Planning for feasibility, service quality and sustained impact: An overview of implementation science

Road Map

- Overview of Implementation Science
- Specific Definitions
- Examples of Models and Frameworks
- Handy Resources

The research to practice gap

17 Years!

(Balas & Boren, 2000; Morris et al., 2011; National Cancer Institute)

The Relevance of Implementation Science

"We reify early phase interventions tested in the most artificial settings, set quality assurance of interventions as an optimal outcome, and miss opportunities for continued learning and development in diverse community setting."

(Damschroder et al., 2009; Nilsen, 2015)

The scientific study of the use of strategies to adopt and integrate evidence-based health interventions into community settings in order to improve child and family outcomes.

(Knoepke et al., 2018; Minkler & Wallerstein, 2003; Strand, 2002)

Implementation Science

When defining implementation science, some **very non-scientific language** can be helpful…

- The intervention/practice/innovation is **THE THING**
- *Effectiveness* research looks at whether **THE THING** works
- *Implementation* research looks at how best to help people/places **DO THE THING**
- Implementation strategies are the stuff we do to try to help people/places **DO THE THING**
- Main implementation outcomes are **HOW MUCH** and **HOW WELL** they **DO THE THING**

Fig. 1 The slide used for the past 2 years

(Curran, 2020)

The intervention is **the thing**

- You might be interested in using an evidence-based caregiver-mediated early language program that has **already been shown** to have positive outcomes for young children and their families

Effectiveness Research

Looks at whether an intervention works when delivered in community settings

For example, you might look at whether participation in an early language program expands children's vocabulary

This can be a secondary outcome but is not the primary outcome of your study!

Implementation research looks at how best to help people or places do the thing

You might want to know how best to support community providers to deliver the early language program.

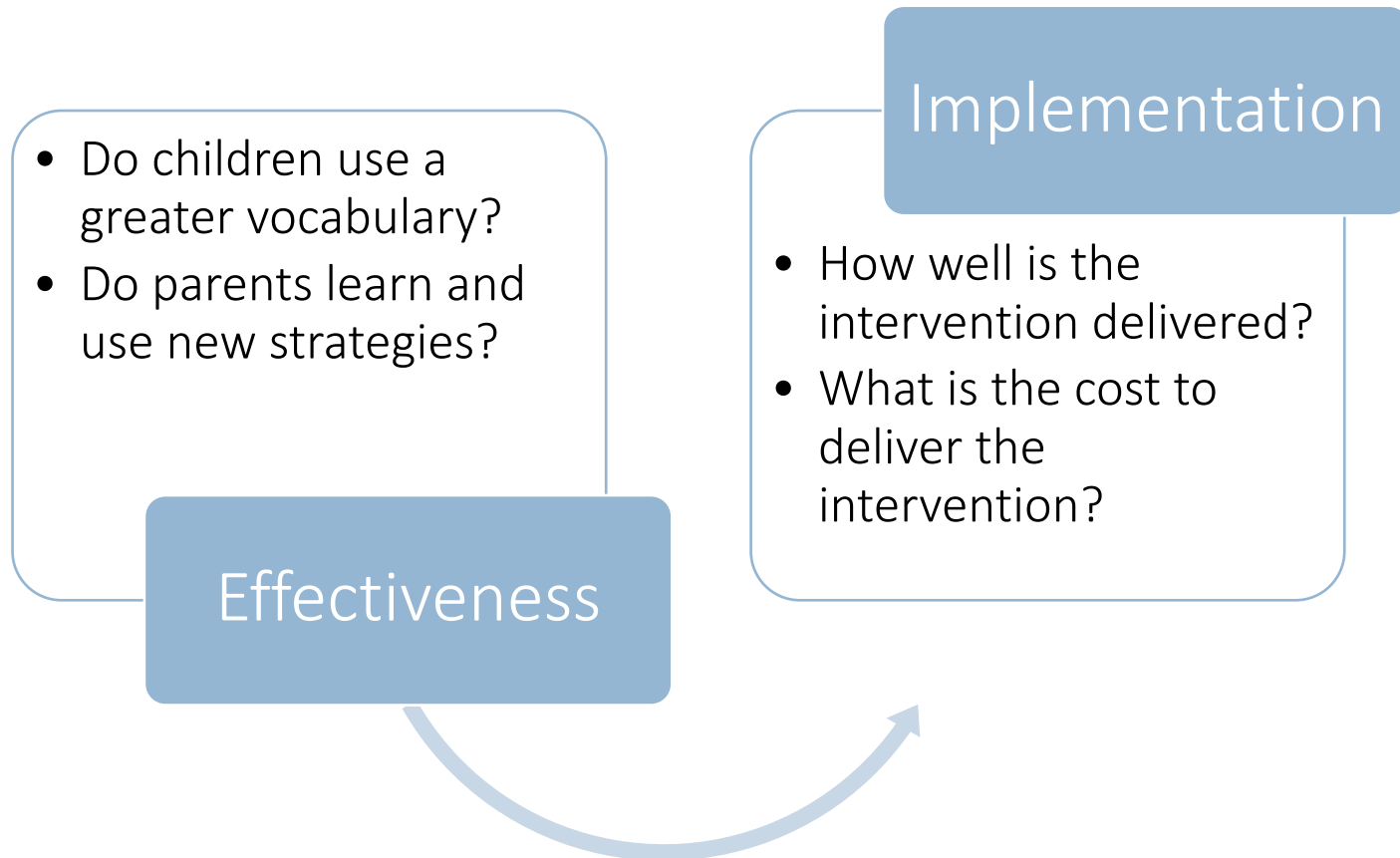This might mean **evaluating what makes it easy or hard for providers to deliver the program**.

