A systematic review of knowledge transfer and exchange practices: What do we know about evaluation measures?

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Presentation Overview

- IWH Systematic Review Program
- Review team and steps
- Research question
- Literature search
- Relevance of studies
- Quality and Data Extraction

IWH Systematic Review Program

- Established September 30, 2005
- To date the program has:
  - Delivered 17 reports to the WSIB and the broader occupational health and safety audiences
  - Held 32 stakeholder consultations and meetings
  - Produced nine peer-reviewed publications
  - Given 35 conference presentations
  - Published three methods papers from our experiences
  - Contributed to a special issue of *Journal of Occupational Rehabilitation* (2010); 20(2)
  - Described stakeholder engagement in *Journal of Continuing Education in the Health Professions* (2008) 28(2)

A Systematic Review (SR):

- Provides information about a topic by:
  - identifying,
  - appraising, and
  - summarizing the results of primary research
- Uses replicable, scientific and transparent approaches which minimize bias
- Rather than reflecting the views of 'experts', SRs generate balanced inferences based on a synthesis of the available evidence

Stages of a SR

Stage 1 – Planning

1. Identify stakeholders
2. Scope of Topics
3. Adequacy of existing reviews
4. Preparing a proposal (resources)
5. Developing a review protocol

Stage 2 – Doing

1. Develop question
2. Conduct literature search
3. Identify relevant studies
4. Quality appraisal
5. Data extraction
6. Evidence synthesis

Stage 3 – Reporting & Disseminating

1. Report and conclusions
2. Dissemination
3. Implementation (if appropriate)

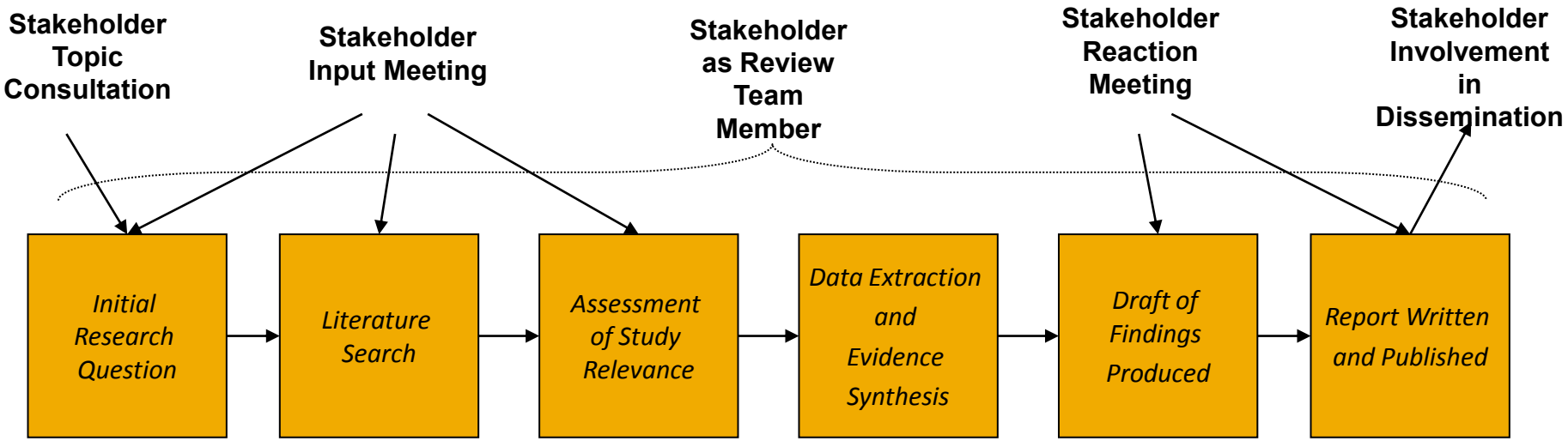
CIHR Knowledge Synthesis Grant

- CIHR research priority area: Knowledge translation (KT)

- Integrated KT
  - Researchers and research users working together
  - Collaboration on methodology and results
  - Produce research findings that are more likely be relevant to and used by the end users

- Decision Makers

Stakeholder Engagement



Systematic Review Steps

Keown, Van Eerd, Irvin, 2008

Systematic Review Team Members

Review team:

Melanie Kohn: Project Manager, Office of the Vice President, Research, St. Michael's Hospital

Desre Kramer: Associate Director, Networks & KTE, CRE-MSD, University of Waterloo

David Phipps: Director, Office of Research Services, York University

John Garcia: MPH Program Leader, Health Studies and Gerontology, University of Waterloo

