Knowledge Translation
Planning for impact and implementation of research outcomes

Fenella Gill
Associate Professor Acute Paediatric Nursing
Curtin University, and Perth Children’s Hospital

8 March 2019
Knowledge Translation

CONTENTS:

1 PRESENTATION ............................................................................................................................................. 1

2 KNOWLEDGE TRANSLATION – ADDITIONAL NOTES AND RESOURCES .............................................. 14

   2.1 USEFUL WEBSITES ................................................................................................................................ 14
   2.2 WA FUNDING TRANSLATION RESEARCH ............................................................................................ 16
   2.3 ADDITIONAL READING .......................................................................................................................... 16
   2.4 DEFINITIONS ............................................................................................................................................ 19
   2.5 POSSIBLE RESEARCH TRANSLATION OUTPUTS TO REPORT ............................................................ 19

© Research Education Program, Department of Child Health Research, Child and Adolescent Health Service, WA 2019.

Copyright to this material produced by the Research Education Program, Department of Child Health Research, Child and Adolescent Health Service, Western Australia, under the provisions of the Copyright Act 1968 (C’wth Australia). Apart from any fair dealing for personal, academic, research or non-commercial use, no part may be reproduced without written permission. The Department of Child Health Research is under no obligation to grant this permission. Please acknowledge the Research Education Program, Department of Child Health Research, Child and Adolescent Health Service when reproducing or quoting material from this source.
Overview

- Why does knowledge translation matter?
- What is KT?
- Theories, frameworks & standards for KT research
- Changing behaviour and practice
- Impact
  - Research Impact Management System
    Dr Tobias Schoep, Telethon Kids Institute

Consider the evidence

- Ineffective
  “This program has been evaluated and shown to have no positive or negative effect”
- Current Practices
  “We’ve done it and we like it”
- Evidence-informed; theory driven
  “This program is based on sound theory informed by research”
- Iatrogenic (Harmful)
  “This program has been rigorously evaluated and shown to be harmful”
- Promising Approaches
  “We really think it will work, but we need time to prove it”
- Evidence-based
  “This program has been rigorously evaluated and shown to work”

Research…. all breakthrough, no follow through

“Much of the US $100 Billion/year worldwide investment in biomedical and health research is wasted because of dissemination and implementation failures”

Why does Knowledge Translation matter?

- Patient outcomes:
  - 30% do not get treatments of proven effectiveness
  - 25% get care that is not needed or harmful
  - Up to 75% do not get enough information to make decisions

- Treatment not based on evidence:
  - Not implemented as intended
  - Quality not monitored / outcomes not evaluated
  - Often not sustained

Minimum of 6.3 years for evidence to reach reviews, papers & textbooks

Estimated 9.3 years transition period to implement evidence from reviews, papers and textbooks


Knowledge Translation

World Health Organisation

The synthesis, exchange, and application of knowledge by relevant stakeholders to accelerate the benefits of global and local innovation in strengthening health systems and improving people’s health

CIHR

KT is an interactive process underpinned by effective exchanges between researchers who create new knowledge and those who use it.

Translational pipeline

Operational Phases of Translational Clinical Research: T0, T1, T2, T3, T4


The Science-Practice Gap

- It takes 17 years for research to reach practice.
- Only 14% of research reaches a patient.
- Only 18% of administrators and practitioners report using evidence-based practices frequently.

• Funding schemes
  • Investigator Grants (research impact 20% & knowledge gain 30%)
  • Partnership Projects & Partnership Centres
  • TRIP & Practitioner Fellowships
  • Targeted calls for research
    • Boosting Dementia Research initiative

• Annual Research Translation Symposium
  • November 2019 Melbourne “Research Translation in the digital age: harnessing the power of data and analytical technologies”

• Initiatives
  - Advanced Health Research Alliance
  - Centres for Innovations in Regional Health
  - 2018 REWARD prize reducing research waste

WA Funding translation research

  • WA Dept of Health research translation projects
    • [Link]
  • Perth Children’s Hospital Foundation
    • Research implementation grants
  • Telethon – Perth Children’s Hospital Research Fund
    • [Link]
  • WAHTN Early Career Fellowship in Research Translation
    • [Link]

