The Implementation Research Logic Model (IRLM)
A Method for Planning, Executing, Reporting, and Synthesizing Implementation Projects

J.D. Smith, Ph.D.
Associate Professor, Departments of Psychiatry and Behavioral Sciences, Preventive Medicine, Medical Social Sciences, and Pediatrics
Associate Director, Center for Prevention Implementation Methodology for Drug Abuse and HIV
Co-Director, Program in Dissemination and Implementation Science, Northwestern University
Clinical and Translational Sciences Institute
Northwestern University Feinberg School of Medicine at Chicago
Citations


**Full Article:** Smith, J.D., Li, D., & Rafferty, M.R. (2020, preprint). The Implementation Research Logic Model: A method for planning, executing, reporting, and synthesizing implementation projects. [https://doi.org/10.1101/2020.04.05.20054379](https://doi.org/10.1101/2020.04.05.20054379)
[https://medrxiv.org/cgi/content/short/2020.04.05.20054379v1](https://medrxiv.org/cgi/content/short/2020.04.05.20054379v1)

Check ISC³i website ([https://isc3i.isgmh.northwestern.edu/](https://isc3i.isgmh.northwestern.edu/)) for resources and the above link to the full pre-publication article on [www.medRxiv.org](http://www.medRxiv.org)
Acknowledgments

**Co-Authors:** Dennis Li, PhD, MPH & Miriam R. Rafferty, PhD, DPT, PT
Hendricks Brown, Brian Mustanski, Kathryn Macapagal, Nanette Benbow, Richard Lieber, Allen Heinemann, Sandra Naoom, Patrick Sullivan, Aaron Siegler, Cady Berkel, Carrie Dooyema, Lauren Fiechtner

**NIDA:** Center for Prevention Implementation Methodology for Drug Abuse and HIV Ce-PIM (P30DA027828; Brown PI)

**CDC:** Raising Healthy Children Project (U18 DP006255, Smith & Berkel MPIs)

**NIMH:** Keep It Up! 3.0 (R01MH118213, Mustanski PI)

**NIMH/NIAID:** Implementation Science Coordination, Consultation, and Collaboration Initiative (P30 AI117943 Supp, Mustanski, Benbw, MPIs)

**NCI:** NU IMPACT Center (UM1CA233035, Cella PI)

**NCATS:** NUCATS (UL1 TR001422, Lloyd-Jones PI) Loan Repayment Grant (Smith)
Do We Really Need Another Model?

essentially,
all models are wrong,
but some are useful

George E. P. Box
Yes, We Need Another Model

• Logic models often required by funders (EHE supplements!)

• Integrating the necessary conceptual elements of implementation research, which often involves multiple models, frameworks, and theories, is an ongoing challenge

• Transparency, Rigor, Openness, Specification, & Reproducibility
  
  • Rigor—the strict application of the scientific method to ensure robust and unbiased experimental design, methodology, analysis, interpretation and reporting of results

  • Improving the specification of phenomena in implementation research is necessary to inform our understanding of how implementation strategies work, for whom, under what determinant conditions, and on what implementation and clinical outcomes (Smith, Li, & Rafferty, 2020)

  • Testable way of explaining phenomena by specifying relations among variables, thus enabling prediction of outcomes (Glanz & Bishop, 2010)
Logic Models (in general)

• A graphic depiction that presents the shared relationships among various elements of a program or study
• Develop agreement among diverse stakeholders of the “what” and the “how”
• Improve planning by highlighting theoretical and practical gaps
• Support the development of meaningful process indicators for tracking
• Reproduce successful studies / identify failures of unsuccessful studies

Petersen, Taylor, & Peikes, 2013
Development of the IR Logic Model

Uses and Elements
Case Applications

• Used in the study of implementing a new model of patient care in a new physical space Implementation strategies

• Used in the first 6 months of three already-funded implementation research projects to plan for and describe the prospective implementation research aspects of the trials

