VR Workshop – April 26, 2024

Creating a plan to integrate VR into your practice setting

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Declarations

- No conflict of interest to declare.

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Research interests

Implementation Scientist

I specialize in **theoretical and methodological approaches** used throughout **implementation research** to support adaptation, adoption, scaling, dissemination, and sustainability of evidence-based interventions, practices, programs and policies in healthcare

- **Ultimate goal:** To narrow the gap between knowledge and practice and to improve the **quality, efficiency, and equity** of healthcare services, ultimately enhancing population health.

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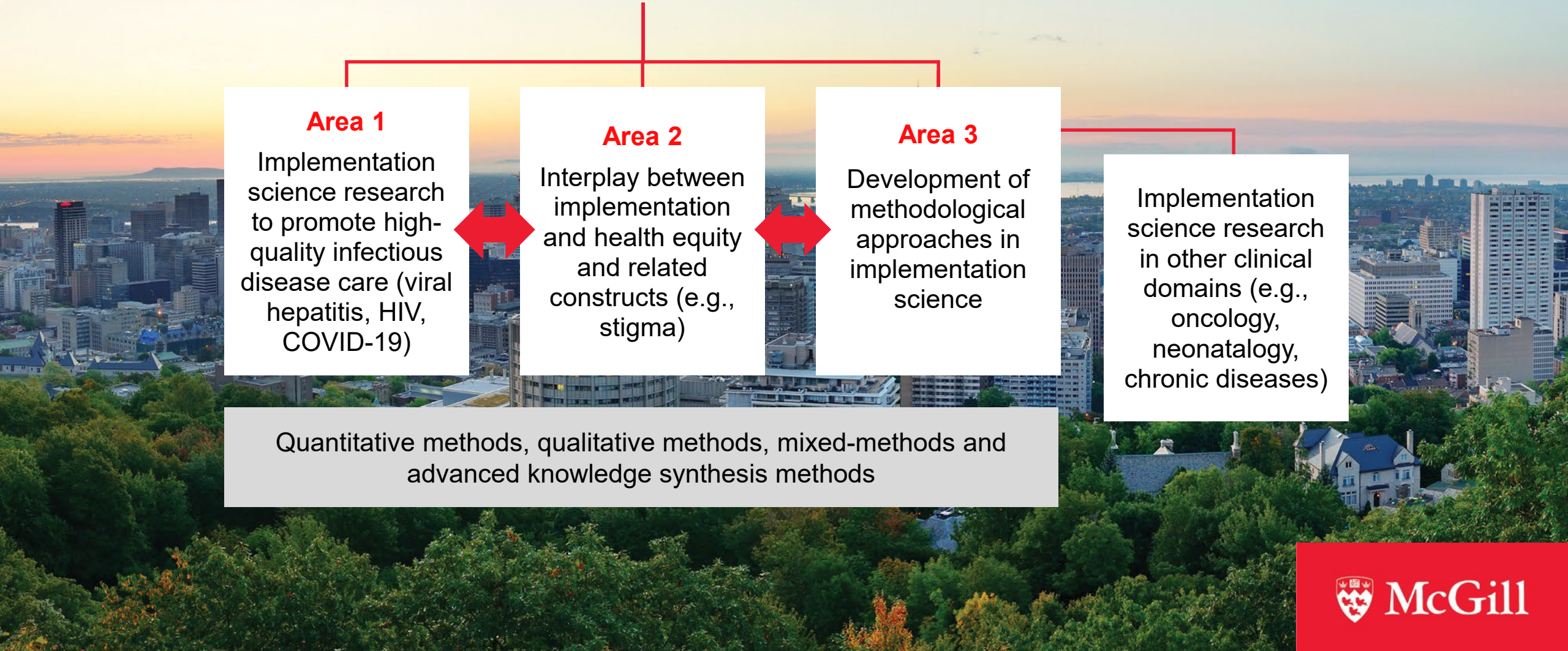
RISE^3 LAB (Research in Implementation Science for Healthcare Engagement, Effectiveness and Equity), McGill & LDI



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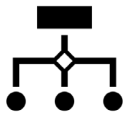
Presentation outline

A. Implementation science



B. Fundamental concepts

C. Thinking about barriers and facilitators

D. Selecting implementation strategies

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A. Implementation science

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Why is implementation science needed?
(At least) Five kinds of care gaps

Slow uptake of new interventions that are clinically effective (failure to deliver 'high-value care')

Premature or continued uptake of interventions that are shown to be ineffective, wasteful or even harmful (delivery of 'low-value care')

Failure to keep up with gradually emerging evidence about existing interventions

Unwarranted variation in care (often associated with health inequities)

Failure to keep up with changes in the **ethos of care**

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How healthcare organizations typically approach implementation

Martin Eccles

Jill Francis

Most frequently used approach to implementation:

ISLAGIATT

(It Seemed Like A Good Idea At The Time)

Expension version of trial and error

- **Ineffective: Does not base itself on what we already know**
- **Insufficient: May omit important factors**
- **Unscientific: Based on implicit ideas of what causes change in practice, compromising the scope, dissemination, and accumulation of evidence**

Presseau (2023)

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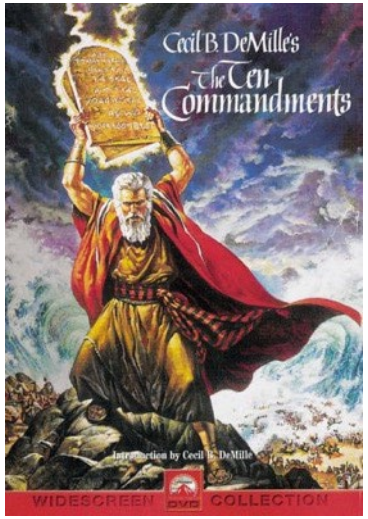
A few typical approaches…

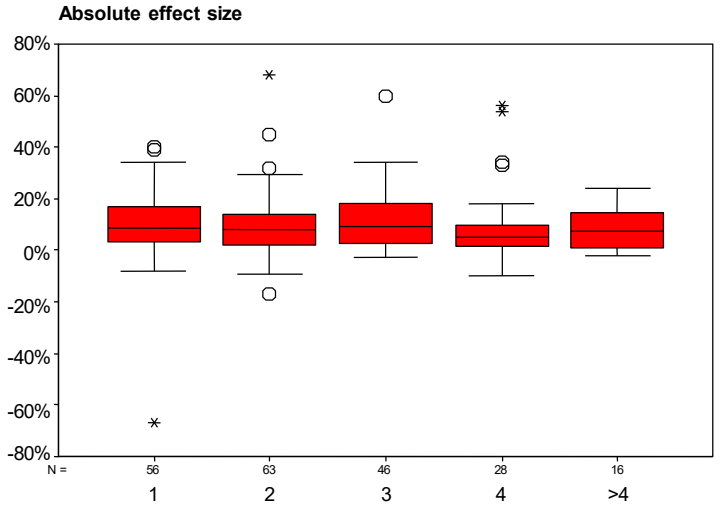
Develop & issue guidelines



They do not self-implement

Presseau (2023)

Throw everything at the issue and see what sticks



Grimshaw et al (2004) *Health Technology Assessment*

More ≠ better

Choose a favorite solution

May not be fit for purpose

Deliver training/CPD

Is content including strategies to address barriers to change?

Develop an app

What about change techniques? What about use?

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What now?

Evidence based practice should be complemented by <u>evidence based implementation</u> Grol (1997, BMJ)

ISLAGIATT Approach

- Plan a meeting
- Brainstorm solutions
- Somebody decides on a solution
- Implementation of solution
- Hope it works

Implementation Science Approach

- Before jumping to solutions, fully understand the problem to maximize the chances that solution successful
- Identifying barriers and enablers
- Selecting and tailoring implementation strategies

Presseau (2023)

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What is implementation science?

Implementation science is a multidisciplinary specialty (eg, psychology, sociology, organizational theory, political science, behavioral economics) that seeks generalizable knowledge about the methods used to support the integration of evidence-based interventions, programs and policies into health systems

- Wide **range of methods and tools building on decades of evidence in these disciplines** to support the identification of barriers and enablers to implementation and effective implementation strategies

Martin Eccles

Brian Mittman

"The scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice, and, hence, to improve the quality and effectiveness of health services."

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What is implementation?

Process

Planned

Human behaviour change

Implementation is the process of planned human behavior change under organizational constraints

Anne Sales

Organization constraints

Implementation practice is the process of supporting human behavior change under organizational constraints

Implementation science is the study of planned human behavior change under organizational constraints

Sales (2021)

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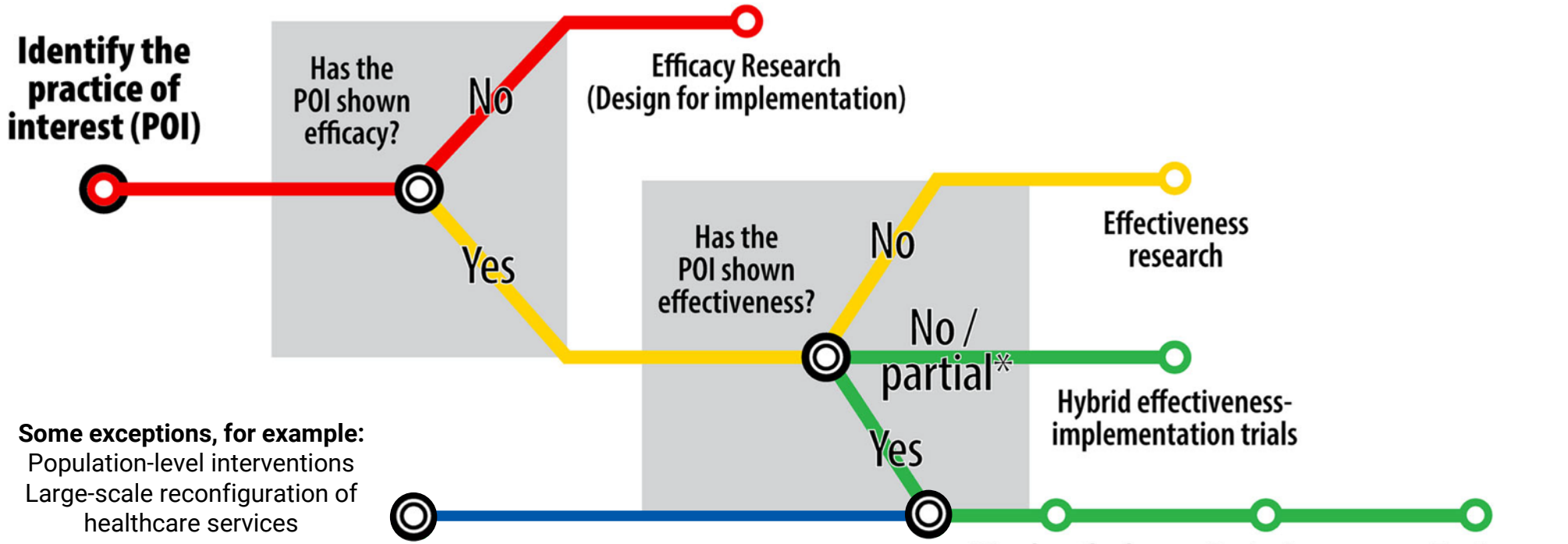
When can we implement an innovation?



