Applied Implementation Science

Purposeful, active, and effective implementation supports to replicate and scale socially significant outcomes

Advancing Transdisciplinary Translation for Prevention of High-Risk Behaviors
NINR/NIH-Funded R13 Conference
April 30, 2013
Let’s Go Out on a Limb
DILEMMA #1

Most of our evidence-based interventions do not meet usability criteria for effective implementation
Usable Intervention Criteria

1. Clear description of the program
   - Philosophy, values, principles
   - Inclusion – exclusion criteria

2. Identified core intervention components (aka, active ingredients, essential functions)

3. Operational definitions of core intervention components (what practitioners do, say)

4. Practical performance/fidelity assessment
   - Highly correlated (0.70+) with desired outcomes

Most programs clear the bar on #1, far fewer on #2, and very little on #3 and #4.


Usability testing in applied settings (as opposed to research settings) could also be used to determine core intervention components.


DILEMMA #2

Children, adolescents, and adults at risk for or suffering from mental, emotional, or behavioral disorders cannot benefit from interventions that they do not receive.
Effective Interventions Are Not Being Effectively Implemented

Longitudinal Studies of a Variety of Comprehensive School Reforms

<table>
<thead>
<tr>
<th>Effective Interventions</th>
<th>Actual Supports Years 1-3</th>
<th>Outcomes Years 4-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Every Teacher Trained</td>
<td>Fewer than 50% of the teachers received some training</td>
<td>Fewer than 10% of the schools used the CSR as intended</td>
</tr>
<tr>
<td>Every Teacher Continually Supported</td>
<td>Fewer than 25% of those teachers received support</td>
<td>Vast majority of students did not benefit</td>
</tr>
</tbody>
</table>

(Aladjem & Borman, 2006; Vernez, Karam, Mariano, & DeMartini, 2006)


"I think you should be more explicit here in step two."
Dilemma #2 is complicated by the fact that most of the human service systems and organizations into which we are trying to implement EBPs are very rigid and hard to change. Passive strategies often do not work. “Systems trump programs!” - Patrick McCarthy, Annie E. Casey Foundation
What should we do about this?

- **Diffusion**: “Letting it happen”
  - Recipients are accountable
- **Dissemination**: “Helping it happen”
  - Recipients are accountable
- **Active Implementation**: “Making it happen”
  - Purposeful and proactive use of implementation science in practice and policy
  - Implementation Teams are accountable

Based on Hall & Hord (1987); Greenhalgh, Robert, MacFarlane, Bate, & Kyriakidou (2004); Fixsen, Blase, Duda, Naoom, & Van Dyke (2010)


# Effective Implementation

<table>
<thead>
<tr>
<th>INTERVENTION</th>
<th>EFFECTIVE</th>
<th>NOT EFFECTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective</td>
<td><strong>Actual Benefits</strong></td>
<td>Inconsistent; Not Sustainable; Poor outcomes</td>
</tr>
<tr>
<td>NOT Effective</td>
<td>Unpredictable or poor outcomes;</td>
<td>Poor outcomes; Sometimes harmful</td>
</tr>
</tbody>
</table>


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<table>
<thead>
<tr>
<th>TRAINING COMPONENTS</th>
<th>Knowledge</th>
<th>Skill Demonstration</th>
<th>Use in the Classroom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory and Discussion</td>
<td>10%</td>
<td>5%</td>
<td>0%</td>
</tr>
<tr>
<td>+Demonstration in Training</td>
<td>30%</td>
<td>20%</td>
<td>0%</td>
</tr>
<tr>
<td>... + Practice &amp; Feedback in Training</td>
<td>60%</td>
<td>60%</td>
<td>5%</td>
</tr>
<tr>
<td>... + Coaching in Classroom</td>
<td>95%</td>
<td>95%</td>
<td>95%</td>
</tr>
</tbody>
</table>

(Joyce & Showers, 2002)

ALSO – fidelity monitoring, when done in a supportive context, does not appear to increase burden or burnout among practitioners.


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Hypothesis: Is a composite score >1.5 the magic number?

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Different metrics used to measure fidelity.

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At T1, fidelity criteria were not firmly established. An early indicator of fidelity was whether family assessment data MATCHED goals in Success Plan (the creation of change-focused plans). The goodness of fit between assessments and goal planning were used to assess fidelity in T1.

