Integrating implementation science into clinical qualitative improvement initiatives

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Agenda

- Implementation science
- Quality improvement
- Integrating implementation science to quality improvement
• Poll questions
Implementation science

• “One of the most consistent findings from clinical and health services research is the failure to translate research into practice and policy.”

• “Implementation science is the scientific study of methods and strategies that facilitate the uptake of evidence-based practice and research into regular use by practitioners and policymakers.”


Implementation science

• The intervention/practice/innovation is THE THING

• Effectiveness research looks at whether THE THING works

• Implementation Science looks at how best to help people/places DO THE THING

• Implementation strategies are the stuff we do to try to help people/places DO THE THING

• Main implementation outcomes are HOW MUCH and HOW WELL they DO THE THING

(Curran, 2020, Implementation Science Communications)
Implementation science

Implementation science

Theoretical approaches used in implementation science

Describing and/or guiding the process of translating research into practice

- PROCESS MODELS

Understanding and/or explaining what influences implementation outcomes

- DETERMINANT FRAMEWORKS
- CLASSIC THEORIES
- IMPLEMENTATION THEORIES

Evaluating implementation

- EVALUATION FRAMEWORKS

Nilsen, 2015
Implementation science

Formula For Success

Effective Innovations × Effective Implementation × Enabling Contexts = Socially Significant Outcomes
Any questions/thoughts on implementation science?
Quality improvement

- Quality improvement: “a continuous and ongoing effort to achieve measurable improvements in the efficiency, effectiveness, performance, accountability, outcomes, and other indicators of quality in services or processes which achieve equity and improve the health of the community.”
  (The Center for Disease Control and Prevention)

- PDSA Cycle
- Lean
- Six-Sigma
- Experience-based co-design

The Model for Improvement
Quality improvement

Six domains of quality as defined by the Institute of Medicine: **STEEEP**

- Safe
- Effective
- Patient-Centered
- Timely
- Efficient
- Equitable
Quality improvement

Promotion of improvement as a science

Martin Marshall, Peter Pronovost, Mary Dixon-Woods

The remarkable achievements of modern health care make the deficiencies associated with delivery of care all the more noticeable. Health care is a major source of avoidable harm, and patients are routinely exposed to wide and inexplicable variations in the quality of care that they receive. These variations are very difficult to address, despite good intentions, policy focus, ambitious improvement programmes, and investment of resources. A major reason for this difficulty is that the urge to act can easily overwhelm the need for evidence to inform that action, to the extent that much quality improvement work is unscientific—it is neither informed by high-quality evidence, nor is it subject to rigorous assessment to establish its effectiveness, costs, and risks. Ironically, this absence of a scientific approach might lead to outcomes that are exactly the opposite of what is intended by improvement efforts: resources can be wasted, energy and enthusiasm are dissipated, the substantial reduction in rates of these infections. These reductions were sustained over time and were associated with reduced mortality in participating intensive-care units compared with control units. The results have been replicated in 22 additional US states. Follow-up work investigated the mechanisms through which the programme worked, and generated a theory of change that could inform, and be tested in, subsequent repetitions of the programme.

Another example of a benefit of this broader way of thinking is the increase in identification and referral of victims of domestic violence. Domestic violence is often managed inadequately, despite the major health and social implications of unidentified and unmanaged abuse. In a cluster-randomised controlled trial in 51 primary care clinics in two UK cities (London and Bristol), investigators tested a range of evidence-based interventions to increase rates of primary care identifi...
• Improvement science is about finding out how to improve and make changes in the most effective way. It is about systematically examining the methods and factors that best work to facilitate quality improvement.

• The overriding goal is to ensure that quality improvement efforts are based as much on evidence as the best practices they seek to implement.