Some exceptions, for example:
Population-level interventions
Large-scale reconfiguration of healthcare services

EDITORIAL Open Access

Evidence for objects of implementation in healthcare: considerations for *Implementation Science* and *Implementation Science Communications*

Michel Wensing[1*], Anne Sales[2,3], Gregory A. Aarons[4], Dong (Roman) Xu[5] and Paul Wilson[6,7]

B. Fundamental concepts in implementation science

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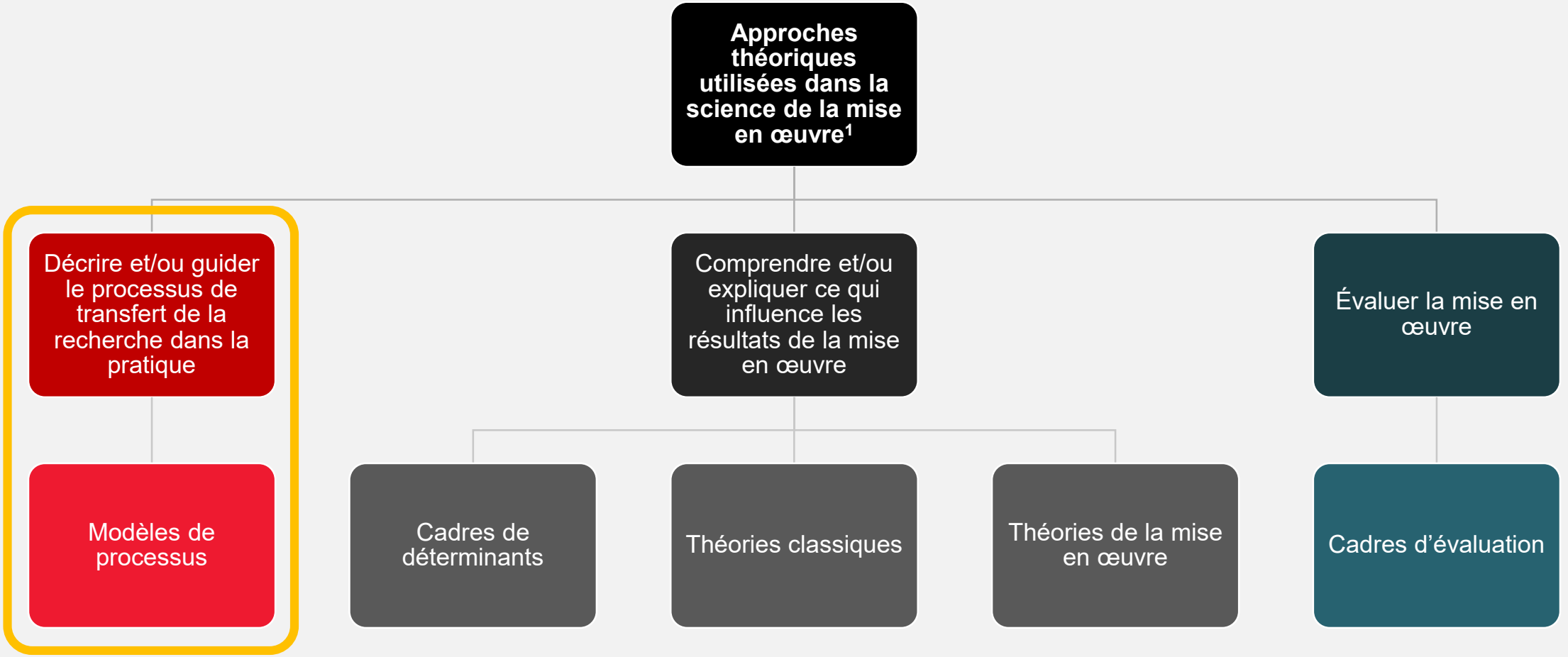
Les approches théoriques en science de la mise en œuvre



Nilsen (2015)

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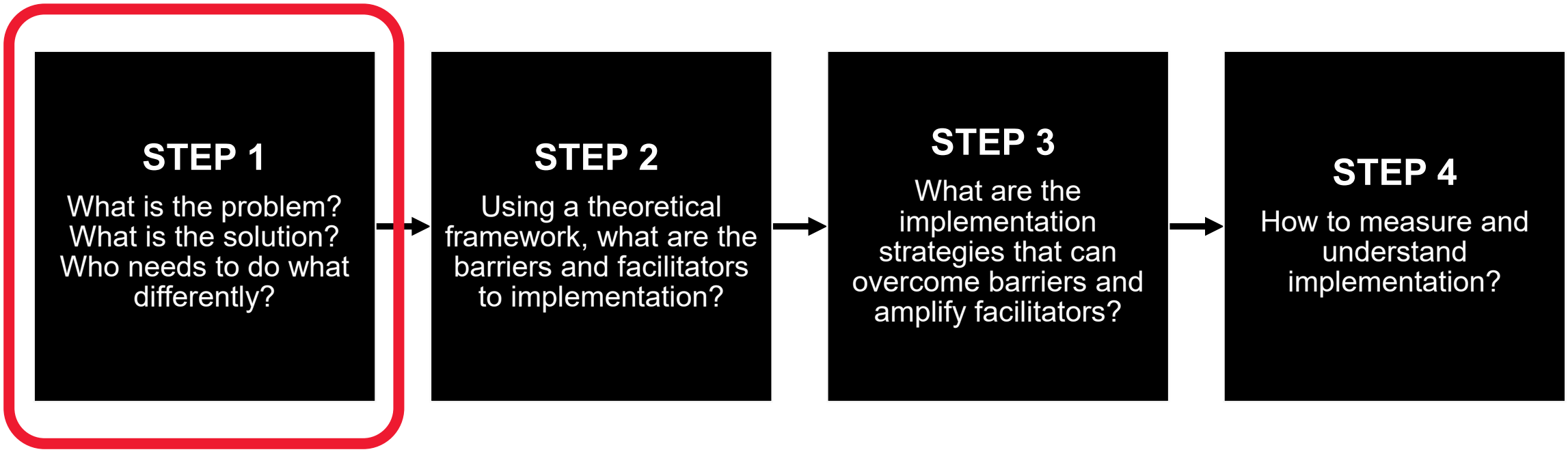
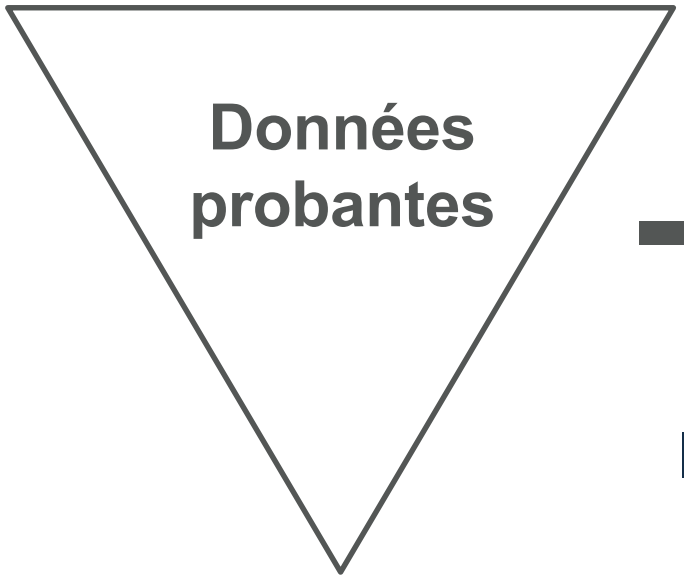
Four steps



French et al. (2012)

1 What it the problem/need? Who is impacted by the problem?



Identifier le problème

Y a-t-il des écarts entre ce que suggèrent les données et ce qui est actuellement fait ?

Sources potentielles de données sur la performance actuelle

- Organisations nationales/internationales
- Articles de recherche en épidémiologie cherchant à quantifier les écarts dans des contextes ou juridictions particuliers
- Audits locaux, observations, notes de cas

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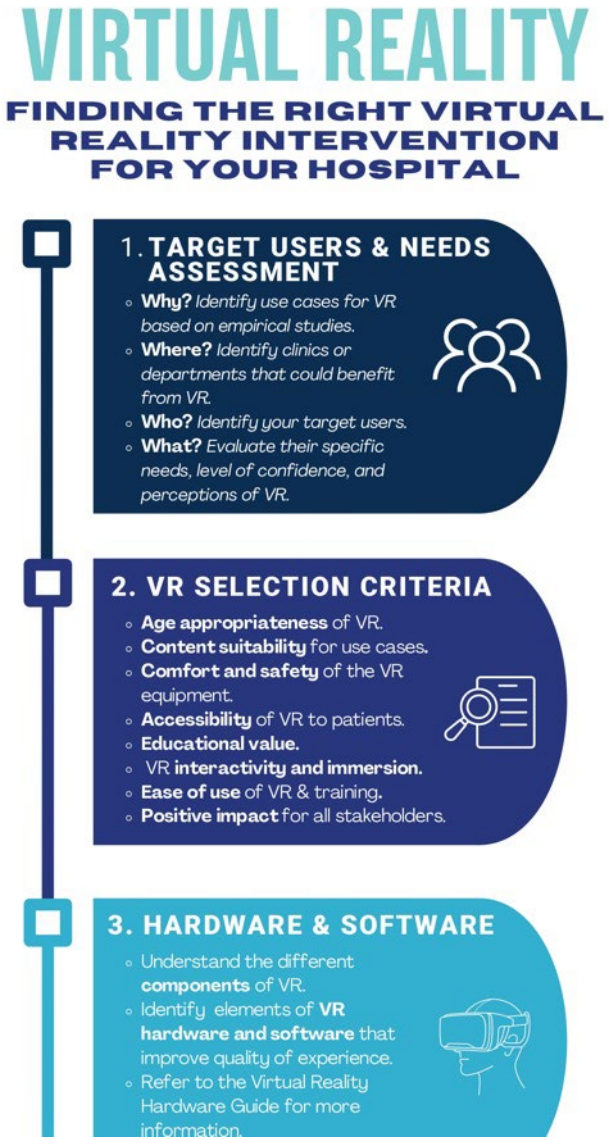
- Q1 What need are you trying to fulfill with virtual reality (VR)? (ex: lack of pain management resources)
  - _____
  - _____
  - _____
  - _____

- Q2 What is your practice setting?
  - ❑ ambulatory (eg clinics, daycare) (1)
  - ❑ critical care (eg ER and PACU) (2)
  - ❑ in-patient (eg surgical, medical and other specialties) (3)
  - ❑ diagnostics (eg radiology, MRI, CT Scan, interventional, blood center) (4)
  - ❑ operative room (peri-operative, OR, PACU) (5)
  - ❑ other (please specify) (6) _____
  - ❑ rehabilitation (7)
  - ❑ school (8)
  - ❑ daycare (9)
  - ❑ public health (10)
  - ❑ clinic (eg paediatrician, dental, orthodontist, family medicine) (11)
  - ❑ respite care (12)
  - ❑ home care (13)
  - ❑ non-for-profit organizations (14)
  - ❑ university (eg simulation, research, education) (15)
  - ❑ other (please specify) (16) _____
  - ❑ business (please specify) (17) _____
  - ❑ entertainment (please specify) (18) _____
  - ❑ specialized educational support (eg speech therapy, learning difficulties) (19)
  - ❑ other (please specify) (20)

- Q3 What approaches are currently being used in your setting that would be optimized with VR?
  - _____
  - _____
- Q4 Why are these approaches not fulfilling the need?
  - _____
  - _____
- Q5 What VR system (hardware and software) do you want to bring into your setting (select all that apply)?
  - I do not know yet
  - An interactive VR game for distraction
  - An immersive, relaxation-based VR for anxiety
  - I want to bring [insert name of software or hardware] VR system.
  - Other (specify):



- Q6 What outcomes are you hoping to achieve with VR?

☐ To help patients manage procedural pain. (1)

☐ To help patients manage procedural anxiety. (2)

☐ To provide general procedural distraction. (3)

☐ To educate patients on a particular clinical subject. (4)

☐ Other (specify) (5) _____

☐ To relieve burden on staff (6)

☐ To build self-efficacy in staff (7)

☐ To reduce procedural time (8)

☐ Other (specify) (9) _____

☐ To improve clinical workflow. (10)

☐ To improve patient care. (11)

☐ To increase patient safety. (12)

☐ Other (specify) (13)

- Q7 Who will be impacted by the use of VR?

