Knowledge Translation and Sustainability

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What is Knowledge Translation?

**Knowledge Translation** ....Defined by CIHR [www.cihr-irsc.gc.ca/e/29418](http://www.cihr-irsc.gc.ca/e/29418)

...”as a dynamic and iterative process that includes the synthesis, dissemination, exchange and ethically sound application of knowledge to improve health, provide more effective health services and products and strengthen the healthcare system”

-Adopted by
  
  US National Center for Dissemination of Disability Research, and

  World Health Organization

‘Knowledge translation’ encompasses all ways of knowing and recognizes there are many forms of evidence: such as research data, local data, evaluation findings, organization prioritize, organizational culture and context, patient experience and preference and resource availability (Straus, Tetroe & Graham, 2012, p.4)

**Research translation** refers exclusively to the communication and use of research findings

4 Elements of KT

• **Synthesis** - conceptualization and integration of individual research studies within a larger body of knowledge on a given topic (http://www.cihr-irsc.gc.ca/e/36331.html#8 - CIHR resources)

• **Dissemination** — ID audience, tailor messages, medium use

• **Exchange** — Collaborative problem solving between researcher and knowledge users through linkage and exchange (formerly known as transfer) (http://www.cfhi-fcass.ca/PublicationsAndResources/ResourcesAndTools/GlossaryKnowledgeExchange.aspx)

• **Ethically sound application** — for improved health, consistent with ethical principles and norms, social values, legal and other regulatory frameworks. The term ‘application’ refers to the iterative process by which knowledge is put into practice.
What Knowledge Translation isn’t

• Synonymous use with commercialization or technology transfer
  – Narrow view
  – Does not consider stakeholders involved
  – Does not consider the process of using knowledge in decision making

• Confusion with continuing education vs KT
  – Certain educational interventions are a strategy for knowledge implementation (eg journal clubs, educational outreach)
  – KT audience is larger than healthcare professionals
What is a Knowledge User

Defined by CIHR as ....

...an individual who is likely to be able to use the knowledge generated through research to make informed decisions about health policies, programs and/or practices.

A knowledge-user's level of engagement in the research process may vary in intensity and complexity depending on the nature of the research and his/her information needs.

A knowledge-user can be, but is not limited to, a practitioner, policy-maker, educator, decision-maker, health care administrator, community leader, or an individual in a health charity, patient group, private sector organization, or media outlet. (http://www.cihr-irsc.gc.ca/e/29418.html)
The Knowledge to Action Framework

- based on a concept analysis of 31 planned action theories
- developed to help make sense of the black box known as ‘knowledge translation’ or ‘implementation’
- offers a holistic view of the phenomenon by integrating the concepts of knowledge creation and action
- assumes a systems perspective
- Uses a constructivist paradigm
- Provides a holistic view of the phenomenon by integrating the concepts of knowledge creation and action

Monitor Knowledge Use

Sustain Knowledge Use

Evaluate Outcomes

Sustain Knowledge Use

Assess Barriers/Supports to Knowledge Use

Adapt Knowledge to Local Context

Select, Tailor, Implement Interventions

KNOWLEDGE CREATION

Knowledge Inquiry

Synthesis

Products/Tools

Identify Problem

Identify, Review, Select Knowledge

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

Other KT or Implementation Models

- 2 key systematic reviews highlight models for dissemination and implementation research
  - Graham & Tetroe (2007) = 31 models/fwks
  - Tabak, Khoong, Chambers & Brownson (2012) = 61 models/fwks
- Illustrate the “science of KT” has been primarily focused on the uptake or implementation, diffusion and dissemination of research findings into practice in order to close the research-practice-gap
- Little attention on the Sustained RU phase until recently


A Few More Implementation Models

- Diffusion of Innovation (Rogers, 2003)
- Promoting Action on Research Implementation in Health Services (PARIHS) (Kitson 1998; Rycroft-Malone, 2004)
- Practical, Robust Implementation and Sustainability Model (PRISM) (Feldstein & Glasgow, 2008)
- Consolidate Framework for Implementation Research (Damschroder et al, 2008)
- Normalisation Process Model (May 2009)
- Ottawa Model for Research Use (Logan & Graham, 2010)
Impact on Nursing Profession

Mandate to healthcare professionals and organizations

- Increased expectation for Nurses to integrate research based findings into their practice
  (Rogers, 2005; National Forum on Health, 1997; Bill 46, Excellent Care for All Act – MOH & LTC, 2010)

Research utilization can serve to:

- Provides Pt outcome data to reinforce nursing as a profession & discipline (Davies et al, 2010)
- Inform nurse’s decisions in diverse settings (Davies et al, 2008)
- Predict Pt outcomes related to certain nursing decisions/interventions (Heslop & Lu, 2014; Doran, 2006)
- Build quality performance indicators to justify funding, improve practice and Control the occurrence of undesired Pt outcomes- ↑ safety (Heslop & Lu, 2014; Kurtzman & Corrigan, 2007)
- Improve the quality of care with effective and timely spread (Ploeg et al, 2014)
- Initiate activities to promote positive Pt outcomes- ↑ quality (Gifford et al, 2013)
The Concept of Research Utilization

- Broad Concept Definition for “Research Utilization (RU)…”

“... the “process” of using research (evidence, new knowledge, findings) from rigorous research studies or set of studies (includes qualitative and quantitative) that have been critically examined and applied to a practical application that is unrelated to the original research.”


