, juvenile justice, manufacturing, medicine, mental health, nursing and social services.

<http://www.fpg.unc.edu/~nirn/resources/publications/Monograph/>

IMPROVING KNOWLEDGE TRANSFER: COMMUNICATION FOR DEVELOPMENT

The Max Lock Centre has produced a set of eight guides that set out a series of strategies to improve research communication between the researcher and each of the principle interest groups in the urban development process. There is an emphasis on understanding how the poor in urban areas learn and communicate. The guides are also aimed at improving the channels of communication and knowledge transfer between all interest groups to create active partnerships in decision-making for sustainable local urban development. Although the focus is on urban development they are easily transferable to other areas of research

<http://www.wmin.ac.uk/builtenv/maxlock/KTweb/guides.htm>

KNOWLEDGE EXCHANGE ACTIVITIES SCAN AND LITERATURE REVIEW (2006)

Initiated by The Provincial Centre of Excellence for Child and Youth Mental Health at CHEO, this scan investigated the knowledge exchange activities, practices and perceptions of child and youth mental health organizations in Ontario. It included a detailed examination of each selected organization's Web site followed by the completion of a questionnaire. The questionnaire gave organizations an opportunity to elaborate on their knowledge exchange practices.

<http://www.onthepoint.ca/kec/documents/KEScan.pdf>
http://www.onthepoint.ca/kec/documents/KE_LitReview_March_31.pdf

From Research to Practice: A Knowledge Transfer Planning Guide (2006)

Developed by the Institute for Work and Health, this workbook teaches the nuts and bolts of knowledge transfer by taking the user through a set of practical thinking exercises.

http://www.iwh.on.ca/system/files/documents/kte_planning_guide_2006.pdf

Building the Knowledge Base (2005)

Developed by the Institute for Work and Health, synthesizes the key messages from the Ontario Regional Knowledge Transfer and Exchange Workshop: Building the Knowledge Base

http://www.iwh.on.ca/system/files/documents/building_knowledge_base_kte_workshop_2005.pdf

KNOWLEDGE TRANSFER AND HEALTH NETWORKS: LITERATURE REVIEW (2006)

This literature review was commissioned by the Southern Alberta Child & Youth Health Network (SACYHN) in order to investigate the transfer of knowledge in the context of networks. The main purpose of the review was to find information that would assist the *Network* when disseminating knowledge among its members and through them to members of the community.

http://www.sacyhn.ca/media/pdf/knowledge_transfer_health_networks_literature_review.pdf

KNOWLEDGE TRANSFER AND IMPLEMENTATION OF EVIDENCE-BASED PRACTICES

IN CHILDREN'S MENTAL HEALTH (2005)

Initiated by Children's Mental Health Ontario, this report includes a review of published and grey literature on implementation of EBPs and the evidence base in knowledge transfer. Results of a survey of CMHO member organizations' executive directors and clinical staff highlight their research use practices, characteristics related to readiness for organizational change, and the extent to which specific EBTs are in use across the province. Lastly, we provide recommendations that can be acted upon and that address needs or issues highlighted in the data regarding future work CMHO may choose to pursue to promote the use of EBPs in children's mental health practice in Ontario. An annotated bibliography was also produced.

http://www.kidsmentalhealth.ca/documents/KT_full_report.pdf
http://www.kidsmentalhealth.ca/documents/KT_annotated_bibliography.pdf

KNOWLEDGE TRANSLATION: A REVIEW OF THE LITERATURE (2003)

Commissioned by the Nova Scotia Health Research Foundation this literature review covers three main areas of focus:

- The nature of the relationship between research and policy and the factors that enable the use of research knowledge to support policy decision-making;
- Potential roles for research funding agencies in supporting knowledge translation; and
- Approaches to evaluating the effectiveness of knowledge translation initiatives.

