

Implementation science: Current state and how we can move the needle

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System

Poll #1:

- Who is in the audience? (select all that apply)
 - Have previously done implementation research
 - Working on a newly funded QUERI program
 - New to implementation research
 - Operations partner working with a QUERI team
 - Have not previously done implementation research

A couple of notes

- Not planning to talk about evaluation methods
- Will focus on work outside the US as well as within US
 - The nature of implementation-focused discourse within the US is different from discourse outside the US

Defining implementation in health care

- Implementation of evidence based practices in routine care
 - Requires behavior change
 - Need to understand practice and behaviors
 - Role of evidence is important but often overlooked
 - Routinization and sustainability are goals, but often not the focus of implementation efforts

Complex interventions and complex implementation

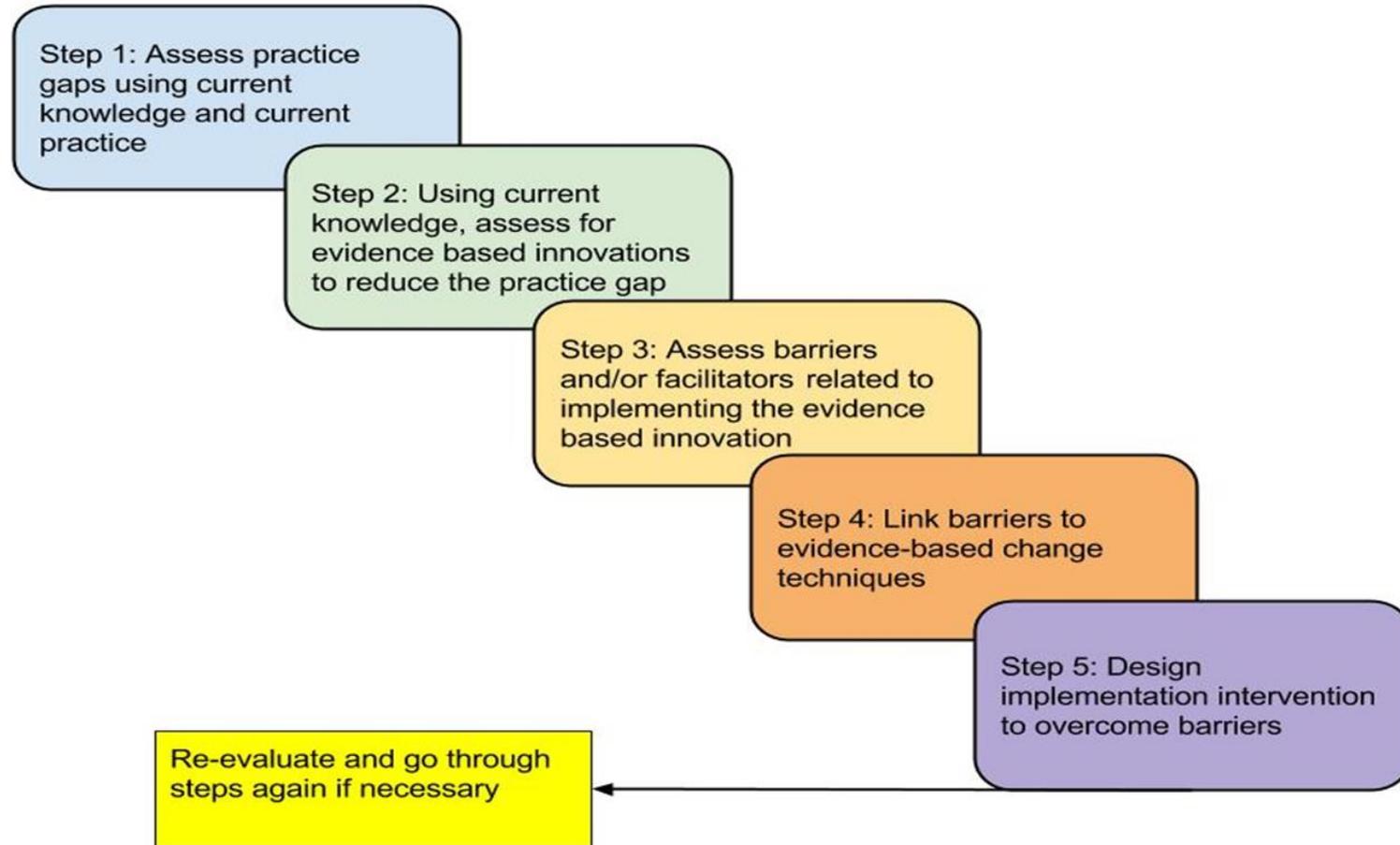
- Considerable guidance from groups in the UK on developing complex interventions in health care
 - Interventions that require action by more than one provider/clinician and/or single patient
 - Interventions that require system action or change
- How complex implementation will be is hard to know
 - Emerging diagnostic tools
 - Focus on the individual level and levels above the individual
 - Complex adaptive systems require complex implementation– probably