The T2 and T3 fidelity score was derived from matching notes, (notes detailing what clinicians did with families in the field) with the interventions they checked in the database. Did they do the things they were supposed to do with families? This number is based on the SC service through May 2012.


Building Implementation Capacity: Implementation Teams

- **Minimum of three people** (four or more preferred) with expertise in:
  - Innovations
  - Implementation
  - Organization change

- **Tolerate turnover; teams are sustainable even when the players come and go**

(Higgins, Weiner, & Young, 2012; Patras & Klest, in press)

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It takes an estimated average of 17 years for only 14% of new scientific discoveries to enter day-to-day clinical practice (Balas & Boren, 2000)


With the use of competent Implementation Teams, over 80% of the implementation sites were sustained for 6 years or more (up from 30%) and the time for them to achieve Certification was reduced to 3.6 years.


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# Enabling Contexts

<table>
<thead>
<tr>
<th>External Influence Factors</th>
<th>Organization Capacity</th>
<th>Active Implementation Components</th>
<th>Predicted Fidelity Outcomes</th>
<th>Predicted Sustainability Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generally Enabling</td>
<td>Strong</td>
<td>Strong</td>
<td>High</td>
<td>Long Term</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Weak</td>
<td>Low/ Medium</td>
<td>Medium Term</td>
</tr>
<tr>
<td>Weak</td>
<td>Strong</td>
<td>High</td>
<td>Medium Term</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Weak</td>
<td>Low</td>
<td>Short Term</td>
<td></td>
</tr>
<tr>
<td>Generally Hindering</td>
<td>Strong</td>
<td>Strong</td>
<td>High</td>
<td>Medium Term</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Weak</td>
<td>Low</td>
<td>Medium Term</td>
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<tr>
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<td>Low</td>
<td>Short Term</td>
<td></td>
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DILEMMA #4

Science will not impact service settings by doing more or better research on interventions.
What do I mean by that?

**Effective Interventions**
- When "usable", they create meaningful ACCESS to the science.
- Rigorously-derived evidence helps us decide WHICH interventions to adopt.

**Effective Implementation Methods**
- Creates higher fidelity EXPERIENCE of interventions.
- Delivery systems are changed to support full and effective USE of interventions.

**Enabling Contexts**
- Creates supportive HOSTS of interventions.
- Delivery systems CONTINUOUSLY IMPROVE based on learning from experience.

**Socially Significant Outcomes**


What should we do about this?

Focus more research on active forms of implementation

**Implementation science** is the systematic study of variables and conditions that lead to full and effective use of evidence-based programs and other effective innovations in typical human service settings.

—Blase and Fixsen, 2010
National Implementation Research Network
What should we do about this?

Develop more Applied Implementation Scientists

**Applied Implementation Science** is the systematic application of what is known from implementation science to actively transforming actual human service systems and policies so that full and effective use of evidence-based innovations is possible.
What should we do about this?

Earmark funds within interventions research grants and services contracts

<table>
<thead>
<tr>
<th>Research Grants</th>
<th>Services Contracts</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Measuring the presence and strength of core intervention components</td>
<td>• Secure FTE for Implementation Team members</td>
</tr>
<tr>
<td>• Connecting fidelity data to program outcomes</td>
<td>• Fund decision-support data systems</td>
</tr>
<tr>
<td>• Measuring core implementation components</td>
<td>• Fund usability testing</td>
</tr>
<tr>
<td></td>
<td>• Quarterly fidelity reports</td>
</tr>
</tbody>
</table>

15% is a good place to start.
What is learned about implementation in one domain can be used to inform implementation practice and science in other domains.

Concerted efforts to collaborate and learn across domains promise to rapidly advance the practice and science of implementation in the next decade.


The “Active Implementation Frameworks”
For More Information

William A. Aldridge II, Ph.D.  
919-966-4713  
will.aldridge@unc.edu

Karen A. Blase, Ph.D.  
919-966-9050  
karen.blase@unc.edu

Learn More:  
http://implementation.fpg.unc.edu/

nirn  
National Implementation Research Network  
Frank Porter Graham Child Development Institute  
University of North Carolina at Chapel Hill  
http://nirn.fpg.unc.edu/  
www.scalingup.org

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