KT 101: Knowledge Translation Initiatives at CIHR

Presenters: Alisa Schaefer and Neil Cashman

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Slide template: Bar at top. On the left, Center on Knowledge Translation for Disability and Rehabilitation Research. On the right, A project of SEDL.

Slide 1: (Title)

*Innovative KT Strategies from the Canadian Institutes of Health Research*

KT 101: Knowledge Translation Initiatives at CIHR

Alisa Schaefer

Canadian Institutes of Health Research

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Slide 2:

Logo of CIHR IRSC

Knowledge Translation Initiatives at Canadian Institutes of Health Research

* Knowledge Translation Initiatives at Canadian Institutes of Health Research

Alisa Schaefer, Ph.D.  
Senior Advisor, Knowledge Translation

June, 2014

Slide 3:

Session Objectives

* Provide an introduction to CIHR
* Overview of KT at CIHR
* KT Research Support Mechanisms
* KT Resources

Slide 4:

Introduction to CIHR

Slide 5: 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:

Image of interlocking puzzle pieces with the names of the “virtual” institutes including Health Services and Policy Research; Circulatory and Respiratory Health; Aboriginal Peoples Health; Cancer Research; Musculoskeletal Health and Arthritis; Nutrition, Metabolism and Diabetes; Neurosciences, Mental Health and Addiction; CIHR IRSC; Human Development, Child and Youth Health; Population and Public Health; Genetics; Aging; Gender and Health; Infection and Immunity

Slide 6: 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

Slide 7: Funding Strategies

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

Slide 8: KT Resources

Slide 9: 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.

Slide 10: 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

Slide 11: Two broad types of KT at CIHR

Integrated KT is:

* 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 is:

The researcher develops and implements a plan

for making knowledge users aware of the

knowledge generated through a research project

Slide 12: KT Approach

* 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

Slide 13: Tools used to support KT across the health research spectrum

Slide 14: KT Mechanisms

KT Focus and Spectrum of KT support mechanisms

Planning- Planning Grants

Integrated KT includes

* Knowledge Synthesis
* Knowledge to Action
* Partnerships for Health System Improvement (PHSI)

Commercialization

* Industry-Partnered Collaborative Research
* Proof of Principle Phase I and II (POP I/POP II)
* Collaborative Health Research Projects (CHRP)

Science of KT - Open Operating Grant Program

End-of-Grant KT- Dissemination Events

Building Capacity

* Doctoral, Fellowship, New Investigator Awards
* Science to Business (S2B) MBA Scholarship
* Science Policy Fellowships

Slide 15: Research Support Mechanisms

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.

Slide 16: Research Support Mechanisms

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

Slide 17: Research Support Mechanisms

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

Slide 18: 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.

Slide 19: Research Support Mechanisms  
Commercialization Programs

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.

Slide 20: Additional KT Resources

Slide 21: 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
  4. Guide to Researcher and Knowledge-User Collaboration 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

Slide 22: KT in Health Care - Moving from Evidence to Practice: A KT Handbook

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](http://www.cihr-irsc.gc.ca/e/40618.html)

Image of the Knowledge Translation in Health Care: Moving from Evidence to Practice

By Sharon Strauss, Jacqueline Tetro, Ian D. Graham

Slide 23: 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

Slide 24: CIHR Resources

* 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

Slide 25: For More Information

Website: About Knowledge Translation

[www.cihr-irsc.gc.ca/e/29418.html](http://www.cihr-irsc.gc.ca/e/29418.html)

Thank you

Slide 26: Protein Misfolding Diseases:   
Knowledge Translation of New Technologies

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Professor and Canada Research Chair

Brain Research Centre

Department of Medicine (Neurology)

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Academic Director, ALS Centre

GF Strong Hospital

Logos across the bottom of the slide for Brain Research Centre, Vancouver Coastal Health Research Institute, CIHR IRSC, VGH UBC Hospital Foundation and UBC

Slide 27: Industrial Engagement

Caprion Pharmaceuticals

Founder and Scientific Advisor

(YYR PrPSc Epitope)

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)

