Knowledge Translation at CIHR

Vancouver Coastal Research Institute
UBC Department of Physical Therapy
Arthritis Research Centre of Canada

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Overview

An IT case study to illustrate some important aspects of KT

What is KT at CIHR?

Funding Opportunities in Knowledge Translation at CIHR

Funding Opportunities – What are we looking for?

KT and you
IT Case Study: Key messages

• Even great innovations don’t implement themselves

• Attributes of innovations
  • Relative advantage, Complexity, Compatibility,
  • Observability, Trialability

• Characteristics of potential adopter important
  • Knowledge, attitudes and skills

• Context is always important and influences adoption

• Printed educational material many not be sufficient
• Change agents/outreach facilitation are potentially useful implementation interventions
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What do we mean by Knowledge Translation?
What is "Knowledge Translation"?

Knowledge translation is about:

- Making users aware of knowledge and facilitating their use of it to improve health and health care systems
- Closing the gap between what we know and what we do (reducing the know-do gap)
- Moving knowledge into action

Knowledge translation research (KT Science) is about:

- Studying the determinants of knowledge use and effective methods of promoting the uptake of knowledge
What do we mean by Knowledge Translation?

Knowledge Translation is something that each of you is already doing, to some extent.

Do you publish your research findings?
Do you tell other researchers about your work?
Do you present your work at conferences?

......if yes – you are engaged in at least one part of the process we call “knowledge translation”: disseminating the results of your work to your peers
What do we mean by Knowledge Translation?

In case you are not presently experiencing a “eureka!” moment, let me explain what we mean by the KT process and why KT is important.
Knowledge Translation is the bridge between discovery and impact

(KT research and practice)

Research outputs

Research impacts

KT is about making a difference
Why is KT important?

Clinical research is consistently producing new findings that may contribute to effective and efficient patient care.

The findings of such research will not change population outcomes unless health services and health care professionals adopt them in practice.

Why is KT important?

Consistent evidence of failure to translate research findings into clinical practice

- 30-45% patients do not get treatments of proven effectiveness
- 20–25% patients get care that is not needed or potentially harmful


Cancer outcomes could be improved by 30% with optimum application of what is currently known

10% reduction in cancer mortality with widespread use of available therapies

(CSCC 2001; Ford et al, 1990)
I see from the departmental bulletin that you've been researching the same thing I have for the past twenty years.
Why is KT important?

Knowledge Translation is part of our mandate
2. In this Act, "minister" means the member of the Queen’s Privy Council for Canada who is designated by the Governor in Council for the purposes of this Act.

ESTABLISHMENT

3. (1) There is hereby established a corporation, to be known as the Canadian Institutes of Health Research, in this Act referred to as the "CIHR".

(2) The CIHR is an agent of Her Majesty in right of Canada.

(3) The head office of the CIHR shall be at the place in Canada that is designated by the Governor in Council.

OBJECTIVE

4. The objective of the CIHR is to excel, according to internationally accepted standards of scientific excellence, in the creation of new knowledge and its translation into improved health for Canadians, more effective health services and products and a strengthened Canadian health care system, by:

(a) exercising leadership within the Canadian research community and fostering collaboration with the provinces and with individuals and organizations in or outside Canada that have an interest in health or

MISSION

4. IRSC a pour mission d’exceller, selon les normes internationales reconnues de l’excellence scientifique, dans la création de nouvelles connaissances et leur application en vue d’améliorer la santé de la population canadienne, d’offrir de meilleurs produits et services de santé et de renforcer le système de santé au Canada, et ce par:

(a) l’exercice d’un leadership dans les milieux canadiens de la recherche et l’encouragement à la collaboration avec les provinces ainsi que les personnes et orga-
The revised working definition:

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.

This process takes place within a complex system of interactions between researchers and knowledge users which may vary in intensity, complexity and level of engagement depending on the nature of the research and the findings as well as the needs of the particular knowledge user.
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Given the purpose is ultimately to improve the health of Canadians and the health care system- monitoring and evaluation of KT outcomes and impact is essential.
While we encourage all researchers to translate the results of their studies for the appropriate audiences, they, at the same time, need to be thoughtful about their message and the appropriate intensity of translation activities they should use.
Integrated and End of Grant KT

Two broad categories of KT at CIHR

- **Integrated KT** - KT woven into the research process

- **End of grant KT** (which could be simple **diffusion**, **dissemination** or a more intensive **application** of research findings)
What is integrated KT?

