Innovative KT Strategies from the Canadian Institutes of Health Research

KT 101: Knowledge Translation Initiatives at CIHR

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Knowledge Translation Initiatives at Canadian Institutes of Health Research

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Session Objectives

Provide an introduction to CIHR

Overview of KT at CIHR

KT Research Support Mechanisms

KT Resources
Introduction to CIHR
Overview of CIHR

- Government of Canada's health research investment agency.
- Supports more than 13,200 health researchers and trainees across Canada.
- Composed of 13 “virtual” institutes across Canada:
CIHR divides research into four themes

**Biomedical Research:**
Goal of understanding normal and abnormal functioning at the molecular, cellular and whole body level

**Clinical Research:**
Goal of improving the diagnosis and treatment of disease and injury and improving the health and quality of life of individuals

**Health Systems and Services Research:**
Goal of improving efficiency and effectiveness of health professionals and the health care system through changes to practice and policy

**Social, Cultural, Environmental and Population and Public Health Research:**
Goal of improving the health of the Canadian population through a better understanding of the ways in which social, cultural, environmental, occupational and economic factors determine health status
Investigator-initiated
Open to all areas of health research
Accounts for approximately 70% of CIHR’s annual expenditures
Supported by a suite of programs designed to capture excellence in research and knowledge translation

Strategic
Targeted to address specific needs and gaps in health research and knowledge translation
Accounts for approximately 30% of CIHR's annual expenditures
Supported by a set of targeted programs and initiatives
KT at CIHR
What is Knowledge Translation?

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 that 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.
Knowledge Users

An individual:

• who is likely to be able to use the knowledge generated through research in order to make informed decisions about health policies, programs and/or practices
• whose level of engagement in the research process may vary in intensity and complexity depending on the nature of the research and their information needs

Examples:

• practitioner, policy-maker, educator, decision-maker, health care administrator, community leader, or an individual in a health charity, patient group, private sector organization or a media outlet
Two broad types of KT at CIHR

**Integrated KT**
- Research approaches that engage potential knowledge users as partners in the research process
- Requires a collaborative or participatory approach to research that is action oriented and is solutions and impact focused
- Should produce research findings that are more likely to be relevant to and used by the end users

**End-of-grant KT**
- The researcher develops and implements a plan for making knowledge users aware of the knowledge generated through a research project
• For all KT activities, the most important consideration is appropriateness.

• Each discipline, research project and knowledge-user community is different.

• The key to a successful plan is ensuring a match between the expected research findings, the targeted knowledge-user audience and the KT strategies selected.

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

• When there are limitations on the validity or generalizability of the results, a modest approach is most appropriate.
Tools used to support KT across the health research spectrum
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Planning Grants: planning activities, partnership development and/or increasing the team’s understanding of the health research landscape

Dissemination Events: support events that contribute to the dissemination, exchange and uptake of research evidence.
Knowledge Synthesis: produce reviews that respond to the information needs of knowledge users in all areas of health

Knowledge to Action: link researchers and knowledge-users to move knowledge into action

Partnerships for Health System Improvement: support teams of researchers and decision makers interested in conducting applied health research that will be useful to health system managers and/or policy makers and strengthen the health care system
Building Capacity:

• Doctoral, Fellowship, New Investigator Awards

• Science to Business (S2B) MBA Scholarship: encourage individuals with PhDs in a health related field to pursue an MBA

• Science Policy Fellowships: bridge the gap between the worlds of science and policy making
Research Support Mechanisms

Open Operating Grant Program:

• Develop and maintain Canadian health research capacity, by supporting original, high quality projects or teams/programs of research.
Industry-Partnered Collaborative Research (IPCR) Operating Grants:
• Academic researcher and industry partner (knowledge user) work collaboratively throughout the research process.
• Requires 1:1 matching funds from industry partner

Proof of Principle, Phase I & II program:
• Advance discoveries/inventions towards commercializable technologies
• Phase II requires 1:1 matching funds from non-academic partner