You might also be interested in how well community providers deliver the intervention and what the cost is to deliver or sustain it.

Implementation strategies are the stuff we do to try to help people or places do the thing

- If you know that staff turnover and burnout is going to be a significant barrier to delivering your early language intervention well, then **you can address those barriers and measure the impact**!

- Perhaps, you use a **train-the-trainer** model so there is always someone within an organization to train new staff to deliver the intervention.

- Or maybe you work with administrators to implement **workforce wellness or incentivization strategies** to get more providers using the new intervention.

- You then want to see – do these strategies help increase how well the intervention is implemented?

Implementation outcomes look at **how much and how well** people and places do the thing

Effectiveness
- Do children use a greater vocabulary?
- Do parents learn and use new strategies?

Implementation
- How well is the intervention delivered?
- What is the cost to deliver the intervention?

(Boyd et al., 2021; Proctor et al., 2023)

Implementation outcomes

Feasibility: is the extent to which a program/intervention can be successfully used or deployed within a given setting.
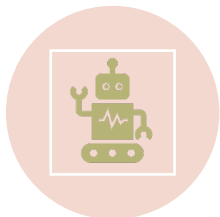
Acceptability: stakeholders' perceptions that a program/intervention is agreeable, or satisfactory.

Adoption: the intent, initial decision, or action to use a program/intervention.

Fidelity: is the degree to which an intervention is implemented as intended.

Cost: is the financial impact of an implementation effort and must be bearable for implementation to proceed.

Sustainability: is the extent to which a program/intervention is maintained within a service setting

(Boyd et al., 2021; Proctor et al., 2023)

Where do I start?

Without Strong Partnerships from the Beginning, we:

- Develop interventions that can't be used.

- Conduct research or use interventions interventions with limited relevance.

- Lose resources implementing interventions that are not not implemented or sustained well due to misalignment.

(Fletcher-Watson, 2023)

