**Knowledge Translation in Canada: Today and tomorrow**

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**Slide 1: Cover slide**

Knowledge Translation in Canada: Today and tomorrow.

Hosted by AIR’s Center on Knowledge Translation for Disability and Rehabilitation Research (KTDRR).

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**Cover slide template:** dark blue background with white text and gray text. Gray bar at bottom with AIR logo on the left (gray and blue column on left; letters in blue, AIR (R) on the right; words below in blue, American Institutes for Research (R)). To the left of AIR logo, University of Toronto Medicine logo: The word – Medicine over the words University of Toronto.

**Slide 2: Title slide**

**Competing Interests**

•No Pharma funding

•Associate editor for CMAJ, ACP Journal Club, Implementation Science; Editorial Board for JCE

•Wrote a book on KT, royalties go to a trainee fund

**Title slide template:** White background with the University of Toronto Medicine logo at the bottom left corner.

**Slide 3: What is the challenge?**

•Research Waste

* The ‘know-do’ gap
* 85% of research funding is wasted
* $250B/year

**Slide 4: Knowledge translation: A potential solution**

•It is a dynamic and iterative process that includes synthesis, dissemination, and implementation of knowledge

•It is about putting knowledge into action, at all levels of decision making, to improve health

• Citizens, Patients, clinicians, managers, policy makers, researchers, funders

**Slide 5: Different Terms for KT**

Evidence-based programs

Evidence-based guidelines

Evidence-based practices

Spread Knowledge Transfer

Research Utilization

Research Use

Knowledge Exchange

Implementation Science

Knowledge Translation

Knowledge Mobilization

Knowledge Uptake

Dissemination and Diffusion

Implementation

Sustainability

Scale up

Evidence Implementation

Evidence

Research use

Dissemination Science

**Slide 6:**

Screenshot of McMaster Health knowledge Refinery Projects web-page. KT Filters.

KT-Content

Available here: <https://hiru.mcmaster.ca/hiru/HIRU_KT_MEDLINE_Filters.aspx>

**Slide 7: KT+ Knowledge Translation, McMaster University’s Health Information Research Unit**

Screenshot of home page “Welcome to KT+”

Available here: <http://plus.mcmaster.ca/kt/default.aspx>

**Slide 8: KT: Dissemination and Implementation**

**Knowledge Mobilisation**

Image of a box with two columns and 2 rows within each column, one column is Dissemination the other is Implementation

Under Dissemination and under the row titled “Practice” is a paragraph titled “Dissemination Practice” Purposive distribution of information and intervention materials to a specific audience. The intent is to spread information. (NIH). Under the same column but in the row titled “Science” is a paragraph titled “Dissemination Science” The scientific study of processes and variables that determine and/or influence the spread/sharing of knowledge to various stakeholders.

Under Implementation and under the row titled “Practice” is a paragraph titled “Implementation Practice” The use of strategies to adopt and integrate evidence-based interventions and change practice within specific settings. (NIH). Under the same column but in the row titled “Science” is a paragraph titled “Implementation Science” The scientific study of the methods to promote the uptake of research findings in clinical, organizational, or policy context. (Implementation Science journal).

**Slide 9: Two broad types of KT at CIHR**

**End of grant KT:**

The researcher develops and implements a plan for making knowledge users aware of the knowledge generated through a research project

**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

•For example, the knowledge user partner helps to define the research question and is involved in interpreting and applying the findings

Source: <http://www.cihr-irsc.gc.ca/e/45321.html>

**Slide 10: KT Canada**

•Funded by CIHR-CFI in 2007

•National training initiative funded in 2008

•Now, many of the centres are funded by CIHR-SPOR

**Slide 11: KT Canada**

•4 *interlinked research programs*

* Knowledge synthesis and distillation
* Determinants of knowledge use
* Selecting, tailoring and evaluating effectiveness and efficiency of KT interventions, and
* Sustaining KT

•Targeting 3 *key stakeholder groups*

**Slide 12: Building capacity in KT: KT Canada**

•Provide outstanding, innovative training centres and laboratories for trainees from various research disciplines to develop skills in KT and KT research;

•Link trainees and mentors to collaboratively advance the science and practice of KT; and,

•Partner with other national and international research groups to promote KT research and training

* Implement Sci. 2011 Dec 9;6:127.