• Applied in the later stages of a nearly completed implementation research project

• Used in a two-day training hosted by ISC³i — EHE planning project grantees (post-training survey results will be presented)
Structure of the IRLM

• Began with the common “pipeline” logic model format used by AHRQ, CDC, NIH, PCORI, and others
  • Familiar to funders, investigators, readers, and reviewers
  • Adapted to integrate existing implementation science frameworks as its core elements with an eye toward facilitating causal modeling

Theory and Elements of the IRLM

• Generalized theory of the IRLM:
  • (1) implementation strategies selected for a given EBP are related to the implementation determinants (context-specific barriers and facilitators)
  • (2) strategies work through specific mechanisms of action to change the context or the behaviors of those within the context
  • (3) implementation outcomes are the proximal impacts of the strategy and its mechanisms, which then relate to the clinical outcomes of the EBP

• IRLM: Aid in the specification of the relationship between foundational elements of an IR study

  Determinant(s) → Implementation Strategy → Mechanism of Action → Outcomes
Definitions of IRLM Elements

- **Determinants**
  - Factors that might prevent or enable improvements (barriers & facilitators); may act as moderators or ‘effect modifiers,’ or as mediators; indicating that they are links in a chain of causal mechanisms (CFIR, Damschroder et al. 2009)

- **Implementation Strategies**
  - Supports, changes to, and interventions on the system to increase adoption of EBPs into usual care (Powell et al. 2012; Powell et al. 2015)

- **Mechanisms of Action**
  - Processes or events through which an implementation strategy operates to affect desired implementation outcomes (Lewis et al. 2018)

- **Outcomes**
  - **Implementation**: the effects of deliberate and purposive actions to implement new treatments, practices, and services (Proctor et al. 2011)
  - **Clinical**: the direct effects on participants of the EBP (e.g., symptoms, infection)
IRLM Formats
The Implementation Research Logic Model (IRLM)

Determinants

Implementation Strategies

Mechanisms

Outcomes

© Smith, J.D. 2019
IRLM for Multi-Context Implementation of Single Intervention

Determinants

Context #1
Intervention Characteristics
Interior Setting
Characteristics of Individuals
Process

Context #2

Implementation Strategies

Strategies for Context #1

Strategies for Context #2

Mechanisms

Outcomes

Implementation
Service
Clinical/Patient

© Smith, J.D. 2019
IRLM for Implementation Optimization Trial (4 clusters; 1 setting)
IRLM with Clinical Intervention

Determinants

Implementation Strategies

Mechanisms

Outcomes

- Intervention Characteristics
- Inner Setting
- Outer Setting
- Characteristics of Individuals
- Process

Clinical Intervention

Implementation

Service

Clinical/Patient
Using the IRLM

Guiding Principles
Principle 1: Strive for Comprehensiveness

• Determinants
  • Include all relevant determinants and not simply limit reporting to those that are hypothesized to be related to the strategies and outcomes
  • Valence should be noted
    • Simply adding plus (+) or minus (−) signs for facilitators and barriers, respectively
    • Using a coding system, such as that developed by Damschroder et al. 2013, to indicate the relative strength of the determinant
      −2 (strong negative impact)
      −1 (weak negative impact)
      0 (neutral or mixed influence)
      1 (weak positive impact)
      2 (strong positive impact)
  • Try not to use study-specific adjectives or change the name of the determinant (e.g., greater relative priority, addresses patient needs, good climate for implementation)
Principle 1: Strive for Comprehensiveness

• Implementation strategies
  • First, list all strategies in the system
  • Second, strategies should be labeled to indicate whether they were:
    (a) in place in the system prior to the study;
    (b) initiated prospectively for the purposes of the study (particularly for experimental study designs);
    (c) removed as a result of being ineffective or onerous; or
    (d) introduced during the study to address an emergent barrier or supplement other strategies because of low initial impact

