



Identifying barriers and facilitators



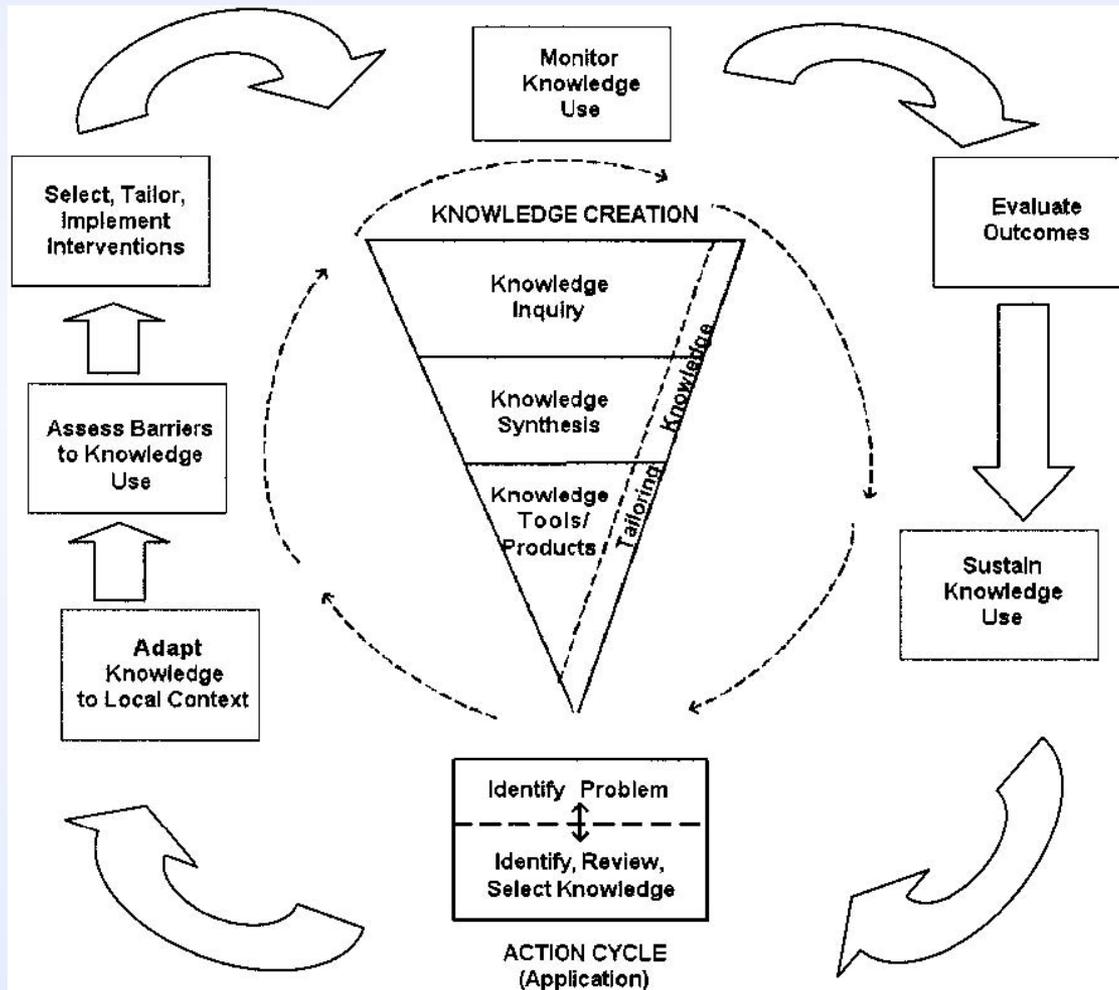
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Cochrane Effective Practice and Organisation of Care Group

Background



Knowledge to Action cycle

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

Background

Identifying barriers and facilitators to KT

- Choice of KT strategy should be informed by (and potentially tailored to) barriers and facilitators
- Identification of barriers and facilitators helps clarify logic model of KT strategy (mechanisms of action and effect modifiers) that allows mechanistic substudies

Outline of presentation

- Behavioural approaches to knowledge translation
- Identifying barriers and facilitators
- Informing knowledge translation strategy design
- Mechanistic substudies

Behavioural Perspective on Knowledge Translation

- KT depends on behaviour
 - Citizens, health professionals, managers, policy makers, commissioners
- To improve KT need to change behaviour
- To change behaviour, helps to understand how behaviour changes
 - Alternative is “trial and error”