[Knowledge Translation Lit Review\[1\].pdf](#)

KNOWLEDGE TRANSLATION: BASIC THEORIES, APPROACHES AND APPLICATIONS (2006)

Published by The International Development Research Centre, this review offers an overview of recent approaches and strategies to increase the linkages between research and decision making processes. It looks both at the basic theories of, and approaches to, knowledge translation, and at its applications, with a particular emphasis on the health sector.

http://www.idrc.ca/uploads/user-S/11473620631Knowledge_Translation_-_Basic_Theories,_Approaches_and_Applications_-_May_2006.pdf

KNOWLEDGE TRANSLATION IN INTERPROFESSIONAL EDUCATION: A REVIEW OF LITERATURE AND RESOURCES (2007)

Developed for the Canadian Interprofessional Health Collaborative this review provides readers interested in KT and IPE with the background knowledge to generate ideas to develop and initiate their own KT-IPE framework.

http://www.google.ca/url?sa=t&source=web&ct=res&cd=1&url=http%3A%2F%2Fwww.cihc.ca%2Fresources-files%2FCIHC-KT%2520Review%2520of%2520KT%2520and%2520IPE%2520Literature%2520-%2520May%25202007.pdf&ei=aEOLSeveFoGEsQQtM-2qBq&usq=AFQjCNHkR9VH9x_2B9ADqRG0hRDzmn91m

KNOWLEDGE TRANSLATION: INTRODUCTION TO MODELS, STRATEGIES, AND MEASURES (2007)

Published by the National Center for the Dissemination of Disability Research this literature review, although not intended to be an in-depth or systematic review of any one aspect of knowledge translation, is designed to bring together several aspects of it from selected literature for the purpose of raising awareness, connecting thoughts and perspectives, and stimulating ideas and questions about knowledge translation for future research of this area of inquiry in rehabilitation. The body of work included in this review was selected from frequently cited and thought-provoking literature and represents a variety of thoughts and approaches that are applicable to knowledge translation.

<http://www.ncddr.org/kt/products/ktintro/ktintro.pdf>

KNOWLEDGE TRANSLATION: PLANNING TOOLS FOR STROKE RESEARCHERS (2006)

Developed by the [Chair on Knowledge Transfer and Innovation](#), this document provides a comprehensive overview of factors to consider in developing a KT strategy.

<http://www.ahprc.dal.ca/pdf/KTDocumentFinal.pdf>

KNOWLEDGE UTILIZATION RESOURCE GUIDE (2004)

Produced by the Knowledge Utilization Studies Program at the University of Alberta, this resource guide was developed in response to the increased interest in, and challenges of, linking research about KU with other disciplines. This guide aims to highlight resources that can help answer some common questions, such as: What is knowledge utilization? How is knowledge utilization accomplished in organization? How does knowledge utilization shape policy implementation? How do the determinants of knowledge utilization vary across levels of decision-making?

<http://www.kusp.ualberta.ca/KUresourceguide.cfm>

MOVING POPULATION AND PUBLIC HEALTH KNOWLEDGE INTO ACTION: A CASEBOOK OF KNOWLEDGE TRANSLATION STORIES (2006)

Developed by the CIHR Institute of Population and Public Health (IPPH) and the Canadian Population Health Initiative (CPHI) of the Canadian Institute for Health Information this collection represents first-hand, personal stories about what worked, what didn't and the lessons learned from the collaborative development and practical use of population and public health research evidence.

http://www.cihr-irsc.gc.ca/e/documents/ipph_ktcasebook_e.pdf

THE THEORY AND PRACTICE OF KNOWLEDGE BROKERING IN CANADA'S HEALTH SYSTEM (2003)

A report on Knowledge Brokering based on a Canadian Health Services Research Foundation national consultation and a literature review.

http://www.chsrf.ca/brokering/pdf/Theory_and_Practice_e.pdf

THE UTILIZATION OF HEALTH RESEARCH RESULTS IN ALBERTA (2005)

Commissioned by the Alberta Heritage Foundation for Medical Research, this report is based on a national study initiated in 2000 by Dr. Réjean Landry of Laval University, evaluating how health researchers transfer their research findings and how research users (decision-makers and physicians) use the findings to inform their work. An Alberta Advisory Group collaborated with Dr. Landry to adapt his study to Alberta's needs, as well as broadening the study to include nurses in the users group.