• Relevant for IRLM used during planning, as an ongoing tracking system (article in process), for retrospective application to a completed study, and in the final reporting of a study
Principle 1: Strive for Comprehensiveness

• Outcomes
  • List all measured outcomes.
Principle 2: Indicate Key Conceptual Relationships

• Indicate the relationships between elements in a manner aligning with the specific theory of change for the study
  • Provide some form of notation to indicate these conceptual relationships using superscripts (preferred), color-coding, arrows (limited), or a combination of the three
    • Such notations in the IRLM facilitate reference in text to the study hypotheses, tests of effects, causal chain modeling, and other forms of elaboration
  • When presenting the IRLM using presentation programs (e.g., PowerPoint, Keynote, Prezi), colors and arrows can be helpful, and animations can make these connections dynamic and sequential without adding to visual complexity
**Principle 3: Specify Critical Study Design Elements**

• *Primary Outcomes*
  
  • Indicate the primary outcome(s) at each relevant level of the study design (i.e., clinician, clinic, organization, county, state, nation)
  
  • The levels should align with the specific aims and the level(s) targeted by the implementation strategy/ies
  
  • Suggestion: Include downstream health services and clinical outcomes even if they are not measured, as these are important for understanding the logic of the study and the ultimate health-related targets
Principle 3: Specify Critical Study Design Elements

• For quasi/experimental designs
  • Clearly label the independent variable(s) (i.e., the strategies that are introduced or manipulated or that otherwise differentiate study conditions)
    • important for internal validity and for differentiating conditions in multi-arm studies

• For comparative implementation trials
  • Indicate the determinants, strategies, mechanisms, and (potentially) the outcomes that differentiate the conditions
  • Might need to use an IRLM for each arm when the strategies either occur across two delivery systems or are simply were very different, by design

• For implementation optimization designs
  • Specify the different combinations, packages, or conditions being tested
**Principle 3: Specify Critical Study Design Elements**

- **Additional specification options**
  - Users of the IRLM can specify any number of additional elements that may be important to their study
    - Notate those elements of the IRLM that have been or will be measured versus those that were based on the researcher’s prior studies or inferred from findings reported in the literature
    - Indicate when implementation strategies differ by level or unit within the study (in large multisite studies, strategies might not be uniform across all units, particularly those strategies that already exist within the systems)
    - Be creative 😊
**Completed IRLM**  
**MA Childhood Obesity Research Demonstration Project (CORD3.0) (Tavares, PI)**

### Determinants

<table>
<thead>
<tr>
<th>Intervention Characteristics</th>
<th>Determinants</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention Source +2</td>
<td>care +2</td>
<td></td>
</tr>
<tr>
<td>Relative Advantage +2</td>
<td>Adaptable -1</td>
<td></td>
</tr>
<tr>
<td>Evidence Strength +2</td>
<td>Complexity (budget) -1</td>
<td></td>
</tr>
<tr>
<td>Design quality &amp; packaging +1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Competing demands -1 R×</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence Based +1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriate in primary</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Outer Setting

<table>
<thead>
<tr>
<th>Inner Setting</th>
<th>Characteristics</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention</td>
<td>Structure</td>
<td>+1 K</td>
</tr>
<tr>
<td>Networks &amp; communications</td>
<td>Tension for change +1</td>
<td></td>
</tr>
<tr>
<td>Readiness for Implementation</td>
<td>Compatibility –</td>
<td></td>
</tr>
<tr>
<td>Leadership engagement</td>
<td>Alignment +1</td>
<td></td>
</tr>
<tr>
<td>Available Resources +1</td>
<td>Learning climate +1</td>
<td></td>
</tr>
</tbody>
</table>

### Inner Setting

<table>
<thead>
<tr>
<th>Inner Setting</th>
<th>Characteristics</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Care</td>
<td>Knowledge &amp; beliefs about Intervention +1 A</td>
<td></td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>+1 R×</td>
<td></td>
</tr>
<tr>
<td>Training</td>
<td>+2 A, R, F, G, L, K</td>
<td></td>
</tr>
</tbody>
</table>