Models, Frameworks, & Theories

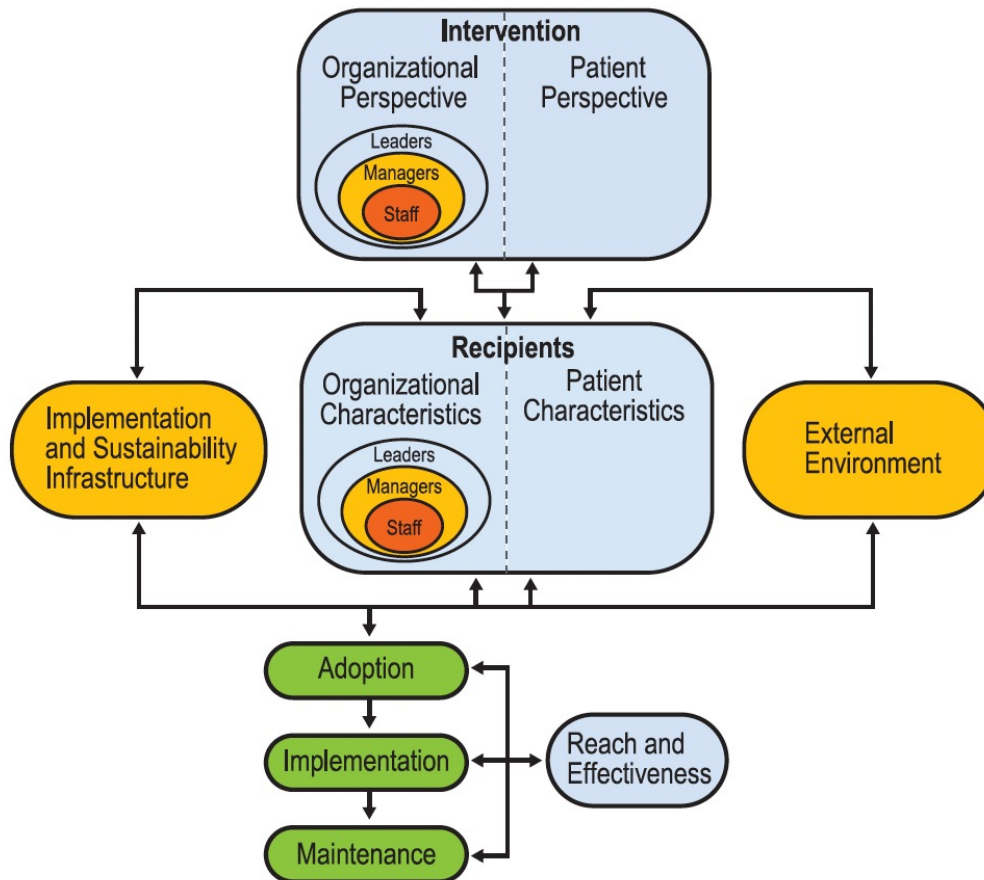| Process Models	Determinant Frameworks	Classic Theories	Evaluative Frameworks
Describe and/or guide the **process** of translating research into practice.	**Specifies/lists** the types of determinants that may act as barriers or enablers to implementation outcomes.	Theories that can provide understanding of **causal mechanisms**.	Specify constructs that could be used to **evaluate implementation outcomes**.

(Nilsen, 2015)

Questions I consider when selecting a framework

- When do I want to use the framework?
  - Ex: Before, during, or after the study
- What is the purpose of the framework?
  - Ex: Understand barriers/facilitators; to evaluate outcomes, etc.
- What specific constructs or variables am I interested in?
  - Ex: Provider attitudes, intervention cost, etc.