• a way of doing research
• collaborative research, action-oriented, co-production of knowledge
• involves engaging and integrating stakeholders into the research process

Study stakeholders can be:
• Policy makers, decision makers, research funders, the public, industry, clinicians, the media
• Investigators from different disciplines, teams, countries
What is integrated KT?
It is about the importance of stakeholders

**Stakeholders can be involved in:**

- shaping the research questions
- deciding on the methodology
- helping with data collection and tools development
- interpreting the study findings
- crafting the message and disseminating the research results
- moving the results into their practice
- widespread dissemination and application
End of grant KT: Diffusion

A broad spectrum of activities including:

**Diffusion**

- Conference presentations
- Peer reviewed publications (Open access policy)
- Non-peer reviewed publications
- Website postings
End of grant KT: Dissemination

Also includes:

Dissemination
(activities that tailor the message and medium to a specific audience)

• End of grant report to funders
• Summary/briefings to stakeholders
• Educational sessions with patients, practitioners and/or policy makers
• Engaging end users in developing & executing dissemination/implementation plan
• Commercialization efforts
• Tools creation
• Media engagement
• Use of knowledge brokers
End of grant KT: Application

Application
(moving research into practice in cases where the strength of evidence is sufficient)

• Understanding the context/environment where research is to be applied
• Identifying barriers to the uptake of the research findings
• Adapting knowledge, tailoring messages and interventions to promote uptake
• Evaluating the implementation process and outcomes
• Working within a conceptual framework

NB knowledge application is often a fundamental component of integrated KT
The Knowledge to Action Cycle

From: Graham et al: Lost in Knowledge Translation: Time for a Map?

A useful tool/schematic for describing the many components of the KT process

Figure 1: KNOWLEDGE TO ACTION PROCESS

- Select, Tailor, Implement Interventions
- Assess Barriers to Knowledge Use
- Adapt Knowledge to Local Context
- Monitor Knowledge Use
- Knowledge Inquiry
- Knowledge Synthesis
- Knowledge Tools/Products
- Identify Problem
- Identify, Review, Select Knowledge
- Evaluate Outcomes
- Sustain Knowledge Use
- ACTION CYCLE (Application)
Integrated and End of Grant KT

Should every researcher be involved in integrated KT and/or the application of their research findings?

NO

For many researchers, diffusion and dissemination of research results to the appropriate audience (this includes other researchers) is usually sufficient.

The more intense knowledge translation efforts required to apply the results of research should only take place when there is a strong evidence base that justifies application.

Not every researcher needs to be an application/implementation expert – specialists in applied research/KT can help with moving research into practice.

But every researcher needs to think about the potential impact of their work.
Warning: Beware of the “KT Imperative”

The “KT imperative” is the perceived need to do everything to encourage everyone to apply their research findings.

Results from a single research study should be contextualized within a synthesis of global research results before extra-ordinary dissemination or implementation efforts are undertaken – hence the importance of synthesis.

We need to bring common sense as well as academic rigour to bear on our decisions about the degree and intensity of KT activities warranted by a single research study – i.e. judicious KT.
Some of the challenges of KT

Today’s health problems are complex and interdisciplinary

Research users need to be setting the research agenda and defining the research questions to ensure relevance and greater likelihood of uptake

Researchers need to do the right research
  • importance and need for synthesis to determine what we already know (or should know)

Integrated KT activities require sustained, long-term funding in support of stakeholder relationships and implementation/tool development, often in a ‘team’ context

Partnerships with stakeholder organizations and individuals are a key component of integrated KT activities, yet they are very time-consuming and often expensive to cultivate making it difficult to entice researchers to engage in KT activities
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Funding Opportunities – What are we looking for?

KT and you
### Knowledge Translation Funding Opportunities

<table>
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<tr>
<th>KT Focus</th>
<th>Funding mechanisms</th>
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| Synthesis | CIHR funds the Canadian Cochrane Network and Centre  
KT Synthesis Request for Applications (RFA)  
Operating grants competition - reviewed by a panel of KT experts |
| Integrated KT | Partnerships in Health Systems Innovation (PHSI)  
KT Synthesis RFA  
Knowledge to Action RFA (end of grant KT)  
Strategic research funded through institutes  
Proof of Principal (POP)  
Meeting, Planning and Dissemination grants to develop collaborative relationships and grant proposals |
| End of Grant KT | Allowable expense as part of a grant application  
Knowledge to Action RFA (integrated KT)  
KT Supplement Grants  
Proof of Principal (POP)  
Meeting, Planning and Dissemination grants to disseminate results |
| Science of KT | Operating grants competition- KTE Panel,  
Strategic calls from the KSE Branch on theories and methods of KT |
Knowledge Translation Funding Opportunities