### Process

<table>
<thead>
<tr>
<th>Process</th>
<th>Characteristics</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engaging</td>
<td>+1</td>
<td></td>
</tr>
<tr>
<td>External Change Agents.</td>
<td>+2 E</td>
<td></td>
</tr>
<tr>
<td>Opinion Leaders +2 E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Champions +2 A</td>
<td>Reflecting &amp; Evaluating Planning +1 F</td>
<td>+1 G, L, J</td>
</tr>
</tbody>
</table>

### Implementation Strategies

1. **Training**
   - Training modules A
   - Virtual learning collaborative B

2. **Community Resources Engagement**
   - Capturing local knowledge C

3. **Engaging FQHC Leadership**

4. **Engaging External, state-level organizations, national organizations**

5. **Ongoing meetings**
   - Technical Assistance
   - Local champions (MS PCA)

6. **Fidelity monitoring**
   - Quarterly checklist

7. **Data monitoring and feedback**

8. **Utilize financial strategies (TBD)**
   - Making billing easier
   - Accessing funding

9. **Quality Improvement**

10. **Identify and form new clinical teams**

11. **Clinician reminders**

### Mechanisms


2. **Self-efficacy improved of clinic staff B, K, F, H (G, I, L)**

3. **Flexibility of the package is continually adapted (adaptability, complexity) D, E, I**

### Outcomes

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal structural barriers are reduced (competing demands) D, I</td>
<td></td>
</tr>
<tr>
<td>External support for patient needs are identified, leveraged, and made available (external policy and incentives) C, D, I</td>
<td></td>
</tr>
<tr>
<td>External policies and incentives for reimbursement are accessed E, I</td>
<td></td>
</tr>
</tbody>
</table>

**Healthy Weight Clinic**

<table>
<thead>
<tr>
<th>Process</th>
<th>Characteristics</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual/group visits</td>
<td>+1 A</td>
<td></td>
</tr>
<tr>
<td>Multidisciplinary team</td>
<td>+2 A, B, C, G, H</td>
<td></td>
</tr>
<tr>
<td>Centralized case management</td>
<td>A, B</td>
<td></td>
</tr>
<tr>
<td>Binge Eating</td>
<td>B, G, H</td>
<td></td>
</tr>
<tr>
<td>Stress</td>
<td>C, K, L</td>
<td></td>
</tr>
<tr>
<td>Acceptability (WCH, strategies)</td>
<td>B, D, E</td>
<td></td>
</tr>
<tr>
<td>Feasibility (WCH, strategies)</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Fidelity (WCH, strategies)</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Maintenance/Sustainability</td>
<td>B, C, D, E, F, G, I, L</td>
<td></td>
</tr>
<tr>
<td>Retention Rate (WCH)</td>
<td>C, H, I</td>
<td></td>
</tr>
</tbody>
</table>

**Implementation**

<table>
<thead>
<tr>
<th>Service</th>
<th>Characteristics</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity (reach rates by race, age, BMI)</td>
<td>E, R, L</td>
<td></td>
</tr>
<tr>
<td>Timeliness (time from identification to WCH engagement)</td>
<td>E, H, I, L</td>
<td></td>
</tr>
</tbody>
</table>

**Clinical Outcomes**

<table>
<thead>
<tr>
<th>Clinical Outcomes</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMG C, K, L</td>
<td></td>
</tr>
<tr>
<td>Quality of Life C, K, L</td>
<td></td>
</tr>
<tr>
<td>Family Health Behaviors C, K, L</td>
<td></td>
</tr>
<tr>
<td>Binge Eating B, G, H</td>
<td></td>
</tr>
<tr>
<td>Stress C, K, L</td>
<td></td>
</tr>
<tr>
<td>Acceptability (WCH, strategies) B, D, E</td>
<td></td>
</tr>
<tr>
<td>Feasibility (WCH, strategies) A</td>
<td></td>
</tr>
<tr>
<td>Satisfaction (WCH, primary care) N, K, L</td>
<td></td>
</tr>
<tr>
<td>Retention/Completion (WCH) C, K, L</td>
<td></td>
</tr>
<tr>
<td>Cost Effectiveness</td>
<td>I</td>
</tr>
</tbody>
</table>