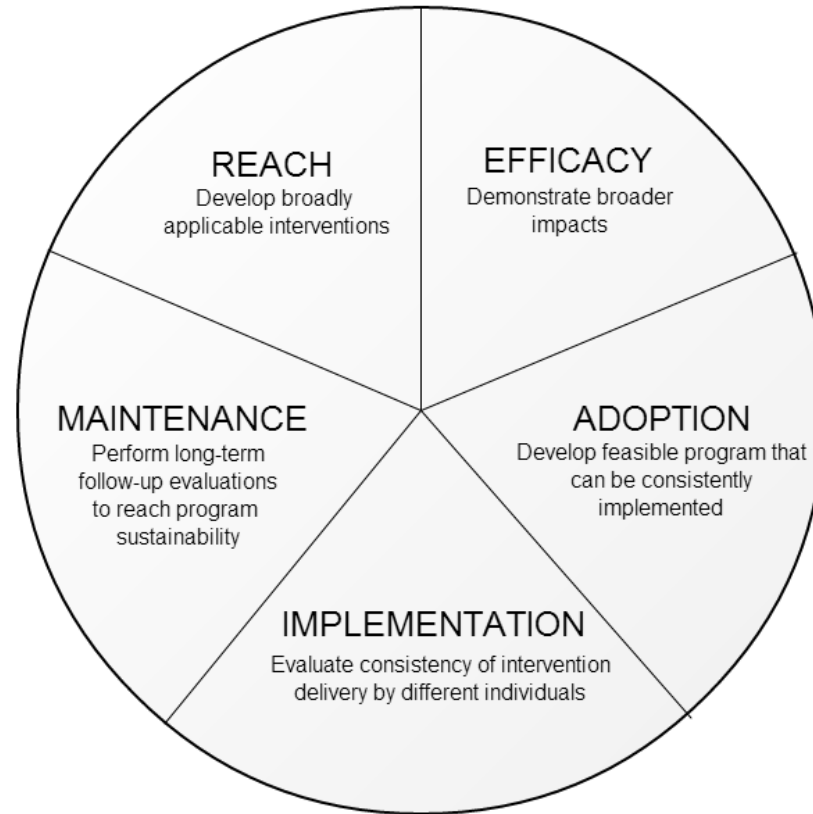# The Practical, Robust Implementation and Sustainability Model (PRISM)

(Feldstein & Glasgow, 2008)

Pragmatic, Robust, Implementation Science Model (PRISM)

Program (Intervention)	
Organizational perspective*	■ Readiness ■ Strength of the evidence base ■ Addresses barriers of frontline staff ■ Coordination across departments and specialties ■ Burden (complexity and cost) ■ Usability and adaptability ■ Trialability and reversibility ■ Ability to observe results
Patient perspective	■ Patient centeredness ■ Provides patient choices ■ Addresses patient barriers ■ Seamlessness of transition between program elements ■ Service and access ■ Burden (complexity and cost) ■ Feedback of results

RE-AIM

REACH
Develop broadly applicable interventions

EFFICACY
Demonstrate broader impacts

MAINTENANCE
Perform long-term follow-up evaluations to reach program sustainability

ADOPTION
Develop feasible program that can be consistently implemented

IMPLEMENTATION
Evaluate consistency of intervention delivery by different individuals

(Glasgow, Vogt, & Boles, 1999; Glasgow et al., 2019)

RE-AIM Dimensions Checklist

Adoption – Staff Level	
Staff Exclusions (% or reasons)	
Percent of staff invited that participate	
Characteristics of staff participants vs. non participating staff or typical staff	
Use of qualitative methods to understand staff participation	
Implementation	
Percent of perfect delivery or calls completed, etc. (e.g., adherence or consistency)	
Adaptations made to intervention during study	
Cost of intervention (time or money)	
Consistency of implementation across staff/time/settings/subgroups (not about differential outcomes, but process)	
Use of qualitative methods to understand implementation	
Maintenance – Individual Level	
Measure of primary outcome (with or w/o comparison to a public health goal) at ≥ 6mo follow-up after final intervention contact	
Measure of broader outcomes or use of multiple criteria at follow-up (e.g., measure of QoL or potential negative outcome) at follow-up	
Robustness data - something about subgroup effects over the long-term	
Measure of long-term attrition (%) and differential rates by patient characteristics or treatment condition	
Use of qualitative methods data to understand long -term effects	

Implementation Science Measures and Methods

- Decide your aims first
  - Usually there is an aim around implementation and effectiveness
- Qualitative and quantitative data are both useful!
- Select measures that are relevant to your aims and that map onto the framework that you are using.
- Find example studies using resources on the next slide.

Resources

- CFIR: https://cfirguide.org/

- PRISM: https://prismtool.org/

- https://re-aim.org/

- https://www.fic.nih.gov/About/center-global-health-studies/neuroscience-implementation-toolkit/Pages/resources.aspx

- DI Website: https://dissemination-implementation.org/

DISSEMINATION & IMPLEMENTATION MODELS IN HEALTH

AN INTERACTIVE WEBTOOL TO HELP YOU USE D&I MODELS

Questions

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