CPSI National Webinar Series
Knowledge Translation and Implementation Science Education Series

Webinar 5: Identifying barriers and enablers, and determinants of implementation, in practice

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Centre for Implementation Research
Webinar 5 overview

- Situating our progress in the webinar series
- Refresher: Theoretical Domains Framework (TDF)
- Practical Approaches to Using the TDF to identify barriers and enablers of implementation
  - Quantitative approaches
  - Qualitative approaches
KT / Implementation Science overviews: resources


A behavioural perspective to KT and IS

- Successful implementation of patient safety programs needs key actors (patients, healthcare providers, managers and policy makers) to change their behaviours and/or decisions whilst working in the complex (ordered chaos) of health care environments.

- There is a substantial evidence base in behavioural sciences that can support the development of patient safety programs and increase the likelihood of success.
The webinar series – overview

**Aim:** build capacity in the basic principles and practice of Knowledge Translation and Implementation Science to inform your own patient safety initiatives

- **Webinar 1:** Introduction to KT and Implementation Science
- **Webinar 2:** Knowledge creation and synthesis
- **Webinar 3:** Who needs to do what, differently, to promote implementation?
- **Webinar 4:** Identifying barriers and enablers, and determinants, in theory
- **Webinar 5:** Identifying barriers and enablers, and determinants, in practice
- **Webinar 6:** Selecting and evaluating strategies to address barriers and enablers
Situating ourselves in the webinar series

Knowledge to Action Framework

Webinar 2: Focus on the Knowledge Creation funnel

Knowledge creation funnel produces:
- Systematic reviews (e.g. Cochrane)
- Clinical practice guidelines
- Decision Aids
- Policy briefs

but… producing and disseminating these products does not guarantee change
Webinar 3: Focus on identifying the problem

- Identified gaps between what evidence suggests and current performance
- Specified: who needs to do what, differently
- Used TACT-A to specify each actors’ behaviour

... but selecting and tailoring interventions depends on knowing what to tailor on so that solutions designed are fit for purpose.
Knowledge to Action Framework

Webinar 4: What helps and hinders implementation?

- Theoretical frameworks provide a strong, replicable basis for identifying barriers and enablers to implementing a patient safety-related behaviour
- Gives leg-up on factors to consider
- Prevents “re-inventing the wheel”
- Helps to generalize across settings
Today’s webinar

Knowledge to Action Framework

Webinar 5: What helps and hinders implementation?
A practical approach
Healthcare-associated infections are one of the top 10 causes of hospital deaths worldwide

- Affects 10% of all patients in acute-care hospitals

Physician hand hygiene compliance is an international problem

- Average reported compliance rate: 49-57%

Reasons for poor compliance not well understood

Our case study: assume we want to develop a patient safety initiative to improve physician hand hygiene
### TACT-A:
A tool for specifying behaviours

#### Example 1: a ‘do more’ behavior

**Hand hygiene**

<table>
<thead>
<tr>
<th><strong>Action</strong></th>
<th>Use alcohol-based hand gel</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Actor</strong></td>
<td>Staff physicians, nurses and residents</td>
</tr>
<tr>
<td><strong>Target</strong></td>
<td>Patients receiving care at the hospital</td>
</tr>
<tr>
<td><strong>Context</strong></td>
<td>Patient rooms and hallways</td>
</tr>
<tr>
<td><strong>Time</strong></td>
<td>Before and after touching a patient</td>
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</tbody>
</table>

*Now what?*
Key Process model: The French Model

1. Step 1: *Who needs to do what, differently?*
   Whose behaviour need to change, and which behaviours? What is the evidence supporting this?

2. Step 2: *What factors determine whether or not they do it?*
   What are the barriers and enablers?

3. Step 3: *Which strategies can be effectively used to target those factors?*
   Which behaviour change techniques are best suited to specifically target the identified barriers and enablers

4. Step 4: *How can we robustly measure the outcome?*

(French et al., 2012)
Key Process model: The French Model

1. Step 1: *Who needs to do what, differently?*
   Whose behaviour need to change, and which behaviours? What is the evidence supporting this?