---

**Center for Prevention Implementation Methodology**

**FOR DRUG ABUSE AND HIV**

---

**Northwestern Medicine**

Feinberg School of Medicine
Using the IRLM for Different Purposes and Stages of Research
Planning, Executing, Reporting, Synthesizing
Planning

• Often begins with the known parameter(s) of the study
  • Working from the two “bookends” of the IRLM (context and outcomes often known; strategies, mechanisms, and even the EBP often are not)

• Work with community partners and/or organization stakeholders to fill in the implementation strategies that are likely to be feasible and effective (Waltz et al. 2015)

• Posit conceptually derived mechanisms of action based on determinants, strategies, and targeted outcomes
Executing

- Majority of the parameters will be known
- However, through completing the IRLM prior to the start of studies, we found that:
  - IRLM helped to reveal important contextual factors
  - Additional implementation strategies were needed to complement the primary ones proposed
  - Mechanisms needed to be added and measured
- Completed IRLM serves as "protocol" and can form the basis for ongoing tracking of what occurs, what is altered, deviations, etc.
Reporting

• Nearly all elements of the IRLM will be known
• Means of showing what happened during the study
• Accurate reporting of the hypothesized relationships that were observed
• Facilitates communication of the findings
Synthesizing

• **Purpose:** draw conclusions for the implementation of an EBP/similar EBPs in a particular context (or across contexts) that are shared and generalizable to provide a guide for future research and implementation

• Being applied in a NCI-funded research consortium
Supporting Text and Resources

- Preliminary data for determinants
- Measures
- Strategy/ies (Proctor, Powell, & McMillen, 2013)
- “Paths” supported by theory (e.g., Lewis et al. 2018)
- Trial design
- Implementation plan/process model (e.g., EPIS)

By utilizing superscripts, subscripts, and other notations within the IRLM, it is easy to refer to (a) hypothesized causal paths in theoretical overviews and analytic plan sections; (b) planned measures for determinants and outcomes; and (c) specific implementation strategies in text, tables, and figures.
Acceptability and Usability of the IRLM

Results of a Post-Training Survey of EHE Planning Project Grantees
ISC³i’s Ending the HIV Epidemic “Summit”

- Two-day in-person training in Chicago, IL, in October 2019

- N=132 participants
  - N=129 pre-training survey
  - N=66 post-training survey (42 investigators, 24 implementation partners; 68.2% Female)

- 10 items related to the IRLM plus one about the general logic of implementation research
  - Items rated on a 4-point scale (0=not at all, 1=a little, 2=moderately, 3=very much)
IRLM was either “moderately” or “very” helpful in:

1) Improving the rigor and reproducibility 77.7%, M=3.05, SD=.885
2) Serving as a “roadmap” for the project 74%, M=3.08, SD=.950
3) Clearly reporting and specifying the project plan 67.8%, M=2.94, SD=.909
4) Understanding connections between determinants, strategies, mechanisms, and outcomes 66.3%, M=2.92, SD=.957
5) Identifying gaps in the IR logic of their project 64.2%, M=2.86, SD=1.021
6) Deepening their knowledge of IR methods 62.9%, M=2.83, SD=.959
7) Planning the project 61.3%, M=2.82, SD=1.088
8) Developing consensus and understanding of the project among diverse stakeholders involved 58.8%, M=2.75, SD=1.090
9) Identifying gaps in research questions/analyses 51.3%, M=2.54, SD=1.032
Additional Results

• The worksheets provided during the summit were either “moderately” or “very” helpful in completing the IRLM (74.1%, M=3.02, SD=.886)