• A number of terms have been used to refer to improvement science concepts: the science of improvement, implementation science, translational research, quality improvement science, science of quality improvement, measurement for improvement and quality improvement methods.
Any thoughts on the connections between implementation science and quality improvement (science)?
Implementation science & quality improvement (science)

IR: Implementation research
QIS: Quality Improvement Science
QI: Quality Improvement

Tyler & Glasgow, 2021
## Implementation science VS improvement science

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Similarities</th>
<th>Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influences</td>
<td>Concern practice change</td>
<td>Different origins and draw on mostly different sources of knowledge. Impr Sci: Medical sciences (and the evidence-based movement), behavioural sciences and social sciences</td>
</tr>
<tr>
<td></td>
<td>Acknowledge the relevance of psychology for understanding change mechanisms</td>
<td>Impr Sci: management and manufacturing fields, and topics and disciplines such as quality, measurement, management, leadership, strategy, and organisational learning</td>
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<tr>
<td>Ontology, Epistemology,</td>
<td>Belong to the positivist tradition, with some interpretivist features</td>
<td>Highly applied in nature, with aspirations to inform practice. Impr Sci: the problem relates to delays in getting effective practices applied systematically in practice</td>
</tr>
<tr>
<td>methodology</td>
<td>Highly applied in nature, with aspirations to inform practice</td>
<td>Impr Sci: the problem is related to the efficiency, safety, and/or quality of current practice</td>
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<tr>
<td>Problem identification</td>
<td>Both fields describe a gap or chasm between current and optimal care and/or</td>
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</table>
# Implementation science VS improvement science

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Similarities</th>
<th>Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential solutions</td>
<td>Share multiple common strategies, although partially different terminology to describe them</td>
<td>Impl Sci: implementation of evidence-based practices will reduce or eliminate the problem. Impr Sci: quality improvement follows from successful change in the health care system and its processes. The scope of change is broader in Impr Sci than in Impl Sci, because a QI initiative is not necessarily limited to application of scientifically supported evidence, but can also involve operations, service quality and efficiency.</td>
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<tr>
<td>Analytical tools</td>
<td>Use analytical tools to analyse problems and to identify possible solutions</td>
<td>Impl Sci: the use of theories, models and frameworks as analytical tools Impr Sci: a range of QI tools, typically adapted for use in health care from the manufacturing industry and management</td>
</tr>
<tr>
<td>Knowledge production and use</td>
<td>Produce knowledge that is both applicable for improved practice and sufficiently generalizable to contribute to scientific knowledge accumulation</td>
<td>Health care practitioners and organizational developers are more likely to have QI and/or Impr Sci knowledge than Imp Sci knowledge</td>
</tr>
</tbody>
</table>

Guiding principles:

- Engage patients and families as partners in safe care
- Achieve results through collaborative working
- Analyse and share data to generate learning
- Translate evidence into actionable and measurable improvement
- Base policies and action on the nature of the care setting
- Use both scientific expertise and patient experience to improve safety
- Instill a safety culture in the design and delivery of health care

Global Patient Safety Action Plan 2021-2030 (who.int)
Aligning Implementation Science with Improvement practice

- Three challenges:
  1. Use of different models, terminology, and methods,
  2. A focus on generalizable versus local knowledge, and
  3. Limited evidence in support of the effectiveness of improvement tools and methods.

- Aligning with improvement practice would benefit implementation science by:
  1. Strengthening research/practice partnerships,
  2. Fostering local ownership of implementation,
  3. Generating practice-based evidence,
  4. Developing context-specific implementation strategies, and
  5. Building practice-level capacity to implement interventions and improve care.

Embedding implementation science to quality improvement

1. Who needs to do what differently?

2. Using a theoretical framework, which barriers and facilitators need to be addressed?

3. Which intervention components could overcome the modifiable barriers and enhance the facilitators?

4. How to measure the behavior change?

Evidence-based practice implementation

French et al., 2012, Implementation Science
1. Who needs to do what differently?

**Plan**

**Action** (what observable behavior will be performed)

**Actor** (who will be doing the action)

**Context** (where the action will be performed)

**Target** (who will receive the action)

**Time** (when the action will be performed)

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**METHODOLOGY**

**Action, actor, context, target, time (AACKT): a framework for specifying behaviour**

Justin Presseau, Nicola McCleary, Fabiana Lorenzotto, Andrea M. Patey, Jeremy M. Grimshaw, Jill J. Francis