Personnel Awards

Knowledge Translation priority awards:

• New Investigator Award
• Fellowship Award
• Doctoral Research Award

Science to Business Program (S²B)
KT Supplement Grant

Up to $25,000 for KT activities at the end of a CIHR grant when it is appropriate to disseminate the results of the research beyond the traditional scientific community and using methods supplementary to and in addition to publication in peer reviewed journals.

Will run three times a year: October 1, February 1 and June 1
Some examples of eligible activities:

- Dissemination of research results through specialized publications
- Maintenance/updating of websites
- Production and distribution of written materials in various formats
- Travel costs for series of meetings/presentations (linkage and exchange)
- Hiring of a knowledge broker or implementation facilitator/change agent
- Development of plain language summaries
- Development of knowledge exchange tools e.g. educational CD ROMs, decision support tools
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Some basic principles to keep in mind

KT can target:  the individual
               a team
               an organization
               the general public
               governance structures of various levels

Evaluation is an important part of KT

Essential to identify the right outcomes to measure

Outcomes need to be linked to aims and objectives
Some basic principles to keep in mind

KT strategies *and* evaluation must be tailored to the appropriate intervention level

Ask yourself:

- What knowledge should be translated? To whom? By whom? How? With what effect?

There can be short *and* long term impact from knowledge translation

Need to have appropriate measurement time lines to assess long term impact
Funding Opportunities – What are we looking for when submitting

1. a KT plan/section as part of a grant application

2. an integrated KT grant (e.g. Knowledge to Action, KT Synthesis, to the KTE panel)

3. a Meeting, Planning and Dissemination/KT Supplement Application
1. If you are submitting a KT plan/section as part of a grant application

- state the potential impact of your research
- identify the potential users of the knowledge created by your work
- state your KT goals (change knowledge, change practice, increase understanding) and justify them in terms of the potential impact of your research
- indicate how the knowledge will be disseminated and by whom – justify the KT strategy you will be using
2. If you are submitting an integrated KT grant (e.g. Knowledge to Action, KT Synthesis, to the KTE panel)
   - Knowledge to Action and KT Synthesis have revised (and we hope improved) evaluation criteria - but be sure to include the following in your application:
     a) Project relevance
     b) Implementation plan and potential impact
     c) Researcher/decision maker partnership (if relevant)
     d) Evaluation/research plan
     e) End of grant knowledge translation plan
Funding Opportunities – What are we looking for?

3. If you are submitting a Meeting, Planning and Dissemination/KT Supplement Application

Be sure to include the following:

- Relevance of the proposed activity
- Objectives of the proposed activity
- Justification for the proposed activity
- Potential impact
- Relevant knowledge users
Funding Opportunities – What are we looking for?

Evaluation criteria for the KT Supplement Grant
(more detail than you need to know – but you get the picture....)

1. Summary of research results that are to be transferred (including original CIHR grant FRN)
   a) The significance of the results
   b) The magnitude of the potential impact on health, effective services and products and a strengthened health care system
   c) The strength of evidence supporting the reliability and validity of the research results
   d) The degree of generalisability of the research results
2. Identification and justification of the appropriate target audience(s) for the research results
3. Description of the proposed KT strategies/activities including the rationale for these supplemental activities beyond what has been done to date
4. Rationale for the proposed KT strategies/activities, including:
   a) Their theoretical basis
   b) The barriers and facilitators to the uptake of the research results
5. The potential impact of the proposed KT strategies/activities
6. Team credentials and feasibility of the proposed timelines and budget
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Need for balance between academic advancement and being a good corporate citizen

• Your academic institution will want you to publish in journals with a high impact factor – and you will earn promotion points as a result versus

• You want to publish in a journal because it has the potential to reach the appropriate target audience but may not have ‘high impact factor’

• If possible, publish twice

• If this is not possible, try to balance the types of journals in which you publish
Knowledge translation activities are time consuming and often taken for granted and under-appreciated

• Don’t be overly modest - promote yourself and your activities

• Use the Significant Contributions section of the Common CV to document this part of your work
KT and you: documenting what you do

Reaching the appropriate target audiences and/or research users is a big part of the KT challenge

• All of your end of grant diffusion and dissemination activities need to be documented in your list of publications and presentations

• Include newspaper articles, television interviews, newsletters – not just peer reviewed publications

• Include commercialization activities: intellectual property protection, licensing activities, spin-off company formation
Thank you

igraham@cihr-irsc.gc.ca
All research papers – funded in whole or in part by CIHR – must be freely accessible through the Publisher’s website or the PubMed Central repository as soon as possible, and in any event within six months of the official date of publication.