• Knowledge on the logic of implementation research had increased either “moderately” or “very much” after the two-day training (77.6%, M=3.18, SD=.827)

• At the time of the survey (respondents were about 2.5 months into their one-year planning projects), 44.6% indicated that they had already been able to complete a full draft of the IRLM

• No statistically significant difference between investigators and implementation partners on any question (planning, reporting/specifying, knowledge of IR logic investigators)
Resources for Using the IRLM
Quick Reference Guide, Worksheets, Templates, Examples
Quick Reference Guide

Determinants

Factors that might prevent or enable improvements (barriers & facilitators). May act as moderators, effect modifiers, or mediators, indicating that they are links in a chain of causal mechanisms.

- Intervention source; Evidence strength and quality; Relative advantage; Adaptability; Trialability; Complexity; Design quality and packaging; Cost
- Structural characteristics; Networks and communication; Culture; Implementation climate; Readiness for implementation
- Patient needs and resources; Cosmopolitanism; Peer pressure; External policies and incentives
- Knowledge/beliefs about intervention; Individual stage of change; Self-efficacy; Individual identification with the organization; Other attributes
- Engaging; Planning; Executing; Reflecting and Evaluating

Implementation Strategies

Interventions on the system to increase adoption of evidence-based innovations into usual care. A theory- or logic-driven connection should link an implementation strategy to (a) the barriers it will attempt to overcome and/or (b) the facilitators it will attempt to leverage.

Types
1. Plan; Educate; Finance; Restructure; Quality management; Policy context (Powell et al., 2012; Bunger et al., 2017)
2. Engage consumers; Evaluate; Change infrastructure; Stakeholder interrelationships; Financial strategies; Clinician support; Interactive assistance; Train and educate; Adapt (Powell et al., 2015; Waltz et al., 2015)

Strategies should be specified by the following characteristics:
- Actor; Action; Action target; Temporality; Dose; Outcome affected; Justification for use (Proctor et al., 2013)

Mechanisms

Processes or events through which an implementation strategy operates to affect desired implementation outcomes (Lewis et al. 2018)

Mechanisms explain how an implementation strategy has an effect by describing the actions that lead from the administration of the strategy to the most proximal behavioral (individual, system) and/or implementation outcomes (i.e., mechanisms are the exact series of steps through which the change came about; Kazdin, 2007).

Some potential mechanisms:
1. Altering the status of a determinant.
2. Changing the behavior or attitude of an implementer (i.e., a proximal outcome that precedes an implementation outcome)

Note. Although mediation analysis can be informative, mediators identified statistically are not necessarily mechanistic.

Outcomes

The effects of deliberate actions to implement an EBI.

Types
1. Reach; Adoption; Implementation; Maintenance (RE-AIM; Glasgow et al., 1999)
2. Acceptability; Adoption; Appropriateness; Cost; Feasibility, Penetration; Fidelity; Sustainability (Proctor et al., 2011)
3. Speed and Quantity (Chamberlain, Brown, & Saldana, 2011)

Effectiveness; Effectiveness; Patient-centeredness; Timeliness (IOM Standards of Care, 2006)

Satisfaction
Functioning
Symptomatology
...many others
### Implementation Research Logic (IRLM) - Determinants of Implementation: Understanding the Determinants of Implementation