KT: Dissemination and Implementation

<table>
<thead>
<tr>
<th>Dissemination</th>
<th>Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dissemination Practice: Purposive distribution of information and intervention materials to a specific audience.</td>
<td>Implementation Practice: The use of strategies to adopt and integrate evidence-based interventions and change practice within specific settings</td>
</tr>
<tr>
<td>Dissemination Science: The scientific study of processes and variables that determine and/or influence the spread/sharing of knowledge to various stakeholders</td>
<td>Implementation Science: The scientific study of the methods to promote the uptake of research findings in clinical, organisational, or policy contexts</td>
</tr>
</tbody>
</table>

Effectiveness - Implementation Research

Effectiveness-implementation Hybrid Designs
Combining Elements of Clinical Effectiveness and Implementation Research to Enhance Public Health Impact

Geoffrey M. Curran, PhD, FMBE
Mark Bauer, PhD
Brian M. Abruzzo, PhD
Jeffrey M. Pyne, PhD
Cheryl Stocker, PhD

FIGURE 1. Research pipeline.
1) Theoretical approach for KT research

- Needed to develop testable and useful interventions
- Individual, team and organization level theories
- Multiple theoretical perspectives more powerful than an overarching theory
- Theories outside of health; transferability influenced by context

http://dissemination-implementation.org

3) The importance of context

The CIHR Knowledge to Action Cycle

Knowledge to Action Cycle

Phase 1
- Identify Problem
- Assess barriers & facilitators
  - Measure effectiveness of implementation
    - Audit parent awareness
    - Describe parent involvement (Patient health record review)
  - Assess barriers & facilitators
    - Interviews & focus groups with stakeholders

Phase 2
- Select & tailor interventions
  - Tailor and implement
    - Revised Calling for Help

Phase 3
- Monitor, evaluate, sustain
  - Evaluate feasibility and acceptability
    - Audit parent awareness
    - Patient health record review
    - Interviews parents & nurses

Theoretical Domains Framework

Knowledge
Skills
Social/Professional Role and Identity
Beliefs about capabilities
Beliefs about consequences
Motivation and goals
Memory, attention and decision processes
Social Influences
Emotion
Behavioural Regulation
Nature of the behaviours

Original Article:
Making psychological theory useful for implementing evidence-based practice: a consensus approach
S. Wilson, M. Szmukler, C. Bohm, A. Namdar, in: behalf of the ‘Psychological Theory’ Group

Calling for help
How to request a Medical Emergency Team to review your child

Knowledge to Action Cycle
Identify Problem
Assess barriers & facilitators
Select & tailor interventions
Monitor, evaluate, sustain

Low parent awareness
No use of Calling for Help
Concerns about
• resources
• relationships
Traditional hierarchy
Limited implementation

- Marketing
- Communication
- Opinion leaders
- Influencers
- Champion ward
- Audit & feedback
- Prompts

Increased parent awareness
Acceptable process
Use of Calling for Help
Communication difficulties
Delays to escalation


Implementation CAMHS discharge and transfer policy

<table>
<thead>
<tr>
<th>Use of theory</th>
<th>Theoretical Domains Framework</th>
</tr>
</thead>
</table>
| Identifying barriers | • Determinants of Implementation Behaviour Questionnaire (DiBQ)
• Interview staff at Bentley Family Clinic
• Knowledge, skill, beliefs about consequences, environmental context & resources |
| Selecting intervention strategies | • 5 BCT: education & training intervention |
| Engaging users | • Group based practical applied workshop |
| Impact evaluated | • DiBQ before and after intervention
• Increase in knowledge, skills, awareness negative consequences |