☐ Patient (1)

☐ Family (2)

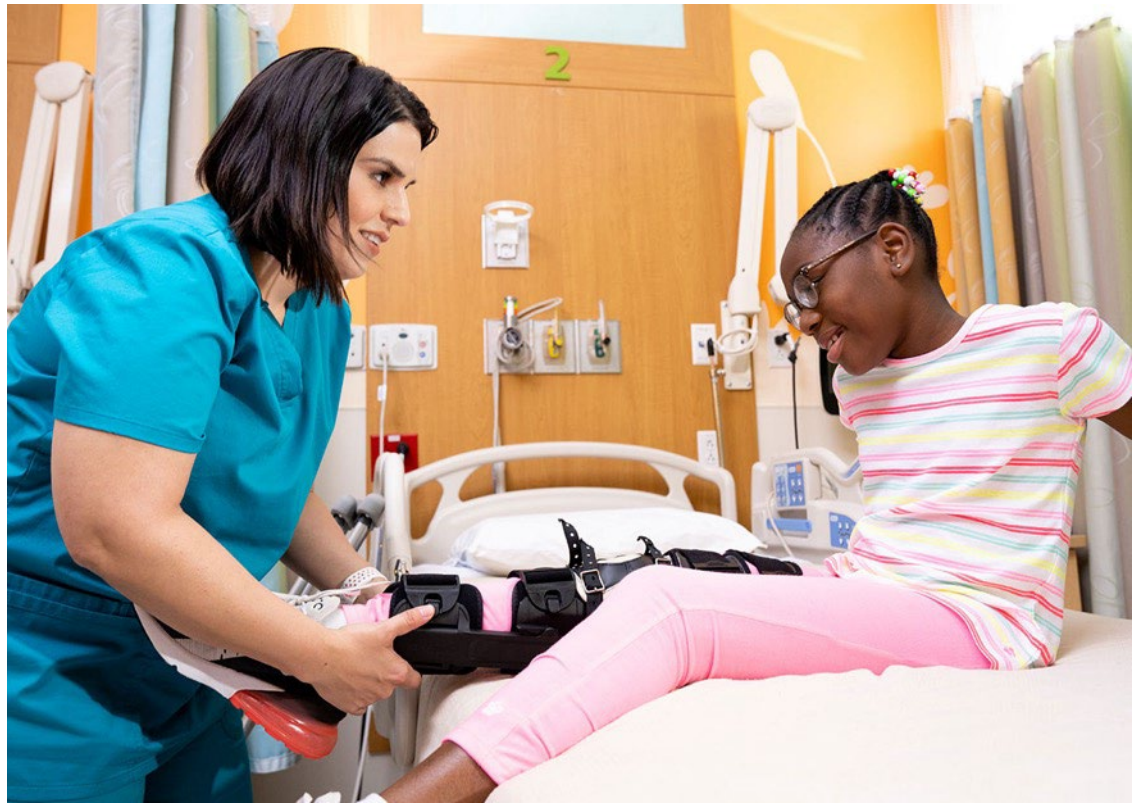
☐ Healthcare professional (3)

☐ Information services (4)

☐ Decision makers (5)

☐ Medical archives (6)

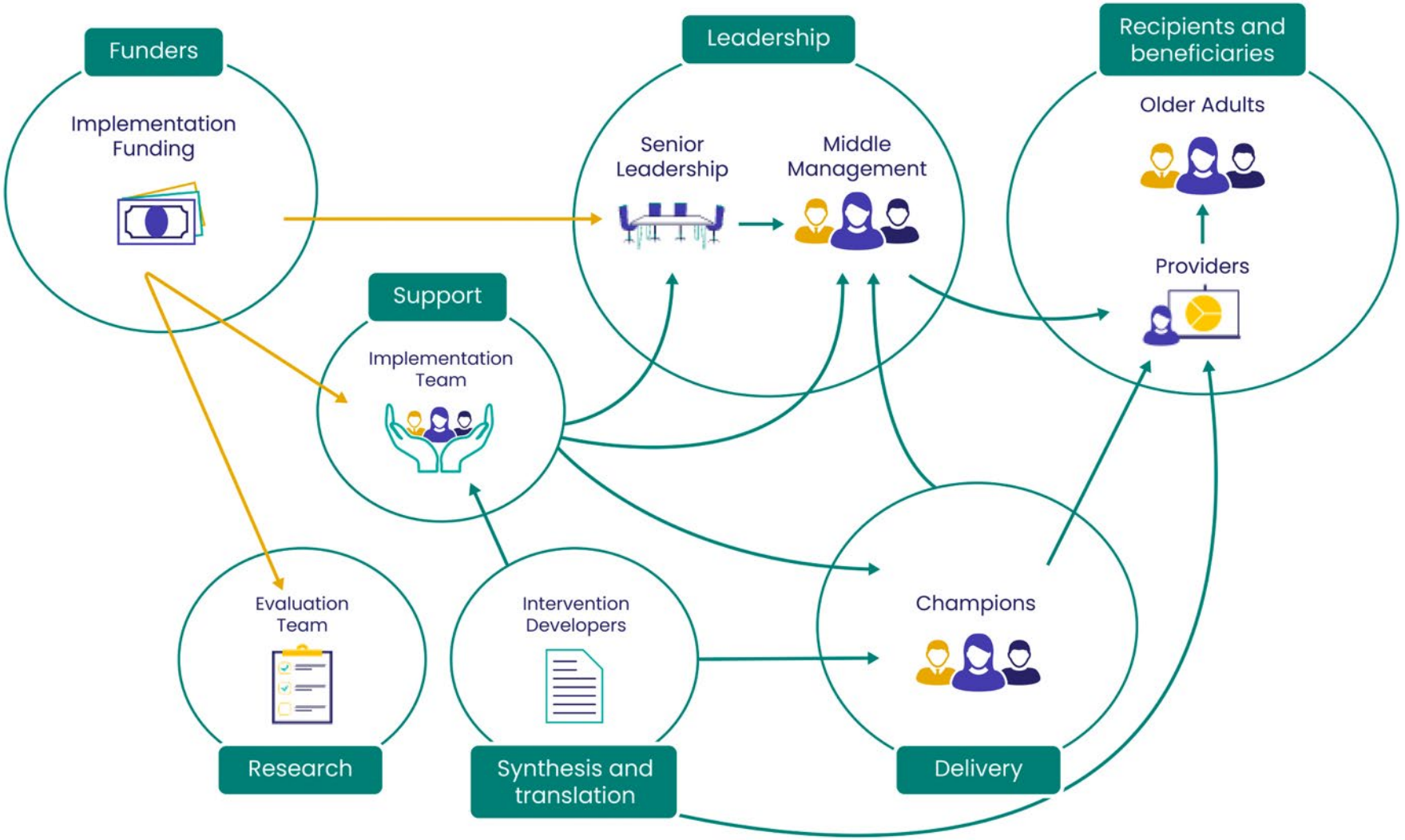
☐ Other (specify) (7)



Q8 Among those impacted by VR use, on a scale from 0 (not at all) to 10 (very) rate their:

	0 1 2 3 4 5 6 7 8 9 10
Acceptance of VR ()	
Willingness to try VR ()	

1 Who needs to do what differently?



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Who needs to do *what*, *differently*, *when*, *and where*

DIFFERENTLY

- Start something *new*?
- Do *more* of something already doing?
- Do *less* of something already doing?
- *Stop* entirely?
- *Replace* existing with something new?
- *How* are the actions involved in delivering your interventions different from existing practice?

Principle: *Barriers and enablers to, and solutions for, each may be different*

Who needs to do *what*, *differently*, *when*, *and where*

WHEN

- What ‘counts’ as doing the clinical behaviour? Multiple times a day? Every week? Over the next year?
- At every opportunity? Under specific circumstances?
- Before seeing a patient? While with a patient? After?
- Until when?

WHERE

- In the hallway? In an office? In a consultation room?
- May seem obvious to those already involved, but may be less so to those newer to the setting
- **Actions may differ depending on setting**

AACTT Framework

s://doi.org/10.1186/s13012-019-0951-x

METHODOLOGY Open Access

Action Specify the *behaviour* that needs to change, in terms that can be observed or measured

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

Context Specify the physical location, emotional context, or social setting *in which* the action is performed

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

Time Specify *when* the action is performed (the time/date/frequency)

Applying the AACTT Framework

Hand hygiene

	Action 1	Action 2	Action 3
Action Specify the *behaviours* that needs to change, in terms that can be observed or measured	Use alcohol-based hand gel (focal)	Check and refill empty gel dispensers (ancillary)	Order dispensers and gel (ancillary)
Actor Specify each person/people that *do*(es) or *could do* each of the actions targeted	Actor 1 Staff physicians, nurses and residents	Actor 2 Cleaning staff	Actor 3 Hospital administrator
Context Specify the physical location, emotional context, or social setting *in which* the action is performed	Context 1 In patient rooms	Context 2 In patient rooms	Context 3 In own office
Target Specify the person/people *with/for whom* the action is performed	Target 1 Patients receiving care at the hospital	Target 2 Staff physicians, nurses, residents	Target 3 Cleaning staff
Time Specify *when* the action is performed (the time/date/frequency)	Time 1 Before and after touching a patient	Time 2 Every shift	Time 3 Quarterly

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- Q9 Who should be on the project team to bring VR to your setting?

☐ Patient representative (1)

☐ Family representative (2)

☐ Manager or decision-maker (3)

☐ Healthcare professional (4)

☐ Info Technology specialist (5)

☐ Other (specify) (6)

- Q10 For each team member selected, what **key skills** do they bring to the team?

☐ Patient representative (1) _____

☐ Family representative (2) _____

☐ Manager or decision-maker (3) _____

☐ Healthcare professional (4) _____

☐ Info Technology specialist (5) _____

☐ Other (6) _____

- Q12 For each team member selected, what should be their **key responsibilities**?

☐ Patient representative (1) _____

☐ Family representative (2) _____

☐ Manager or decision-maker (3) _____

☐ Healthcare professional (4) _____

☐ Info Technology specialist (5) _____

☐ Other (6) _____

- Q13 For each team member selected, how will you reach out to them (e.g. in person, by phone, by online conference call, etc.)?

☐ Patient representative (1) _____

☐ Family representative (2) _____

☐ Manager or decision-maker (3) _____

☐ Healthcare professional (4) _____

☐ Info Technology specialist (5) _____

☐ Other (6) _____

- Q14 How often should the team meet?

○ Weekly (1)

○ Monthly (2)

○ Quarterly (3)

○ Other (specify) (4)

_____

- Q15 How will team members communicate?

