Main findings from the Substance Abuse Treatment to HIV Care (SAT2HIV) Project: A type 2 effectiveness-implementation hybrid trial

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The Problem:

Integrating HIV services with other health services

“In summary, given the existing evidence that largely supports HIV integration from a public health and clinical perspective, the findings of this review support further efforts to integrate. However, significant evidence gaps remain. Unfortunately, few of the studies found adequately address the central questions currently concerning many programme managers at this moment in time: not whether to integrate, but when to, how to, and which model is most efficient in which setting?”
The Setting:
Community-based AIDS Service Organizations (ASOs)

Substance use can negatively impact ASOs ability to achieve goals of the HIV Care Continuum

Integration of Motivational Interviewing-based brief intervention for substance use
The Substance Abuse Treatment to HIV Care (SAT2HI V) Project: A doubly randomized type 2 effectiveness-implementation hybrid trial


The Method:
A doubly randomized 39-site type 2 effectiveness-implementation hybrid trial

The ISF Experiment
- Organizational-level assignment to ISF condition
- Staff-level Proficiency
- Staff-level Implementation Effectiveness
- Staff-level Sustainment

The MIBI Experiment
- Client-level assignment to UC+MIBI condition
- Client-level post-randomization outcome improvement

The Substance Abuse Treatment to HIV Care (SAT2HIV) Project: A type 2 effectiveness-implementation hybrid trial
The Method:
A doubly randomized 39-site type 2 effectiveness-implementation hybrid trial
Proficiency demonstrated when “at least half of the MI-consistent items rated average or above in terms of adherence and competence.”

Martino et al., 2008
Staff-level Implementation Effectiveness
(Klein & Sorra, 1996; Klein, Conn, & Sorra, 2001)

"Implementation effectiveness refers to the consistency and quality of targeted organizational members’ use of a specific innovation."
Klein & Sorra, 1996
“use the term **sustainment** to denote the continued use of an innovation in practice.”

Aarons et al. 2011
The Method:
Participant Flow

**Exploration Phase**
(t = -1)

- Central Cohort of ASOs
  (t = -1)
  Randomization Month: January 2015
- Western Cohort of ASOs
  (t = -1)
  Randomization Month: January 2016
- Eastern Cohort of ASOs
  (t = -1)
  Randomization Month: January 2017

**Baseline Assessment & Randomization**
(t = 0)

**Preparation Phase**
(t = months 1 – 6)

- ATTC strategy
  (t = months 1 - 12)

**Implementation Phase**
(t = months 7 – 12)

- Preparation Phase Assessment
  (t = months 1 - 6)
- Implementation Phase Assessment
  (t = months 7 - 12)

**Sustainment Phase**
(t = months 13 – 18)

- Sustainment Phase Assessment
  (t = months 13 - 18)

**Allocation**

- Excluded: Eligibility criteria not met.

- ATTC (t = 0)
- ISF strategy
  (t = months 1 - 18)
The Method:
Participant Flow

**Exploration Phase**
(t = -1)

- Central Cohort of ASOs (t = -1)
  Randomization Month: January 2015

- Western Cohort of ASOs (t = -1)
  Randomization Month: January 2016

- Eastern Cohort of ASOs (t = -1)
  Randomization Month: January 2017

  Excluded: Eligibility criteria not met.

**Preparation Phase**
(t = months 1 – 6)

- Allocation to ATT (t = 0)

**Baseline Assessment & Randomization**
(t = 0)

**Implementation Phase**
(t = months 7 – 12)

- Implementation Phase Assessment (t = months 7 - 12)

**Sustainment Phase**
(t = months 13 – 18)

- Sustainment Phase Assessment (t = months 13 - 18)

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**ATT strategy** (t = months 1 - 12)

- Preparation Phase Assessment (t = months 1 - 6)

- ISF strategy (t = months 1 - 18)
The Method:
Participant Flow

Exploration Phase
(t = -1)

Central Cohort of ASOs
(t = -1)
Randomization Month: January 2015

Western Cohort of ASOs
(t = -1)
Randomization Month: January 2016

Eastern Cohort of ASOs
(t = -1)
Randomization Month: January 2017

Excluded:
Eligibility criteria not met.

