Challenges of knowledge translation

Jeremy Grimshaw
Clinical Epidemiology Program, Ottawa Hospital Research Institute
Department of Medicine, University of Ottawa
Cochrane Effective Practice and Organisation of Care Group

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Outline

- Background
- Knowledge translation and knowledge translation science
- 3 questions
  - Can knowledge translation strategies improve clinical care?
  - How do we increase likelihood that knowledge translation strategies improve clinical care?
  - How do we embed knowledge translation into healthcare systems?

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Background

- Consistent evidence of failure to translate research findings into clinical practice

  - 30-40% patients do not get treatments of proven effectiveness
  - 20–25% patients get care that is not needed or potentially harmful

- Suggests that implementation of research findings is fundamental challenge for healthcare systems to optimise care, outcomes and costs

Schuster, McGlynn, Brook (1998). *Milbank Memorial Quarterly*

Grol R (2001). *Med Care*

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Knowledge translation

CIHR definition

- Knowledge translation is a dynamic and iterative process that includes the 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 healthcare system.

- This process takes place within a complex system of interactions between researchers and knowledge users which may vary in intensity, complexity and level of engagement depending on the nature of the research results and on the needs of the particular knowledge user.

Knowledge translation

- Knowledge translation is about ensuring that:
  - stakeholders are aware of and use research evidence to inform their decision making
  - research is informed by current available evidence and the experiences and information needs of stakeholders

Knowledge translation science

- Knowledge translation is a human enterprise that can be studied to understand and improve knowledge translation approaches

- Knowledge translation science is the scientific study of the determinants, processes and outcomes of knowledge translation.

- Goal is to develop a generalisable empirical and theoretical basis to optimise knowledge translation activities

Question 1

Can knowledge translation strategies improve care?

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Effects of guidelines on quality of care - 2004

Effectiveness and ef
guideline dissemina
implementation str

JM Grimshaw, RE Thoma
CR Ramsay, L Vale, P Wl
L Shirran, M Wensing, R

February 2004

Health Technology Assessment
NHS R&D HTA Programme

Results (research findings)

Systematic review of the effectiveness and efficiency of guideline dissemination and implementation strategies

In total, 235 studies reporting 309 comparisons met the inclusion criteria. The overall quality of the studies was poor. Seventy-three per cent of comparisons evaluated multifaceted interventions, although the maximum number of replications of a specific multifaceted intervention was 11 comparisons. Overall, the majority of comparisons reporting dichotomous process data (86.6%) observed improvements in care; however, there was considerable variation in the observed effects both within and across interventions. Commonly

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Effects of dissemination and implementation strategies on quality of care

Intervention	# of trials	Median absolute effect	Interquartile range
Audit and feedback (Ivers 2011)	140	+4.3%	+0.5% - +16%
Educational meetings (Forsetlund 2009)	81	+6%	+3 – +15%
Financial incentives (Scott 2011)	3	NA	NA
Hand hygiene (Gould 2010)	1	NA	NA

Summary point 1

Do appropriately disseminated and implemented guidelines improve process (and quality) of care?

Yes!

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Question 2

- Suggests the issue is not whether appropriately disseminated and implemented *valid* guidelines improve process and outcome of care

- But….

- How do we increase likelihood that knowledge translation strategies improve clinical care

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Factors influence effectiveness of knowledge translation strategies

Ivers N *et al*. Audit and feedback: effects on professional practice and health care outcomes. *Cochrane Library* 2012

- Larger effects were seen if:
  - baseline compliance was low.
  - the source was a supervisor or colleague
  - it was provided more than once
  - it was delivered in both verbal and written formats
  - it included both explicit targets and an action plan