www.ahfmr.ab.ca/publications/docs/050621_Summary_Report.pdf

YOU SAY 'TO-MAY-TO(E)' AND I SAY 'TO-MAH-TO(E)': BRIDGING THE COMMUNICATION GAP BETWEEN RESEARCHERS AND POLICY-MAKERS (2004)

This document is a proceedings report of a national workshop on youth at risk sponsored by CPHI in cooperation with the Canadian Adolescent At Risk Research Network (CAARRN) based at Queen's University in Kingston, Ontario. The goals of the workshop were to improve understanding of the policy-development process and the importance of research as part of that process, to assist researchers in developing policy implications of research findings, to facilitate the development of a pan-Canadian research network investigating aspects of youth health and to promote linkages and exchange between CPHI-funded researchers and decision-makers in this area.

http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=download_form_e&cw_sku=BCGBRPMPDF&cw_ctt=2&cw_dform=null

ABORIGINAL KNOWLEDGE TRANSLATION RESOURCES

Given the poor health status of Canada's aboriginal population, there is increasing recognition of the need to develop knowledge translation processes that align with the Aboriginal community contexts. The [Indigenous Peoples' Health Research Centre](#) has played an integral role in exploring this issue and has published several key documents on this topic.

1. [Knowledge Translation and Indigenous Knowledge Symposium \(2005\)](#): This report represents the response of IPHRC to the Canadian Institutes of Health Research – Institute of Aboriginal Peoples' Health (CIHR-IAPH) call for ACADRE statements on enhancing research efforts in the area of knowledge translation. The IPHRC initiated a series of dialogues in the spring and summer of 2005 aimed at addressing the shortcomings in mainstream knowledge translation approaches by bringing together health practitioners, health researchers, community members, and Elders to determine what knowledge translation means from an Indigenous standpoint in Saskatchewan.
2. Kaplan-Myrth N. & Smylie J. (2006). [Sharing what we know about living a good life: Indigenous Knowledge Translation Summit Report](#). Saskatoon, SK: Indigenous Peoples' Health Research Centre. Led by Aboriginal people, this summit brought together community Elders, primary health care providers, academic and community-based health researchers, health policy makers and others to explore the concept of KT. This is a report on the outcomes of this summit meeting.
3. Hanson, G. & Smylie, J. (2006). [Knowledge Translation \(KT\) for Indigenous Communities: A Policy Making Toolkit](#). Saskatoon: Indigenous Peoples' Health Research Centre. The development of a policy toolkit was identified as a next step arising from the summit meeting.

KEY WEB-BASED RESOURCES

ATLANTIC HEALTH PROMOTION RESEARCH CENTRE (AHPRC)

Associated with Dalhousie University, AHPRC has developed a Knowledge Translation database that has a

searchable library for KT-related resources (including information and resources about stroke and how organizational and health systems resources affect an organization's ability to absorb and apply research evidence)

Link to AHPRC KT Website: <http://www.ahprc.dal.ca/databases/default.asp>

CANADIAN AGENCY FOR DRUGS AND TECHNOLOGIES IN HEALTH (CADTH)

For the Canadian Agency for Drugs and Technologies in Health, the effective dissemination of the results of our research to our stakeholders is fundamental. CADTH undertakes a range of activities to facilitate interaction, collaboration, and knowledge exchange between itself, Canadian health care decision makers, and partner organizations throughout the world.

Link to CADTH Website: <http://www.cadth.ca/index.php/en/home>

CANADIAN ASSOCIATION FOR HEALTH SERVICES AND POLICY RESEARCH (CAHSPR)

CAHSPR is a multidisciplinary organization dedicated to improving the quality, relevance and application of health services and policy research. Our members are health services and policy researchers and students from a wide range of disciplines, as well as "research users" from government and non-government organizations and industry. As the largest and most diverse association of its kind in Canada, CAHSPR provides its members with unique opportunities for networking, research collaboration and career advancement.