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(French et al., 2012)
Using the Theoretical Domains Framework (TDF) to identify barriers and enablers

**Approaches:**

- **Interviews** or **focus groups** with healthcare professionals to understand their views about what helps and hinders their performance of a specific behaviour

- **Questionnaires**: understanding which domains correlate with behaviour

- **Observations**: infer from watching what happens

- **Systematic reviews**: ‘re-engineering’ interventions to understand what factors they were targeting

**The TDF advantage**
- Applicable to any target, action, context, time, and actor (TACT-A)
- Covers a breadth of factors associated with behaviour
- Linked to strategies / techniques for addressing barriers/enablers (informs selection and tailoring of implementation interventions)
# Theoretical Domains Framework

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PRACTICAL APPROACH TO USING THE TDF

DOI 10.1186/s13012-017-0605-9

METHODOLOGY

A guide to using the Theoretical Domains Framework of behaviour change to investigate implementation problems

Lou Atkins1, Jill Francis2,3, Rafat Islam3, Denise O’Connor4, Andrea Patey3, Noah Ivers5, Robbie Foy6, Eilidh M. Duncan7, Heather Colquhoun8, Jeremy M. Grimshaw3,9, Rebecca Lawton10 and Susan Michie1

Provides a 7-step process to conducting TDF-based assessment of barriers and enablers to implementation

1. Select and specify the target behaviour/s
2. Select the design
3. Develop the materials
4. Decide on the sampling strategy
5. Collect the data
6. Analyse the data
7. Report Findings
1 – SELECT AND SPECIFY THE TARGET BEHAVIOUR

**TACT-A:**
A tool for specifying behaviours

Example 1: a ‘**do more**’ behaviour

Hand hygiene

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**Action**
Specify the *behaviour* or *behaviour(s)* that need(s) to change, in terms of a behaviour that can be observed and measured.

- Use alcohol-based hand gel

**Actor**
Specify the person/people that *do(s) or could do* the action targeted

- Staff physicians, nurses and residents

**Target**
Specify the person/people *with/for whom* the action is performed

- Patients receiving care at the hospital

**Context**
Specify *where* the action is performed (the physical location)

- Patient rooms and hallways
Select your design:
Practical steps to identifying barriers and enablers

Range of ways to identify barriers and enablers

• 1-1 interviews with your ‘Actors’
• Focus groups
• Observations
• Questionnaires and surveys
Practical steps to identifying barriers and enablers

Select and specify the target behaviour

- Select study design
  - Questionnaires
  - Semi-structured interviews

Develop the study materials
Collect the data
Analyse the data
Report Findings
Quantitative approach to identifying barriers and enablers

Questionnaires

Aims:
Descriptively quantify views on each of the TDF domains to assess:

- Which domains have high vs. low mean scores (is there room for improvement that justifies focusing on that domain?)
- How much respondents vary in their responses

Can also investigate *correlations* between TDF domains and behaviour you are trying to change
Quantitative approach to identifying barriers and enablers

Questionnaire: practicalities to be mindful of

- Most of the time commitment BEFORE collecting data
- Ideally select validated scales where available rather than developing new scale
- Can be costly (if using postal surveys)
- Recruitment can be challenging, retention/response rates even greater challenge
- Data entry time consuming, potential for error (unless online data collection)
- Dealing with missing data
- Depending on your analysis, may require large number of respondents
  - Formal stats for sample size calculations should be conducted \textit{before} recruitment to justify sample
Design: Quantitative approach to identifying barriers and enablers

Questionnaire: 4 steps

1. Define your TACT-A
2. Use an existing TDF scale where possible, adapted to your TACT-A
3. Decide how you will sample your ‘actors’
4. Get ethics approval

Example TACT-A: Physicians and nurses using alcohol-based gel in the hallway before and after entering each patient’s room over the next month
Develop your materials:
Consider using existing TDF questionnaires

Development and initial validation of the Influences on Patient Safety Behaviours Questionnaire
Natalie Taylor, Sahdia Parveen, Victoria Robins, Beverley Slater and Rebecca Lawton

Discriminant content validity of a theoretical domains framework questionnaire for use in implementation research
Johanna M Huijg, Winifred A Gebhardt, Mathilde R Crone, Elise Dusseldorp and Justin Presseau
Collect your data: Existing TDF questionnaire 1

- A 23-item measure developed and validated to assess responses to questions on TDF domains particularly within a patient safety setting
  - 2 items per domain

- Designed to be completed in <5 minutes

- Adaptable questionnaire available for use (free): Additional File 2

- **Ratings**: Respondents asked to rate each item on a Likert scale

- **Descriptive Analysis**: Mean (average) and standard deviation (variability of responses) for each domain
### Theoretical Domains Framework