Identifying behaviours of interest

- What is the behavior (or series of linked behaviors) that you are trying to change?
- Who performs the behavior(s)? (potential adopter)
- When and where does the potential adopter perform the behavior?
- Are there obvious practical barriers to performing the behavior?
- Is the behavior usually performed in stressful circumstances? (potential for acts of omission)

Barriers to KT

- Structural (e.g. financial disincentives)
- Organisational (e.g. inappropriate skill mix, lack of facilities or equipment)
- Peer group (e.g. local standards of care not in line with desired practice)
- Individual (e.g. knowledge, attitudes, skills)
- Professional - patient interaction (e.g. problems with information processing)

Assessing barriers to KT

- Formal assessment of context, likely barriers to KT
- Mixed methods
 - Literature review
 - Informal consultation
 - Focus groups
 - Surveys
- Needs interdisciplinary perspective

Assessing barriers to KT

Why use theory?

- Interventions are likely to be more effective if they target determinants of behaviour
- Theoretical frameworks facilitate accumulation and integration of evidence
 - across context, population and behaviour
 - of effects and of causal mechanisms
- Allows refinement and development of theory and, hence, more effective interventions

Assessing barriers to KT

- Only 27% of studies in guidelines review used theory and/or psychological constructs
- Theory was often invoked vaguely
- Interventions chosen on basis of theoretical construct may not have a good test of the theory

Davies *et al.* *Implementation Science* 2010, 5:14
<http://www.implementationscience.com/content/5/1/14>



IMPLEMENTATION SCIENCE

RESEARCH ARTICLE

Open Access

A systematic review of the use of theory in the design of guideline dissemination and implementation strategies and interpretation of the results of rigorous evaluations

Philippa Davies^{1†}, Anne E Walker^{1†}, Jeremy M Grimshaw^{2*†}

Assessing barriers to KT

- Multiple theories and frameworks of individual and organizational behavior change, often with conceptually overlapping constructs (eg self efficacy from social cognitive theory and perceived behavioural control from TPB)

Cane et al. *Implementation Science* 2012, 7:37
<http://www.implementationscience.com/content/7/1/37>



IMPLEMENTATION SCIENCE

RESEARCH

Open Access

Validation of the theoretical domains framework for use in behaviour change and implementation research

James Cane¹, Denise O'Connor² and Susan Michie^{3*}

Abstract

Background: An integrative theoretical framework, developed for cross-disciplinary implementation and other behaviour change research, has been applied across a wide range of clinical situations. This study tests the validity of this framework.

Assessing barriers to KT

Determinants of behaviour

- Knowledge
- Skills
- Social/professional role and identity
- Beliefs about capabilities
- Optimism
- Beliefs about consequences
- Reinforcement
- Intentions
- Goals
- Memory, attention and decision processes
- Environmental context and resources
- Social influences
- Emotion
- Behavioural regulation

Cane et al. (2012)
Implementation Science

Assessing barriers to KT – physician hand hygiene

Squires et al. *Implementation Science* 2013, **8**:16
<http://www.implementationscience.com/content/8/1/16>



STUDY PROTOCOL

Open Access

Improving physician hand hygiene compliance using behavioural theories: a study protocol

Janet E Squires^{1,2*}, Kathryn N Suh^{3,4}, Stefanie Linklater¹, Natalie Bruce⁴, Kathleen Gartke⁵, Ian D Graham^{1,2}, Alan Karovitch³, Joanne Read⁶, Virginia Roth^{3,4}, Karen Stockton⁴, Emma Tibbo⁷, Kent Woodhall⁸, Jim Worthington⁹ and Jeremy M Grimshaw^{1,3}

Abstract

Background: Healthcare-associated infections affect 10% of patients in Canadian acute-care hospitals and are significant and preventable causes of morbidity and mortality among hospitalized patients. Hand hygiene is among the simplest and most effective preventive measures to reduce these infections. However, compliance with hand hygiene among healthcare workers, specifically among physicians, is consistently suboptimal. We aim to first identify the barriers and enablers to physician hand hygiene compliance, and then to develop and pilot a theory-based knowledge translation intervention to increase physicians' compliance with best hand hygiene practice.