Factors influence effectiveness of knowledge translation strategies

QI strategy	All studies			HbA1c >8%			HbA1c ≤8%		
	Rank	#RCTs	MD (95% CI)	Rank	#RCTs	MD (95% CI)	Rank	#RCTs	MD (95% CI)
Promotion of self management	1	60	-0.57 (-0.83, -0.31)	4	37	-0.56 (-0.70, -0.42)	6	23	-0.29 (-0.47, -0.12)
Team changes	2	47	-0.57 (-0.71, -0.42)	1	31	-0.62 (-0.79, -0.46)	2	17	-0.46 (-0.71, -0.21)
Case management	3	57	-0.50 (-0.65, -0.36)	2	37	-0.61 (-0.80, -0.42)	7	17	-0.25 (-0.44, -0.07)
Patient education	4	52	-0.48 (-0.61, -0.34)	3	39	-0.59 (-0.74, -0.43)	5	13	-0.39 (-0.71, -0.06)
Facilitated relay	5	32	-0.46 (-0.60, -0.33)	6	19	-0.42 (-0.56, -0.29)	1	13	-0.54 (-0.79, -0.30)
Electronic patient register	6	27	-0.42 (-0.61, -0.24)	5	9	-0.47 (-0.79, -0.14)	4	18	-0.41 (-0.60, -0.22)
Patient reminders	7	21	-0.39 (-0.65, -0.12)	8	10	-0.39 (-0.77, -0.00)	3	11	-0.42 (-0.70, -0.15)
Audit and feedback	8	8	-0.26 (-0.44, -0.08)	7	5	-0.40 (-0.77, -0.03)	9	3	-0.06 (-0.16, 0.06)
Clinician education	9	15	-0.19 (-0.35, 0.03)	10	10	-0.33 (-0.57, -0.10)	10	5	0.03 (-0.18, 0.25)
Clinician reminders	10	18	-0.16 (-0.31, -0.02)	9	9	-0.35 (-0.56, -0.13)	8	9	-0.06 (-0.15, 0.04)
All interventions		120	-0.37 (-0.45, -0.28)		70	-0.46 (-0.58, -0.35)		46	-0.23 (-0.34, -0.13)

Triccho et al (2012) *Lancet*

Models for optimising knowledge translation strategies
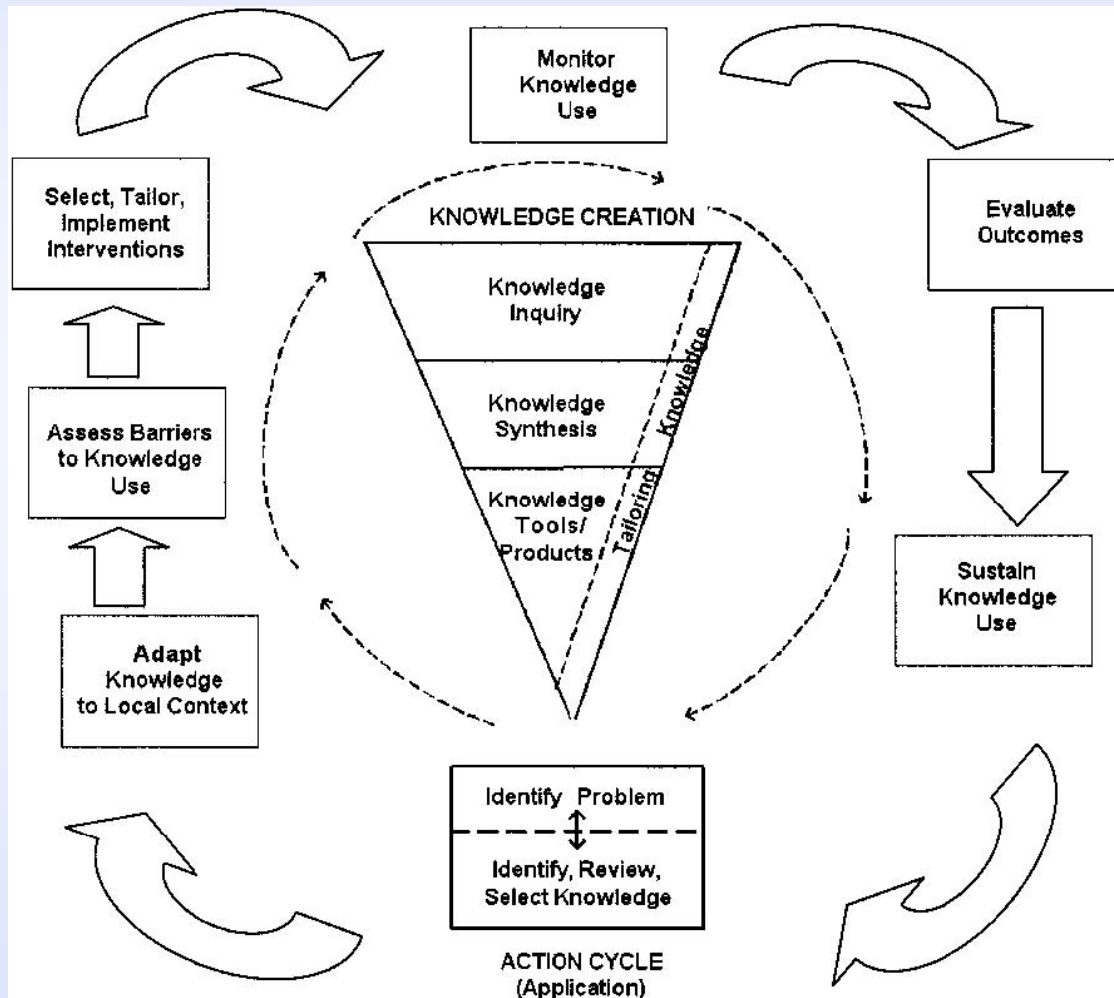
Knowledge to Action cycle