Reference: Complex interventions in health: An overview of research methods; eds. Richards and Rahm Hallberg; Routledge 2015

61 frameworks and counting

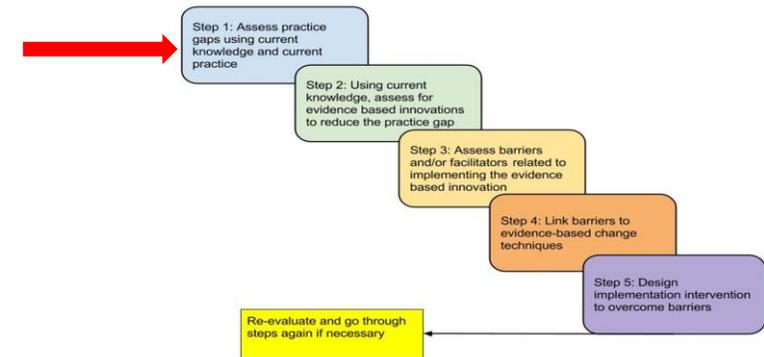
- 2012 systematic review of the literature in dissemination and implementation sciences found over 100 frameworks
 - 61 identified as being potentially useful in either dissemination or implementation or both
 - Level of focus (individual, organizational, social) identified
 - Policy interventions would likely be at social level, above individual and probably organizational
 - But not all frameworks are equal
 - Some are consolidations of the literature at previous points in time
 - Have other important features
 - Consolidated Framework for Implementation Research (CFIR)
 - Theoretical Domains Framework (TDF)

One possible systematic approach



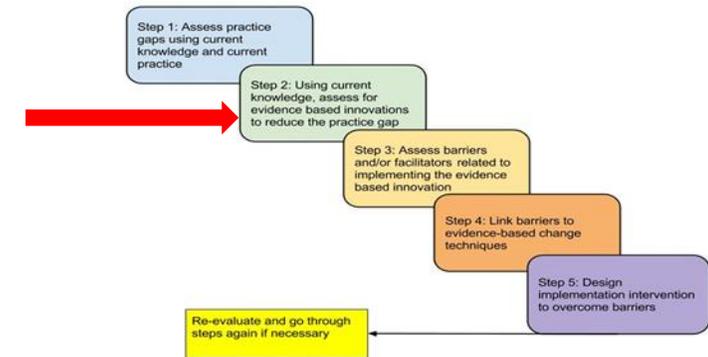
Deciding what to implement: choosing a practice to focus on

- What is most important?
 - Figuring out criteria for making this determination
 - Feasibility
 - Burden to patients and/or providers
 - How are people doing?
 - What is their current performance?
 - How does it compare with ideal?
 - Do you have data to understand this?
- These should all factor into decision about what to implement



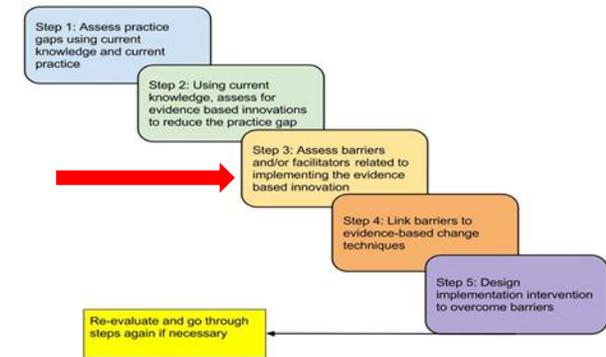
Understand the literature

- What evidence base is there for approaches to address the problem?
 - Reviewing the literature
 - Systematic review and other types of review as appropriate and feasible



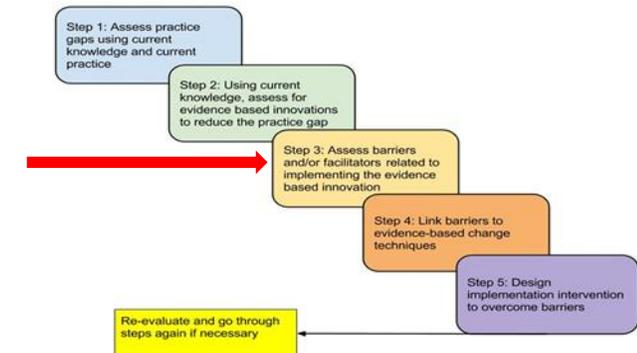
Intervening to implement a new practice

- Begin by understanding the bundle of behaviors and decisions that constitute that practice
 - Map it out
 - Process mapping
 - Understanding how processes contribute to outcomes
 - Identify practices that need intervention
 - Identify influences above the level of the individual
 - Practice mapping
 - Mapping out the practices under consideration for intervention
 - Understand what behaviors make up the practices
 - Understand decision points
 - Root cause analysis
 - Mapping out the causes of failures and safety problems
 - Can be used as an approach to mapping causes more generally