“...Research Utilization divides into 3 sub-concepts

- Uptake/Initiate Use Phase,
  - Sustained Use Phase
  - Deimplementation Use Phase”
The Concept of Research Utilization by Letitia Nadalin Penno 2008

RU = Represents the Broad concept of Research Utilization

Initial Use Phase of RU = Represents the sub-concept Initiate Research Utilization

Sustained Use Phase of RU = Represents the sub-concept Continued Research Utilization

Deimplementation Use Phase of RU = Represents the sub-concept Discontinued Utilization
What we know about RU in Nursing Practice

- **Behavior change** remains a challenge (Davis, 2002; 2006)
- Nurses’ report their use of research in clinical practice as **moderate** (Squires, 2011)
- Nurses report using **direct and indirect** research (Squires, 2011; Estabrooks, 1999)
- **Lower levels of RU** after initial uptake are reported in 19 /56 studies (Wiltsey-Stirman, 2012)
- **Variable levels of sustained guideline use exist** (3.2% – 98.5%)…
  - 1 year post initial implementation after uptake (Davies, Edward, Ploeg & Virani 2008; Edwards, Davies, Ploeg, Virani & Skelly, 2007; St-Pierre, Davies, Edwards & Griffin, 2007)
  - After **2 years** (Davies et al, 2006)
  - After **3 years** (Davies & Higuchi et al, 2013; Higuchi, Davies, Edwards, Ploeg & Virani, 2011)
  - After **4 years** (Wallin, Bostrom, Wikblad & Ewald, 2003)
  - most recently **6 to 7 years** (Fleiszer et al. 2016)
What we know about RU in Nursing Practice cont’d

• **Uptake & Sustained RU** is a **continuum** requiring **continual efforts** (Higuchi et al, 2013; Martin et al, 2012), **ongoing monitoring** (Graham & Logan, 2004; Davies & Edwards, 2013), and **planning at the onset** (Slaughter et al, 2013; Davies & Edwards, 2013).

• **Embedding research findings** in practice is **difficult** & implementation programs have **uneven results** (May, Sibley & Hunt, 2014).

• Without the **right environment**, individual factors promoting RU may not be able to exert their influence (Estabrooks, 2003, p. 59).

• The importance of **dynamic interactions** between **multiple system components** is a core principle of sustainability science (Gruen et al, 2008).

• **EBPs or programmes** are considered sustained at **2 years post implementation** (Gruen et al, 2008; Wiltsey-Stirman et al, 2012).
Sustained Use Phase

Key messages from …. Dr. Barbara Davies and Dr. Nancy Edwards (Chapter 3.6, 2013, p. 237)

Sustaining Knowledge use:

• “Depends on the ability of workers, organizations & healthcare delivery systems to adapt to change”

• “A tension exists between routinization of one innovation and receptivity to subsequent innovations”

• “Sustainability planning is recognized as a critical aspect of introducing innovations in systems” and

• “Planning for sustainability should be initiated early in the knowledge to action cycle, when interventions to implement innovations are being designed”
6 Key Factors Influencing Sustainability

- Well defined needs
- Effective evaluative/ monitoring processes established with feedback mechanisms
- Adaptability of the innovation and alignment with organizational processes
- Multi-level leadership commitment
- Available resources (financial and human)
- Stakeholder engagement and commitment

“Improvement Evaporation Effect”

(Buchanan, Fitzgerald and Ketley, 2007, p 23)

• implies … “new working practices and increased performance levels are not maintained” or

• “decay of organizational change” is influenced by several different levels of factors “Fateful factors” (p.68) and their interactions and are dependent on context…

• Evidence suggests that “initiative decay” is widespread, not just confined to healthcare

• Not a new problem ..was describe by Lewin (1951) as the need to “refreeze” behaviour once change has taken place

• A focus on the process of sustainability in context is useful

• No simple prescription for managing sustainability of innovations

• “Initiative fatigue” occurred in 1990s – implied a dynamic perspective involving continuous improvement (Morgan, 2001)
Sustainability Knowledge Development

Advancement of the phenomenon of innovation sustainability in healthcare has been constrained

**WHY?**

**Focus of Research:** little attention paid to sustainability of HC innovations

(Greenhalgh et al, 2004a; Damschroder et al, 2009; Wiltsey-Stirman et al 2012)

**Data Sources:** The topic is identified using varied terminology

Not an index database subject heading
Lack of conceptualization (clarity & limited Models/Fwks)
Lack of characteristics of phenomenon
Lack of nursing literature rt Sustainability & what does exists addresses diverse innovations
Defining Sustainability

Many Definitions in the literature…

- “the degree to which an innovation continues to be used after initial efforts to secure adoption is completed” (Rogers, 2003, p 429)