Link to CAHSPR Website: <http://www.cahspr.ca/>

CANADIAN HEALTH SERVICES RESEARCH FOUNDATION (CHSRF)

The Canadian Health Services Research Foundation promotes and funds management and policy research in health services and nursing to increase the quality, relevance and usefulness of this research for health-system policy makers and managers. In addition, the Foundation works with health-system decision makers to support and enhance their use of research evidence when addressing health management and policy challenges. The CHSRF has excellent information, tools and resources on knowledge transfer and exchange. The CHSRF also offers programs to improve the ability of researchers to perform and decision makers to use applied health services research.

Links to CHSRF KT Resources

[Research Use Weeks](#)
[Promising Practices](#)
[Knowledge Brokering Networks](#)
[Exchanges](#)
[Resources](#)
[Knowledge Transfer and Exchange at Work](#)
[Tools to help organizations create, share and use research](#)
[KEYS \(Knowledge Exchange Yields Success\)](#)

Links to CHSRF KT Programs:

[EXTRA](#)
[CADRE](#)
[Harkness Associates](#)
[Recognition](#)
[Health Services Research Advancement Award](#)

CANADIAN INSTITUTES OF HEALTH RESEARCH (CIHR)

Canadian Institutes of Health Research (CIHR) is the major federal agency responsible for funding health research in Canada. It aims to excel in the creation of new health knowledge, and to translate that knowledge from the research setting into real world applications. The results are improved health for Canadians, more effective health services and products, and a strengthened Canadian health care system.

Link to CIHR Website: <http://www.cihr-irsc.gc.ca/e/193.html>
Link to About KT: <http://www.cihr.ca/e/29418.html>
Link to KT publications and resources: <http://www.cihr.ca/e/29484.html>
Link to KT general references: <http://www.cihr.ca/e/7519.html>

CENTRE FOR HEALTH EVIDENCE – UNIVERSITY OF ALBERTA

The Centre for Health Evidence is a not-for-profit organization based at the University of Alberta. We are dedicated to helping health organizations and associations find and apply best evidence in daily practice. We work on a project basis, and use a variety of communication and information technologies to create decision support tools and services.

Link to CHE Website: <http://www.cche.net/>

CENTRE FOR HEALTH AND POLICY STUDIES (CHAPS)

A research group located at the University of Calgary that undertakes quality health research that can be used by policy-makers, health care managers and providers, health researchers and Albertans. CHAPS uses a multi-disciplinary, multi-faculty approach to research. CHAPS' research focuses on the effectiveness and efficiency of health services, including systems to support healthier communities.

Link to Website: http://www.chaps.ucalgary.ca/About_CHAPS/about_chaps.htm

CENTRE FOR HEALTH SERVICES AND POLICY RESEARCH (CHSPR)

The UBC Centre for Health Services and Policy Research stimulates scientific enquiry into population health and into ways in which health services can best be organized, funded and delivered. Researchers and staff carry out a diverse program of research and development designed to deliver data, tools and analysis useful in understanding and renewing health care, and in improving the health of Canadians.

Link to CHSPR Website: <http://www.chspr.ubc.ca/about>

CHILDREN'S MENTAL HEALTH ONTARIO (CMHO)

Children's Mental Health Ontario (CMHO) works to improve the mental health and well-being of children and youth and their families. The transfer of knowledge about and the actual implementation of Evidence-Based Practices are highly complex processes. CMHO believes that the study of these processes is just as important as the study of the evidence-based practices themselves. A very important part of CMHO's work has been to ensure that a bridge is built between research and practice.

Link to Website: http://www.kidsmentalhealth.ca/resources/evidence_based_practices.php?tid=14

CHSRF/ CIHR CHAIR ON KNOWLEDGE TRANSFER AND INNOVATION (KU-UC)

The objective of the Chair is to further our scientific understanding of knowledge transfer and innovation in health services, to train and support students pursuing master's and Ph.D.'s in this field, and to encourage and facilitate the transfer of knowledge in general.

Link to KU-UC Website: <http://kuuc.chair.ulaval.ca/english/index.php>

COMMUNITY-UNIVERSITY PARTNERSHIP FOR THE STUDY OF CHILDREN, YOUTH, AND FAMILIES (CUP)

The Community-University Partnership for the Study of Children, Youth, and Families (CUP) is committed to improving the development of children, youth, families, and communities by:

- generating, sharing, and mobilizing new knowledge about child and family development;
- identifying and promoting the use of evidence-based policies and practices for optimizing child and family development; and
- nurturing a culture, both in the community and the University, in which rigorous research, evaluation, and practice are valued highly as critical components in efforts to understand and optimize development.