**Determinants of Implemen-tation**

<table>
<thead>
<tr>
<th>Determinant</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inner Setting</td>
<td>Structural characteristics of the setting, such as resources and leadership</td>
</tr>
<tr>
<td>Culture</td>
<td>Values, beliefs, and norms that influence implementation</td>
</tr>
<tr>
<td>Readiness for Implementation</td>
<td>readiness of individuals and organizations to implement the intervention</td>
</tr>
<tr>
<td>Evidence Strength</td>
<td>Quality of the evidence supporting the intervention</td>
</tr>
<tr>
<td>Complexity</td>
<td>Complexity of the intervention and its environment</td>
</tr>
<tr>
<td>Design Quality</td>
<td>Quality of the intervention design</td>
</tr>
<tr>
<td>Cost</td>
<td>Financial cost of implementing the intervention</td>
</tr>
<tr>
<td>Knowledge/beliefs of the intervention</td>
<td>Knowledge and beliefs of the intervention among stakeholders</td>
</tr>
<tr>
<td>Individual stage of change</td>
<td>Stage of readiness to adopt the intervention</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>Confidence in one's ability to implement the intervention</td>
</tr>
<tr>
<td>Other attributes</td>
<td>Attributes not included in the previous categories</td>
</tr>
<tr>
<td>Patient needs and resources</td>
<td>Needs and resources of the intended beneficiaries</td>
</tr>
<tr>
<td>Cosmopolitanism</td>
<td>Extent to which the intervention is culturally appropriate</td>
</tr>
<tr>
<td>Peer pressure</td>
<td>Social pressure to adopt the intervention</td>
</tr>
<tr>
<td>Planning</td>
<td>Planning activities related to implementation</td>
</tr>
<tr>
<td>Executing</td>
<td>Execution activities related to implementation</td>
</tr>
<tr>
<td>Reflecting and evaluating</td>
<td>Reflective activities related to implementation</td>
</tr>
</tbody>
</table>

### RE-AIM Framework

<table>
<thead>
<tr>
<th>RE-AIM Framework</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reach</td>
<td>Accessibility to the intervention</td>
</tr>
<tr>
<td>Adoption</td>
<td>Acceptability and adoption rates</td>
</tr>
<tr>
<td>Implementation</td>
<td>Frequency and fidelity of implementation activities</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Sustainability of the intervention</td>
</tr>
</tbody>
</table>

### Expert Recommendations for Implementing Change (ERIC, Powell et al., 2015; Waltz et al., 2016)

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning</td>
<td>Assess readiness and identify barriers and facilitators</td>
</tr>
<tr>
<td>Education</td>
<td>Develop and implement tools for quality monitoring and feedback</td>
</tr>
<tr>
<td>Structure</td>
<td>Conduct local need assessment and obtain and use patient/consumer and family feedback</td>
</tr>
<tr>
<td>Facilitation</td>
<td>Provide interactive assistance</td>
</tr>
<tr>
<td>Use data experts</td>
<td>Develop and implement tools for quality monitoring and feedback</td>
</tr>
<tr>
<td>Use data warehousing techniques</td>
<td>Recruit, designate, and train for leadership</td>
</tr>
<tr>
<td>Create a learning collaborative</td>
<td>Organize clinician implementation team meetings</td>
</tr>
<tr>
<td>Support clinicians</td>
<td>Design and prepare champions</td>
</tr>
<tr>
<td>Engage consumers</td>
<td>Identify and prepare champions</td>
</tr>
<tr>
<td>Utilize financial strategies</td>
<td>Create a learning collaborative</td>
</tr>
<tr>
<td>Change infrastructure</td>
<td>Identify and prepare champions</td>
</tr>
<tr>
<td>Mandate change</td>
<td>Create a learning collaborative</td>
</tr>
<tr>
<td>Change record systems</td>
<td>Create a learning collaborative</td>
</tr>
<tr>
<td>Change physical structure and equipment</td>
<td>Create a learning collaborative</td>
</tr>
<tr>
<td>Change service sites</td>
<td>Create a learning collaborative</td>
</tr>
</tbody>
</table>
Concluding Thoughts
Concluding Thoughts

• Visual depiction of implementation project
• Usability is high for seasoned and novice implementation researchers alike
• Could increase the rigor and transparency of complex studies that ultimately could improve reproducibility
• Common structure to increase consistency
• Method for more clearly specifying links and pathways to test theories

• Simplified format – balance depth and detail
• May inhibit creative thinking if applied too rigidly
References


