INTRODUCTION TO IMPLEMENTATION SCIENCE: PART II

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AS SEEN ON THE PREVIOUS EPISODE

The answer is 17 years, what is the question: understanding time lags in translational research

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AS SEEN ON THE PREVIOUS EPISODE
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**IMPLEMENTATION SCIENCE**

"scientific study of methods to promote the systematic uptake of proven clinical treatments, practices, organizational, and management interventions into routine practice, and hence to improve health"

Implementation Science website, 12/7/2020

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**FOUR ESSENTIAL QUESTIONS**

1) What is the gap between the evidence-base and clinical practice?
- What needs to change?

2) What conceptual model best describes how you hypothesize change will occur?
- How/why will this change occur?

3) What [implementation] strategies will facilitate that change?
- What will create the change?

4) What outcomes do we need to measure to evaluate whether the change occurred in practice and clinical outcomes?
- What changed and by how much?
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What would I do differently to make it an implementation study?

Hybrid Type III

VA: R:\HSRD\HSRD_General\EMIC_ICTS Monthly Seminar

UI: https://icts.uiowa.edu/investigators/community-patient-engagement
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1) What is the gap between the evidence-base and clinical practice?
   - What needs to change? 61.3%

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CONCEPTUAL MODELS

- How/why will this change occur?
Bridging Research and Practice Models for Dissemination and Implementation Research

Rachel G. Tabak, PhD, Elaine C. Khoong, BS, David A. Chambers, DPhil, Ross C. Brownson, PhD


- 61 models reviewed
- Guidance on:
  - Flexibility of model
  - Dissemination and/or implementation focus
  - Socioecologic level (system, community, organization, individual, or policy)
Making sense of implementation theories, models and frameworks

Per Nilsen
Damschroder, Psychiatry Research, 2020

Process Frameworks
Guide the process of implementation; identify mechanisms of change

Evaluating Frameworks
Guide identification of outcomes that can be used to assess implementation efforts.

Evidence-based Innovation (EBI)

Implementation Approach

Implementation Outcomes

Health System & Clinical Outcomes

Individuals Involved e.g., users of the EBI, Champions

Inner Setting e.g., Compatibility of EBI, Relative Priority

Outer Setting e.g., Payment Policy, Market Pressure

Determinant Frameworks
Name and define conceptual constructs that may influence (i.e., moderators) implementation outcomes
T-CaST: an implementation theory comparison and selection tool

Sarah A. Birken¹*, Catherine L. Rohweder², Byron J. Powell¹, Christopher M. Shea¹, Jennifer Scott³, Jennifer Leeman⁴, Mary E. Grewe³, M. Alexis Kirk¹, Laura Damschroder⁶, William A. Aldridge Il⁷, Emily R. Haines¹, Sharon Straus⁸ and Justin Presseau⁹,¹⁰,¹¹
Sections of the D&I Models Webtool

- Plan
- Select
- Combine
- Adapt
- Use
- Measure

http://www.dissemination-implementation.org/
Hand hygiene = necessary behavior of any individual in a healthcare context for the safety of all individuals in that healthcare setting
Hand hygiene = necessary behavior of any individual in a healthcare context for the safety of all individuals in that healthcare setting

“The Theoretical Domains Framework (TDF) was initially developed for implementation research to identify influences on health professional behaviour related to implementation of evidence-based recommendations...and is an integrated theoretical framework synthesised from 128 theoretical constructs from 33 theories judged most relevant to implementation questions.” (Atkins et al 2017)
HOW/WHY WILL THIS CHANGE OCCUR?

Social Influences

Environmental Context and Resources

Beliefs about Capabilities

Beliefs about Consequences

Memory, Attention and Decision Processes

- Soc - Social influences
- Env - Environmental Context and Resources
- Id - Social/Professional Role and Identity
- Bel Cap - Beliefs about Capabilities
- Opt - Optimism
- Int - Intentions
- Goals - Goals
- Bel Cons - Beliefs about Consequences
- Reinf - Reinforcement
- Em - Emotion
- Know - Knowledge
- Cog - Cognitive and interpersonal skills
- Mem - Memory, Attention and Decision Processes
- Beh Reg - Behavioural Regulation
- Phys - Physical skills
IMPLEMENTATION STRATEGIES

What will create the change?
A refined compilation of implementation strategies: results from the Expert Recommendations for Implementing Change (ERIC) project

Byron J Powell¹, Thomas J Waltz², Matthew J Chinman³, Laura J Damschroder⁵, Jeffrey L Smith⁶, Monica M Matthieu⁶, Enola K Proctor⁸ and JoAnn E Kirchner⁶,⁹
73 implementation strategies labeled and defined

Includes:
- Create new clinical teams
- Audit and provide feedback
- Identify and prepare champions
- Use capitated payments
- Mandate change

Suggests combining them based on innovation and conceptual model
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. Waltz¹,², Byron J. Powell³, Monica M. Matthieu⁴,⁵,¹⁰, Laura J. Damschroder², Matthew J. Chinman⁶,⁷, Jeffrey L. Smith⁵,¹⁰, Enola K. Proctor⁸ and JoAnn E. Kirchner⁵,⁹,¹⁰
WALTZ ET AL

73 implementation strategies mapped conceptually into 9 clusters

- Excel spreadsheet (Thank you, Cassie!)