**Abstract**

Background: Designing implementation interventions to change the behaviour of healthcare providers and other professionals in the health system requires detailed specification of the behaviour(s) targeted for change to ensure alignment between intervention components and measured outcomes. Detailed specification can help to clarify evidence-practice gaps, clarify who needs to do what differently, identify modifiable barriers and enablers, design interventions to address these and ultimately provide an indicator of what to measure to evaluate an intervention’s effect on behaviour change. An existing behaviour specification framework proposes four domains: Target, Action, Context, Time, TACT, but insufficiently clarifies who is performing the behaviour (i.e. the Actor). Specifying the Actor is especially important in healthcare settings characterised by multiple behaviours performed by multiple different people. We propose and describe an extension and re-ordering of TACT to enhance its utility to implementation intervention designers, practitioners and evaluators. The Action, Actor, Context, Target, Time (AACKT) framework. We aim to demonstrate its application across key steps of implementation research and to provide tools for its use in practice to clarify the behaviours of stakeholders across multiple levels of the healthcare system.

**Methods and results:** We used French et al.’s four-step implementation process model to describe the potential applications of the AACKT framework for (a) clarifying who needs to do what differently, (b) identifying barriers and enablers, (c) selecting fit-for-purpose intervention strategies and components and (d) evaluating implementation interventions.

**Conclusions:** Describing and detailing behaviour using the AACKT framework may help to enhance measurement of theoretical constructs, inform development of topic guides and questionnaires, enhance the design of implementation interventions and clarify outcome measurement for evaluating implementation interventions.

**Keywords:** Behaviour, Framework, Behaviour specification, TACT, Behaviour change, Health professional behaviour
1. Who needs to do what differently?

Study to increase physician hand hygiene compliance

**Action** (what observable behavior will be performed)
---Washing hand with soap/water or alcohol-based gel

**Actor** (who will be doing the action)
---Staff physicians and residents

**Context** (where the action will be performed)
---Medical and surgical wards at the XXX Hospital

**Target** (who will receive the action)
---Patients

**Time** (when the action will be performed)
---Before and after patient contact
Embedding implementation science to quality improvement

1. Who needs to do what differently?

Key message:
Use the **AACTT framework** to specify the behaviors and clarify responsibilities
Embedding implementation science to quality improvement

1. Who needs to do what differently?

2. Using a theoretical framework, which barriers and facilitators need to be addressed?
Embedding implementation science to quality improvement

2. Using a theoretical framework, which barriers and facilitators need to be addressed?

Traditional approaches:

ISLAGIATT principle

‘It Seemed Like A Good Idea At The Time’

‘Hunches...Common sense’

lack rationale...

‘it worked elsewhere’

‘just educate’

Prof. Martin Eccles, implementation researcher, UK
Commonly used frameworks for assessing barriers

**COM-B**
- **Capability**
- **Motivation**
- **Opportunity**

**Theoretical Domains Framework (TDF)**
- **Knowledge**
  - Beliefs About Capabilities (Confidence)
- **Skills**
  - Social / Professional Role / Identity
- **Memory, Attention, & Decision Processes**
  - Beliefs About Consequences
- **Behavior Regulation (Habits)**
  - Emotions
- **Goals (I want to)**
- **Intentions (I plan to)**
- **Reinforcing Behavior**
- **Optimism / Pessimism**
- **Environmental Context / Resources**
- **Social Influences (Influenced by others)**


Figure adapted by The Center for Implementation
COM-B

- **Capability**: Psychological or physical ability to enact the behaviour
- **Motivation**: Reflective and automatic mechanisms that activate or inhibit behaviour
- **Opportunity**: Physical and social environment that enables the behaviour
**Capability:**

Capability refers to whether we have the knowledge, skills and abilities required to engage in a particular behaviour. **Its two components are:**

- Psychological Capability: our knowledge/psychological strength, skills or stamina
- Physical Capability: our physical strength, skill or stamina

**Opportunity:**

In the context of this model, opportunity refers to the external factors which make the execution of a particular behaviour possible. **Its two components are:**

- Physical Opportunity: opportunities provided by the environment, such as time, location and resource
- Social Opportunity: opportunities as a result of social factors, such as cultural norms and social cues

**Motivation:**

Motivation refers to the internal processes which influence our decision making and behaviours. **Its two components are:**

- Reflective Motivation: reflective processes, such as making plans and evaluating things that have already happened
- Automatic Motivation: automatic processes, such as our desires, impulses and inhibitions
1. Capability:
   • **Psychological Capability**: - How confident do you feel in your knowledge of proper hand hygiene practices?
   • **Physical Capability**: - What resources or training would you find helpful in improving your hand hygiene practices?