#### TDF Domains

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#### TACT-A Questions:

1. I know what the guidelines say about the need to... *(knowledge)*
2. I fully agree with the guidelines which instruct staff to... *(knowledge)*
3. Training is not adequate to... *(skills)*
4. Training is not offered to me regularly enough to... *(skills)*
5. I have previously encountered problems when trying to... *(beliefs about capabilities)*
6. I do not find it easy to... *(beliefs about capabilities)*
7. I habitually (or usually)... *(memory, attention, decision making)*
8. There are justifiable reasons for why I often decide not to... *(memory, attention, decision making)*
9. Things are too unpredictable to make plans to... *(behavioural regulation)*
10. Plans in my head often get muddled when trying to... *(behavioural regulation)*

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… your TACT-A after each question
## Theoretical Domains Framework

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11. Verbal and written communication between staff is clear enough for me to... (*Environmental context & resources*)

12. There is not a good enough system in place to… (*Environmental context & resources*)

13. I have the necessary resources (e.g., correct/enough equipment, staff, etc.) (*Environmental context & resources*)

14. Other staff don’t seem to… (*social influences*)

15. My superiors would like me to…(*social influences*)

... your TACT-A after each question
Theoretical Domains Framework

TDF Domains

Knowledge
Skills
Beliefs about capabilities
Memory, attention and decision processes
Behavioural regulation
Environmental context and resources
Social Influences
Intention
Goals
Social/professional role and identity
Beliefs about consequences
Reinforcement
Emotion
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16. Emergencies and other priorities get in the way of me being able to... *(motivation and goals)*
17. Other guidelines conflict with trying to... *(motivation and goals)*
18. It isn’t my responsibility to... *(social/professional role and identity)*
19. I am clear about what my role should be in the process to... *(social/professional role and identity)*
20. It will be bad for the patient if I do not... *(beliefs about consequences)*
21. It does not matter too much if I do not... *(beliefs about consequences)*
22. I feel anxious if I think about having to... *(emotions)*
23. I worry if I think about having to... *(emotions)*

... your TACT-A after each question
Analyse your data: Existing TDF questionnaire 1

Analysis option: Descriptive

For each domain, create a mean (average) score

Example: Motivation and goals

Item 1: Emergencies and other priorities get in the way of me being able to... use alcohol-based gel in the hallway before I see each patient

Item 2: Other guidelines conflict with trying to... use alcohol-based gel in the hallway before I see each patient

Mean = 2.5

Constructing a mean score for each TDF domain can facilitate ‘screening’ to identify potential barriers to focus selecting particular strategies.
Alternative TDF questionnaire

Generic, adaptable to any TACT-A and draws from existing validated scales for each domain

Discriminant content validity of a theoretical domains framework questionnaire for use in implementation research

Johanna M Huijg, Winifred A Gebhardt, Mathilde R Crone, Elise Dusseldorp and Justin Presseau
Practical steps to identifying barriers and enablers

Select and specify the target behaviour

Select study design
Questionnaires
- Develop the study materials
- Collect the data
- Analyse the data
- Report Findings

Select study design
Semi-structured interviews
- Develop the study materials
- Collect the data
- Analyse the data
- Report Findings
Qualitative approach to identifying barriers and enablers

SEMII STRUCTURED INTERVIEWS

3. Develop the study materials
4. Decide the sampling strategy
5. Collect the data
6. Analyse the data
7. Report Findings
3 – DEVELOP THE STUDY MATERIAL

Develop Interview Guide

Conduct interviews

INTERVIEW
3 – DEVELOP THE STUDY MATERIAL

1. Literature review

2. Meet with key informants to identify the core issues in the area of interest

3. Develop questionnaire based on sample questions from TDF-1 to represent each domain (4 drafts)

4. Pilot test the interview guide

5. Make necessary changes based on the pilot interviews
3 – DEVELOP THE STUDY MATERIAL

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2. Meet with key informants to identify the core issues in the area of interest

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- Hand hygiene is recognized globally as a leading measure to reduce healthcare-associated infection.
- Hand hygiene compliance, however, is unacceptably low.
- Physicians in particular are repeatedly observed as being poor compliers.
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3 – DEVELOP THE STUDY MATERIAL

TDF Series in *Implementation Science*
https://www.biomedcentral.com/collections/tdf

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5. Make necessary changes based on the pilot interviews
3 – DEVELOP THE STUDY MATERIAL

- Validation of your Interview Guide
  - Theoretical Validation
    - Does your question target the domain you want to investigate?
  - Clinical Validation
    - Does your question make sense from a clinical perspective?