Collaborative Health Research Projects (CHRP) program with Natural Sciences and Engineering Research Council
• Supports collaborative and interdisciplinary research
• Requires collaboration with a non-academic knowledge/technology user organization (private, public or voluntary sector) that could benefit from the research results.
Additional KT Resources
On-line Learning Modules

Educational modules / guides:

1. Guide to Knowledge Translation Planning at CIHR: Integrated and End-of-Grant Approaches
2. Moving into action: We know what practices we want to change, now what? An implementation guide for health care practitioners
3. A Guide to Evaluation in Health Research
5. Introduction to Evidence-Informed Decision Making
6. Critical Appraisal of Intervention Studies
7. A Guide to Knowledge Synthesis
8. Deliberative Priority Setting
9. Knowledge Translation in Health Care: Moving from Evidence to Practice
10. Knowledge Translation in Low & Middle-Income Countries

Available at:
www.cihr-irsc.gc.ca/e/39128.html
Chapters cover:
Knowledge creation
Knowledge-to-Action cycle
Theories and Models of Knowledge-to-Action
Knowledge exchange
Evaluation of Knowledge-to-Action

Available at: ca.wiley.com/WileyCDA/WileyTitle/productCd-1118413547.html

Presentations based on chapters available at: www.cihr-irsc.gc.ca/e/40618.html
Other KT Resources

KT Casebooks

www.cihr-irsc.gc.ca/e/29484.html

Writing Letters of Support

www.cihr-irsc.gc.ca/e/45246.html

Applying to Integrated Knowledge Translation Funding Opportunities at CIHR: Tips for Success

ktclearinghouse.ca/ktcanada/education/seminarseries/2011/20110908

Operating Grant: Knowledge to Action - Tips from the Chair and Reviewers

www.cihr-irsc.gc.ca/e/44246.html

Top 10 Tips for PHSI Success

www.cihr-irsc.gc.ca/e/38778.html

Knowledge Synthesis: Tips for Success

www.cihr-irsc.gc.ca/e/46891.html
Guidebook for New Principal Investigators
www.cihr-irsc.gc.ca/e/27491.html

Grants & Awards Guide
www.cihr-irsc.gc.ca/e/805.html

‘How to Apply for Funding’
www.cihr-irsc.gc.ca/e/795.html
For More Information

Website: About Knowledge Translation
www.cihr-irsc.gc.ca/e/29418.html

Thank you
Protein Misfolding Diseases:
Knowledge Translation of New Technologies

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**Caprion Pharmaceuticals**
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**Amorfix Life Sciences**
Founder and CSO, Chair BoD
(Epitope Protection, SOD1 Epitopes, ProMIS)

**Biogen-Idec Corporation**
(SOD1 DSE Immunotherapy)

**Cangene Corporation**
(Aβ Oligomer Epitope)

**Prothena Biosciences**
(Scientific Advisory Board)
Alzheimer’s Disease

AD is the most common cause of dementia

500,000 Canadians have AD or other dementias – a number that is expected to double by 2038

Annual cost of care for Canadians with Alzheimer's disease is $15 billion per year; $153 billion by 2038

5.4 million Americans are living with Alzheimer's disease

Payments for care are estimated to be $200 billion in the United States in 2012.

Around the world a new case of dementia occurs every four seconds; equivalent of 7.7 million new cases each year

Delaying AD for just five years would save an estimated $50 billion in annual healthcare costs in the US

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1 World Health Organization (WHO) and Alzheimer's Disease International (ADI) in their report *Dementia: A Public Health Priority*

Parkinson’s disease is the second most common neurodegenerative disorder after Alzheimer’s disease - over 100,000 Canadians are living with PD.

In the US, at least 1 million people are believed to suffer from Parkinson's disease (PD), and about 50,000 new cases are reported annually.