Implementation of practice change

<table>
<thead>
<tr>
<th>Use of theory</th>
<th>Theoretical Domains Framework</th>
</tr>
</thead>
</table>
| Identifying factors that influenced implementation of same day discharge after percutaneous coronary intervention | Interviews 26 nurses and cardiologists
Beliefs about consequences – benefits, concerns about safety
Professional role and identity – not all staff involved in guideline development, tension and ambiguity over roles
Resources – no investment in supporting implementation
Behavioral regulation – variable understanding about SDD, its evidence, implementation not communicated, inconsistencies
Optimism |
| Intervention strategies | Improvement over time, communications
Nursing SCORM, checklists, identify on whiteboard, prioritise same day discharge patients |
| Lessons learnt | Use 3 stage change process (Lewin, Kotter): Preparing for change, implementing change, evaluating and sustaining change
Buy in –
Effective communication
Adequate organisational support |

Chen et al. (2019) Lessons learnt from the implementation of same day discharge after percutaneous coronary intervention. Australian Critical Care (in press)

Above the waterline lie the observable workplace behaviours, practices and discourse: this is the way we do things around here.

Below the waterline lie the underlying beliefs, attitudes, values, philosophies and taken-for-granted aspects of workplace life: “how we think” and “why we do the things we do around here.”

Braithwaite (2011) A lasting legacy from Tony Blair? NHS culture change JRSIM, 104(2), 87-89
Jodie Armstrong WAHTN Early Career Fellow in Research Translation

The development and evaluation of a therapeutic playgroup for children with developmental delay

Learn, Engage and Play (LEaP) Study: Key translation principles

- Collaboration between the Child Development Service (CDS) and Curtin University
- Initiated and driven by CDS consumers and staff
- Research team consisted of Curtin researchers and CDS directors/policy makers
- Consumer and end-users (CDS) involved in each stage of the project
- Intervention was designed to target the highest referral numbers of children aged 0-4 years referred to the service (implementation demand)
- Intervention designed to align with CDS governance and policy requirements (implementation ready)

Aim: to develop an evidence based system for recognising and responding to patient deterioration in WA paediatric settings, evaluate its feasibility and factors necessary to ensure successful implementation.

Objectives
- To review literature to identify the evidence for core elements of an effective system
- To understand contextual factors in WA health setting impacting on the requirements
- To develop a set of age appropriate observation and response charts incorporating evidence-based human factors principles, nurse concern, family concern that takes into consideration WA health settings requirements
- To develop escalation of care plans that incorporate structured communication tailored to WA health setting requirements
- To develop a uniform process for family involvement in escalation of care that meets the needs of WA families
- To pilot implement for feasibility and evaluate a system in a range of WA health settings
- To understand key factors required for successful implementation

Fenella Gill WAHTN Early Career Fellow in Research Translation

Process evaluation - Medical Research Council

Process evaluation – Medical Research Council


Plan
- Work with stakeholders
- Resources & staffing & relationships – 7 separate process, outcomes, cost effectiveness

Design & conduct
- Describe intervention
  - Identify key uncertainties & select most important questions – consider evidence, consult with stakeholders, replicate & build on previous work
  - Select methods: key process variables, capture emerging changes, experiences of the intervention, unanticipated or complex causal pathways, generate new theory
  - Balance data collection: key process variables & detailed data, consider multiple time points
- System (charts, clinician and family concern, action plan, communication, family escalation of care)
- Consult, achieve consensus, literature review, consult
- Mixed methods
- Detailed data - pilot sites

Steering group: Consumer and Community members, Researchers, Clinicians, Directors
- Pilot - process evaluation

Analysis
- Descriptive – fidelity dose & reach
- Modelling of variations between sites
- Integrate data

Report
- Identify reporting guidance specific to methods
- Report logic model or intervention theory & clarify selection of research ques & methods
- Disseminate findings
- Publish – make clear the context
- Full report
- Contribution to intervention theory

Quantitative – site characteristics, audits, staff survey - dose, reach, fidelity v adaptations
Qualitative – focus groups & interviews
Detailed data purposively selected pilot sites

Change at different levels

4) Reporting standards for interventions and implementation research

http://www.equator-network.org
Pinnock et al. (2017). Standards for reporting implementation studies (StaRI) statement, BMJ, 357

"I think you should be more explicit here in step two."
**B2: I CAN COMMUNICATE**

Purpose of Study: Aim: To limit the impact and severity of communication problems in children with CP, by identifying biomarkers of communication impairment in infants at risk of CP (aged 0 – 2 years).