Graham ID et al. Lost in Knowledge Translation: Time for a Map? *Journal of Continuing Education in the Health Professions,* **2006**

Models for optimising knowledge translation strategies

IS IMPLEMENTATION SCIENCE

STUDY PROTOCOL **Open Access**

Tailored implementation for chronic diseases (TICD): A project protocol

Michel Wensing[1*], Andy Oxman[2], Richard Baker[3], Maciek Godycki-Cwirko[4], Signe Flottorp[2], Joachim Szecsenyi[5], Jeremy Grimshaw[6] and Martin Eccles[7]

Abstract

Background: The assumption underlying tailoring is that implementation interventions are most helpful if these effectively address the most important determinants of practice for improvement in the targeted setting. The aim of the Tailored Implementation For Chronic Diseases (TICD) project is to develop valid and efficient methods of tailoring implementation interventions to determinants of practice for knowledge implementation in chronic illness care.

Methods: The TICD project has organized the planned empirical research in three work packages that follow the three main steps of tailoring: identification of determinants of healthcare practice, matching implementation interventions to identified determinants of practice, and applying and assessing the tailored implementation interventions. These three key steps of tailored implementation will be applied to targeted chronic conditions in five different healthcare systems: cardiovascular disease in the Netherlands, obesity in England, depression in Norway, chronic obstructive pulmonary disease in Poland, and multimorbidity in Germany. The design and interpretation of empirical research will be informed by systematic reviews of previous research on tailoring implementation interventions.

Discussion: The TICD project will provide much needed evidence on the advantages and disadvantages of different methods of identifying important determinants of practice and selecting implementation strategies that take account of those. It will also provide five rigorous evaluations of tailored implementation interventions for five different chronic conditions.

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Disseminating and implementing guidelines

Behavioural perspective

- Implementation depends on behaviour
  - Citizens, patients, health professionals, managers, policy makers
- To improve care, we need to change behaviour
- To change behaviour, it helps to understand determinants of current behaviour and how behaviour changes

Eccles et al (2006) *Journal of Clinical Epidemiology*

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Models for optimising knowledge translation strategies

Simon D French (s.french@unimelb.edu.au)
Sally E Green (sally.green@monash.edu)
Denise A O'Connor (denise.oconnor@monash.edu)
Joanne E McKenzie (joanne.mckenzie@monash.edu)
Jill J Francis (j.francis@abdn.ac.uk)
Susan Michie (s.michie@ucl.ac.uk)
Rachelle Buchbinder (rachelle.buchbinder@monash.edu)
Peter Schattner (peter.schattner@monash.edu)
Neil Spike (neil.spike@vma.com.au)
Jeremy M Grimshaw (jgrimshaw@ohri.ca)

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Summary point 2

Knowledge translation is a process that needs to be tailored to local barriers and facilitators

Emerging models of how to do this

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Question 3

How do we embed knowledge translation into healthcare systems?

