The Science of Implementation

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Evidence-based Practices Symposium
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Overview

- Evidence-based Practice Approach
- Definition of Implementation
- Implementation Drivers
- Six Stages of Implementation
- Community Development Team Approach to Implementation and Sustainability
What Progress Have We Made in Getting Evidence into Practice?
A Short History of Hand Washing

1846 – Dr. Semmelweis conducts an experiment on hand washing – mortality rate in hospital goes from 12% to 3%

1847 – Dr. Semmelweis mandates all hospital personnel wash hands with chlorinated lime solution; this was not accepted, he was shunned and fired from his job

20th Century – it took 50 years before hand washing was adopted as routine before seeing a patient
What Progress Have We Made in Getting Evidence into Practice?
A Short History of Scurvy

1601 - Capt. James Lancaster sails with 4 ships; crew on ship 1 given 3 tsps. of lemon juice daily – 0% mortality; 40% of crew on other 3 ships perish

1747 – James Lind, British Navy physician conducts random trial of 6 treatments for scurvy – citrus again proves effective against scurvy

1795 – British Navy orders that citrus fruits become the diet on all navy ships
What Are Evidence-Based Practices?

The effectiveness of a practice is one important consideration in treatment planning, sometimes referred to as evidence-based practices. Treatment planning that integrates:

- Professional expertise and judgment
- Consumer and family values and preferences
- Best research evidence on the effectiveness of a practice

*Based on the definition used in “Crossing the Quality Chasm: A New Health System for the 21st Century” (2001) by the Institute of Medicine
Why Evidence-Based Practices Now?

• A growing body of scientific knowledge
• Increased interest in consistent application of quality services
• Increased interest in outcomes and accountability by funders
• Past missteps in spreading untested “best practices” that turned out not to be as effective as advertised
• Because they work!!
Why is the Effectiveness of a Practice Important?

• Emotional, behavioral and mental health conditions can be complicated, severe, and difficult to treat.

• The causes of these conditions are not fully understood.

• Treatments do not result in full recovery of all individuals.

• Some treatments are more successful than others.
Why is the Effectiveness of a Practice Important?

- Emotional, behavioral and mental health conditions can worsen and can result in lifelong difficulties without treatment or if the wrong or ineffective treatment is received.
- Youth and families rely upon professionals’ expertise, research findings and their own life experience to develop treatment plans and expectations about the benefit of treatment.
Adverse Consequences of Imprecise Treatment

• UNDER-SERVING
  – Outcomes are not achieved
  – Wasted expenditure of time and resources
  – Unrealized hopes
  – Loss of confidence in effectiveness of future interventions

• OVER-SERVING
  – Exposes child and family to overly intrusive and restrictive interventions
  – Unnecessary costs
  – Fosters dependence and undermines child and family autonomy
Why is the Effectiveness of a Practice Important?

• People generally believe that treatment will be effective; therefore, they tend to blame the child or family for not trying hard enough when problems persist.
• Even the most effective treatments do not always work.
• It is important to have realistic information about the effectiveness of a practice and seek services with the greatest likelihood of being successful.
Benefits of Effective Practice

• Results in more individualized and hopeful care decisions
• Reduces adverse consequences of imprecise care
• More likely to be effective
• Achieves outcomes sooner
• Outcomes last longer
• Ethical
• Cost effective; limited resources can be used to serve more children and families
Levels of Effectiveness

• The degree to which research indicates that a service is effective, or responsible for achievement of an outcome

• Levels of evidence are on a continuum
  – Level of evidence is related to the quality of the research
  – Success of a practice depends on fidelity or model adherence
Levels of Effectiveness

• **Effective**
  – Achieves outcomes, random clinical trials, independent replication in real world settings

• **Efficacious**
  – Achieves outcomes, random clinical trials, independent replication in study settings

• **Not Effective**
  – Significant evidence of no, negative, or harmful outcomes

• **Promising**
  – Positive outcomes, quasi-experimental research support or expert consensus

• **Emerging Practice**
  – Recognizable as a distinct practice based on a reasonable theory or rationale

• **Not Evaluated**
  – Has not been evaluated; level of effectiveness is not known
Which Level of Effectiveness to Select

- Higher levels mean more confidence that if implemented in your community (with high model adherence) similar good outcomes will be achieved.
- Consider lower levels of science when there is no alternative for a higher level, or interested in a practice-to-science service.
- Practice-to-science involves the deliberate evaluation of an existing valued service that has otherwise not been subject to effectiveness research.
Quality of Research

• There is a tendency to assume that if a treatment was provided and there is improvement, then the treatment caused the improvement.