☐ In-person (1)

☐ Email (2)

☐ Conference Calls (3)

☐ Other (specify) (4)

_____

- Q16 Will you need the help of external consultants for the project?
  - No (1)
  - Maybe (2)
  - Yes (3)
- Q17 How will you identify these consultants?
  - _____
- Q18 How will you reach out to these consultants?
  - _____
- Q19 Do you need financial resources to cover external consultation?
  - _____

Group discussion 1 (20 mins)

Discuss: What is the need for VR? Who would benefit? (Q1 – Q8)

Discuss: Who needs to do what differently to implement VR in your practice setting? (Q9 – Q19)

C. Barriers and facilitators to change

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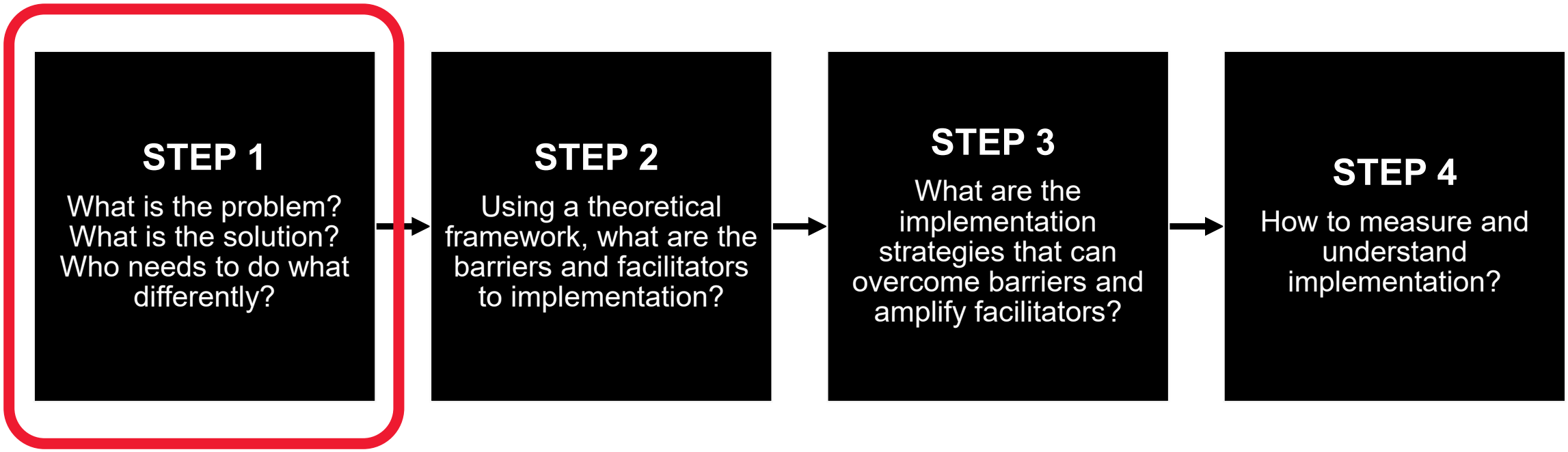
Four steps



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Theoretical Domains Framework (TDF)

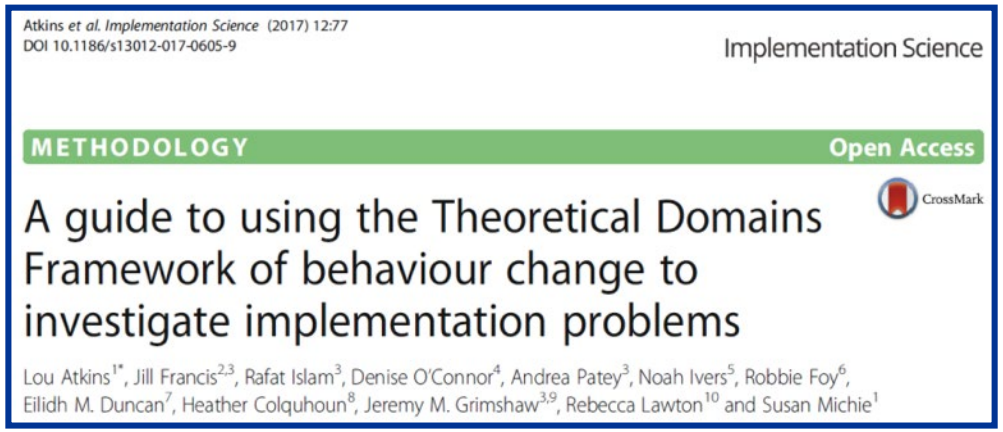
ntation Science 2012, **7**:37
http://www.implementationscience.com/content/7/1/37

IMPLEMENTATION SCIENCE

RESEARCH **Open Access**

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

James Cane[1], Denise O'Connor[2] and Susan Michie[3*]



Atkins *et al. Implementation Science* (2017) 12:77
DOI 10.1186/s13012-017-0605-9

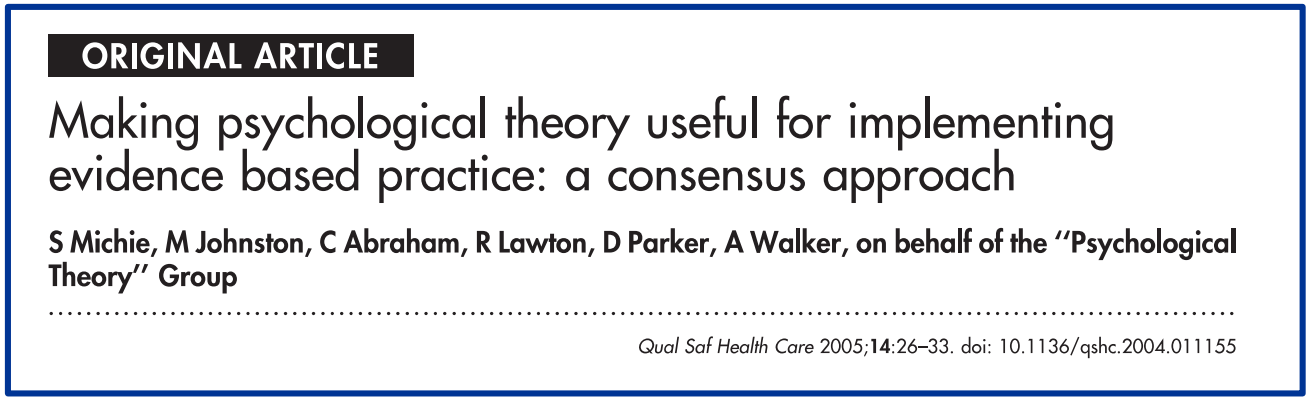
Implementation Science

METHODOLOGY **Open Access**

CrossMark

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

Lou Atkins[1*], Jill Francis[2,3], Rafat Islam[3], Denise O'Connor[4], Andrea Patey[3], Noah Ivers[5], Robbie Foy[6], Eilidh M. Duncan[7], Heather Colquhoun[8], Jeremy M. Grimshaw[3,9], Rebecca Lawton[10] and Susan Michie[1]



ORIGINAL ARTICLE

Making psychological theory useful for implementing evidence based practice: a consensus approach

S Michie, M Johnston, C Abraham, R Lawton, D Parker, A Walker, on behalf of the ''Psychological Theory'' Group

Qual Saf Health Care 2005;**14**:26–33. doi: 10.1136/qshc.2004.011155

TDF for exploring Barriers and Enablers

- Underpinned by decades of behaviour change research
- Synthesizes key factors associated with **behaviour change**
- 84 constructs form behavioral theories distilled into 14 ‘construct domains’
- Provides a list of **topics** to explore that might affect behaviour
- Used for understanding **barriers** and **enablers** to behaviour change among healthcare professionals and patients

Michie et al., 2005; Cane et al., 2012

KNOWLEDGE
SKILLS
MEMORY, ATTENTION AND DECISION MAKING
BEHAVIOURAL REGULATION
SOCIAL PROFESSIONAL ROLE AND IDENTITY
BELIEFS ABOUT CAPABILITIES
OPTIMISM
BELIEFS ABOUT CONSEQUENCES
REINFORCEMENT
INTENTION
GOALS
EMOTIONS
ENVIRONMENTAL CONTEXT AND RESOURCES
SOCIAL INFLUENCES

TDF Domains

Table 1 TDF domains and their explanations (reprinted with permissions from Cheung *et al*[44] and Patey *et al*[45])

Domain	Description
Knowledge	Existing procedural knowledge, knowledge about guidelines, knowledge about evidence and how that influences what the participants do
Skills	Competence and ability about the procedural techniques required to perform the behaviour
Social/professional role and identity	Boundaries between professional groups (ie, is the behaviour something the participant is supposed to do or someone else's role?)
Beliefs about capabilities	Perceptions about competence and confidence in doing the behaviour and how that influences their behaviour
Optimism	Whether the participant's optimism or pessimism about the behaviour influences what they do
Beliefs about consequences	Perceptions about outcomes, advantages and disadvantages of performing the behaviour and how that influences whether they perform the behaviour
Reinforcement	Previous experiences that have influenced whether or not the behaviour is performed
Intention	A conscious decision to perform a behaviour or a resolve to act in a certain way
Goals	Priorities, importance, commitment to a certain course of actions or behaviours
Memory, attention and decision processes	Attention control, decision-making, memory (ie, is the target behaviour problematic because people simply forget?)
Environmental context and resources	How factors related to the setting in which the behaviour is performed (eg, people, organisational, cultural, political, physical and financial factors) influence the behaviour
Social influences	External influence from people or groups to perform or not perform the behaviour How the views of colleagues, other professions, patients and families, and doing what you are told, influence the behaviour
Emotion	How feelings or affect (positive or negative) may influence the behaviour
Behavioural regulation	Ways of doing things that relate to pursuing and achieving desired goals, standards or targets Strategies the participants have in place to help them perform the behaviour Strategies the participants would like to have in place to help them