- Rated for importance and feasibility
CONCEPT MAP OF IMPLEMENTATION STRATEGIES
# Optimizing a HH Bundle

<table>
<thead>
<tr>
<th>Implementation Strategy</th>
<th>TDF Construct</th>
<th>ERIC Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Point-of-care, gain-framed HH reminder signs</td>
<td>Environmental Context and Resources Beliefs about Consequences Memory, Attention and Decision Processes</td>
<td>Remind clinicians</td>
</tr>
<tr>
<td>Individual alcohol hand sanitizer dispensers</td>
<td>Environmental Context and Resources Beliefs about Capabilities Memory, Attention and Decision Processes</td>
<td>Change physical structure and equipment</td>
</tr>
<tr>
<td>Display agar culture plates from healthcare workers’ hands</td>
<td>Social Influence Environmental Context and Resources Beliefs about Consequences</td>
<td>Audit and provide feedback*</td>
</tr>
</tbody>
</table>
**BUCKETS AREN’T ALWAYS PERFECT**

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audit and provide feedback</td>
<td>Collect and summarize clinical performance data over a specified time period and give it to clinicians and administrators to monitor, evaluate, and modify provider behavior</td>
</tr>
<tr>
<td>Develop and implement tools for quality monitoring</td>
<td>Develop, test, and introduce into quality-monitoring systems the right input—the appropriate language, protocols, algorithms, standards, and measures (of processes, patient/consumer outcomes, and implementation outcomes) that are often specific to the innovation being implemented</td>
</tr>
<tr>
<td>Develop and organize quality monitoring systems</td>
<td>Develop and organize systems and procedures that monitor clinical processes and/or outcomes for the purpose of quality assurance and improvement</td>
</tr>
</tbody>
</table>
SPEAKING OF BUCKETS...

Planning for Implementation of Evidence-Based Practice

Laura Cullen, MA, RN, FAAN
Susan L. Adams, PhD, RN

IMPLEMENTATION OUTCOMES

What changed and by how much?
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Acceptability</td>
<td>Perception among implementation stakeholders that a given implementation strategy is agreeable or satisfactory.</td>
</tr>
<tr>
<td>Appropriateness</td>
<td>Perceived fit, relevance, or compatibility of the implementation strategy for a given practice setting, provider, or consumer; perceived fit to address problem.</td>
</tr>
<tr>
<td>Adoption</td>
<td>Intention, initial decision, or action to try to employ an implementation strategy.</td>
</tr>
<tr>
<td>Cost</td>
<td>Cost impact of an implementation effort.</td>
</tr>
<tr>
<td>Feasibility</td>
<td>Extent to which a new implementation strategy can be successfully used or carried out within a given agency or setting.</td>
</tr>
<tr>
<td>Fidelity</td>
<td>Degree to which an evidence-based practice was implemented as it was prescribed in the original protocol or intended by the practice developers.</td>
</tr>
<tr>
<td>Penetration</td>
<td>Integration of a practice within a service setting and its sub-systems.</td>
</tr>
<tr>
<td>Sustainability</td>
<td>Extent to which a newly implemented evidence-based practice is maintained or institutionalized within a service setting’s ongoing.</td>
</tr>
</tbody>
</table>
# Optimizing HH Bundles: Outcomes

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Evaluation Model</th>
<th>How would we measure it?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceptability</td>
<td>Proctor</td>
<td>Qualitative interviews with HCWs / Satisfaction surveys with HCWs</td>
</tr>
<tr>
<td>Appropriateness</td>
<td>Proctor</td>
<td>Qualitative interviews with HCWs</td>
</tr>
<tr>
<td>Cost</td>
<td>Proctor</td>
<td>Calculate resource and personnel cost for each strategy</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>RE-AIM</td>
<td>HH compliance rates</td>
</tr>
<tr>
<td>Feasibility</td>
<td>Proctor</td>
<td>Qualitative interviews with HCWs and RCs, observation, tracking</td>
</tr>
<tr>
<td>Fidelity</td>
<td>Proctor</td>
<td>Observation of strategies</td>
</tr>
<tr>
<td>Implementation</td>
<td>RE-AIM</td>
<td>Qualitative interviews with RCs</td>
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3) What implementation strategies will facilitate that change?
   ▪ What will create the change? 3 ERIC Strategies

4) What outcomes do we need to measure to evaluate whether the change occurred in practice and clinical outcomes?
   ▪ What changed and by how much? 7 Proctor and RE-AIM Outcomes
CHALLENGES WITH IMPLEMENTATION SCIENCE

Young field that is still figuring out terminology or old field that hasn’t done a very good job of understanding its roots?

Behavioral interventions: What are the core components and what are the implementation strategies?

What distinguishes quality improvement from implementation science from evidence-based practice from improvement science?

Other questions?
Demystifying theory and its use in improvement


Frank Davidoff,1 Mary Dixon-Woods,2 Laura Leviton,3 Susan Michie4