Allocation to
ATCC
(t = 0)

Baseline Assessment & Randomization
(t = 0)

Preparation Phase
(t = months 1 – 6)

Preparation Phase Assessment
(t = months 1 - 6)

Implementation Phase
(t = months 7 – 12)

Implementation Phase Assessment
(t = months 7 - 12)

Sustainment Phase
(t = months 13 – 18)

Sustainment Phase Assessment
(t = months 13 - 18)

ATCC strategy (t = months 1 - 12)

Allocation to
ATCC + ISF
(t = 0)

ISF strategy (t = months 1 - 18)
The Method: Implementation Conditions

1. Name it

2. Define it

3. Specify it
   a) The Actor
   b) The Action
   c) Action Target
   d) Temporality
   e) Dose
   f) Implementation Outcome
   g) Justification
The Method:
Addiction Technology Transfer Center (ATTC) implementation strategy

A. Centralized technical assistance
B. Develop educational materials
C. Develop and organize quality monitoring systems
D. Develop tools for quality monitoring
E. Distribute educational materials
F. Conduct educational meetings
G. Make training dynamic
H. Audit & Provide feedback
I. Provide ongoing consultation
J. Create a learning collaborative
The Method: Implementation & Sustainment Facilitation

K. Use an improvement and implementation advisor

L. Develop tools for quality improvement

M. Organize implementation team meetings

N. Identify and prepare champions

O. Assess for readiness and identify barriers

P. Conduct local consensus discussions

Q. Conduct cyclical small tests of change

A Compilation of Strategies for Implementing Clinical Innovations in Health and Mental Health


Abstract

Efforts to identify, develop, refine, and test strategies to disseminate and implement evidence-based treatments have been prioritized in order to improve the quality of health and mental health care delivery. However, this task is complicated by an implementation science literature characterized by inconsistent language use and inadequate descriptions of implementation strategies. This article brings more depth and clarity to implementation research and practice by presenting a consolidated compilation of discrete implementation strategies, based on a review of 205 sources published between 1995 and 2011. The resulting compilation includes 68 implementation strategies and definitions, which are grouped according to six key implementation processes: planning, educating, financing, restructuring, managing quality, and attending to the policy context. This consolidated compilation can serve as a reference to stakeholders who wish to implement clinical innovations in health and mental health care and can facilitate the development of multifaceted, multilevel implementation plans that are tailored to local contexts.
### The Method:
#### Addiction Technology Transfer Center (ATTC) implementation strategy

**Table 2. Specification Overview of the Multifaceted Addiction Technology Transfer Center (ATTC) Strategy**

<table>
<thead>
<tr>
<th>Discrete implementation strategies:</th>
<th>Operational definition of key dimensions for each discrete implementation strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Centralized technical assistance:</strong>&lt;br&gt;Define and use a system to deliver technical assistance focused on implementation issues.</td>
<td><strong>Actor(s)</strong>&lt;br&gt;Regional ATTC (e.g., Mid-America, Northwest, Northeast)&lt;br&gt;<strong>Actions(s)</strong>&lt;br&gt;The overarching discrete implementation strategy that encompasses the other discrete implementation strategies listed below.</td>
</tr>
<tr>
<td><strong>B. Develop educational materials:</strong>&lt;br&gt;Develop and format guidelines, manuals, toolkits, and other supporting materials in ways that make it easier for stakeholders to learn about the innovation and for clinicians to learn how to deliver the clinical innovation.</td>
<td><strong>Actor(s)</strong>&lt;br&gt;Regional ATTC</td>
</tr>
<tr>
<td><strong>C. Develop and organize quality monitoring system:</strong>&lt;br&gt;Develop and organize systems and procedures that monitor clinical processes and/or outcomes for quality assurance and improvement.</td>
<td><strong>Actor(s)</strong>&lt;br&gt;Regional ATTC</td>
</tr>
</tbody>
</table>
The Method: Addiction Technology Transfer Center (ATTC) implementation strategy

Table 3. Specification Overview of the Multifaceted Implementation and Sustainment Facilitation (ISF) Strategy