1. Literature review
2. Meet with key informants to identify the core issues in the area of interest
3. Develop questions based on sample questions from TDF-1 to represent each domain (4 drafts)
4. Pilot test the interview guide
5. Make necessary changes based on the pilot interviews
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4 – DEVELOP THE SAMPLING STRATEGY

Develop Interview Guide

Conduct interviews

INTERVIEW

ANALYSIS

Coding into Domains

Stage 1

Stage 2

Generating Specific Themes

Identifying Relevant Domains

Stage 3
4 – DEVELOP THE SAMPLING STRATEGY

To Consider

- Maximum variation is ideal for exploratory studies
- Identify Key participants are those who will, or should perform the behaviour but can also include other stake holders
- How do you know you’ve reached saturation?

Stage 1

Develop Interview Guide

Conduct interviews

INTERVIEW
How many people to interview?
4 – DEVELOP THE SAMPLING STRATEGY

Develop Interview Guide

Conduct interviews

Psychology & Health
Publication details, including instructions for authors and subscription information:
http://www.informaworld.com/smpp/title~content=t713648133

What is an adequate sample size? Operationalising data saturation for theory-based interview studies
Jill J. Francis a; Marie Johnston b; Clare Robertson a; Liz Glidewell a; Vikki Entwistle c; Martin P. Eccles d; Jeremy M. Grimshaw e

a Health Services Research Unit, University of Aberdeen, Aberdeen, UK
b School of Psychology, University of Aberdeen, Aberdeen, UK
c Social Dimensions of Health Institute, Universities of Dundee and St Andrews, Dundee, UK
d Institute of Health and Society, Newcastle University, Newcastle, UK
e Ottawa Health Research Institute, Institute of Population Health & Department of Medicine, University of Ottawa, Ottawa, ON, Canada

First published on: 22 October 2009
5 – COLLECT THE DATA

INTERVIEW

Develop Interview Guide

Conduct interviews

ANALYSIS

Stage 1

Coding into Domains

Stage 2

Generating Specific Themes

Stage 3

Identifying Relevant Domains
To Consider

- **Important to stick to the framing of the questions in the guide.**
- **Effective interviewing requires standard interviewing competencies and understanding of the theoretical content of each domain.**
6 – ANALYSE THE DATA

INTERVIEW

Develop Interview Guide

Conduct interviews

INTERVIEW

ANALYSIS

Stage 1

Coding into Domains

Stage 2

Generating Specific Themes

Stage 3

Identifying Relevant Domains

ANALYSE THE DATA

Stage 2

Stage 1

Stage 3
PRACTICALITIES: QUALITATIVE STUDIES

- Interviewing is a skill that requires practice
  - Avoid ‘leading’ people, closed questions that generate yes/no answers
  - How to keep people on track
  - Pilot / practice

- The majority of the time commitment for qualitative research tends to be **AFTER** the data have been collected
  - Analysis can be more time consuming

- Need to record (at least audio) and transcribe
  - Depending on duration, transcription is time consuming

- Robust analysis often requires independent double coding and theme generation

- Consider software: N-vivo
6 – ANALYSE THE DATA

Develop Interview Guide

Conduct interviews

INTERVIEW

ANALYSIS

Coding into Domains

Stage 1

Stage 2

Generating Specific Beliefs/Themes

Stage 3

Identifying Relevant Domains
6 – ANALYSE THE DATA

- 2 coders
- Establish a coding guide with the 2 pilot interviews
- Calculate Kappa

ANALYSIS

Stage 1

Coding into Domains

Stage 2

Stage 3

INTERVIEW

Develop Interview Guide

Conduct interviews
6 – ANALYSE THE DATA

Stage 1
- Coding into Domains

Stage 2
- 2 coders
- Establish interviews
- Calculate Kappa

Stage 3
- Agreement between coders as to what statements will go in what domain.
- Started with the guide that had been established from previous studies
- 4 interviews to set guide
6 – ANALYSE THE DATA

**ANALYSIS**

- 2 coders
- Establish a coding guide with the 2 pilot interviews
- Calculate Kappa

**Stage 1**

- Coding into Domains

**Stage 2**

- Develop Interview Guide

**Stage 3**

- Conduct interviews
Tie each statement to a domain

Does not practicing hand hygiene evoke worry or concern in you?