**Slide 13: 4 core competencies:**

•Understanding models of KT and KT research;

•Developing capacity to conduct systematic reviews to address KT questions;

•Developing capacity in qualitative and mixed methods to examine factors that influence use of evidence; and,

•Developing skills to evaluate the impact, effectiveness and sustainability of KT strategies in different settings and targeting different stakeholders

**Slide 14: Building capacity in KT**

Stream 1

* Seminar Series
* Research Operations
* Summer Institute
* KT Courses
* Pragmatic Trials

• Systematic Reviews

• Mixed Methods

• End of Grant KT

* Student Stipends
* Community of Learners
* Mentorship

**Slide 15: Mentorship is a key component**

**In a systematic review of factors influencing career choice, important factors include:**

•Having a mentor

• Being exposed to someone who enjoys what they do

**In a systematic review of mentorship, good mentorship enhances:**

•Personal development

•Career guidance

•Career choice

* Discipline selected
* Academic vs. non-academic position

•Research productivity

•Retention and recruitment

* JAMA 2006;296:1103-15; JGIM 2006 Dec;21(12):1222-9

**Slide 16: Building capacity in KT**

•Stream 2

* KT Seminars
* KT Courses
  + End of Grant KT
  + KT Basics/Practising KT

**Slide 17: Building capacity in KT**

Stream 3

•KT courses

* Introduction to KT
* KT basics/Practising KT

**Slide 18: What are some of the key KT challenges that need to be addressed?**

**Slide 19: 1. Lack of knowledge isn’t the most significant barrier**

•You see a 74 year old woman (Mrs. M) in clinic with a history of

* Osteoporosis and history of vertebral fracture
* Type 2 diabetes (on oral agents)
* Hypertension
* Chronic kidney disease

•How much time is required to implement recommendations from relevant chronic disease practice guidelines?

**Slide 20: Applying relevant practice guidelines**

Table showing Patient Sub-Group and the time required/pt (minutes), patients, and total time (hours) for each sub-group.

Any patient aged 55 and over, 61, 160(100%), 162.67

Male diabetic, 8.3, 23(14%), 3.18

Diabetics with neuropathy, 6.9, 4(3%), 0.46

Diabetics with blood pressure greater than 130/80, 5.1, 12(8%), 1.02

Diabetics with left ventricular dysfunction, 5.1, 3(2%), 0.26

Diabetics with an estimated glomerular filtration rate less than 60, 1.1, 12(8%), 0.22

Type 1 diabetics, 24, 1(1%), 0.40

Type 2 diabetics, 25, 44(28%), 18.33

Diabetics on only a single oral anti-hyperglycemic, 10, 19(12%), 3.17

Diabetics on 2 or more anti-hyperglycemics, 5, 13(8%), 1.08

**Slide 21: Applying relevant practice guidelines**

Table showing Patient Sub Group and the time required/pt(minutes), Patients (n=160), and total time for each sub-group.

Osteoporotic patients, 14, 25(16%), 5.83

Patients who have had a bone mineral density test, 1.3, 78(49%), 1.69

Patients with a vertebral fracture, 7.9, 0(0%), 0.00

Hypertensive patients with a urine albumin: creatinine ratio>30, 6.5, 2(1%), 0.22

Patients with chronic kidney disease of any stage, 18, 22(14%), 6.60

Patients with chronic kidney disease stage 3-5, 0.89, 14(9%), 0.21

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**Slide 22: Mrs. M**

•How much time is required annually to manage these conditions (assuming no complications arise)?

* 129.2 minutes/year
* Mrs. M is only seen for 36 minutes/year

• Kerr J et al. CGS 2013

**Slide 23: Clinical Literature \* Thanks to Paul Glasziou!**

A vertical bar graph showing the Number of Randomised Trials from 1950 to 2000

In 1950 there were approximately 75 medical articles per day

In 1980 there were approximately 1,500 articles per day

In 2000 there were approximately 7000 articles per day

Used with permission – personal communication

**Slide 24: Why is assessing organisational readiness important?**

• MOVE ON

* Implemented and evaluated an early mobilisation strategy for older adults admitted to acute care hospitals in Ontario
* How do we know if 14 hospitals are ready to implement this?

• Implement Sci. 2014 Oct 30;9:160. doi: 10.1186/s13012-014-0160-6

• Implement Sci. 2013 Jul 3;8:76. doi: 10.1186/1748-5908-8-76.

• Age and Ageing 2017; doi.prg/10.1093

**Slide 25: Screenshot of Knowledge Translation Canada page**

Organizational Readiness for Change (TCU-ORC) has been recommended for you to use in your unique setting to assess your organization’s level of readiness to implement the change initiative.

**Why this measure was recommended**

This measure was recommended to you because your top priorities are related to individual Structural aspects of readiness for change (refer to the definitions below).