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Embedding knowledge translation into healthcare systems

- Knowledge translation research is producing new findings that may contribute to more effective knowledge translation of research evidence

- The findings of knowledge translation research will not improve clinical care use unless knowledge translation receptors in health systems adopt them in practice

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Embedding knowledge translation into healthcare systems

- Knowledge translation research is producing new findings that may contribute to more effective knowledge translation of research evidence

- The findings of knowledge translation research will not improve clinical care use unless knowledge translation receptors in health systems adopt them in practice

- Who are potential knowledge translation receptor sites in healthcare systems

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Embedding knowledge translation into healthcare systems

- What is the commonest knowledge translation activities that Canadian physicians engage in?

  Continuing professional education and development

- Fellows of the RCPSC participated in at least 1.5 million hours of group learning in 2008

- Fellows of the CFPC are expected to complete 1.8 million hours of CEPD

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Embedding knowledge translation into healthcare systems

- Traditional approaches to CEPD target clinical knowledge gaps using large group didactic lecture formats.

- Commonly poor use of clinical content evidence in CEPD activities

- Relatively little use of behavioural change techniques (despite evidence of effectiveness eg commitment to change)

- **Suggests that CEPD providers are potential audience for knowledge translation research**

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Embedding knowledge translation research into healthcare systems

Research projects

- Majority of current KT research involve one off projects requiring convening *de novo* research teams, seeking project by project funding, negotiating access with healthcare systems, conducting study, writing up (usually out of funding period)
- Creates problems with:
  - Efficiency (for research team, healthcare system)
  - Failure to maximise learning from individual projects
  - Failure to communicate learning from individual projects
  - Intellectual continuity (fails to develop cumulative knowledge)
  - Promoting interdisciplinarity

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Embedding knowledge translation research into healthcare systems

Research laboratories

- Research teams integrated into healthcare systems undertaking program(s) of research directly relevant to healthcare systems' priorities

- Reduces problems relating to convening *de novo* research teams, seeking project by project funding, negotiating access with healthcare systems, conducting study, writing up (usually out of funding period)

- Opportunities for formal and informal linkages of mutual advantage to research team and healthcare system

- More explicitly recognise relatives roles and responsibilities of research team and healthcare system

Embedding knowledge translation research into healthcare systems

Embedding knowledge translation research into healthcare systems

- TRIADS is an example of a knowledge translation research program embedded into a healthcare system guidance development program

- Maximises opportunities for embedded knowledge translation in real world settings that directly translates into Scottish health system

- Shared generation of knowledge between guidance development team, educational delivery teams and interdisciplinary knowledge translation research team

Embedding knowledge translation research into healthcare systems

IS Implementation Science

IMPLEMENTATION SCIENCE

STUDY PROTOCOL   **Open Access**

The translation research in a dental setting (TRiaDS) programme protocol

Jan E Clarkson[1*], Craig R Ramsay[2], Martin P Eccles[3], Sandra Eldridge[4], Jeremy M Grimshaw[5], Marie Johnston[6], Susan Michie[7], Shaun Treweek[8], Alan Walker[9], Linda Young[10], Irene Black[9], Debbie Bonetti[1], Heather Cassie[1], Jill Francis[2], Gillian MacKenzie[10], Lorna MacPherson[11], Lorna McKee[2], Nigel Pitts[1], Jim Rennie[12], Doug Stirling[10], Colin Tilley[13], Carole Torgerson[14], Luke Vale[2]