Grant recipients are reminded that sharing publication-related materials with others where allowable and reasonable, is considered good research practice.

Grant recipients must deposit bioinformatics, atomic, and molecular coordinate data into the appropriate public database immediately upon publication of research results.

Retain original data sets for a minimum of five years.

Acknowledge CIHR funding reference number (FRN) in publications.
How Can Grantees Make Publications Open Access?

Route 1
- Publish in Open Access/hybrid journal

Route 2
- Publish anywhere - but archive the peer-reviewed manuscript (not the publisher’s version, but the author’s final peer-reviewed version) and deposit in PMC or an institutional repository within 6 months

If the publisher does not offer these routes then
- Author can make a revision to the journals copyright statement (using language prepared by CIHR) or attach an author addendum to see if the publisher will allow archiving
- Still no. This is a valid reason for not being able to adhere with the policy that must be stated in the Final Report.
CIHR has an advisory committee and a working group developing end of grant reporting requirements.

We have not had a systematic method for collecting, synthesizing and reporting health research results and their impact.

The following process questions are still being considered:

- who will be required to submit a report (e.g. all types of grants?)
- when the report should be submitted (e.g. 6, 12 or 18 months after end of the grant)
- what processes and policies will be required to ensure that researchers do submit complete reports in a timely fashion
Plan is to collect information on:
1. Nominated Principal Investigator (NPI) Profile
2. Basic grant information (including other sources of funding)
3. Research and KT Practices
4. Research Results
5. Research Capacity and Training
6. Advancing Knowledge
7. Informing Decision Making

Currently being pilot tested
Assessment tools available for preparing/assessing KT plans

A Guide for Assessing Health Research Knowledge Translation Plans
(Goering, Ross, Jacobson and Butterill Report commissioned in 2005 by CIHR and 3 other agencies)

SickKids Knowledge Transfer Assessment Tool for Scientists
(Barwick, Butterill, Lockett, Buckley & Goering (2005) The Hospital of Sick Children/ Centre for Addiction and Mental Health, Toronto, Ontario, Canada)

Two Knowledge Translation Planning Tools for Stroke Research Teams
(Landry, Lyons, Amara, Warner, Ziam, Halilem, Kéroack)
http://kuuc.chair.ulaval.ca/ctci/

From Research to Practice: A Knowledge Transfer Planning Guide
(Reardon, Lavis, Gibson)
http://www.iwh.on.ca/assets/pdf/IWH_kte_workbook.pdf

Implementing Research: A guideline for health researchers
(Health Research Council of New Zealand)
Some of his 12 principles of sustained implementation of evidence

1. Substantial and sustained change is mostly achieved by continuous step-by-step approaches with change intervention continuously adapted on the basis of evaluations
2. Optimal preparation is needed: good plan, division of tasks, time lines, budget, the right team, consistent support of leaders
3. The “K” to be “T”ed needs to be translated into clear and attractive messages that can create interest and commitment
4. Select a limited number of achievable targets for improvement

* A pre-eminent implementation researcher from the Netherlands
More of his 12 principles of sustained implementation of evidence

5. Most of the time, a combination of interventions with actions at different levels (professionals, patients, teams, organizations, legal and financial structures) are needed – tailored to the target group and setting

6. Local support is often critical

7. Make use of experienced colleagues in the targeted setting for learning via peer influence and modelling

8. Involve the target group at all stages of the implementation process to ensure a receptive environment and culture for change

* A pre-eminent implementation researcher from the Netherlands
Monitor knowledge use

Select, tailor implement interventions

Assess barriers to knowledge use

Adapt knowledge to local context

Identify Problem
Identify, Review
Select knowledge

Knowledge Creation

Knowledge inquiry
Knowledge synthesis
Knowledge tools/products

Tailoring knowledge
Dissemination

Evaluate outcomes

Sustain knowledge use