2. Opportunity:
   • **Physical Opportunity**: - Are there enough accessible hand hygiene stations in your work area?
   • **Social Opportunity**: - How do your colleagues or supervisors influence your hand hygiene practices?

3. Motivation:
   • **Reflective Motivation**: - What are your personal beliefs and attitudes toward the importance of hand hygiene?
   • **Automatic Motivation**: - Are there any routine practices or habits that contribute to or hinder your hand hygiene behavior?
<table>
<thead>
<tr>
<th>Domain</th>
<th>Definition</th>
<th>Sample Interview Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>An awareness of the existence of something</td>
<td>Do you know about x?</td>
</tr>
<tr>
<td>Skills</td>
<td>An ability or proficiency acquired through practice</td>
<td>Do you know how to do x?</td>
</tr>
<tr>
<td>Memory, attention and decision Processes</td>
<td>The ability to retain information, focus selectively on aspects of the environment and choose between two or more alternatives</td>
<td>Is x something you usually do?</td>
</tr>
<tr>
<td>Behavioural regulation</td>
<td>Anything aimed at managing or changing objectively observed or measured actions</td>
<td>Do you have systems that you could use for monitoring whether or not you have carried x?</td>
</tr>
<tr>
<td>Social/professional role and identity</td>
<td>A coherent set of behaviours and displayed personal qualities of an individual in a social or work setting</td>
<td>Is doing x compatible or in conflict with professional standards/identity?</td>
</tr>
<tr>
<td>Beliefs about capabilities</td>
<td>Acceptance of the truth, reality, or validity about an ability, talent, or facility that a person can put to constructive use</td>
<td>How difficult or easy is it for you to do x?</td>
</tr>
<tr>
<td>Optimism</td>
<td>The confidence that things will happen for the best or that desired goals will be attained</td>
<td>How confident are you that the problem of implementing x will be solved?</td>
</tr>
<tr>
<td>Beliefs about consequences</td>
<td>Acceptance of the truth, reality, or validity about outcomes of a behavior in a given situation</td>
<td>What do you think will happen if you do x?</td>
</tr>
<tr>
<td><strong>Domain</strong></td>
<td><strong>Definition</strong></td>
<td><strong>Sample Interview Question</strong></td>
</tr>
<tr>
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<td>-----------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Intentions</td>
<td>A conscious decision to perform a behaviour or a resolve to act in a certain way</td>
<td>Have they made a decision to do x?</td>
</tr>
<tr>
<td>Goals</td>
<td>Mental representations of outcomes or end states that an individual wants to achieve</td>
<td>How much do they want to do x?</td>
</tr>
<tr>
<td>Reinforcement</td>
<td>Increasing the probability of a response by arranging a dependent relationship, or contingency, between the response and a given stimulus</td>
<td>Are there incentives to do x?</td>
</tr>
<tr>
<td>Emotion</td>
<td>A complex reaction pattern, involving experiential, behavioural, and physiological elements, by which the individual attempts to deal with a personally significant matter or event</td>
<td>Does doing x evoke an emotional response?</td>
</tr>
<tr>
<td>Environmental context</td>
<td>Any circumstance of a person’s situation or environment that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behaviour</td>
<td>To what extent do physical or resource factors facilitate or hinder x?</td>
</tr>
<tr>
<td>Social influences</td>
<td>Those interpersonal processes that can cause individuals to change their thoughts, feelings, or behaviours</td>
<td>To what extent do social influences facilitate or hinder x?</td>
</tr>
</tbody>
</table>
Consolidated Framework for Implementation Research (CFIR) 2.0

**Outer Setting**
- Critical incidents
- Values and beliefs
- Systemic conditions
- Policies and laws
- Partnerships and connections
- Financing
- External pressure