Abstract

Background: It is well documented that the translation of knowledge into clinical practice is a slow and haphazard process. This is no less true for dental healthcare than other types of healthcare. One common policy strategy to help promote knowledge translation is the production of clinical guidance, but it has been demonstrated that the simple publication of guidance is unlikely to optimise practice. Additional knowledge translation interventions have been shown to be effective, but effectiveness varies and much of this variation is unexplained. The need for researchers to move beyond single studies to develop a generalisable, theory based, knowledge translation framework has been identified.
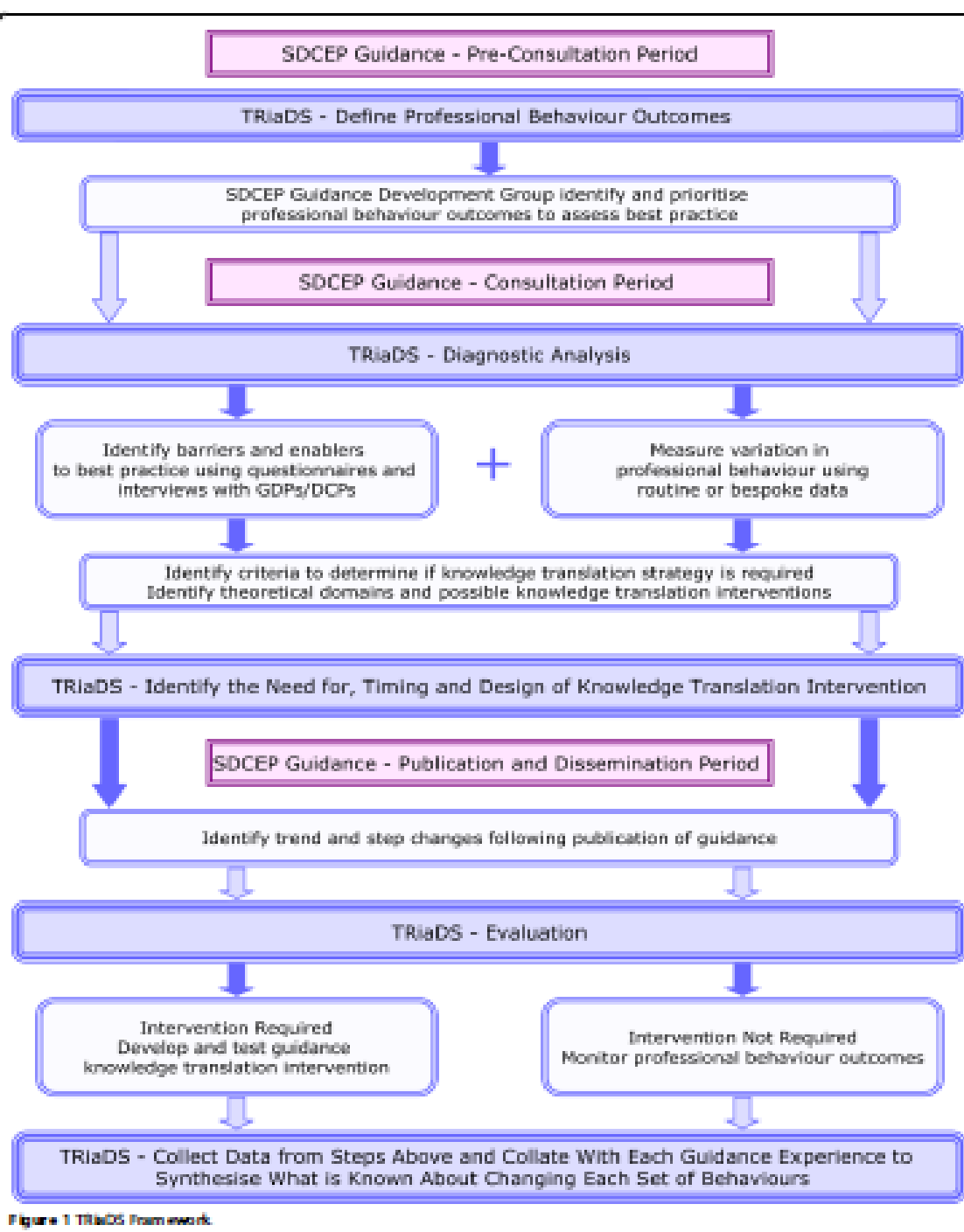
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Figure 1 TRiaDS Framework.

Summary 3

- Maximising benefits from knowledge translation research requires engagement with knowledge translation receptors in healthcare systems

- Emerging models of how to do this

- TRIADS is an unique example of a knowledge translation research laboratory that embeds a knowledge translation research program within a healthcare system

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Contact details

- Jeremy Grimshaw - jgrimshaw@ohri.ca

- EPOC – http://epoc.cochrane.org/

- Rx for Change database of appraised reviews of professional behaviour change - www.rxforchange.ca

- KT Canada - http://ktclearinghouse.ca/ktcanada

KNOWLEDGE TRANSLATION CANADA
APPLICATION DES CONNAISSANCES CANADA

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