Systematizing design of implementation interventions

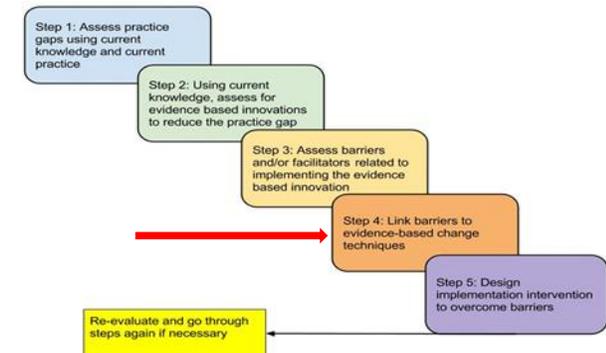
- Systematic analysis of barriers (and enablers) through pilot work or literature review
- Use of design-oriented frameworks to map barriers to **behavior change techniques** or **implementation strategies**
 - Individual level
 - Barrier assessment through TDF
 - Map to Behavior Change Techniques (<http://www.bct-taxonomy.com/resources>)
 - Organizational level (and possibly above)
 - Barrier assessment through CFIR
 - Map to implementation strategies (work ongoing)
 - <http://cfirguide.org/techniques.html>



Behavior change techniques

- 93 techniques for changing behavior
 - Operate through specific psychological or social theory
 - Emphasize specific behavior within practices
 - Generally validated through both theory and empirical test
 - Linked to TDF domains
 - Examples
 - Self-monitoring of behavior (linked to Motivation and Goals)
 - Instruction on how to perform a behavior (linked to Knowledge)

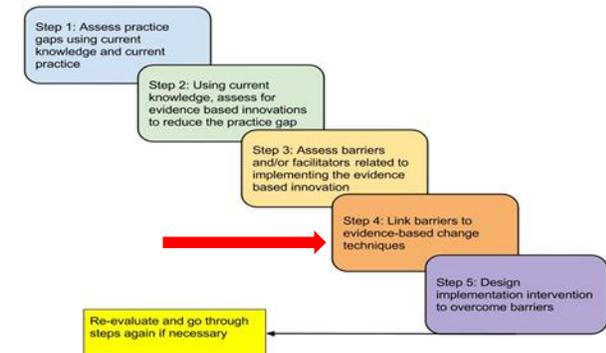
Reference: Michie, S., Richardson, M., Johnston, M., Abraham, C., Francis, J., Hardeman, W., Eccles, M. P., Cane, J. & Wood, C. E. (2013). The Behavior Change Technique Taxonomy (v1) of 93 Hierarchically Clustered Techniques: Building an International Consensus for the Reporting of Behavior Change Interventions. *Annals of Behavioral Medicine*, 46(1), pp. 81-95. doi: 10.1007/s12160-013-9486-6



Implementation strategies

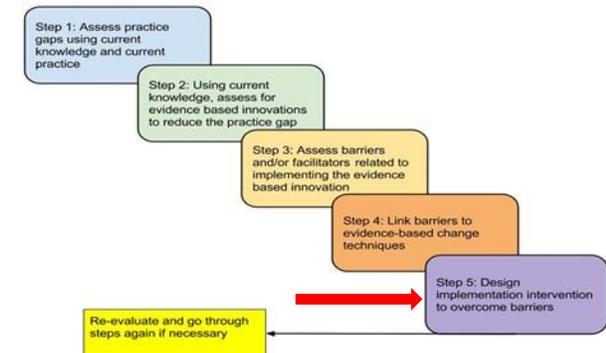
- 73 broader, more macro approaches
 - Quite variable in level
 - Linkage to 39 CFIR constructs currently in progress
 - Example
 - Audit and provide feedback (?linked to Goals and Feedback)
 - Mandate change (?linked to Leadership Engagement)

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



Designing interventions

- Current leading edge in implementation research
 - Linking barriers to techniques (at individual level)
 - Linking barriers to strategies (at higher level)
 - Designing interventions from strategies (broad) and techniques (micro) as indicated



Example: Implementing an
evidence based practice in an ICU

Problem: Patients are on mechanical ventilation for a long time

- Longer than other comparable units
- Long term outcomes are poor
 - High mortality
 - Loss of functional status
 - Long term impairment
- ABCDE evidence based bundle for improvement
 - Spontaneous Awakening trials
 - Spontaneous Breathing trials
 - Coordination of these two
 - Delirium assessment
 - Early mobilization

Going from barrier assessment to behavior change technique (using TDF)