Design: The study consists of three phases. In Phase 1, we will identify barriers and enablers to hand hygiene compliance by physicians. This will include: key informant interviews with physicians and residents using a structured interview guide, informed by the Theoretical Domains Framework; nonparticipant observation of physician/resident hand hygiene audit sessions; and focus groups with hand hygiene experts. In Phase 2, we will conduct intervention mapping to develop a theory-based knowledge translation intervention to improve physician hand hygiene compliance. Finally, in Phase 3, we will pilot the knowledge translation intervention in four patient care units.

Discussion: In this study, we will use a behavioural theory approach to obtain a better understanding of the barriers and enablers to physician hand hygiene compliance. This will provide a comprehensive framework on which to develop knowledge translation interventions that may be more successful in improving hand hygiene practice. Upon completion of this study, we will refine the piloted knowledge translation intervention so it can be tested in a multi-site cluster randomized controlled trial.

Assessing barriers to KT – physician hand hygiene

- Despite numerous initiatives, physician hand hygiene compliance remains suboptimal
- Study to understand determinants of poor hand hygiene compliance and potential interventions to address this
- Interviews based on theoretical domains framework plus direct observation

Assessing barriers to KT – physician hand hygiene

Determinants of behaviour

- **Knowledge**
- **Skills**
- **Social/professional role and identity**
- **Beliefs about capabilities**
- Optimism
- **Beliefs about consequences**
- Reinforcement
- Intentions
- **Goals**
- **Memory, attention and decision processes**
- **Environmental context and resources**
- **Social influences**
- Emotion
- Behavioural regulation

Cane et al. (2012)
Implementation Science

Designing KT interventions

**ISLAGIATT
principle**

**‘It Seemed
Like A Good
Idea At The
Time’**

Martin P Eccles

Designing KT interventions

- Choice of KT intervention should be based upon:
 - ‘Diagnostic’ assessment of barriers
 - Understanding of mechanism of action of interventions
 - Empirical evidence about effects of interventions
 - Available resources
 - Practicalities, logistics etc

Designing KT interventions

French *et al. Implementation Science* 2012, **7**:38
<http://www.implementationscience.com/content/7/1/38>



IMPLEMENTATION SCIENCE

METHODOLOGY

Open Access

Developing theory-informed behaviour change interventions to implement evidence into practice: a systematic approach using the Theoretical Domains Framework

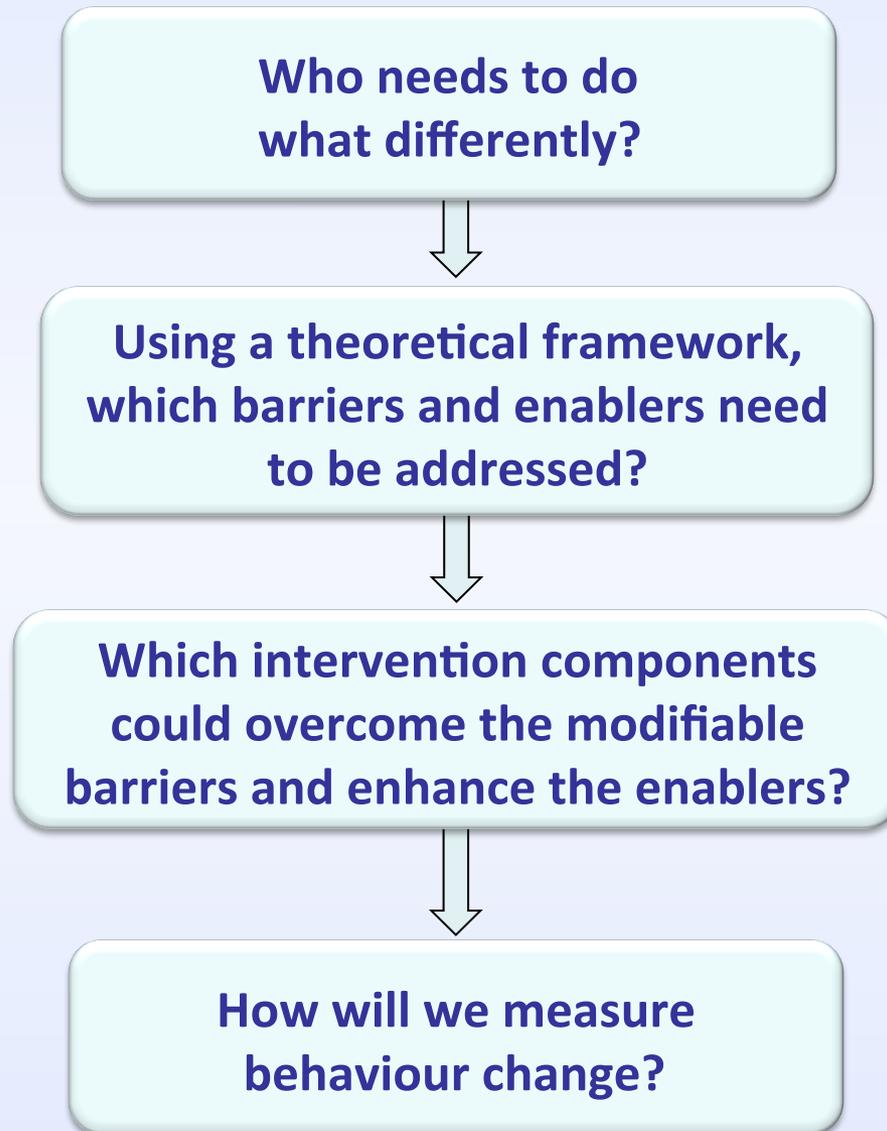
Simon D French^{1,2*}, Sally E Green¹, Denise A O'Connor¹, Joanne E McKenzie¹, Jill J Francis³, Susan Michie⁴, Rachelle Buchbinder^{1,5,9}, Peter Schattner⁶, Neil Spike⁶ and Jeremy M Grimshaw^{7,8}