Grimshaw et al., 2020 *BMJ Quality and Safety*

Investigating Barriers and Enablers

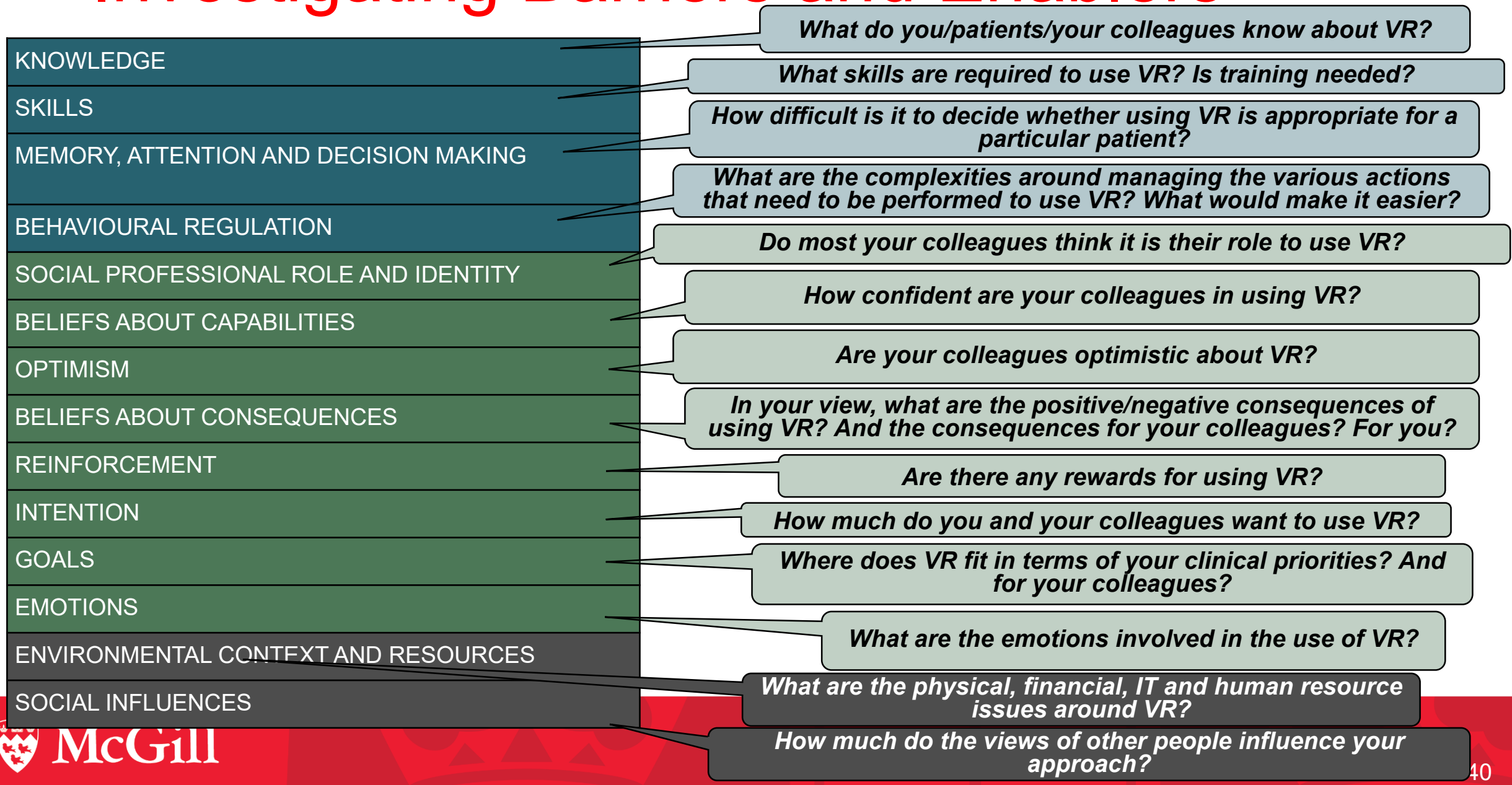
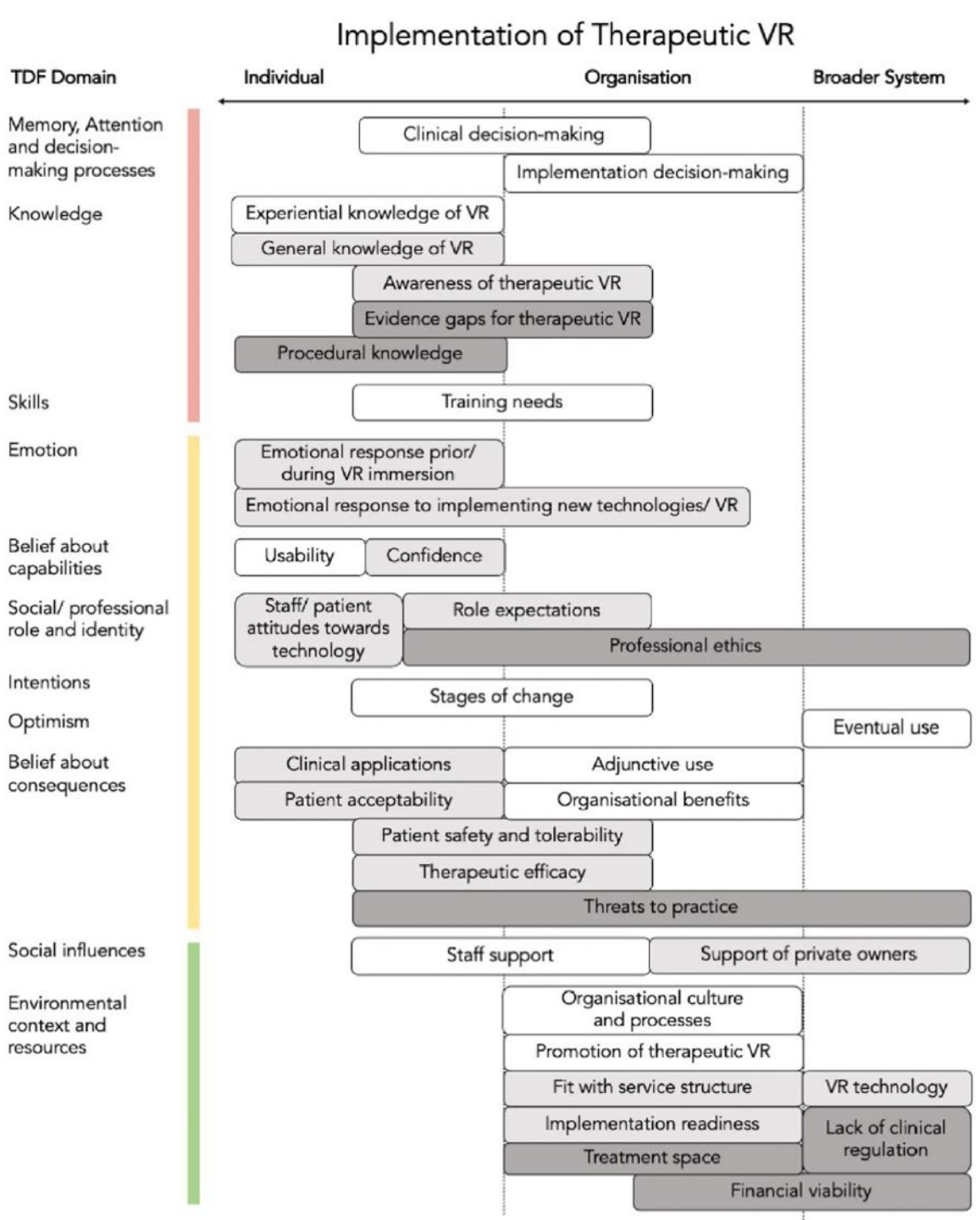


Fig. 2 Thematic map of barriers and facilitators relevant to early-stage implementation of therapeutic VR at the individual, organisation and broader system level according to TDF domains and COM-B model. Please note that the width of text boxes depicts the stakeholder level that a theme is operating at



Classification of factors influencing implementation					
−2	−1	0	X	+1	+2
Major barrier	Minor barrier	Neutral factor	Mixed factor	Minor facilitator	Major Facilitator

Major barrier (-2): This category should include factors that significantly hinder or obstruct the implementation process. These barriers are often systemic, deeply ingrained, or involve substantial opposition. They require considerable effort and resources to overcome

Minor barrier (-1): Factors that cause some difficulties or delays in the implementation process but are not insurmountable fall into this category. They may require targeted interventions to address but do not pose a severe threat to the overall implementation.

Neutral factor (0): These are elements that neither facilitate nor hinder the implementation process. They are aspects of the environment or context that you acknowledge but do not impact the process.

Mixed factor (X): This category is for factors that have both facilitating and hindering effects on the implementation process. The impact of these factors may vary depending on the situation.

Minor facilitator (+1): Factors that provide some help or advantage in the implementation process are minor facilitators. They can be leveraged to support the implementation

Major facilitator (+2): These factors significantly propel the implementation forward. They are elements of the context or environment that strongly support the change process.

D. Selecting implementation strategies

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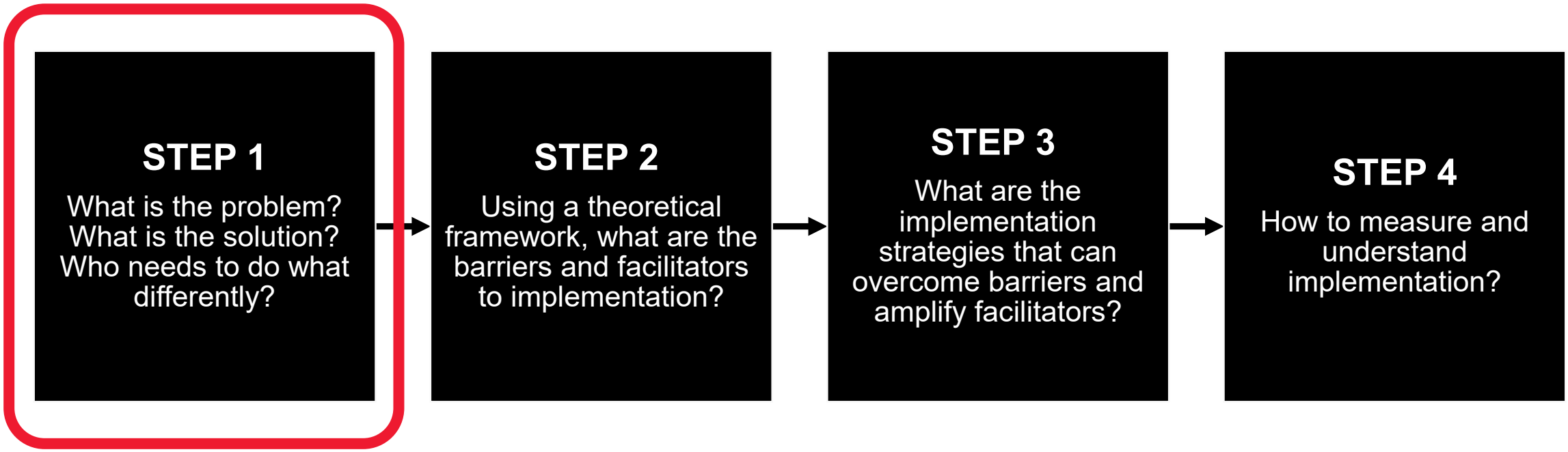
Four steps



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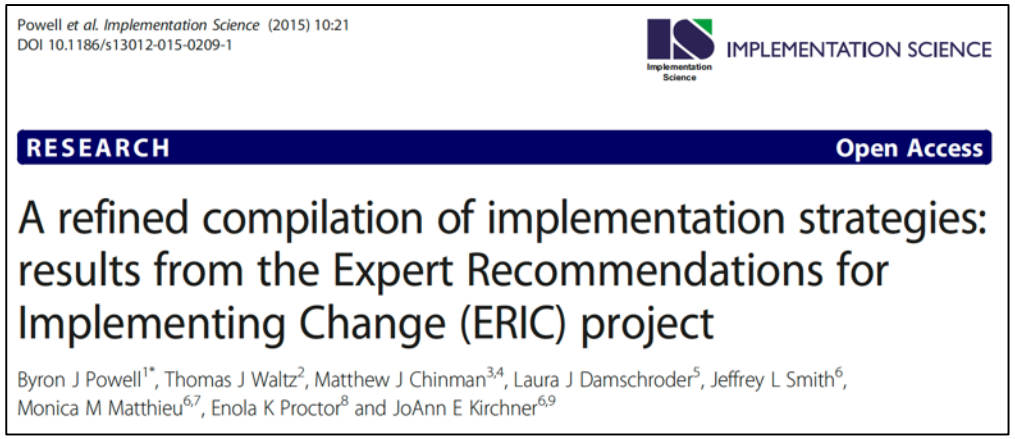
What are implementation strategies?

- Defined as **methods or techniques used to enhance the adoption, implementation, and sustainability of a program or clinical practice**
- Several taxonomies of implementation strategies have been developed (e.g., ERIC Taxonomy, BCT Taxonomy)

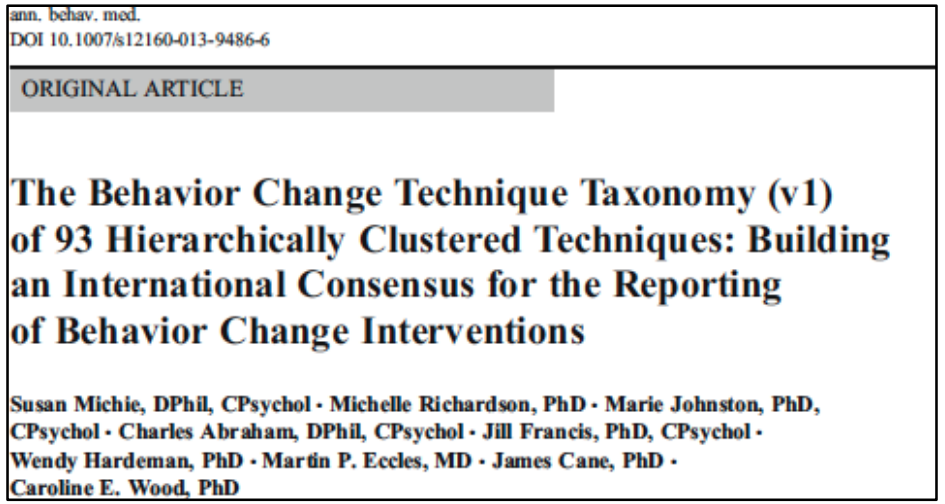

Powell *et al. Implementation Science* (2015) 10:21
DOI 10.1186/s13012-015-0209-1

IMPLEMENTATION SCIENCE

RESEARCH Open Access

A refined compilation of implementation strategies: results from the Expert Recommendations for Implementing Change (ERIC) project