- Barrier: Nurses are not sure they have the skills to handle initial attempts at spontaneous awakening
 - Barriers: Skills, self-efficacy, action planning
 - Behavior change techniques:
 - Goal/target specified: behavior or outcome
 - Monitoring/self-monitoring
 - Graded tasks
 - Social processes of encouragement, support
 - Prompts, triggers, cues

More barriers to implementation

- Barrier: Providers are unaware of their actual performance
 - Lack of motivation/goals
 - Behavior change techniques:
 - Goal/target specification
 - Contract
 - Feedback
 - Rewards and incentives
 - Persuasive communication
 - Information about behavior and outcomes

Consider possible strategies (using CFIR)

- What are the overall goals of the hospital?
 - How does this ICU fit into the hospital as a whole?
 - Key issues:
 - Staffing
 - Continuity of care
 - Morale
 - Previous attempts to change practice
 - Resources
 - Leadership support
 - Organizational readiness to change

Designing an intervention

- Most relevant issues are self-efficacy on the part of nurses, lack of performance awareness by all staff
 - Intervention could include
 - Feedback component: **Audit with feedback**
 - Ensure that people know what the current status is and what patient outcomes are
 - Specifying the goal or target for improvement: **Goal setting or action planning**
 - Ensuring they know how they are doing in meeting that target
 - **Social processes of encouragement and support**
 - Leadership engagement and coaching: **Mandating change**

Take away messages

- Key factors influence our ability to readily move evidence-based innovation into practice settings
 - Patient level factors pose different issues, some of which are analogous
- Systematizing our approaches to assessing probable barriers (and facilitators) is important
- There are emerging approaches that have advantages
 - Frameworks and theories that link to action (prescribing approaches) rather than description are more useful for intervention design
- Planning is essential

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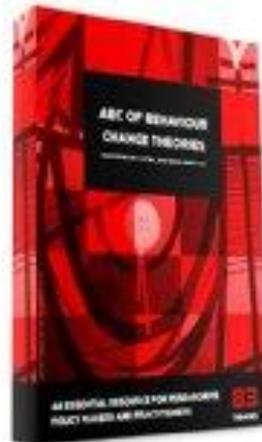
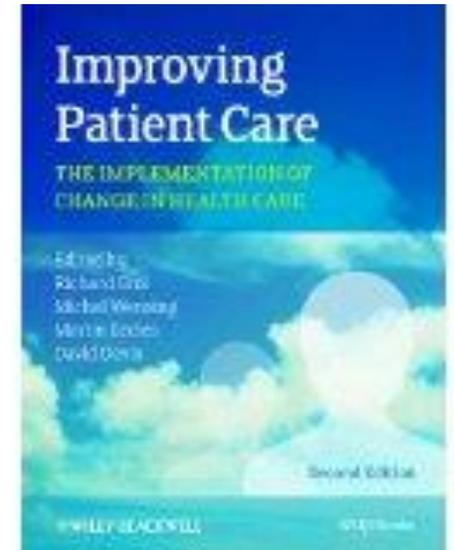
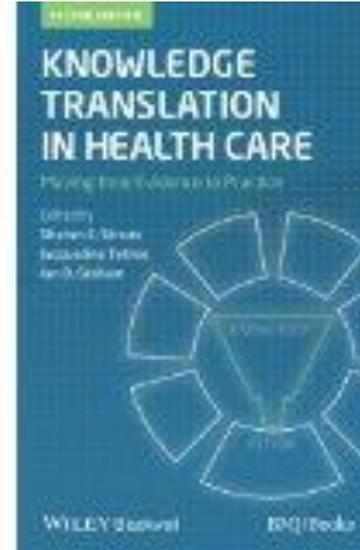
Additional US resources (not exhaustive)

- <http://dissemination-implementation.org/>
- <https://www.gem-measures.org/Public/Home.aspx>
 - This site is currently blocked by OI&T in VA– we are requesting that it be unblocked; will keep you posted
 - For now, need to access using a non-VA computer
- <http://www.queri.research.va.gov/>
- <http://www.queri.research.va.gov/implementation/default.cfm>
 - To be updated within the next few months
- http://www.queri.research.va.gov/implementation/quality_improvement/default.cfm
 - Methods selection tool

Non-US resources (also not exhaustive)

- <http://ktclearinghouse.ca/ktcanada>
 - Being updated– advised to check back later in the fall
- <http://www.ucl.ac.uk/behaviour-change>
 - Center for Behavior Change, University College, London
- <http://www.implementationscience.com/>
 - General web site for *Implementation Science*
- <http://www.fic.nih.gov/researchtopics/pages/implementationscience.aspx>
 - US but focused on international research
- <http://i2s.anu.edu.au/>

Books



Questions or comments?

Preferred contact method:

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