IWH:

Dwayne Van Eerd (PI); Benjamin Amick (Scientific Director); Jane Gibson (Director, KTE); Emma Irvin (Director, Research Operations and Manager); Kiera Keown (Senior KTE Associate); Quenby Mahood (Librarian & Manager, Library Service); Donald Cole (Scientist) and Tesha Slack (Project Coordinator)

Decision-Maker Partners

David Clements: Formerly Vice President Knowledge Exchange, CHSRF

Andrea Laupacis: Executive Director, Li Ka Shing Knowledge Institute at St. Michael's Hospital

Rhoda Rheardon: Education Coordinator and Acting Manager, Research and Evaluation, CPSO

IWH Systematic Review Steps

Develop Question

- Researchers, stakeholders

Conduct Literature Search

- Researchers, stakeholders, information specialists

Identify Relevant Documents

- Review team

Quality Appraisal

- Review team

Data Extraction

- Review team

Evidence Synthesis

- Review team, stakeholders

Research Questions and Objectives

Our primary research question is:

Are there reliable, valid and/or useful tools to apply in the assessment of knowledge transfer and exchange (KTE) implementation and its impact?

Our secondary objectives are to:

a) Make recommendations about common elements of KTE that are most effective

b) Make recommendations about how to evaluate the impact of KTE

KTE definitions we used

- ***Knowledge transfer and exchange:*** refers to an iterative and dynamic process by which relevant research information is created, synthesized, disseminated, and exchanged through interactive engagement with decision-makers/knowledge users to improve outcomes, provide more effective services and products and strengthen the use of evidence in decision-making, practice, planning, and policy-making.

- ***Knowledge transfer and exchange application:*** refers to any activity or practice in which KTE is a stated goal that is linked to specific outcomes (i.e. *these activities/practices are intended to change something, be it behavior, attitudes, capacity, decision-making, policies, programs etc.).*

Literature Search

- Search strategy has three major definitional categories: "**knowledge transfer**", "**outcomes of knowledge transfer**", and "**evaluation methods**"
  - Terms within each category combined with the OR Boolean operator
  - Three major categories then combined with the AND Boolean operator
- Disciplines included: healthcare, agriculture, education, business/management, policy, and information science

Knowledge Transfer Terms

- Knowledge transfer
- Knowledge translation
- Knowledge exchange
- Knowledge networks
- Knowledge partnerships
- Research transfer
- Research translation
- Research dissemination
- Communities of practice
- Diffusion of information
- Information dissemination
- Innovation diffusion
- Knowledge broker
- Knowledge generation
- Knowledge mobilization
- Substitutes for knowledge such as: evidence, information and data

Outcomes of Knowledge Transfer Terms

- Behaviour change
- Business case
- Effective dissemination
- Evidence awareness
- Evidence impact
- Evidence implementation
- Guideline adherence
- Improves practice
- Information spread
- Innovation adoption
- Innovation implementation
- Knowledge uptake
- Knowledge utilization
- Policy development
- Policy and practice
- Policy making
- Practice change
- Research use
- Research uptake
- Research utilization
- Return on investment

Evaluation Terms

- Research awareness
- Research impact
- Research implementation
- Research use
- Research utilization
- Research uptake
- Improved learning/knowledge
- Knowledge uptake
- Policy development
- Policy making
- Practice (policy and practice)
- Model
- Process
- Outcome
- Program
- Evaluation
- Research adoption
- Reach
- Measurement

Literature Search

- The databases searched: MEDLINE, EMBASE, CINAHL, PsycINFO, ERIC, CAB Abstracts, LISA, Social Science Abstracts, and Business Source Premier
  - Searches adapted for each database

- Results of all searches downloaded into a Reference Manager™ database and duplicates were removed

- All unique references were then uploaded in DistillerSR, a web-based systematic review tool

Database	Yield
Medline	3945
EMBASE	3857
CINAHL	1693
Business Source Premier	310
CAB Abstracts	1064
ERIC	424
LISA	22
PsycINFO	1198
Social Science Abstracts	192
Handsearch of Evidence & Policy	18
Handsearch of Implementation Science	72
From team members and content experts	71
From reference lists of included studies	23
Total	13089
Duplicates	3091
Total in review	9998

Relevance 1: titles and abstracts

- Single reviewer screen using the following question:
- *Does the article describe a KTE outcome or a tool to measure a KTE outcome as a result of a KTE application?*
  - Yes, instrumental outcome (e.g. change in behaviour, policy, program or procedure)
  - Yes, knowledge/attitudes/beliefs outcome
  - Uncertain (about outcome or KTE application)
  - No {exclude}

KTE definitions we used

- ***Knowledge transfer and exchange:*** refers to an iterative and dynamic process by which relevant research information is created, synthesized, disseminated, and exchanged through interactive engagement with decision-makers/knowledge users to improve outcomes, provide more effective services and products and strengthen the use of evidence in decision-making, practice, planning, and policy-making.