It is estimated that 10 million people worldwide suffer from PD. The combined direct and indirect cost of PD is estimated to be nearly $25 billion per year in the United States alone.\(^1\)

Drug treatment for PD requires almost constant adjustment over the course of the disease; worldwide cost of medications alone is estimated to be US $11 billion per year.\(^2\)

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\(^1\) Parkinson’s Disease Foundation

Amyotrophic Lateral Sclerosis

ALS (Lou Gehrig’s Disease) is a fatal motor neuron disease

Most often appears between the ages of 45 and 65

>50% of patients often die within 3 years of onset

2,500 - 3,000 Canadians currently live with ALS

As many as 35,000 Americans have ALS

Of every 100,000 people, between 6-7 will be diagnosed with ALS worldwide

The cost of caring for an ALS patient in the U.S. can reach $200,000/year in the advanced stages of the disease\(^1\)

Environmental exposures have been proposed as the explanation for an increased incidence of ALS in US Gulf War veterans\(^2\)

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\(^1\) Nebraska Coalition for Lifesaving Cures

\(^2\) Haley 2003, Horner et al. 2003
Canadian Tri-Council Mission: Knowledge Translation and Mobilization

Knowledge translation is defined by CIHR as “A dynamic and iterative process that includes synthesis, dissemination, exchange and ethically sound insight.”

Knowledge mobilization is defined by NSERC and SSHRC as “specific activities and tools designed to put available knowledge into active service for the benefit of society.”

KT and KM supported by tri-council program competitions, including CIHR Rx&D, University-Industry grants, Proof of Principle, and specialized KT programs. And the Networks of Centres of Excellence...
Disruptive Idea 1: Protein Misfolding and Disease

Folding → Protein Misfolding → Reversible Local Unfolding

Cancer → Autocatalysis → Misfolding → Neurodegeneration
Disruptive Idea 2: Antibodies Can Selectively Target Misfolded Proteins while Sparing Native Isoforms

**Efficacy**: Specific targeting of a pathogenic species
- Neutralization of toxicity
- Blockade of propagation
- Acceleration of degradation
- Minimal “target distraction”

**Safety**: Selective sparing of normal proteins
- Preservation of normal function
- Minimization of autoimmunity
- Minimal regimens in therapeutic vaccines
Propagated Protein Misfolding: Mechanism

The spread...
Propagated Protein Misfolding: Treatment

The block!

Nerve cell protected!
PrioNet Canada 2005-2012:
A $35 M Investment in Socioeconomic Innovation

120 Scientific Members
300 Highly Qualified Personnel
15 Canadian institutions
25 International Collaborators
60 Partners

54 Research Projects

Prion Ecology
Prion Biology
RISK MANAGEMENT
Prion Preparedness & Prevention

4 Platforms - Shared Resources
1. CWD Tissue Bank
2. Pathogenesis & Bioassay
3. Animal Models & Transgenesis
4. Protein Expression
Propagated Protein Misfolding Diseases

- Huntington’s disease (aggregates)
- Alzheimer’s diseases (plaques and tangles)
- Schizophrenia (aggregates)
- Type 2 diabetes (aggregates)
- Prion diseases (PrP amyloid plaques)
- Parkinson’s diseases (Lewy Bodies)
- TTR amyloid neuropathy (plaques)
- ALS (aggregates)
KT/KM in Cashman Lab: Summary

1. Creation of new knowledge: Discoveries in the field of neurodegeneration; understanding of protein misfolding to inform development of therapies, diagnostics and preventative vaccines.

2. Integrated KT: Collaborations with various stakeholders, including PrioNet partners, patient groups, biotechnology and pharma companies to move results into practice.

3. Knowledge Users: Our lab worked with knowledge users including clinicians, patient groups, health charity organizations and the private sector to develop and translate therapies that prevent and treat neurodegenerative diseases.

4. End of Grant KT: Dissemination of research findings in scientific journals (including free open access); Successful commercialization of immunotherapies for ALS and AD (Amorfix Life Sciences, Biogen-Idec Corp, Cangene/Emergent).
Cashman Lab Brain Research Centre UBC
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Pai group
Prosser group

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Napper group

Biogen-Idec Corp

UBC
Cashman group
Plotkin group
Mackenzie group
Roskams group
Marziali group
Wang group
Wellington group

University of Alberta
Wishart group
Kovalenko group

Amorfix Life Sciences

Emergent Biosolutions
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SEDL’s Center on Knowledge Translation for Disability and Rehabilitation Research (KTDRR)

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Please complete the brief evaluation form:
Disclaimer

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