**Inner Setting**
- Structural characteristics
- Relational connections
- Communications
- Culture
- Tension for change
- Compatibility
- Relative priority
- Incentive systems
- Mission alignment
- Available resources
- Access to knowledge about the Innovation

**The THING (Innovation)**
- Source
- Evidence-Base
- Relative Advantage
- Adaptability
- Trialability
- Complexity
- Design
- Cost

**Roles**
- High-level leaders
- Mid-level leaders
- Opinion leaders
- Innovation recipients
- Implementation facilitators
- Implementation leads
- Innovation deliverers
- Innovation beneficiaries
- Implementation team members
- Other implementation support

**Process**

Implementation Process
- Teaming
- Assessing Needs
- Assessing Context
- Planning
- Tailoring Strategies
- Engaging
- Doing
- Reflecting & Evaluating
- Adapting

Figure adapted by The Center for Implementation | V2024.01

i-PARIHS Framework

SI = Fac^n (I + R + C)
- SI = successful implementation
- Fac^n = facilitation
- I = innovation
- R = recipients
- C = context

Harvey and Kitson, 2016
Ottawa Model of Research Use (OMRU)

Graham & Logan, 2004
Embedding implementation science to quality improvement

2. Using a theoretical framework, which barriers and facilitators need to be addressed?

Key message:
use existing frameworks (e.g.: COM-B; TDF; CFIR; i-PARIHS; OMRU) to assess barriers
Embedding implementation science to quality improvement

Plan

1. Who needs to do what differently?

2. Using a theoretical framework, which barriers and facilitators need to be addressed?

3. Which intervention components could overcome the modifiable barriers and enhance the facilitators?

Do
3. Which intervention components could overcome the modifiable barriers and enhance the facilitators?

- Most complex and challenging part
- No magic bullets
- Choice of implementation strategies should be based upon:
  - ‘Diagnostic’ assessment of barriers
  - Understanding of mechanism of action
  - Empirical evidence about effects
  - Engage stakeholders
  - Available resources
  - Practicalities, logistics etc.
Embedding implementation science to quality improvement

3. Which intervention components could overcome the modifiable barriers and enhance the facilitators?

- Three step approach

Barriers assessment → Select an intervention function(s) → Select implementation strategies

The underlying function a change strategy would serve – you can think of this as the “purpose” of the change strategy.
Barrier assessment → intervention function → implementation strategies

Michie et al., 2014

<table>
<thead>
<tr>
<th>Intervention Function</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>Increasing knowledge or understanding</td>
</tr>
<tr>
<td>Persuasion</td>
<td>Using communication to induce positive or negative feelings or stimulate action</td>
</tr>
<tr>
<td>Incentivization</td>
<td>Creating expectation of reward</td>
</tr>
<tr>
<td>Enablement</td>
<td>Increasing means/reducing barriers to increase capability or opportunity</td>
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<tr>
<td>Training</td>
<td>Imparting skills</td>
</tr>
<tr>
<td>Coercion</td>
<td>Creating expectation of punishment or cost</td>
</tr>
<tr>
<td>Restriction</td>
<td>Using rules to reduce the opportunity to engage in the target behavior (or increase the opportunity to engage in competing behaviors)</td>
</tr>
<tr>
<td>Environmental Restructuring</td>
<td>Changing the physical or social context</td>
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<tr>
<td>Modelling</td>
<td>Providing and example for people to aspire to or imitate</td>
</tr>
</tbody>
</table>
## COMB - Intervention Functions

<table>
<thead>
<tr>
<th>Function</th>
<th>Physical capability</th>
<th>Psychological capability</th>
<th>Physical opportunity</th>
<th>Social opportunity</th>
<th>Automatic motivation</th>
<th>Reflective motivation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
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<td>Persuasion</td>
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<td>Incentivisation</td>
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<td>Coercion</td>
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<td>Training</td>
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<td>Restriction</td>
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<td>Environmental</td>
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<td>Restructuring</td>
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<td>Modelling</td>
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<td>Enablement</td>
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</table>

**Barrier assessment → intervention function → implementation strategies**
Barrier assessment → intervention function → implementation strategies