Byron J Powell[1*], Thomas J Waltz[2], Matthew J Chinman[3,4], Laura J Damschroder[5], Jeffrey L Smith[6], Monica M Matthieu[6,7], Enola K Proctor[8] and JoAnn E Kirchner[6,9]


ann. behav. med.
DOI 10.1007/s12160-013-9486-6

ORIGINAL ARTICLE

The Behavior Change Technique Taxonomy (v1) of 93 Hierarchically Clustered Techniques: Building an International Consensus for the Reporting of Behavior Change Interventions

Susan Michie, DPhil, CPsychol · Michelle Richardson, PhD · Marie Johnston, PhD, CPsychol · Charles Abraham, DPhil, CPsychol · Jill Francis, PhD, CPsychol · Wendy Hardeman, PhD · Martin P. Eccles, MD · James Cane, PhD · Caroline E. Wood, PhD

Powell et al. (2015); EPOC Cochrane Review Group (2015)

Selecting implementation strategies

Choice of implementation strategies should be based upon:

- 'Diagnostic' assessment of barriers
- Empirical evidence about effects of implementation strategies
- Available resources
- Practicalities & logistics

✓ Principle: **no magic bullets**

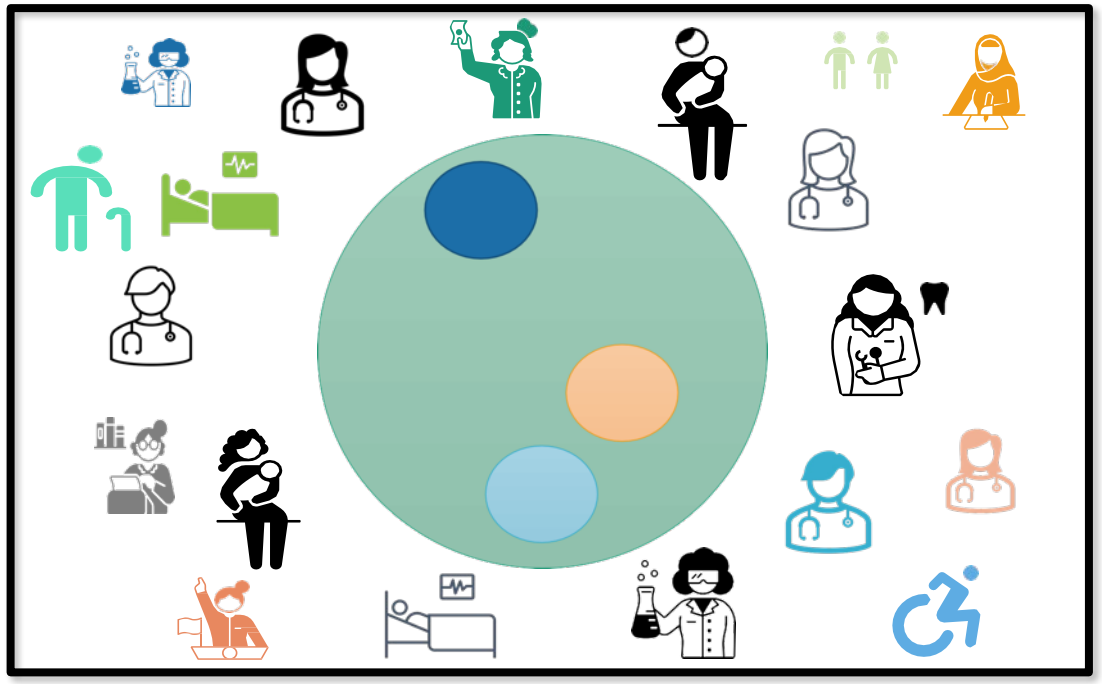
✓ Select strategies that work best for specific barriers/enablers

- ✓ Target identified barriers to the adoption of the evidence-based practice
- ✓ Optimize or leverage facilitators to promote the use of the evidence-based practice.

✓ Be explicit to ensure clarity and replication

✓ Distinguish 'what' you deliver from 'how' it is delivered

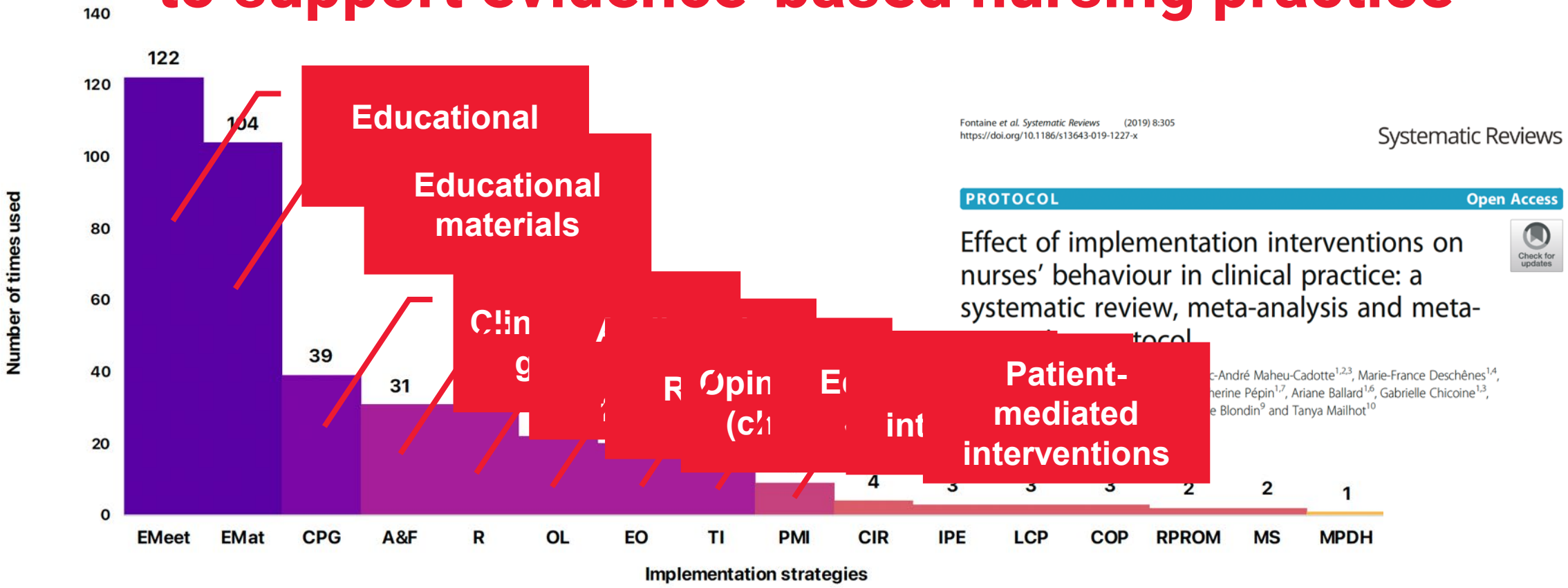
Characteristics of implementation strategies



- Discrete: Single component, individual strategies
- Multifaceted: Combine two or more discrete strategies
- Target a range of stakeholders (professionals/providers, patients), financial processes, organizational (roles, structures), regulations
- To address factors at the individual, team, unit, organizational or system level

EPOC. Data collection checklist

Frequency of use of implementation strategies to support evidence-based nursing practice



Fontaine *et al. Systematic Reviews* (2019) 8:305
https://doi.org/10.1186/s13643-019-1227-x

Systematic Reviews

PROTOCOL Open Access

Effect of implementation interventions on nurses' behaviour in clinical practice: a systematic review, meta-analysis and meta-

-André Maheu-Cadotte[1,2,3], Marie-France Deschênes[1,4], erine Pépin[1,7], Ariane Ballard[1,6], Gabrielle Chicoine[1,3], e Blondin[9] and Tanya Mailhot[10]

EMeet = educational meetings, EMat = educational materials, CPG = clinical practice guidelines, R = reminders, A&F = audit and feedback, TI = tailored interventions, EO = educational outreach, OL = local opinion leaders, PMI = patient-mediated interventions, IPE = inter-professional education, LCP = local consensus processes, COP = communities of practice, CIR = clinical incident reporting, MS = managerial supervision, MPDH = monitoring the performance of delivery of healthcare, RPROM = routine patient-reported outcome measures.

McGill

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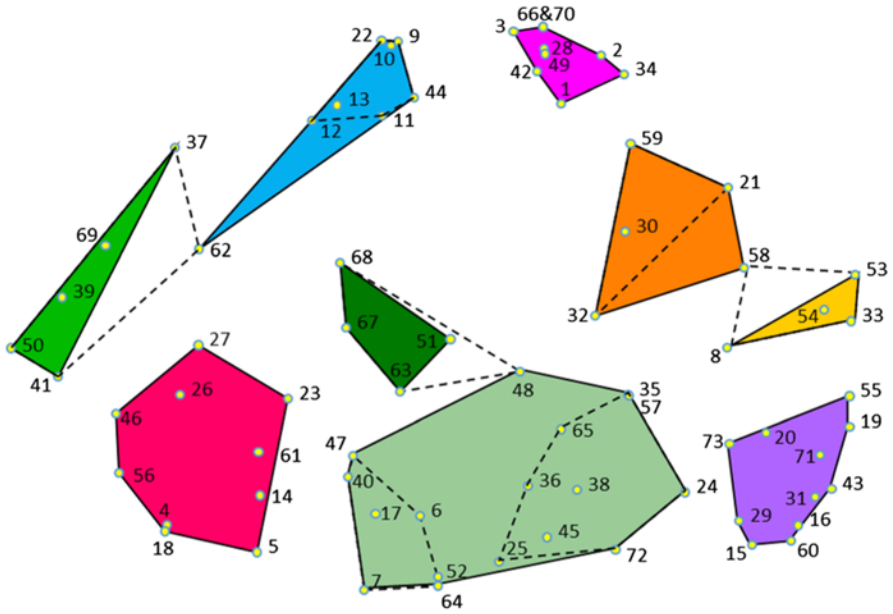
ERIC Implementation Strategy Taxonomy

73 strategies; 9 categories



Waltz et al. Implementation Science (2015) 10:109
DOI 10.1186/s13012-015-0295-0

IMPLEMENTATION SCIENCE

SHORT REPORT Open Access

Use of concept mapping to characterize relationships among implementation strategies and assess their feasibility and importance: results from the Expert Recommendations for Implementing Change (ERIC) study

Thomas J. Waltz[1,2*], Byron J. Powell[3], Monica M. Matthieu[4,5,10], Laura J. Damschroder[2], Matthew J. Chinman[6,7], Jeffrey L. Smith[5,10], Enola K. Proctor[8] and JoAnn E. Kirchner[5,9,10]

Abstract

Background: Poor terminological consistency for core concepts in implementation science has been widely noted as an obstacle to effective meta-analyses. This inconsistency is also a barrier for those seeking guidance from the research literature when developing and planning implementation initiatives. The Expert Recommendations for Implementing Change (ERIC) study aims to address one area of terminological inconsistency: discrete implementation strategies involving one process or action used to support a practice change. The present report is on the second stage of the ERIC project that focuses on providing initial validation of the compilation of 73 implementation strategies that were identified in the first phase.

Findings: Purposive sampling was used to recruit a panel of experts in implementation science and clinical practice ($N = 35$). These key stakeholders used concept mapping sorting and rating activities to place the 73 implementation strategies into similar groups and to rate each strategy's relative importance and feasibility. Multidimensional scaling analysis provided a quantitative representation of the relationships among the strategies, all but one of which were found to be conceptually distinct from the others. Hierarchical cluster analysis supported organizing the 73 strategies into 9 categories. The ratings data reflect those strategies identified as the most important and feasible.

Conclusions: This study provides initial validation of the implementation strategies within the ERIC compilation as being conceptually distinct. The categorization and strategy ratings of importance and feasibility may facilitate the search for, and selection of, strategies that are best suited for implementation efforts in a particular setting.