They focus on three areas: research, knowledge mobilization, and lifelong learning.

Link to Website: <http://www.cup.ualberta.ca/>

DIVISION OF CONTINUING PROFESSIONAL DEVELOPMENT AND KNOWLEDGE TRANSLATION (CPDKT)

To optimize health services, practices, and outcomes through excellence in research, innovation and realization of Continuing Professional Development activities and effective knowledge translation strategies for physicians and health care professionals.

Link to CPDKT Website: <http://www.cpdkt.ubc.ca/Home.htm>

HEALTH INFORMATION RESEARCH UNIT – MCMASTER UNIVERSITY

The Health Information Research Unit (HIRU) in the Clinical Epidemiology and Biostatistics Department at McMaster University conducts research in the field of health information science and is dedicated to the generation of new knowledge about the nature of health and clinical information problems, the development of new information resources to support evidence-based health care, and the evaluation of various innovations in overcoming health care information problems.

Link to HIRU Website: <http://hiru.mcmaster.ca/hiru/>

HEALTH RESEARCH TRANSFER NETWORK OF ALBERTA (RTNA) - ALBERTA HERITAGE FOUNDATION FOR MEDICAL RESEARCH

The Research Transfer Network of Alberta (RTNA) is a province-wide network of people interested and engaged in health research transfer.

The RTNAs goal is to strengthen the use of research findings to improve health policy and practices in Alberta by:

- Enhancing the abilities of health professionals to do research transfer.
- Fostering partnerships and mentorships to contribute to health research transfer.
- Exchanging knowledge and expertise on health research transfer with provincial and national organizations.

Link to RTNA Website: <http://www.ahfmr.ab.ca/rtna/>

IMPROVED CLINICAL EFFECTIVENESS THROUGH BEHAVIORAL RESEARCH GROUP (ICEBeRG)

A team of Investigators, new Investigators and students led by Jeremy Grimshaw and Ian Graham and jointly funded by the Ontario Ministry of Health and Long Term Care and the Canadian Institutes of Health Research. Conducts transdisciplinary research into the barriers and enablers to the development, dissemination and uptake of clinical best practices and evaluations of dissemination and implementation strategies. The ICEBeRG team recently conducted an environmental scan of Canada's capacity for investigating the theory, methodologies and practice of knowledge translation. The ICEBeRG Team has also created a database on conceptual models, frameworks, and grand theories of knowledge transfer.

ICEBeRG website: <http://www.iceberg-grebeci.ohri.ca/index.html>
 Link to environmental scan: <http://www.iceberg-grebeci.ohri.ca/research/enviroscan.html>
 Link to KT theories http://www.iceberg-grebeci.ohri.ca/research/kt_theories_db.html

INSTITUTE FOR CLINICAL EVALUATIVE SCIENCES (ICES)

The Institute for Clinical Evaluative Sciences (ICES) is an independent, non-profit organization, whose core business is to conduct research that contributes to the effectiveness, quality, equity and efficiency of health care and health services in Ontario.

Link to ICES Website: <http://www.ices.on.ca/webpage.cfm>

INSTITUTE FOR WORK & HEALTH (IWH)

Is an independent, not-for-profit research organization whose mission is to conduct and share research with workers, labour, employers, clinicians and policy-makers to promote, protect and improve the health of working people.

Link to IWH KTE information: <http://www.iwh.on.ca/kte/kte.php>

INTEGRATED CENTRE FOR CARE ADVANCEMENT THROUGH RESEARCH (iCARE)

The Integrated Centre for Care Advancement through Research (iCARE) is a joint venture between Capital Health and the University of Alberta. iCARE creates a leading health outcomes research centre that improves health-care delivery, health policy and the health of Albertans.

iCARE is a bold new concept that is designed to transform the way health research is conducted and knowledge translation is achieved. iCARE brings together researchers, clinicians and decision-makers to collaboratively conduct research and apply the findings. iCARE goes beyond simply publishing the findings; research teams incorporate implementation and evaluation of practice and policy change arising from the findings.