This information will be used to improve clinical care pathways and build knowledge for researchers, clinicians and consumers about the importance and improved outcomes that come with early diagnosis.

Roz Ward WAHTN Early Career Fellow in Research Translation
5) Planning

The ISLAGIATT principle...

... it seemed like a good idea at the time

5) Planning grant applications

1. A gap exists
2. Evidence for the program, treatment to be implemented
3. Conceptual model & justification
4. Clear stakeholder engagement process in place
5. Readiness, capacity, appetite to adopt
6. Implementation strategies
7. Team experience
8. Feasibility
9. Measurement & analysis clear
10. Initiative aligns with policy environment to sustain change

5) Planning KT template

1. What are your main messages?
2. Who needs to know? Who are your target audiences / knowledge users?
3. What are your KT goals for these KUs? Why are you telling them this?
4. How will you engage them?
5. When will you engage them?
6. What KT strategies will you use to achieve your KT goals?
7. How will you implement these KT strategies?
8. With what impact (how will you evaluate the success of your KT plan relative to your KT goals)?
9. What resources are required (budget, staffing, etc.)

End-of-grant KT

The dissemination of findings generated from research once a project is completed

- publishing in peer-reviewed journals?
- presenting research at conferences and workshops?

Development and implementation of a plan for making knowledge users aware of the results of a research project
Next Steps Project

Walk Aide device is effective in improving walking ability, strength, balance & muscle size

Next Steps Project

implementation

Dayna Pool Paediatric Rehabilitation

What are your KT goals?

- To impart knowledge to children and families about the Walk Aide® so that they can make informed choices about their treatment options.
- To impart knowledge to clinicians so that the treatment can be appropriately identified for suitable candidates then applied safely and effectively.
- To change clinical practice for clinicians so that the Walk Aide® can be provided as a choice of treatment for appropriate children.
- To generate awareness and interest in clinicians and consumers about how the Walk Aide® can be used as a treatment strategy.
- To generate policy action with funding bodies: namely the NDIS and the funding of new technology for children with cerebral palsy.

6) Measuring impact

The knowledge translation strategy aims to impact:

- **Healthcare** by establishing a suitable referral pathway to ensure that all suitable candidates can access this service.
- **Clinical practice** by increasing the number of clinicians who will be able to effectively and safely provide this treatment.
- **Policies/systems** by establishing clear eligibility guidelines for the funding of the Walk Aide® and the associated trial supports required to identify suitable candidates.

<table>
<thead>
<tr>
<th>Measurement Category</th>
<th>Context</th>
<th>Objective Making</th>
</tr>
</thead>
<tbody>
<tr>
<td>• No of followers on Facebook and Instagram</td>
<td>• No of clinicians who dial into the webinars and finish watching it</td>
<td>• No of Walk Aide® funded</td>
</tr>
<tr>
<td>• Engagement: number of interactions i.e. views/like/comment on posts</td>
<td>• No of hits on the website to read literature [length of time on website]</td>
<td></td>
</tr>
<tr>
<td>• Online feedback/surveys on awareness of the Walk Aide® and understanding of its use</td>
<td>• Feedback from webinar and training sessions</td>
<td></td>
</tr>
<tr>
<td>• No of consumer initiated referrals for Walk Aide® trials</td>
<td>• No of people who complete and pass the competency standards</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• No of clinician lead referrals for Walk Aide® trials</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• No of trials for the Walk Aide®</td>
<td></td>
</tr>
</tbody>
</table>

Summary: Knowledge Translation

- Closing the evidence – practice gap
- Dissemination and implementation science
- Research designs – use of theory
- Co-production – knowledge users and health consumers
- Importance of context and culture
- Standards: planning and reporting
- Measuring Impact
2 KNOWLEDGE TRANSLATION – ADDITIONAL NOTES AND RESOURCES