- “the process through which new working methods, performance enhancements, and continuous improvements are maintained for a period appropriate to a given context” (Buchanan, Fitzgerald & Ketley, 2005, 2007)

- “complex systems that encompass programmes, health problems targeted by programmes and programmes ’drivers or key stakeholders, all which interact dynamically in any given context” (Gruen et al, 2008)

- “changes (practice and outcomes)...that continue over time as related to specific projects” (Stetler et al, 2009, p 19)

- “the continues use of programme components and activities (beyond their initial period) for the continues achievement of desirable programme and population outcomes” (Scheirer & Dearing, 2011,p 2060)
Concept Analysis - Sustainability

Sustainability of Healthcare Innovation Framework (Fleiszer et.al, 2015)

Core Factors of Sustainability (Fleiszer et al, 2015)

• Innovation Factors
• Contextual Factors
  – Inner (organization)
  – Outer (system)
  – Inner and Outer e.g. financial
  – Characteristics of Individuals
• Leadership Factors
• Process Factors
Fleiszer’s definition ...(2015)

Healthcare Innovation Sustainability …

“a process that emerges from and succeeds innovation implementation wherein improvements are maintained, new ways of working become routine, surrounding systems are transformed in support and the innovation may even be developed, over a period of time appropriate to a given situation”

Empirically tested in 2016-qualitative descriptive case study of an organization-wide nursing best practice guidelines program with four embedded nursing unit subcases

Results:
benefits, routinization & development are evident
7 factors differentiated units with low and high adherence rates to guidelines
Framework refinement begins…
Refinement of Framework …

Sustainability of HealthCare Innovations Framework (Fleiszer et.al, 2016)
Other Known Sustainability Models

- Fwk for Conceptualizing Sustainability Planning (Shediac-Rizkallah & Bone, 1998)
- Sustainability Planning Model (Johnson et al, 2004)
- Process Model of Sustainability (Buchanan, Fitzgerald & Ketley, 2007)
- Practical Robust Implementation & Sustainability Model (PRISM) (Feldstein & Glasgow, 2008)
- Integrated Approach for Health Program Planning Conceptual Fwk (Gruen et al, 2008)
- National Health Services Sustainability Model (NHS) (Mayer, Gustafson & Evans, 2010)
- Dynamic Sustainability Fwk (Chambers, Glasgow & Strange, 2013)
- Sustainability of Innovations theoretical Fwk (Fox, Gardner & Osbourne, 2015)
- Sustainability of Healthcare Innovation Fwk (Fleiszer et al, 2015)
- Conceptual Fwk of Sustainability of Interventions implementation in Sub Sahara Africa SSA (Iwelunmor et al, 2016)
Limitations of Models/Frameworks

- **NHS SM** - National Health Services Sustainability Model *(Mayer, Gustafson & Evans, 2010)*
  - Minimal environmental (political & economic) & contextual factors
  - Psychometric properties for questionnaire and factor analysis/weighting unpublished
  - Overlooks innovation impact on patient & whether their needs are met

- **SHIF** - Sustainability of Healthcare Innovations Framework *(Fleiszer et al, 2015)*
  - Most comprehensive yet partially mature concept
  - Limited empirical testing, still evolving, needs further refinement
  - No explicit adopter/user factor category
  - No attention to the notion of the inappropriate sustainability of an innovation
  - Timeframe for sustainability is not explicit ie >2 yrs

- **SITF** - Sustainability of Innovations Theoretical Framework *(Fox, Gardner & Osbourne, 2015)*
  - Relational statements unclear wrt the relationship btwn factors
  - Factor definitions missing
  - No empirical testing to date
  - Over dependence on frameworks from community health domain & international programs dt literature
The Problem

- Variable levels of Sustained Research Utilization exist in nursing practice…

- How research findings are embedded into practice is a practical problem for nurses, managers and policy makers wanting to improve Nursing practice, quality care, patient outcomes and patient safety!

- The notion a relationship exists between individual & contextual determinants of RU .......is not clearly understood!

- When is an innovation considered sustained post initial implementation

Evidence-Gap

We still do not clearly understand what all the factors (individual, contextual, environmental) and social processes (collective mechanisms) are influencing nurses sustained use of research.
Uncovering the Complexities of Sustainability

Quantitative Research
- Systematic & discriminatory identification of determinants of sustainability in different settings
- Comparative analysis of determinants identified from studies conducted in variety of settings
- Inform partially mature definition of Sustainability
- Exploratory studies to uncover collective social processes involved in sustaining EBP using NPT

Qualitative Research
- In depth exploratory studies to uncover collective social processes involved in sustaining EBP
- Comparative analysis of known factors influencing sustainability within a variety of settings
- Testing relational statements and determinants within models/frameworks in practice

Mixed Methods
- Use of explanatory designs to uncover unknown determinants influencing sustainability
- Use of exploratory designs to gain in-depth understanding of unknown factors

Systematic Reviews
- Summarizing the body of knowledge related to sustainability

Intervention studies
- Testing effectiveness of theory based KTI on sustaining EBP
- Expanding the mapping of BCT with known barriers for different settings
Questions?

Thank you for your attention!