‘No it wouldn’t.’
Does not practicing hand hygiene evoke worry or concern in you? ‘No it wouldn’t.’
Tie each statement to a domain

Emotion

Does not practicing hand hygiene evoke worry or concern in you? ‘No it wouldn’t.’

“I think they [patients and their families] have a reason to expect it [hand hygiene] from us, like I don’t do it to satisfy them, their wishes.”
“I think they [patients and their families] have a reason to expect it [hand hygiene] from us, like I don’t do it to satisfy them, their wishes.”
6 – ANALYSE THE DATA

INTERVIEW

Develop Interview Guide

Conduct interviews

ANALYSIS

Stage 1

Coding into Domains

Stage 2

Generating Specific Themes

Stage 3

Identifying Relevant Domains
6 – ANALYSE THE DATA

- Statements (sub-themes) from each participant’s responses that captured the core thought
  - statements were made by different participants, both were coded as two instances of the same belief.
  - Statements having same theme or were polar opposites of a theme were grouped together.

- Recommend that this strategy be reviewed by the second researcher to ensure accurate representation of content.
Hand hygiene is a standard part of my patient consultations. (n = 40)

“In fact, I like to make it [hand hygiene] a very visible part of my patient consultation…I try and make sure that I’m actually still in the process of putting alcohol-based hand rub on my hands so that they know I’m performing hand hygiene.”

Med Staff

“I think every healthcare professional has to use it [hand hygiene].”

Med Res
EXAMPLES – GENERATING THEMES (BARRIERS)

Skills

“I don’t think I was ever trained, no.” Surgery Staff

Beliefs about capabilities

“I am not confident that I am following hand hygiene guidelines when practicing hand hygiene (n = 40)

“I don’t think so, not strictly, not all of them anyway.” Surgery Staff

I have not had training in hand hygiene practice (n = 15)
6 – ANALYSE THE DATA

Develop Interview Guide

Conduct interviews

INTERVIEW

ANALYSIS

Coding into Domains

Generating Specific Beliefs/Themes

Stage 1

Stage 2

Stage 3

Identifying Relevant Domains
1. Relevant domains should be identified through consensus (2-3 people).

2. 3 factors to consider
   • frequency of the beliefs across interviews;
   • presence of conflicting beliefs;
   • perceived strength of the beliefs impacting the behaviour.

3. All of these factors should be considered concurrently in establishing domain relevance.
Beliefs about capabilities

Hand hygiene is easy to practice (n = 36)

“It couldn’t be any easier. The stuff [alcohol gel] is all over the place.” Med staff

Hand hygiene is difficult to practice (n = 8)

“When there is an emergency situation, I am less likely to practice hand hygiene (n = 14)

Life-threatening situations. I mean, I don’t see myself, you know, looking for a sink when a patient is having a cardiac arrest. Med staff

“...if you were in a situation where you’re trying to do too much and you’re carrying things in and out of rooms and what have you, it’s not that you wouldn’t be trying to practice hand hygiene but that you might not be able to do it as effectively, right.” Med Res
You’ll have a list of relevant theoretical domains that are most likely to influence the target implementation problem and associated behaviours.

**Objective.** To identify the behavioral determinants—both barriers and enablers—that may impact physician hand hygiene compliance.

**Design.** A qualitative study involving semistructured key informant interviews with staff physicians and residents.

**Setting.** An urban, 1,100-bed multisite tertiary care Canadian hospital.
SUMMARY – TAKE HOME MESSAGES

- The TDF can help to structure how you identify the barriers and enablers that may influence the implementation of your initiative in your setting.

- Can use quantitative (questionnaires) and/or qualitative (interview/focus group) approaches.

- There are tools that you can use and quickly adapt.
  - Do not need to re-invent the wheel: questionnaires and interview guides can be adapted to your setting.
  - This is a strength of defining your behaviour using TACT-A.

- Taking this comprehensive, structured approach rooted in what we know influences behaviour and behaviour change helps to select change strategies that are fit for purpose (next webinar!)
Next Webinar

Selecting strategies and techniques best suited to address barriers measurement and evaluation

June 19th, 2018 noon EST
Lead: Justin and Jeremy

In the meantime…

Please send us examples of your own planned/ongoing patient safety initiatives so that we can directly inform our examples in the next webinars

Send to: jpresseau@ohri.ca
Thank you

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