<table>
<thead>
<tr>
<th>TDF Domain</th>
<th>Coercion</th>
<th>Education</th>
<th>Enablement</th>
<th>Environmental restructuring</th>
<th>Incentivisation</th>
<th>Modelling</th>
<th>Persuasion</th>
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<td>Knowledge</td>
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<td>Cognitive &amp; interpersonal skills</td>
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<td>Physical skills</td>
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<td>Memory, attention and decision processes</td>
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<td>Behavioural regulation</td>
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<td>Social/professional role</td>
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<td>Identity</td>
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<td>Beliefs about capabilities</td>
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<td>Optimism</td>
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<td>Intentions</td>
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<td>Goals</td>
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<td>Beliefs about consequences</td>
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<td>Reinforcement</td>
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<td>Environmental context and resources</td>
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<td>Social influences</td>
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The Behavior Change Technique Taxonomy (v1) of 93 Hierarchically Clustered Techniques: Building an International Consensus for the Reporting of Behavior Change Interventions

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Abstract
Background CONSORT guidelines call for precise reporting of behavior change interventions: we need rigorous methods of characterizing active content of interventions with precision and specificity.
Objectives The objective of this study is to develop an extensive, consensually agreed hierarchically structured taxonomy of techniques [behavior change techniques (BCTs)] used in behavior change interventions.
Methods In a Delphi-type exercise, 14 experts rated labels and definitions of 124 BCTs from six published classification systems. Another 18 experts grouped BCTs according to similarity of active ingredients in an open-sort task. Inter-rater agreement amongst six researchers coding 85 intervention descriptions by BCTs was assessed.
Results This resulted in 93 BCTs clustered into 16 groups. Of the 26 BCTs occurring at least five times, 23 had adjusted kappas of 0.60 or above.
Conclusions “BCT taxonomy v1,” an extensive taxonomy of 93 consensually agreed, distinct BCTs, offers a step change as a method for specifying interventions, but we anticipate further development and evaluation based on international, interdisciplinary consensus.
Some online tools (if you use TDF/COM-B to assess barriers)

- Search in Google: StrategEase tool
  - https://thecenterforimplementation.com/strategease-tool
- StrategEase Tool Worksheets

- Search in Google: Theory and Techniques Tool
  - https://theoryandtechniquetool.humanbehaviourchange.org/tool

- Search in APP store: BCT Taxonomy
  - BCT means: Behavior Change Techniques

You can still refer to these tools if you are using other frameworks to assess barriers
Developing implementation strategies

- Barriers assessment
- Select an intervention function(s)
- Select implementation strategies

Implementation scientists are here to help 😊

Developing implementation strategies from a **behavioral science** perspective has been popular and well-studied. BUT it is not the only way! There’re also critics.
Developing implementation strategies

- Some tools (if you use CFIR to assess barriers)

**Use evaluative and iterative strategies**
- Assess for readiness and identify barriers and facilitators
- Audit and provide feedback
- Purposefully reexamine the implementation

**Adapt and tailor to context**
- Tailor strategies
- Promote adaptability
- Use data experts

**Train and educate stakeholders**
- Conduct ongoing training
- Distribute educational materials
- Use train-the-trainer techniques

**Engage consumers**
- Increase demand
- Use mass media
- Involve patients, consumers, and family members

**Change infrastructure**
- Mandate change
- Change record systems
- Change physical structure and equipment

**A SELECTION OF IMPLEMENTATION STRATEGIES**

- Facilitation
  - Provide local technical assistance
  - Provide clinical supervision

- Develop stakeholder interrelationships
  - Identify and prepare champions
  - Organize clinician implementation team meetings
  - Identify early adopters

- Support clinicians
  - Remind clinicians
  - Revise professional roles
  - Facilitate relay of clinical data to providers

- Utilize financial strategies
  - Alter incentive/allowance structures
  - Access new funding
  - Fund and contract for the clinical innovation

**Expert Recommendations for Implementing Change (ERIC) Taxonomy**

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Developing implementation strategies

- Some tools (if you use CFIR to assess barriers)

Consolidated Framework for Implementation Research
Developing implementation strategies