- ***Knowledge transfer and exchange application:*** refers to any activity or practice in which KTE is a stated goal that is linked to specific outcomes (i.e. *these activities/practices are intended to change something, be it behavior, attitudes, capacity, decision-making, policies, programs etc.).*

Relevance 1: results

- Based on question *(Does the article describe a KTE outcome or a tool to measure a KTE outcome as a result of a KTE application?)*

– Yes, instrumental outcome	650 (6.7%)
– Yes, knowledge/attitudes/beliefs outcome	181 (1.8%)
– Uncertain	1377 (13.8%)
– No	7773 (77.9%)

- 2238 possibly relevant based on this quick screen

Relevance 2: title and abstracts

- Second round of relevance with pairs of reviewers with original question and additional criteria:
  - In what language is the article written?
    - English
    - French
    - Other……please specify {exclude}
    - Uncertain
  - What type of document is it?
    - Article
    - Book review, commentary, editorial or letter to the editor {exclude}
    - Literature review {exclude}
    - Uncertain

- 733 of 2238 articles remained

Relevance 3: full article screen

- 2 reviewers reviewed the full articles and came to consensus on relevance using the single question: (*Does the article describe a KTE outcome or a tool to measure a KTE outcome as a result of a KTE application?*)

- Inclusive

- 346 found to be relevant to this point…

Relevance 4: Quality Appraisal step

- Pairs of reviewers coming to consensus
- Considered relevance again!!
- Classified the study approach (quantitative, qualitative, mixed and descriptive) for each article
- Applied quality criteria

Relevance 4: results

- 60 of 257 quantitative studies
- 10 of 15 qualitative studies
- 3 of 26 mixed studies
  - Were relevant and had quality assessed

- Note 48 articles did not progress through QA as they were descriptive

Quality Results (Quan)

QA Questions (Quantitative, n=60)	%
Is the specific objective/purpose of the study stated?	95.00
Is the research design appropriate to address the objective/purpose?	90.00
Are there clearly defined outcome measures?	88.33
Are characteristics of the study population presented?	78.33
Is a comparison group used?	43.33
Is the intervention process adequately described to allow for replication?	88.33
Is an intervention allocation described?	63.33
Is the intervention allocation random?	35.00
Are the methods used to measure KTE outcomes appropriate?	95.00
Are the statistical analyses appropriate to the research design?	85.00
Are the authors' interpretations consistent with the results, balancing benefits and harms, and considering other relevant evidence?	95.00
Do the authors discuss the generalizability of the findings?	81.67

Quality Results (Qual)

QA Questions (Qualitative, n=10)	%
Is there an explicit approach to evaluating KTE outcomes that can be extracted from this article?	100.00
Is the objective/purpose of the study clear?	100.00
Is the recruitment strategy appropriate to the aims of the research?	100.00
Are the data collected in a way that addressed the research issue?	100.00
Is the data analysis sufficiently rigorous?	80.00
Is there a clear statement of findings?	90.00
Is the research design appropriate to address the aims of the research?	100.00
Is the research methodology appropriate to address the research question (i.e. ethnography, grounded theory, etc.)?	80.00

Data Extraction

- Ongoing with 73 studies
- Focused on KTE application effectiveness and measurement properties of the instruments described
- Preliminary findings...

Literature Search Challenges

- Lack of consistency in terminology
- Qualitative and quantitative studies sought
- Number of disciplines/databases
- Database sophistication
- Search size and complexity

Relevance Challenges

- Number of documents to review
- Variety of disciplines
- Literature is relatively young
- Wanted to look closely at the literature
- Required iterative approach and adaptable team

Quality and Data Extraction Challenges

- Quantitative, qualitative, and mixed methods
- Quality criteria not specific to KTE
- Disentangling tool and study quality
- Information about tools not available
- Data not presented consistently

Summary

- Our approach focused on transparency, reproducibility, and minimizing bias
- Our search was large and inclusive
- Our approach to determining relevance has been iterative but transparent
- Study quality is reasonable but tools are scarce

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Questions and suggestions?

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Thank you