Abstract

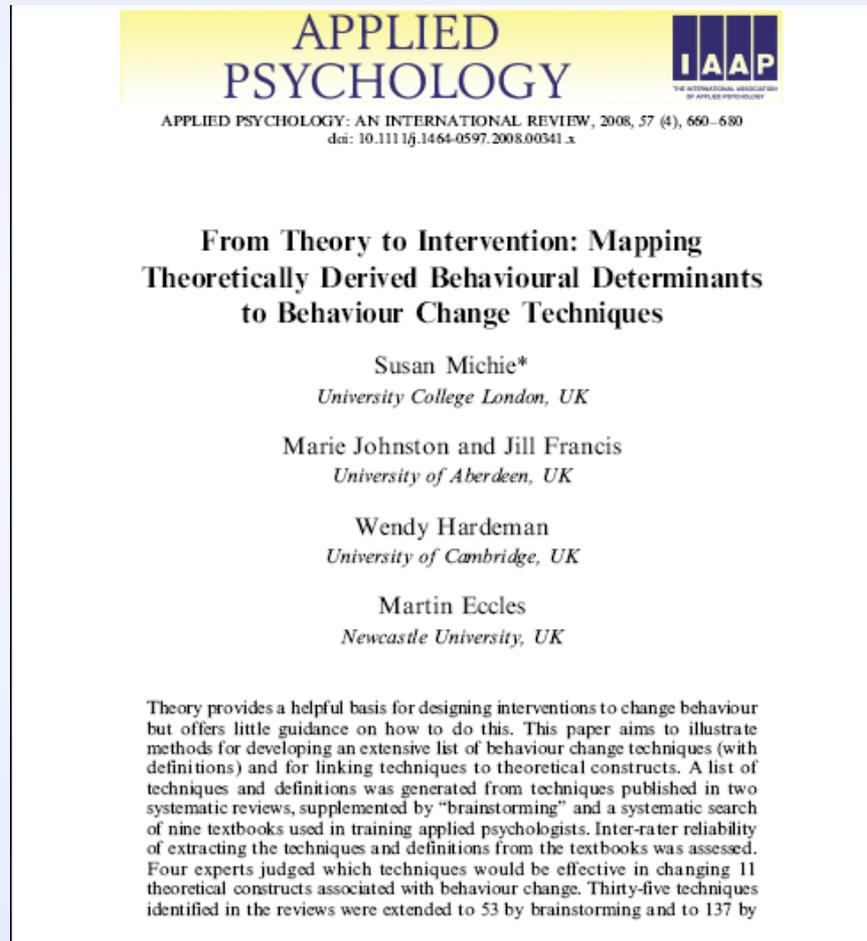
Background: There is little systematic operational guidance about how best to develop complex interventions to reduce the gap between practice and evidence. This article is one in a Series of articles documenting the development and use of the Theoretical Domains Framework (TDF) to advance the science of implementation research.