Link to iCARE Website: <http://www.icareabouthealth.ca/>

KNOWLEDGE UTILIZATION STUDIES IN PRACTICE (KUSP)

The purpose of the KUSP research program is to develop knowledge and research utilization theory that can be used to increase the use of research by nurses and other allied health professionals to improve patient and client health outcomes.

Link to KUSP Website: <http://www.kusp.ualberta.ca/>

Joint Program in Knowledge Translation - UNIVERSITY OF TORONTO

Developed in response to the gap between research evidence and clinical practice and the need to focus on the processes through which knowledge is effectively translated into changed practices. Pursuing both models of effective 'KT' and the development of a research agenda in this innovative and trans-disciplinary field.

KT literature databases: <http://www.stmichaelshospital.com/research/ktliterature.php>

KT tools: <http://www.stmichaelshospital.com/research/kttools.php>

Joint Program in Knowledge Translation Glossary: <http://www.stmichaelshospital.com/research/ktglossary.php>

NATIONAL IMPLEMENTATION RESEARCH NETWORK (NIRN)

The mission of the National Implementation Research Network (NIRN) is to close the gap between science and service by improving the science and practice of implementation in relation to evidence-based programs and practices.

Link to NIRN website: <http://www.fpg.unc.edu/~nirn/>

PRAIRIE REGION HEALTH PROMOTION RESEARCH CENTRE (PRHPRC)

The Primary aim of the Prairie Region Health Promotion Research Centre (PRHPRC) is research and practice that promotes the self-determination of a variety of communities. PRHPRC is in the process of developing its research program in a number of cross cutting thematic areas. To date these draw on two broad fields of content: mental health promotion, and literacy & health. Cross cutting thematic areas are: health promotion theory, evidence-based health promotion, knowledge translation, ethno-cultural specific health promotion frameworks, relationship between Western models of health promotion and Indigenous health promotion, Primary health and globalization and health. Our research aims to involve community, government and University partners and draws on multiple strategies including participatory methods, community capacity building, public policy advocacy and knowledge translation and transfer.

Link to Website: <http://www.usask.ca/healthsci/che/prhprc/>

PROGRAM IN POLICY DECISION-MAKING – MCMASTER UNIVERSITY

To conduct empirical research on how the general climate for efforts to link research to action, research-production processes and systematic efforts to link research to action (including push efforts, efforts to facilitate user pull, user-pull efforts and exchange efforts) foster or hinder the use of research evidence in

healthcare management and policymaking

To conduct empirical research on the public policymaking process and the factors that influence it, which include ideas (research evidence, other types of information and values), interests, and institutions

To regularly update a systematic review of the factors that influence whether and how research evidence is used in public policymaking

To derive concrete implications for research funders, research organizations, knowledge brokers, and policy decision-makers about how best to foster the use of research evidence in healthcare management and policymaking

Link to Program Website: <http://www.researchtopolicy.ca/whatisnew/>

PROVINCIAL CENTRE OF EXCELLENCE FOR CHILD AND YOUTH MENTAL HEALTH

The Provincial Centre of Excellence for Child and Youth Mental Health at CHEO, along with other leaders, is working towards an integrated system that truly meets the mental health care needs of children, youth and their parents and caregivers.

Link to Website: <http://www.onthepoint.ca/kec/kec.htm>

REGIONAL NURSING RESEARCH COMMITTEE - CHR

The Nursing Research Committee links nurses to research resources within the Calgary Health Region and beyond. Its purpose is to facilitate the development, completion, dissemination, and utilization of research in nursing practice. The Nursing Research Committee assists nurses to identify their unique research priorities and coordinate research activities with other nurses and research experts in the region. The Regional Nursing Research Committee shares information about ongoing research activities within the region and encourages the participation of nurses in research activities. Chaired by the Health Systems and Workforce Research Unit, the committee is comprised of representation from major program areas within the Calgary Health Region, as well as Nursing Professional Resources, and Nursing Faculty from the University of Calgary, Mount Royal College and Athabasca University.