**Facts about this measure**

* This measure contains a total of 118 items, of which 17 items (14%) are designed to assess Individual Structural priorities
* A panel of your peers rated this measure as feasible to use, (i.e. can be implemented in a timely manner without causing undue burden to existing resources) and relevant to health care settings.
* A promoter score (i.e., likelihood to recommend to others) of 6 out of 10 was awarded to this measure by your peers.
* For details on how to access this measure click below.

Organizational Readiness for Change (TCU-ORC)

**Slide 26: Barriers at all levels**

Barriers at different levels:

* Health care system (e.g. financial disincentives)
* Health care organization (e.g. inappropriate skills)
* Health care teams (e.g. local standards of care not aligned with desired practice)
* Individual clinicians (e.g. knowledge, skills, attitudes)
* Public/Patients (e.g. lack of adherence to recommendations)

An image of a wall made of bricks on the right of text

**Slide 27: 2. Clinicians should not be the only target for KT**

• To examine the influence of KT/QI interventions in patients with diabetes mellitus on the following:

* glycemic control
* vascular risk factor management
* microvascular complication monitoring
* smoking cessation
* harms

»Tricco et al. Lancet 2012; 379:2252-61

**Slide 28: Results: Glycemic – HbA1c meta-analysis**

Results of a meta-analysis from The Lancet, Vol. 379, Tricco, et al., Effectiveness of quality improvement strategies on the management of diabetes: a systematic review and meta-analysis, pp2258, 2012, with permission from Elsevier.   
  
This table shows articles included in the meta-analysis on the left, # of Randomized Controlled Trials, MD, and 95% Confidence Interval, the data is graphed on the right.

First column shows the interventions,

The second column is the number of trials

The third column are the confidence intervals

The graph is a representation of the odds ratio for each intervention. There is a vertical line at 0 and 11 out of 12 interventions fall on the right (.50-1) on the graph.

**Slide 29: 3. Beware the “ISLAGIATT\*” principal**

• Systematic review of guideline implementation strategies

* >250 studies of guideline implementation
* Few studies use evidence to inform the development of the interventions

• Health Technology Assessment 2004;8(6):iii-iv, 1-72

»\*Martin Eccles (Used with permission – personal communication)

**Slide 30: Beware the “ISLAGIATT\*” principal**

• Systematic review of 140 trials of audit and feedback

* 17 head to head trials
* Less than half use elements that theory would suggest might optimise the intervention

Source: Cochrane Database of Systematic Reviews 2012, Issue 3. Art. No.: CD000259.  DOI: 10.1002/14651858.CD000259.pub3.

* Systematic review of 99 studies of quality/safety teams
* 2 trials
* Few studies included any element of description of the planning of the intervention
* No study provided information on mechanism of action or fidelity of the intervention

Source: White, D. E., Straus, S. E., Stelfox, H. T., Holroyd-Leduc, J. M., Chaim M Bell, C. M., et al. (2011). What is the value and impact of quality and safety teams? A scoping review. Implementation Science 2011; 6:97.

**Slide 31: 4.** **Consideration of sustainability of the KT intervention shouldn’t be left until the end**

• ‘Canada is a country of perpetual pilot projects in health care’

* Bégin, CMAJ 2009

• Policy cycles are often different from organisational and research timelines

• Academic credit for staying engaged with a project

**Slide 32: Common Sense KT**

**Slide 33: 5. KT theories, models and frameworks**

• Scoping review of KT theories/models/frameworks for chronic disease assessment/management or cancer prevention/control

• 597 studies reporting on the use of 159 KT theories/models/frameworks to inform 669 interventions.

• The three most common theories/models/frameworks were:

– Prochaska and DiClemente’s Transtheoretical Model of Behaviour Change (144 studies),

* Bandura’s Social Cognitive Theory (143 studies),
* Rosenstock’s Health Belief Model (65 studies)

• 60% were used only once

• 26 were ‘full spectrum’ theories/models/frameworks

* Strifler et al, under review

**Slide 34: Summary**

1. Move beyond considering lack of knowledge as the key barrier to implementation

2. Consider targets for implementation - Clinicians are not the only target

3. Beware the ISLAGIATT principle

4. Consider sustainability from the beginning

5. We don’t need another KT theory/model/framework and those that have been developed need to be tested

**Slide 35: Acknowledgements**

• Dr. Julia Moore and our KT Program at St. Michael’s Hospital

• KT Canada investigators

Evaluation:

<http://www.surveygizmo.com/s3/4100307/Evaluation-KT-Canada>

**Slide 15**: **Disclaimer**

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