Methods: The intervention was developed considering three main components: theory, evidence, and practical issues. We used a four-step approach, consisting of guiding questions, to direct the choice of the most appropriate components of an implementation intervention: Who needs to do what, differently? Using a theoretical framework,

Designing KT interventions



Designing KT interventions



Matching behaviour change techniques to theoretical constructs

Technique for behaviour change	Social/ Professional role & identity	Knowledge	Skills	Beliefs about capabilities	Beliefs about consequences	Motivation and goals	Memory, attention, decision processes	Environmental context and resources	Social influences
Goal/target specified:	1	2 1	3 2 3	1	3 1	3 3 3 3	1 1	1	1
Monitoring	1	2	3 3 3	1 2 2	1 2 2	1 2 2	1 2 2	2	1 2
Self-monitoring			2 3 3	3 3 2 3	3 2 2 2	1 3 2 1	2 2 3		
Contract	2 1		1	1	1 1	2 3 1 2	2		3 2
Rewards;	1 2 1	1	3 3 3	2 1	2 1 2	2 3 3 3	1 1 2	1	1 2
Graded task,	1	1	3 3 2	2 2 3	2	2 3 2 2	1 2	1	1
Increasing skills:	1 2		3 3 3 3	2 2 3 2	1	2 3 2	1 2		1
Stress management	1		1 2	1 1 1	1	1 2 1	1 2 1		1
Coping skills	1		2/3 3 1	2 2 2	1	1	1 1		1 1
Rehearsal of relevant skills	1		3 3 3 3	2 3 2		2 1	2 1		

agree use; agree don't use; disagreement; indefinite

Designing KT interventions – physician hand hygiene

Step 1: Who needs to do
what differently?

Physician need to practice
hand hygiene routinely

Step 2: Using a theoretical
framework, which barriers and
enablers need to be addressed?

Beliefs about consequences
– failure to practice hand
hygiene not necessarily
associated with adverse
event

Step 3: Which intervention components
could overcome the modifiable barriers
and enhance the enablers?

Persuasion/social influence –
information on hospital
associated infections and
negative associated
consequences, emphasis on
hand hygiene as a team level
responsibility delivered to
team session by social
influential

Step 4: How will we measure
behaviour change?

Designing KT interventions – physician hand hygiene

1. Initial sensitisation (residents)

Intervention content:

Refresher about:

- the 4 moments of hand hygiene (knowledge)
- what is the patient environment (knowledge)
- TOH hand hygiene compliance and infection rates (beliefs about consequences, social influences (priority for chief resident and hospital))

Proposed delivery for Medicine:

- When: During Resident Orientation -1st day of block
- What: 1-2 slides on hand hygiene to be developed by team and given to Chief Resident
- Who will deliver: Chief Resident at the beginning of the block

Designing KT interventions – physician hand hygiene

2. Reinforcement (residents, attending physicians)

Intervention Content:

Knowledge about:

- Infection rates, the 4 moments, the patient environment (exact content to be developed and will be clinically relevant) (knowledge)
- Add Glo Germ demonstration in one of these sessions to illustrate technique (booth after session for all to try if interested) (skills)

Proposed delivery for Medicine:

- When: During Antibiotic Stewardship Rounds – a weekly pause of rounds that lasts a few minutes (already in practice) (social influence)
- What: A hand hygiene curriculum delivered weekly (~2min/session) X 4 (for one block)
- Who will deliver: Local experts/opinion leaders

Designing KT interventions – physician hand hygiene

3. Address environmental barriers (unit staff)

Intervention Content:

- Ensure that hand hygiene resources are easily accessible and noticeable (including systems to ensure hand hygiene resources are routinely replaced)

Proposed delivery for Medicine:

- How: Will walk through the chosen unit(s)
- Who will deliver: Members of the study team
- Accountability – unit

Mechanistic sub-studies

- Identification of barriers and facilitators and use of explicit intervention development process allows development of logic model and identification of likely mechanisms of action
- ***Theory based process evaluations*** collect data on theoretical construct(s) alongside randomised trials to explore possible causal mechanisms

Mechanistic sub-studies – DRAM case study

Effect of enhanced feedback and brief educational reminder messages on laboratory test requesting in primary care: a cluster randomised trial

Ruth E Thomas, Bernard Lewis Croal, Craig Ramsay, Martin Eccles, Jeremy Grimshaw

Summary

Background Laboratory services play an important part in screening, diagnosis, and management of patients within primary care. However, unnecessary use of laboratory tests is increasing. Our aim was to assess the effect of two interventions on the number of laboratory tests requested by primary-care physicians.