Slide 28: 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 year1 World Health Organization (WHO) and Alzheimer's Disease International (ADI) in their report[*Dementia: A Public Health Priority*](http://www.alzheimer.ca/en/sk/Get-involved/Raise-your-voice/~/media/WHO_ADI_dementia_report_final.ashx)

Delaying AD for just five years would save an estimated $50 billion in annual healthcare costs in the US 2 Mount and Downton, *Nat Med*, 2006. 12(7): p. 780‐4

Slide 29: Parkinson’s Disease

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 alone1 Parkinson’s Disease Foundation

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 year2 2 [http://eternalremont.blogspot.com/2007\_08\_01\_archive.html retrieved 3 April 2011](http://eternalremont.blogspot.com/2007_08_01_archive.html%20retrieved%203%20April%202011)

Slide 30: Amyotrophic Lateral Sclerosis *ALS (Lou Gehrig’s Disease) is a fatal motor neuron disease* Imaging of a doctor bending the leg of a man who is lying in a hospital bed.

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 disease1 Nebraska Coalition for Lifesaving Cures

Environmental exposures have been proposed as the explanation for an increased incidence of ALS in US Gulf War veterans 2 Haley 2003, Horner *et al.* 2003

Slide 31: 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…

Slide 32: Disruptive Idea 1: Protein Misfolding and Disease

Image of interlocking cells with an arrow pointing to an image of cell folding. Cell folding can lead to local unfolding, which can be reversible and is labeled “cancer”. Folding can lead to misfolding which is labeled neurodegeneration.

Slide 33: 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

Below the text are images of cells and the logos from these companies: PREVENT, Amorfix, CANGENE, biogen idec.

Slide 34: Propagated Protein Misfolding: Mechanism (The spread)

Picture of two cells. Both have squiggly lines representing protein misfolding. Both cells have a red X across them with the words, Cell death.

Slide 35: Propagated Protein Misfolding: Treatment (The Block!)

Picture of two cells. One cell that has protein misfolding and is being injected with an antibody vaccine. The other nerve cell without protein misfolding is protected.

Slide 36: PrioNet Canada 2005-2012:   
A $35 M Investment in Socioeconomic Innovation

Image representing PrioNet’s research enterprise. 120 Scientific Memebers, 300 highly qualified personnel, 15 Canadian institutions, 25 international collaborators with 60 partners

Another second image of three overlapping circles with risk management as the “lens.” The circles are Prion Ecology, Prion Biology and PrionPreparedness and Prevention

A final image on this slide is labeled 4 platforms- Shared Resources. These resources include 1. CWD Tissue Bank, 2. Pathogenesis and Bioassay, 3. Animal Models and Transgenesis, and 4. Protein Expression

Slide 37: Propagated Protein Misfolding Diseases

Pictures of diseases under microscope. Prion diseases (PrP amyloid plaques) with arrows pointing towards ALS (aggregates), TTR amyloid neuropathy (plaques), Huntington’s disease (aggregates), Alzheimer’s disease (plaques and tangles), Schizophrenia (aggregates), Type 2 diabetes (aggregates), and Parkinson’s disease (Lewy Bodies)

Slide 38: 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).

Slide 39: Cashman Lab Brain Research Centre UBC

Picture of Dr. Neil Cahsman surrounded by eleven of his colleagues in the lab

Slide 40: Acknowledgements

CIHR: III, IA, INMHA, PrioNet Canada + APRI, Brain Canada, ALS Canada, Canada Research Chairs

Univerisity of Toronto: Chakrabartty group, Pai group, Prosser group

U Sask: VIDO, PREVENT, Napper Group

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

University of Alberta: Wishart group, Kovalenka group

Amorfix Life Sciences

Emergent Biosolutions

Slide 41:

*This webcast is part of a series produced in cooperation with our colleagues at the Canadian Institutes of Health Research - CIHR*

SEDL’s Center on Knowledge Translation for

Disability and Rehabilitation Research (KTDRR)

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*Please complete the brief evaluation form:*

*http://www.surveygizmo.com/s3/1697552/CIHR-KT101*

Slide 42:

Disclaimer

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