2.1 USEFUL WEBSITES

<table>
<thead>
<tr>
<th>Website</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://ktclearinghouse.ca/knowledgebase/knowledgetoaction">http://ktclearinghouse.ca/knowledgebase/knowledgetoaction</a></td>
<td>Knowledge to action cycle</td>
</tr>
<tr>
<td><a href="http://www.cfirguide.org/">http://www.cfirguide.org/</a></td>
<td>Consolidated Framework for Implementation Research</td>
</tr>
<tr>
<td><a href="http://www.tidierguide.org">http://www.tidierguide.org</a></td>
<td>TIDieR is a guide and reporting checklist that was developed to improve the completeness of reporting, and ultimately the replicability, of interventions. Using the TIDieR checklist will improve the reporting of your interventions, make it easier for reviewers and editors to assess the descriptions, and readers to use the information</td>
</tr>
<tr>
<td><a href="http://melaniebarwick.com/training.php">http://melaniebarwick.com/training.php</a></td>
<td>KT training tools</td>
</tr>
<tr>
<td><a href="http://www.sickkids.ca/Learning/AbouttheInstitute/Programs/Knowledge-Translation/5-Day-Knowledge-Translation-Professional-Certificate/index.html">http://www.sickkids.ca/Learning/AbouttheInstitute/Programs/Knowledge-Translation/5-Day-Knowledge-Translation-Professional-Certificate/index.html</a></td>
<td>Knowledge translation training course</td>
</tr>
<tr>
<td><a href="http://www.melaniebarwick.com/implementation.php">http://www.melaniebarwick.com/implementation.php</a></td>
<td>Implementation tools</td>
</tr>
<tr>
<td><a href="https://www.ckt-ctc.ca/">https://www.ckt-ctc.ca/</a></td>
<td>CKT national training center in the area of knowledge utilisation and policy implementation</td>
</tr>
<tr>
<td>URL</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td><a href="http://www.excellenceforchildandyouth.ca/resource-hub/learning-modules">http://www.excellenceforchildandyouth.ca/resource-hub/learning-modules</a></td>
<td>KT learning modules</td>
</tr>
<tr>
<td><a href="https://www.nhmrc.gov.au/research/research-translation-0">https://www.nhmrc.gov.au/research/research-translation-0</a></td>
<td>NHMRC role in research translation</td>
</tr>
<tr>
<td><a href="http://ktdrr.org/ktlibrary/index.html">http://ktdrr.org/ktlibrary/index.html</a></td>
<td>KT library</td>
</tr>
<tr>
<td><a href="https://www.iwh.on.ca/kte/kte.php">https://www.iwh.on.ca/kte/kte.php</a></td>
<td>Stakeholder audience relationships and stakeholder audience capacity building</td>
</tr>
<tr>
<td><a href="http://www.actionnuggets.ca/">http://www.actionnuggets.ca/</a></td>
<td>Brief, focused communications about the primary care needs of special populations in primary care</td>
</tr>
<tr>
<td><a href="http://www.ucl.ac.uk/behaviour-change/resources">http://www.ucl.ac.uk/behaviour-change/resources</a></td>
<td>Resources about Behaviour Change techniques and theories.</td>
</tr>
<tr>
<td><a href="http://www.bct-taxonomy.com/">http://www.bct-taxonomy.com/</a></td>
<td>Resource about behaviour change interventions</td>
</tr>
<tr>
<td><a href="https://www.researchimpact.ca/home/">https://www.researchimpact.ca/home/</a></td>
<td>Knowledge mobilisation services</td>
</tr>
<tr>
<td><a href="http://www.dcc.ac.uk/resources/how-guides/write-lay-summary#6">http://www.dcc.ac.uk/resources/how-guides/write-lay-summary#6</a></td>
<td>Resource for writing lay summaries</td>
</tr>
<tr>
<td><a href="http://epoc.cochrane.org/publications-and-projects">http://epoc.cochrane.org/publications-and-projects</a></td>
<td>Cochrane group that undertakes systematic reviews of educational, behavioural, financial, regulatory and organisational interventions designed to improve health professional practice and the organisation of health care services.</td>
</tr>
<tr>
<td><a href="https://vimeo.com/181901095">https://vimeo.com/181901095</a></td>
<td>Iona Novak presentations:</td>
</tr>
<tr>
<td><a href="https://vimeo.com/181901520">https://vimeo.com/181901520</a></td>
<td>• How to Improve Success in Grant Knowledge Translation</td>
</tr>
<tr>
<td></td>
<td>• Implementation: Knowledge Translation in to Clinical Practice</td>
</tr>
<tr>
<td><a href="http://www.involvingpeopleinresearch.org.au">http://www.involvingpeopleinresearch.org.au</a></td>
<td>Involving consumers and community</td>
</tr>
<tr>
<td><a href="http://www.normalizationprocess.org/">http://www.normalizationprocess.org/</a></td>
<td>Normalisation Process Theory</td>
</tr>
<tr>
<td><a href="http://sites.bu.edu/ciis/resources/theoretical-model-resources/">http://sites.bu.edu/ciis/resources/theoretical-model-resources/</a></td>
<td>Frameworks and Models – commonly used fact sheets</td>
</tr>
</tbody>
</table>
2.2 WA Funding Translation Research