Methods We did a cluster randomised controlled trial using a 2x2 factorial design, involving 85 primary-care practices (370 family practitioners) that request all laboratory tests from one regional centre. The interventions were quarterly feedback of practice requesting rates for nine laboratory tests, enhanced with educational messages, and brief educational reminder messages added to the test result reports for nine laboratory tests. The primary outcome was the number of targeted tests requested by primary-care practices during the 12 months of the intervention. This study is registered as an International Standard Randomised Controlled Trial, number ISRCTN06490422.

Lancet 2006; 367: 1990–96

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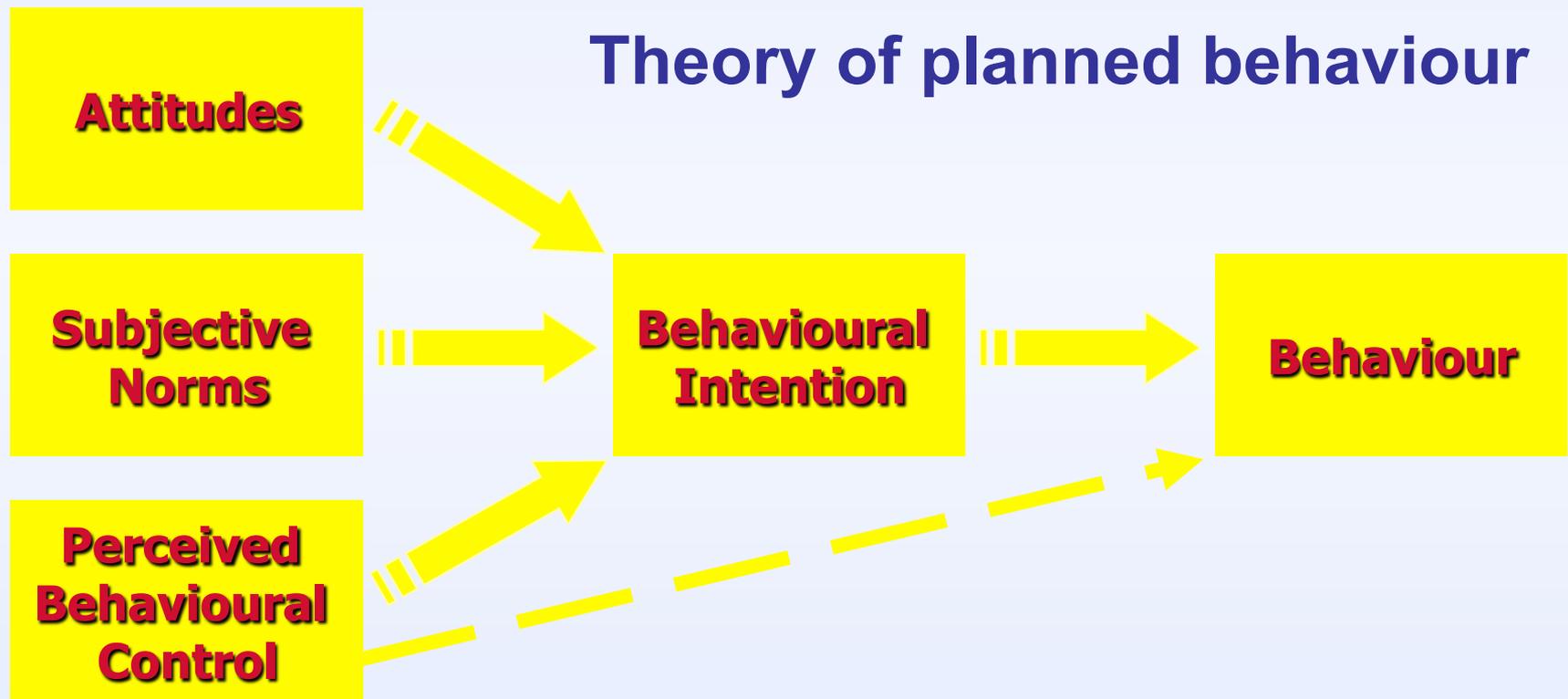
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Mechanistic sub-studies