- **Other resources for consideration**

<table>
<thead>
<tr>
<th>Implementation strategy</th>
<th>Magnitude of effect (median absolute improvement of care)</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Printed educational material (n=45)</td>
<td>2.0% (IQR 0% to +11.0%)</td>
<td>Gigure et al. 2012</td>
</tr>
<tr>
<td>Educational meetings (n=81)</td>
<td>6.0% (IQR +1.8% to +15.3%)</td>
<td>Forsetlund et al. 2009</td>
</tr>
<tr>
<td>Education outreach (n=69)</td>
<td>5.6% (IQR +3.0% to +9.0%)</td>
<td>O‘Brien et al. 2007</td>
</tr>
<tr>
<td>Local opinion leaders (n=18)</td>
<td>12.0% (IQR +6.0% to +14.5%)</td>
<td>Flodgren et al. 2011</td>
</tr>
<tr>
<td>Audit and feedback (n=82)</td>
<td>4.3% (IQR +0.5% to +16%)</td>
<td>Ivers et al. 2012</td>
</tr>
<tr>
<td>Reminders (n=32)</td>
<td>11.2% (IQR +6.5% to +19.6%)</td>
<td>Arditi et al. 2012</td>
</tr>
</tbody>
</table>
Developing implementation strategies

• The APEASE criteria
  • Affordability
  • Practicability
  • Effectiveness and cost-effectiveness
  • Acceptability
  • Side-effects/safety
  • Equality
Embedding implementation science to quality improvement

1. Who needs to do what differently?

2. Using a theoretical framework, which barriers and facilitators need to be addressed?

3. Which intervention components could overcome the modifiable barriers and enhance the facilitators?

Key message: refer to existing techniques/tools to **co-develop** your implementation strategies
Embedding implementation science to quality improvement

1. Who needs to do what differently?
2. Using a theoretical framework, which barriers and facilitators need to be addressed?
3. Which intervention components could overcome the modifiable barriers and enhance the facilitators?
4. How to measure the behavior change?

French et al., 2012, Implementation Science
Evaluate outcomes

Did people change their behaviors?

Still remember the AACTT framework?

Glasgow et al. 1998

Proctor et al. 2011
Evaluate outcomes

Sustainability

• “One of the most significant translational research problems of our time” (Proctor et al., 2015)

• Up to 70% of all organizational change fails to survive (Daft & Noe, 2000. Beer & Nohria, 2001)

Think about sustainability at the very beginning of the QI project. Always ask:
• Is our QI initiative able to sustain?
• How can we do to ensure sustainability?
Evaluate outcomes

- Sustainability assessment tool

NHS Sustainability Model
Evaluate outcomes

- Sustainability assessment tool

---

**Table 2** Provider REport of Sustainment Scale (PRESS)

The following questions ask about [EBP] in your [setting]. Please indicate the extent to which you agree with the following items:

1. Staff use [EBP] as much as possible when appropriate
2. Staff continue to use [EBP] throughout changing circumstances
3. [EBP] is a routine part of our practice

Anchors 0 = not at all, 1 = to a slight extent, 2 = to a moderate extent, 3 = to a great extent, and 4 = to a very great extent
Embedding implementation science to quality improvement

1. Who needs to do what differently?

2. Using a theoretical framework, which barriers and facilitators need to be addressed?

3. Which intervention components could overcome the modifiable barriers and enhance the facilitators?

4. How to measure the behavior change?

Key message: use tools from ImpSci for outcome evaluation

French et al., 2012, Implementation Science
Implementation Research Logic Model

Fig. 2 Implementation Research Logic Model (IRLM) Standard Form with Intervention. Notes. Domain names in the determinants section were drawn from the Consolidated Framework for Implementation Research. The format of the outcomes column is from Proctor et al. 2011
“Every intervention, from the simplest to the most complex, has an effect on the overall system, and the overall system has an effect on every intervention” World Health Organization (2009). System Thinking for Health Systems Strengthening

Dream big. Start small.
Small change can make big impact.
Additional resources

Centre for Implementation Research, Ottawa Hospital Research Institute

**Past Events & Presentations – Centre for Implementation Research (ohri.ca)**

**Practicing Knowledge Translation Workbook**


**The Center for Implementation**
Thank you