Keywords: Concept mapping, Implementation research, Implementation strategies, Mental health, US Department of Veterans Affairs

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Domains	No. of strategies	Implementation strategies
1. Use of evaluative and iterative strategies	10	(1) Assess for readiness and identify barriers and facilitators; (2) Audit and provide feedback; (3) Purposefully reexamine the implementation; (4) Develop and implement tools for quality monitoring; (5) Develop and organize quality monitoring systems; (6) Develop a formal implementation blueprint; (7) Conduct local need assessment; (8) Stage implementation scale up; (9) Obtain and use patients/consumers and family feedback; (10) Conduct cyclical small tests of change
2. Provision of interactive assistance	4	(11) Facilitation; (12) Provide local technical assistance; (13) Provide clinical supervision; (14) Centralize technical assistance
3. Adapt and tailor to context	4	(15) Tailor strategies; (16) Promote adaptability; (17) Use data experts; (18) Use data warehousing techniques
4. Development of stakeholder inter-relationships	17	(19) Identify and prepare champions; (20) Organize clinician implementation team meetings; (21) Recruit, designate, and train for leadership; (22) Inform local opinion leaders; (23) Build a coalition; (24) Obtain formal commitments; (25) Identify early adopters; (26) Conduct local consensus discussions; (27) Capture and share local knowledge; (28) Use advisory boards and workgroups; (29) Use an implementation advisor; (30) Model and simulate change; (31) Visit other sites; (32) Involve executive boards; (33) Develop an implementation glossary; (34) Develop academic partnerships; (35) Promote network weaving
5. Training and education of stakeholders	11	(36) Conduct ongoing training; (37) Provide ongoing consultation; (38) Develop educational materials; (39) Make training dynamic; (40) Distribute educational materials; (41) Use train-the-trainer strategies; (42) Conduct educational meetings; (43) Conduct educational outreach visits; (44) Create a learning collaborative; (45) Shadow other experts; (46) Work with educational institutions
6. Support of clinicians	5	(47) Facilitate relay of clinical data to providers; (48) Remind clinicians; (49) Develop resource sharing agreements; (50) Revise professional roles; (51) Create new clinical teams
7. Engagement with consumers	5	(52) Involve patients/consumers and family members; (53) Intervene with patients/consumers to enhance uptake and adherence; (54) Prepare patients/consumers to be active participants; (55) Increase demand; (56) Use mass media
8. Use of financial strategies	9	(57) Fund and contract for the clinical innovation; (58) Access new funding; (59) Place innovation on fee for service lists/formularies; (60) Alter incentive/allowance structures; (61) Make billing easier; (62) Alter patient/consumer fees; (63) Use other payment schemes; (64) Develop disincentives; (65) Use capitated payments
9. Change of infrastructure	8	(66) Mandate change; (67) Change record systems; (68) Change physical structure and equipment; (69) Create or change credentialing and/or licensure standards; (70) Change service sites; (71) Change accreditation or membership requirements; (72) Start a dissemination organization; (73) Change liability laws

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Cluster 1: Evaluative and iterative strategies

ERIC Taxonomy

Strategies in Cluster 1 focus on evaluative and iterative approaches to implementation:

- They emphasize preparedness (detailed planning and staging of implementation) and contextual evaluation
- They encourage continuous (re)assessment, refinement and feedback
- They involve tailoring approaches to local needs and scale progressively
- They promote the untegration of feedback from end-users and stakeholders

Domain	No. of strategies	Implementation strategies
1. Use of evaluative and iterative strategies	10	(1) Assess for readiness and identify barriers and facilitators; (2) Audit and provide feedback; (3) Purposefully reexamine the implementation; (4) Develop and implement tools for quality monitoring; (5) Develop and organize quality monitoring systems; (6) Develop a formal implementation blueprint; (7) Conduct local need assessment; (8) Stage implementation scale up; (9) Obtain and use patients/consumers and family feedback; (10) Conduct cyclical small tests of change

Cluster 2: Provision of interactive assistance

ERIC Taxonomy

Strategies in Cluster 2 focus on interactive assistance at the level of each setting:

- Supportive guidance to navigate implementation challenges
- Hands-on assistance tailored to local contexts
- Oversight to ensure clinical and procedural quality
- Centralized resources for consistent expert support

Domains	No. of strategies	Implementation strategies
2. Provision of interactive assistance	4	(11) Facilitation; (12) Provide local technical assistance; (13) Provide clinical supervision; (14) Centralize technical assistance

Cluster 3: Adapt and tailor to context

ERIC Taxonomy

Strategies in Cluster 3 focus on adapting and tailoring the implementation to each setting:

- Customization of strategies to fit specific contexts
- Encouragement of flexibility in approach and execution
- Utilization of data specialists for informed decision-making
- Implementation of data warehousing for efficient information management

Domains	No. of strategies	Implementation strategies
3. Adapt and tailor to context	4	(15) Tailor strategies; (16) Promote adaptability; (17) Use data experts; (18) Use data warehousing techniques

Cluster 4: Develop stakeholder inter-relationships

ERIC Taxonomy

Strategies in Cluster 4 focus on developing the relationships between stakeholders to support implementation:

- Identifying and engaging early adopters, champions and local leaders for change
- Facilitating regular meetings for clinician teams to coordinate implementation efforts and local consensus discussions
- Forming strategic alliances, coalitions, networks to support implementation initiatives, securing committments
- Use advisory boards and workgroups or advisors to guide implementation processes
- Encouraging site visits to observe best practices and successful implementation examples

Domains	No. of strategies	Implementation strategies
4. Development of stakeholder inter-relationships	17	(19) Identify and prepare champions; (20) Organize clinician implementation team meetings; (21) Recruit, designate, and train for leadership; (22) Inform local opinion leaders; (23) Build a coalition; (24) Obtain formal commitments; (25) Identify early adopters; (26) Conduct local consensus discussions; (27) Capture and share local knowledge; (28) Use advisory boards and workgroups; (29) Use an implementation advisor; (30) Model and simulate change; (31) Visit other sites; (32) Involve executive boards; (33) Develop an implementation glossary; (34) Develop academic partnerships; (35) Promote network weaving

Cluster 5: Train and educate stakeholders

ERIC Taxonomy

Strategies in Cluster 5 focus on training and educating stakeholders:

- They emphasize dynamic and ongoing training strategies (compared to only initial education)
- Encourage the creation of entities to foster collective learning
- Emphasize training among peers (train-the-trainer)

Domains	No. of strategies	Implementation strategies
5. Training and education of stakeholders	11	(36) Conduct ongoing training; (37) Provide ongoing consultation; (38) Develop educational materials; (39) Make training dynamic; (40) Distribute educational materials; (41) Use train-the-trainer strategies; (42) Conduct educational meetings; (43) Conduct educational outreach visits; (44) Create a learning collaborative; (45) Shadow other experts; (46) Work with educational institutions

Cluster 6: Support of clinicians

ERIC Taxonomy

Strategies in Cluster 6 focus on high-impact strategies, high-level strategies to support clinicians:

- Revision of professional roles in relation to the provision of the intervention, and even changing clinical teams
- Agreements to share resources between settings or sites where implementation is occuring
- Better communication with clinicians at the point-of-care (reminders, data)

Domains	No. of strategies	Implementation strategies
6. Support of clinicians	5	(47) Facilitate relay of clinical data to providers; (48) Remind clinicians; (49) Develop resource sharing agreements; (50) Revise professional roles; (51) Create new clinical teams

Cluster 7: Engagement with consumers

ERIC Taxonomy

Strategies in Cluster 7 focus on involving patients and their family members in implementation:

- Interventions (e.g., education) on a clinical problem or intervention to invite them to talk about it with their provider
- Increasing demand for a given intervention or program via campaigns

Domains	No. of strategies	Implementation strategies
7. Engagement with consumers	5	(52) Involve patients/consumers and family members; (53) Intervene with patients/consumers to enhance uptake and adherence; (54) Prepare patients/consumers to be active participants; (55) Increase demand; (56) Use mass media

Cluster 8: Financial strategies

ERIC Taxonomy

Strategies in Cluster 8 focus on financial strategies at different levels to support implementation:

- Could focus on providing incentives to patients or clinicians
- Regulatory changes in terms of how physicians are paid (e.g., via the RAMQ)
- More funding at the level of a hospital to implementing a program

Domains	No. of strategies	Implementation strategies
8. Use of financial strategies	9	(57) Fund and contract for the clinical innovation; (58) Access new funding; (59) Place innovation on fee for service lists/formularies; (60) Alter incentive/allowance structures; (61) Make billing easier; (62) Alter patient/consumer fees; (63) Use other payment schemes; (64) Develop disincentives; (65) Use capitated payments

Cluster 9: Change of infrastructure

ERIC Taxonomy

Strategies in Cluster 9 focus on broader structural changes for implementation (not necessarily physical in nature):

- Change physical environment and equipment to support an intervention
- Change laws, standards, requirements at a macro level

Domains	No. of strategies	Implementation strategies
9. Change of infrastructure	8	(66) Mandate change; (67) Change record systems; (68) Change physical structure and equipment; (69) Create or change credentialing and/or licensure standards; (70) Change service sites; (71) Change accreditation or membership requirements; (72) Start a dissemination organization; (73) Change liability laws

Effectiveness of strategies

Cochrane Library
Trusted evidence.
Informed decisions.
Better health.

Printed Educational Materials Giguère et al. (2020)	84 studies	Median absolute improvement **4%** (IQR 1% to 9%)in compliance with desired clinical practice
Local Opinion Leaders Flodgren et al. (2019)	24 studies	Median absolute improvement **10.8%** (IQR 3.5% to 14.6%)
Educational Meetings Forsetlund et al. (2021)	65 studies	Median absolute improvement for dichotomous outcomes **4%** (IQR 0.29% to 13%)
Educational Outreach O'Brien et al. (2007)	69 studies	Median absolute improvement **6%** (IQR 3.6% to 16%)
Audit and Feedback Ivers et al. (2012)	140 studies	Median absolute improvement **4.3%** (IQR 0.5% to 16%)
Computer-Generated Reminders Delivered on Paper Arditi et al. (2017)	27 studies	Median absolute improvement **11.0%** (IQR 5.4% to 20.0%)
Tailored Interventions Baker et al. (2015)	15 studies	Pooled odds ratio **1.56** (95% CI 1.27 to 1.93, P value < 0.001)
Manually-Generated Reminders Delivered on Paper Pantoja et al. (2019)	39 studies	Median absolute improvement for dichotomous outcomes **8.45%** (IQR 2.54% to 20.58%)