– DRAM case study

- DRAM trial evaluated effects of brief educational messages and audit and feedback on family practitioners' laboratory test ordering on 9 tests
- Improvements observed across majority of tests for both interventions (eg FSH), no benefit in post eradication H Pylori testing
- Intervention hypothesised to work by enhancing intention through improved attitudes and social norms

Mechanistic sub-studies – DRAM case study



Ajzen & Madden, (1986), *Journal of Experimental Social Psychology*, 22, 453

Mechanistic sub-studies – DRAM case study

Ramsay *et al.* *Implementation Science* 2010, **5**:71
<http://www.implementationscience.com/content/5/1/71>



IMPLEMENTATION SCIENCE

RESEARCH ARTICLE

Open Access

Using the theory of planned behaviour as a process evaluation tool in randomised trials of knowledge translation strategies: A case study from UK primary care

Craig R Ramsay^{1*}, Ruth E Thomas¹, Bernard L Croal², Jeremy M Grimshaw³, Martin P Eccles⁴

Mechanistic sub-studies – DRAM case study

Results - FSH

	Intention (1-7)	Attitudes (1-7)	Social norms (1-7)	PBC (1-7)
Control	4.3	4.2	4.2	2.0
Feedback only	5.6	5.2	4.9	1.5
Educational messages	6.0	5.5	5.2	1.5
Feedback and messages	6.0	5.7	5.2	1.5

Mechanistic sub-studies – DRAM case study

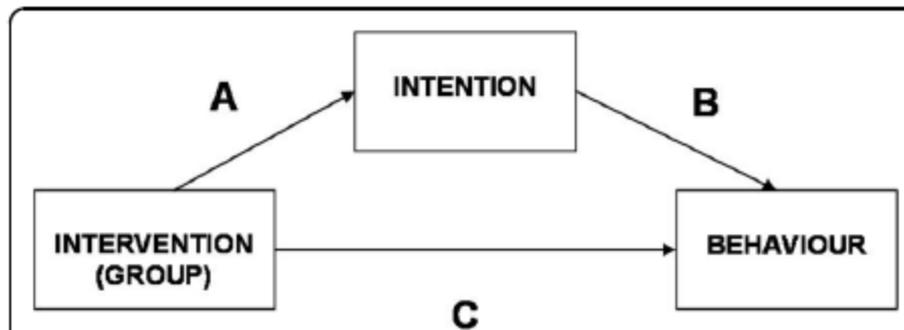


Figure 2 Mediation Model - Intervention group as the predictor of behaviour, intention as the mediator. The direct effect of the intervention allocation on behaviour is the coefficient **C** in the path diagram above. The indirect effect (often called the mediated effect) hypothesises that the observed intervention effect is due to a causal relationship whereby the intervention allocation "causes" the mediator variable (intention) to change and that in turn "causes" the behaviour to change. The indirect effect is therefore the product of the coefficients **A** and **B** in the statistical model and the direct effect is **C**. The strength of the mediation is determined by the difference between the direct minus indirect effect.

Mechanistic sub-studies – DRAM case study

Table 6 Mediation analysis of intentions on trial result

	Ferritin Mean (95% CI)	FSH Mean (95% CI)	HPS Mean (95% CI)
Main effect:			
Reminders			
Direct effect	-1.33 (-6.78, 4.11)	-1.11 (-3.35, 1.12)	-1.37 (-4.87, 2.13)
Indirect effect	-0.39 (-2.70, 1.22)	-0.86 (-2.53, 0.19)	0.21 (-.44, 1.47)
Percentage effect mediated by intentions	29%	77%	0%
Enhanced Feedback			
Direct effect	-4.57 (-9.85, 0.70)	-0.66 (-2.91, 1.60)	1.55 (-1.94, 5.05)
Indirect effect	-1.31 (-3.66, 0.16)	-0.15 (-1.19, 0.50)	-0.10 (-1.44, 0.83)
Percentage effect mediated by intentions	28%	23%	0%

Summary

- Assessing barriers and facilitators is key step in KT intervention design.
- Use of theoretical models builds upon cumulative knowledge base.
- Theoretical domains framework is helpful model to rapidly assess barriers across key domains.

Summary

- Intervention development using systematic approach to address identified barriers and facilitators helps make assumptions more explicit and clarify program logic models.
- Mechanistic sub-studies can be used to test the hypothesised mechanisms of action and causal pathways.

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KNOWLEDGE TRANSLATION CANADA

APPLICATION DES CONNAISSANCES CANADA