• However, good child and family outcomes may be achieved as a result of a number of factors unrelated to treatment.
  - Spontaneous recovery: Individuals naturally strive for health, try strategies and seek social support to reduce distress and achieve their goals; often this is successful!
  - Placebo effect: Improvement associated with non-specific aspects of treatment, for example, the expectation of improvement, which is independent of the unique characteristics of the specific practice; also can be successful!
Quality of Research

- Research is needed to clarify the effect of a practice independent of other factors that lead to health, and independent of a proponent’s bias in favor of the practice.
- The quality of research studies are variable.
- The higher the quality of research, the greater the confidence in the conclusions of the study.
Implementation Defined

Implementation is defined as a set of activities designed to put into operation a practice, program, or initiative. The importance of implementation to achieving desired outcomes is illustrated in the following formula:

Effective practice + effective implementation = good outcomes
## Implementation Outcomes

### Integrated & Compensatory

OUTCOMES – (% of participants who demonstrate knowledge, demonstrate new skills in a training setting, and use new skills in the classroom) Joyce and Showers, 2002

<table>
<thead>
<tr>
<th>Training Components</th>
<th>Knowledge</th>
<th>Skill Demonstration</th>
<th>Use in 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>
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</tbody>
</table>
Implementation Defined

Implementation is about creating change in three areas:

1. Individual behavior, such as increased knowledge and skills of staff within the organization who are carrying out a specific practice.

2. Organizational structures and cultures, both formal and informal (values, philosophies, policies, and procedures) that support the changes in individual behavior.

3. Relationships among youth and families, and system partners.
Implementation Defined


- Drivers should be integrated to ensure consistency and alignment
- Drivers are compensatory in that a weakness in one driver can be compensated by strengths in the remaining drivers
1. Participant Recruitment and Selection: consider the desired academic, experience, and other personal characteristics of participants who will be involved in the implementation process, and methods that will be used to recruit these individuals.

2. Preparation and Training: training is one of the primary ways to effect individual behavior change.

3. Program Evaluation – Data to support Decision Making: Program evaluation (quality improvement information, organizational fidelity measures) assesses key aspects of the overall performance of the organization in supporting effective implementation efforts.
4. Coaching, Consultation & Mentoring: Most knowledge and skills are learned in the course of the implementation process with the on-going assistance of consultants and coaches

5. Participant Evaluation – Data to Support Performance Management: on-going evaluation of participant performance and measures of fidelity to the practice is used to determine the effectiveness of the practice. This information is useful to the implementer who can use the information to improve implementation efforts.
6. **Internal Administrative Supports that Facilitate Implementation**: Facilitative administrative support serves to reduce implementation barriers and creates a hospitable environment for those directly responsible for implementation efforts. These supports may include internal policy analysis and decisions, procedural changes, funding allocations and a culture focused on implementation fidelity.
7. **External Systems Intervention**: Systems interventions require attention to the alignment of factors across multiple levels and systems, maintaining leadership and focus, creating and staying connected to those who are championing the change, and remaining vigilant to remove barriers and create facilitators of implementation fidelity and sustainability.
System Change

Existing System

Leads to...

Effective Innovations are Changed to Fit the System

Leads to...