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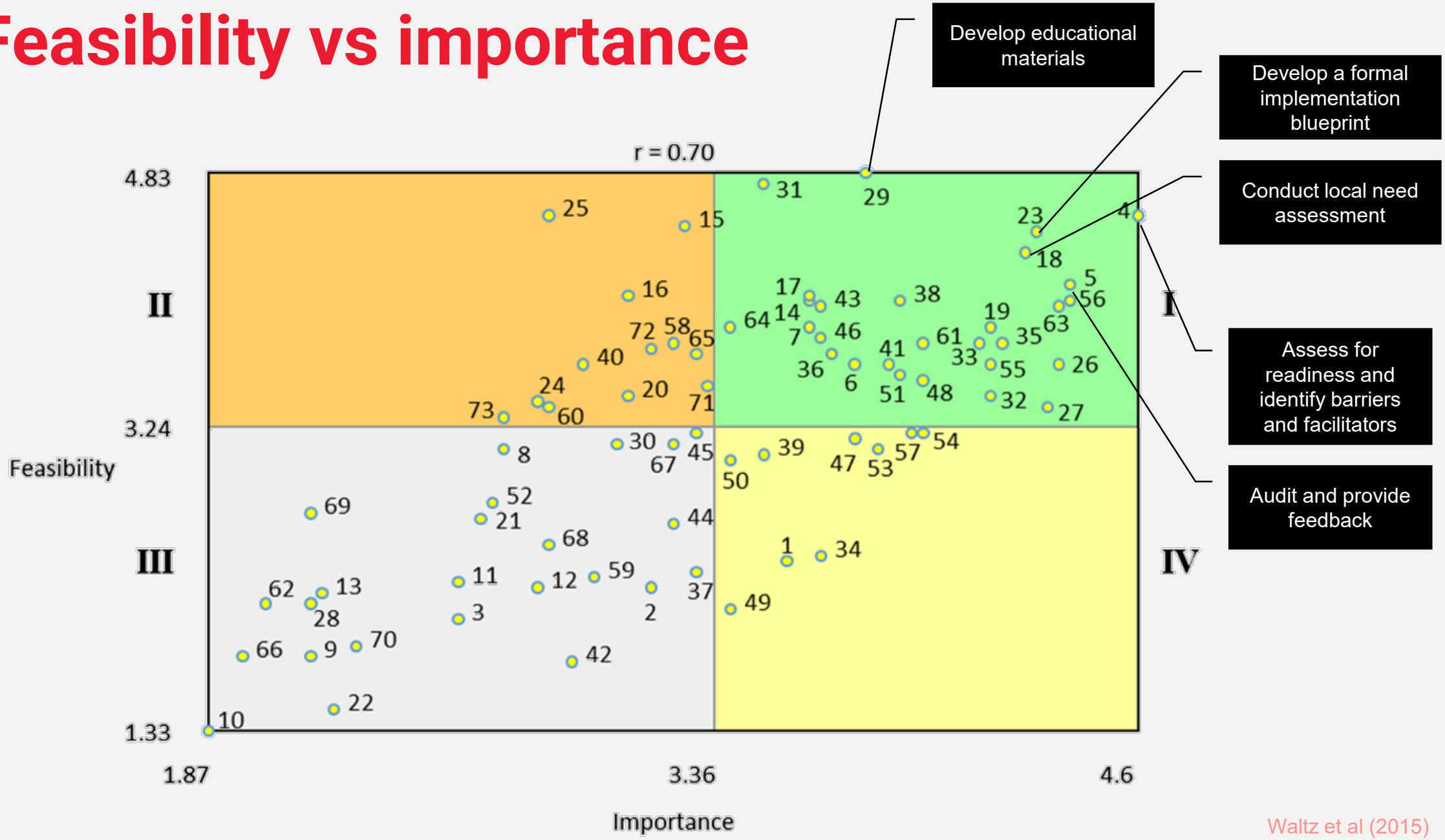
Feasibility vs importance



Waltz et al (2015)

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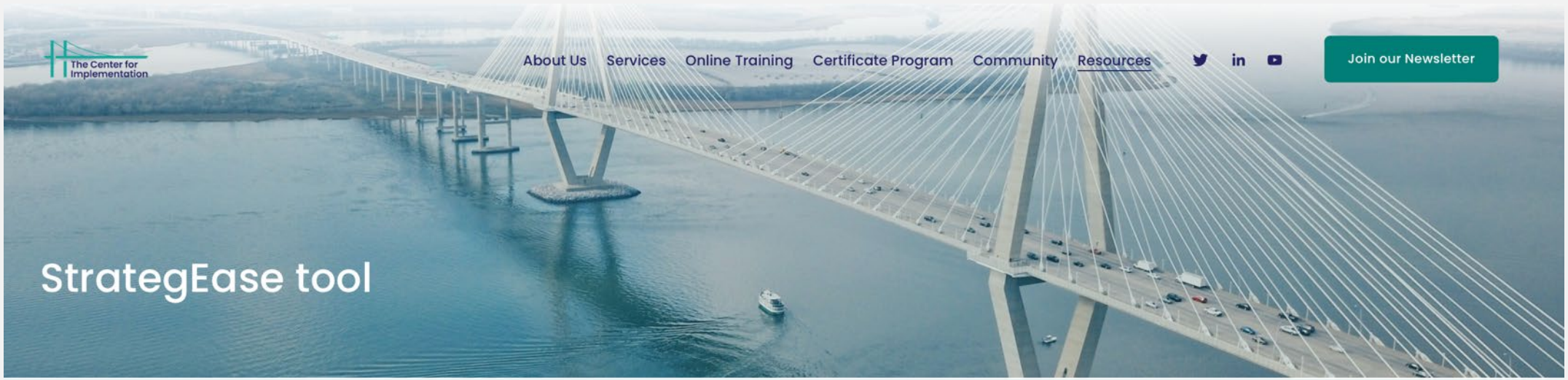
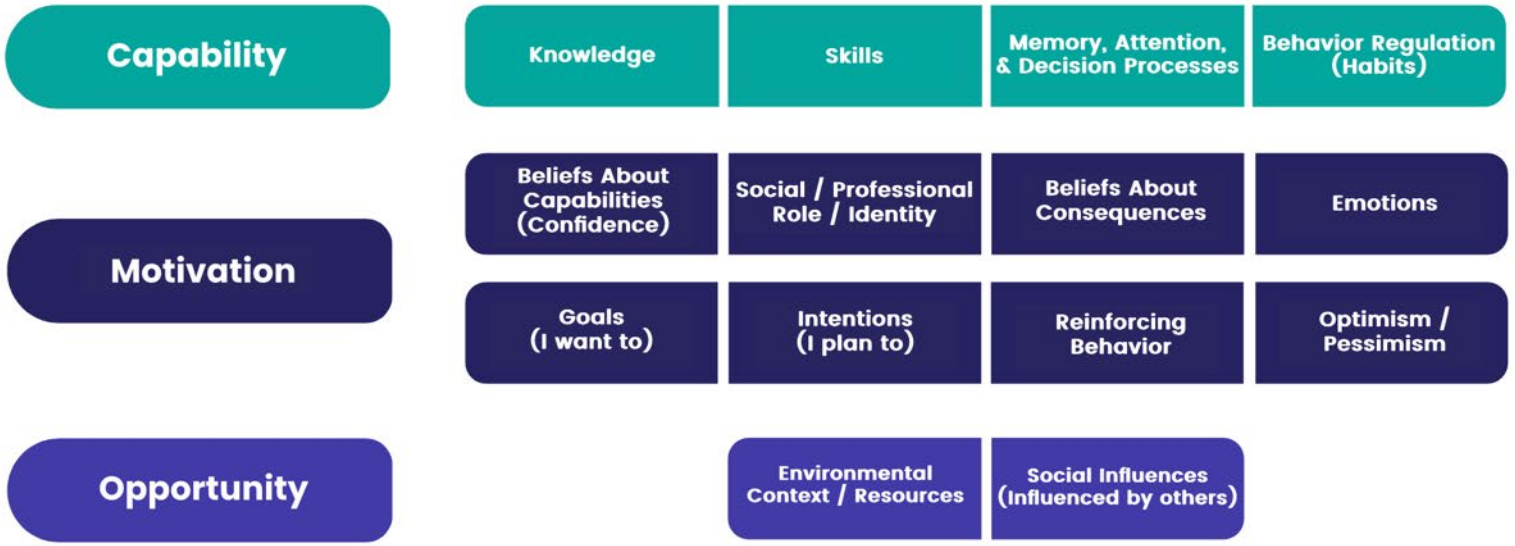
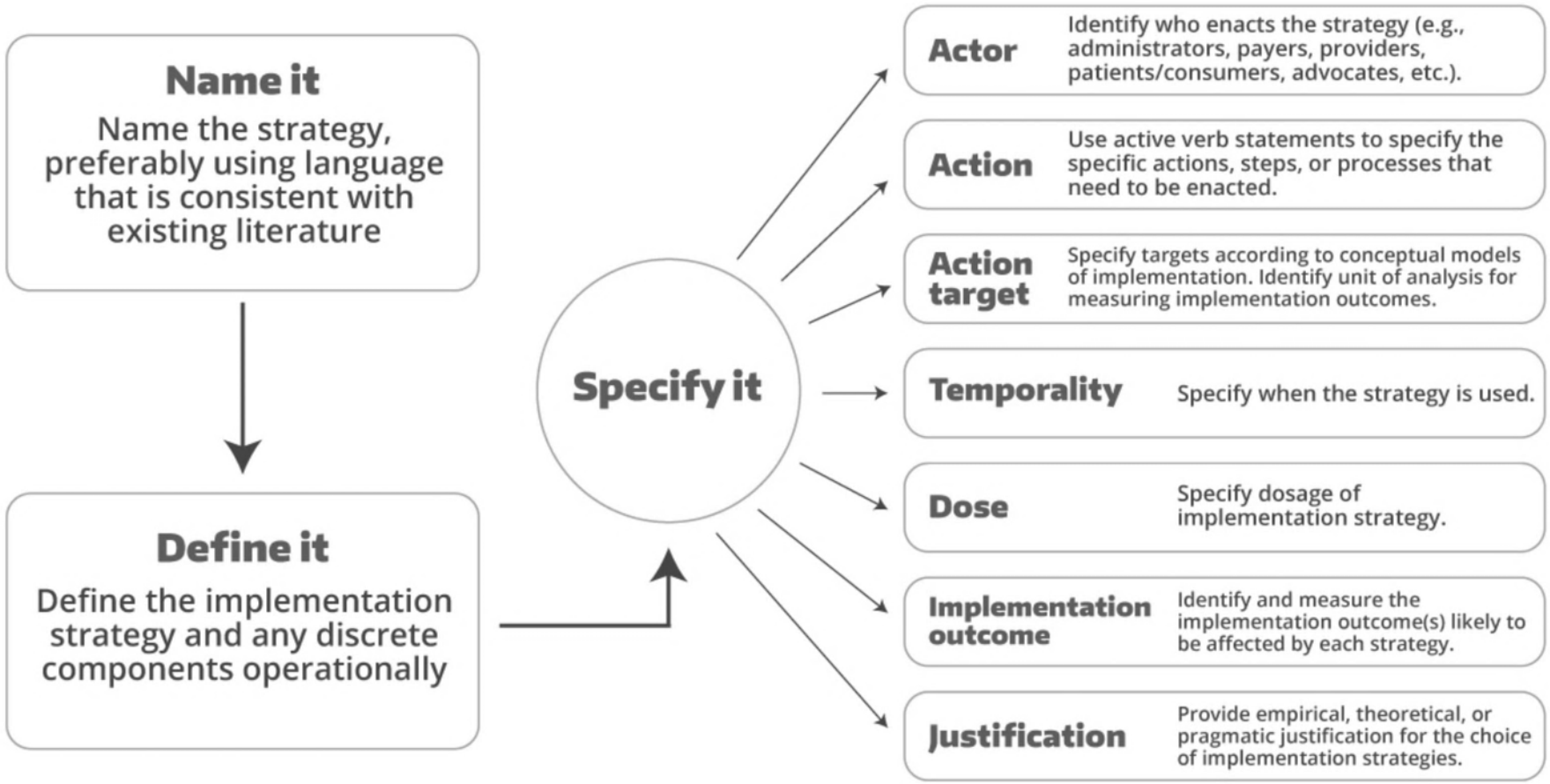


Now available in French! Check it out.

Instructions: Map one barrier or facilitators at a time onto the Capability, Motivation, Opportunity - Behaviour (COM-B) and Theoretical Domains Framework (TDF) image below by clicking in your domain of choice.



Operationalizing strategies



Adapted from Proctor EK, Powell BJ, McMillen JC. Implementation strategies: Recommendations for specifying and reporting. *Implement Sci.* 2013;8(139).

Group discussion 2 (40 mins)

Discuss: What are the most important barriers to address? (Use toolkit)

Discuss: What potential strategies could you use? (Use toolkit)

+ Complete questions 20 – 41 in the survey