Link to Website: <http://www.calgaryhealthregion.ca/nrc/>

RESEARCH AND DEVELOPMENT RESOURCE BASE

The RDRB is a literature database focusing specifically on continuing education, continuing professional development and knowledge translation in the health disciplines.

Link to Website: <http://128.100.115.20/>

RESEARCH UTILIZATION SUPPORT AND HELP (RUSH)

Funded by the National Institute on Disability and Rehabilitation Research (NIDRR), the Research Utilization Support and Help (RUSH) Project works to expand awareness, strategies, and evaluation of knowledge utilization outcomes among NIDRR-supported researchers in order to increase access and use of research results by those that can most benefit from them.

Link to Website: <http://www.researchutilization.org/index.html>

SWIFT EFFICIENT APPLICATION OF RESEARCH IN COMMUNITY HEALTH (SEARCH)

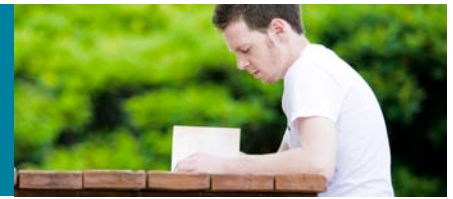
SEARCH is a partnership program helping health organizations support decisions about healthcare planning and priorities with sound, locally relevant evidence, through the development of their people. The purpose of the program is to increase the capacity throughout Alberta to acquire, aggregate, interpret, and apply health information to individual, regional, and provincial health decisions and programs, and to facilitate more effective management of the health system.

Link to Website: <http://www.searchca.net/>

TECHNOLOGY-ENABLED KNOWLEDGE TRANSLATION INVESTIGATIVE CENTRE (TEKTIC) – MICHAEL SMITH FOUNDATION FOR HEALTH RESEARCH

The mission of the Technology Enabled Knowledge Translation Investigative Centre—or TEKTIC—is to understand, explore, and innovate on how information and communications technologies (ICT) can be used effectively to accelerate the translation of health research evidence into routine practice and health system implementation. The Centre’s research currently focuses on chronic disease management through ICT.

Link to Website: http://www.msfr.org/sub-funding-recipients-research_unit-profile.asp?research_unit_id=28



As evidenced in this review, knowledge translation (KT) is a complex and multifaceted construct that requires a consideration of a multitude of dimensions. Some key messages have emerged from this review and deserve to be highlighted:

- Various terms have been used to describe the process of increasing the use of research in practice and decision making. It is vital that we define our understanding of this concept and that we use this language consistently. It is also important that the people we are working with are clear as to what we mean by this concept as well.
- Ongoing, face to face contact is vital to the success of knowledge translation.
- Early engagement of all stakeholders in the research process is also integral.
- Need to recognize knowledge flows both ways.
- Resources and infrastructure are needed to support knowledge transfer.
- Capacity building in the area of knowledge translation for researchers, decision makers and health professionals is needed.
- Passive dissemination strategies are ineffective in creating behavioral change.
- When disseminating research the source must be perceived as competent, credible, and trustworthy. The content must be perceived as relevant, usable, methodologically sound, and comprehensive to users. The medium must be accessible, user-friendly, and clearly understandable. Finally, the intended user must perceive the relevance of the materials to their own needs, and understand it in the context of their work.
- There are numerous venues to transfer knowledge but the audience, context, message, source and constraints (budget, time, personnel) will influence which method(s) is used.
- Combining more than one knowledge translation method is more effective.
- Need to be aware that there are different ways knowledge can be used and to varying degrees. Use is influenced by a number of factors (personal, environmental, organizational, structural).
- There is a strong need for knowledge translation processes to be rigorously evaluated to determine what works, what doesn't and why.
- It is not sufficient to transfer evidence-based practices to the field in the absence of understanding what is needed to prepare organizations and practitioners to receive and implement this new knowledge. If a recipient (individual or organization) is not prepared to receive and more importantly, make use of that information, then practice change is unlikely to occur no matter how strong the knowledge translation plan is.



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