Existing system is changed to support the effectiveness of the innovation

Effective innovation
Six Stages of Implementation
(Fixsen et al, 2005)

1. Exploration
2. Installation
3. Initial Implementation
4. Full Implementation
5. Innovation
6. Sustainability
Exploration & Adoption Stage

- Identify the need for an intervention or practice considering the information available
- Acquire information via interactions with others or best practice resources
- Assess the fit between the intervention program and community needs
- Prepare the organization, staff, and resources by mobilizing information and support
Installation Stage

- Preparing for the delivery of the new practice before the first consumer is seen
- Resources being consumed in active preparation
- Attention to funding, human resources, policies and procedures
- Invoice non-billable “start-up costs”
Initial Implementation

• Change must occur at multiple levels (e.g., practice level, supervisory level, administrative level)
• Typically this change is met with much anxiety and at times, resistance
• Missteps may occur
• A supportive organizational environment is key to success
Full Implementation

• New learning is integrated into practitioner, organizational, and community practices, policies, and procedures
• Full staffing, full client loads, all realities of “doing business”
• The destination (new program) should approximate that of the source (original program) with fidelity
• Typically takes 2-4 years
Innovation

- Some adaptation occurs at destination site
- Not to be confused with model drift
- Innovation maintains sufficient fidelity to the model, but adapts to ecology of destination site in order to achieve successful implementation
- Must be monitored to ensure that drift does not occur
Sustainability

• After initial implementation the new program must be maintained with sufficient fidelity to the model
• Turnover of staff must be successfully addressed
• Policies must support sustainability of the program including governance and funding
• Must be adaptable to shifting the ecology of the environment
Evidence-based Implementation Research: A Synthesis of the Literature

Program Effectiveness

• What we do
• How well we do it
• When outcomes are less than optimal
  – How much is attributable to not selecting/using the most effective intervention
  – How much is attributable to the complexity of mental health disorders
  – How much is attributable to factors that impinge on clients
  – How much is attributable to an effective intervention not being used well
Program Effectiveness

• Effectiveness research has drawn attention to what we do
• Dissemination research is drawing attention to the importance of how well we do it
• As our clinical work becomes increasingly research informed, we want to be sure that our service systems are increasingly adherence (integrity)-focused
• What have we learned from work in California
  – 13 EBPs, 200+ sites, 41 counties, 150 agencies
Community Development Teams

- A training and technical assistance, dissemination and implementation process, to promote selection, installation and model-adherent sustainability of evidence-based intervention models
- Informed by implementation science
- Development of internal (organizational) structures, controls and processes
- Designed for public mental health system, bringing EBPs to scale, with focus on late-ish adopters,
- The goal is model adherent and sustainable programs
Why CDT?

• Implementing and sustaining innovative programs is challenging
• Deliberate (focused) ongoing organizational support is needed to establish/sustain programs and achieve the full benefit of research informed practice
• Development Teams are particularly useful when first establishing a new program
  – If an agency has relatively little experience sustaining EBPs
  – Would like some help in planning, starting, supporting, sustaining
CDT Phases

• Pre-Implementation
  – Engagement
  – Planning
  – Training protocol

• Implementation
  – Training
  – Practitioner competence
  – Achieving model adherence
  – Program performance evaluation

• Sustainability
  – Internal controls for insuring model adherence
  – Quality improvement activities linked to program evaluation
Development Team Features

• Clinical training
  – *Provided by model developers or their designees*

• Organizational supports
  – *Provided by CIMH*
  – Implementation planning
  – Administrators calls
  – Program performance evaluation supports
  – Individualized technical assistance

• Peer-to-peer assistance
Organizational Support

- Implementation planning
  - Thorough understanding of the model, training protocols, and key implementation supports
- Individualized technical assistance
  - Address system and program level issues
- Program performance/outcome evaluation
  - Tracking service delivery
  - Preparation of database (Excel)
  - Analysis, interpretation and reporting of outcomes
- Monthly peer-to-peer administrators “champions” conference calls
  - Share successes, raise concerns, and offer solutions
Sustainability

- Administrative champion
- Through pre-implementation planning
- Participation in full training protocols
- Routine use of program performance protocols
- Commitment to replacement training
- Commitment to refresher training
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