- WA Dept. of Health Research Translation Projects

- Perth Children’s Hospital Foundation – Research Implementation Grant

- Telethon – Perth Children’s Hospital Research Fund

- WAHTN Early Career Fellowship in Research Translation
  [https://www.wahtn.org/was-future-leaders-in-health-research-recognised/](https://www.wahtn.org/was-future-leaders-in-health-research-recognised/)

2.3 ADDITIONAL READING


2.4 DEFINITIONS

**Research translation activities:** “the diffusion, dissemination, and application of knowledge that researchers undertake once the findings from a project are available”

Canadian Institutes of Health Research, 2016.

**Impact:** “the demonstrable contribution that excellent research makes to society and the economy. Indicators of impact can be instrumental (e.g. influence development of policy, practice or service provision, shaping legislation, altering behaviour), conceptual (e.g., contribute to understanding of policy issues, reframing debates), and capacity building (e.g., technical and personal skill development)"

Economic and Society Research Council, United Kingdom, 2016.

**Knowledge user:** “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. Examples include practitioner, policy maker, educator, decision making, health care administrator patient, community leader, and media”

Canadian Institutes of Health Research, 2016.

2.5 POSSIBLE RESEARCH TRANSLATION OUTPUTS TO REPORT

Reporting knowledge translation outputs:

**Being cited and/or read by...**

- H-index –from Scopus/Web of Science/Google
- Research Gate Score
- Policy documents, government/health organization reports or clinical practice guidelines that cite your research
- Publications awarded “highly accessed” and/or editor’s choice by journals
- Commentaries in journals that cite your research
- Blogs or websites of others that cite your research
- Downloads and/or hits to products or processes that were developed within your research program
- Requests for permission to use your material
- Reports in media and/or news written about your research program (circulation/listenership/market share)

**Products or processes that were developed within your research program ...**

- Resources to translate research into practice or policy (e.g., knowledge tools, interventions, policy briefs, programs, new positions created, etc)
- Website for your research program
- Publications in journals targeting specific professions/audiences
- Blogs
- Book chapters informed by findings from your research studies
- Training workshops provided to knowledge users
Your participation in meetings or committees for which your research informed the discussion/product ...

- Invitations to meetings to disseminate research to knowledge users to inform policy, education, practice
- List of your memberships on advisory committees/ boards/ regulatory committees
- List of your memberships and/or contributions to clinical practice guideline development teams
- Consultancies
- Training delivered/contracted for health professionals, patients, and/or policy makers

Other indicators of impact ...

- Award(s) or other formal recognition for research translation activities
- Summary statement/bullet points of indicators of impact from your research
- Indicators of impact from the research of your graduate students
- Elected membership on a society for which membership requires demonstration of research impact
- Stories of impact from knowledge users (e.g., changes in practice/processes locally, state-wide, national including de-implementation)
- Integration of research program materials into services within a community (e.g., most significant research contributions)
- Stories of impact

Collaborations with knowledge users (patients, policy makers, clinical decision-maker):

- Contracts from health services for projects focused on changing knowledge users practice
- Knowledge users indicated on publications
- Knowledge users indicated on grants
- Knowledge users indicated on grants

Other research translation activities or indicators of impact ...

- Course Content or Curriculum (including online training modules) informed by your research program
- Twitter followers