<table>
<thead>
<tr>
<th>Discrete implementation strategies: Defining characteristic according to Proctor and colleagues. [39]</th>
<th>Operational definition of key dimensions for each discrete implementation strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>K. Use an improvement and implementation advisor:</strong> Seek guidance from experts in implementation, including consultation with outside experts (e.g., university-affiliated faculty members, quality improvement experts, implementation professionals).</td>
<td><strong>Actor(s)</strong></td>
</tr>
<tr>
<td>An individual with training and experience in assisting organizations with practice improvement and implementation efforts.</td>
<td>The overarching implementation strategy that encompasses the other discrete implementation strategies listed below.</td>
</tr>
<tr>
<td><strong>L. Develop tools for quality improvement:</strong> Develop, test, and introduce quality-improvement tools with inputs (e.g., measures) specific to the innovation being implemented.</td>
<td>An individual with training and experience in assisting organizations with practice improvement and implementation efforts.</td>
</tr>
</tbody>
</table>

Note: [29, 36, 70, 99, 100]
## Table 4. Dose for Each Overarching Strategy During the Preparation Phase (Months 1 – 6)

<table>
<thead>
<tr>
<th>Overarching Strategy</th>
<th>Month 1</th>
<th>Month 2</th>
<th>Month 3</th>
<th>Month 4</th>
<th>Month 5</th>
<th>Month 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategy dose during preparation phase</td>
<td>Training</td>
<td>Occurrence</td>
<td>ARCS Leadership</td>
<td>ARCS In Staff</td>
<td>Training</td>
<td>Occurrence</td>
</tr>
<tr>
<td>A. Develop technical infrastructure</td>
<td>As Needed</td>
<td>NA</td>
<td>NA</td>
<td>As Needed</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>B. Develop educational materials</td>
<td>+</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Develop and implement quality monitoring体系</td>
<td>+</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D. Identify local resources</td>
<td>-</td>
<td></td>
<td></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E. Conduct educational meetings</td>
<td>+</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F. Hold learning activities</td>
<td>+</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G. Address 1-hour training needs</td>
<td>+</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H. Address 2-hour training needs</td>
<td>+</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I. Provide ongoing consultation</td>
<td>+</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>J. Create a learning collaborative</td>
<td>+</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K. Use an implementation science implementation strategy</td>
<td>As Needed</td>
<td>NA</td>
<td>NA</td>
<td>As Needed</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>L. Conduct local training meetings</td>
<td>+</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M. Identify and develop champions</td>
<td>+</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N. Address for resilience and identify services</td>
<td>+</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Notes:
- NA: Not Applicable
- ARCS: Assess, Recommend, Create, Supervise
Table 5. Dose for Each Overarching Strategy During the Implementation Phase (Months 7 – 12)

<table>
<thead>
<tr>
<th>Strategy/Course</th>
<th>Blended Strategy and the Discrete Interventions</th>
<th>Month 1</th>
<th>Month 2</th>
<th>Month 3</th>
<th>Month 4</th>
<th>Month 5</th>
<th>Month 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Contact point</td>
<td>Training, Coaching, or Facilitation Staff</td>
<td>1 hour</td>
<td>1 hour</td>
<td>1 hour</td>
<td>1 hour</td>
<td>1 hour</td>
<td>1 hour</td>
</tr>
<tr>
<td></td>
<td>AOS’s Leadership Staff</td>
<td>1 hour</td>
<td>1 hour</td>
<td>1 hour</td>
<td>1 hour</td>
<td>1 hour</td>
<td>1 hour</td>
</tr>
<tr>
<td></td>
<td>AOS’s Staff</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

**Note:** The table continues with similar entries for other strategies and months.
Table 6. Dose Each Overarching Strategy During the Sustainment Phase (Months 13 – 18)

| Overarching Strategy and the | Training, Coaching, or Facilitation | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C |
|-----------------------------|-------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Decision Strategy and the   | Training, Coaching, or Facilitation | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C |
| decision Environment        |                                     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| A. Establish technical      |                                     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| excellence                  |                                     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| B. Develop educational      |                                     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| materials                   |                                     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| C. Develop and organize     |                                     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| quality monitoring systems  |                                     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| D. Establish local for      |                                     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| quality management            |                                       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| E. Establish education       |                                     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| materials                   |                                     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| F. Establish educational     |                                     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| activities                  |                                     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| G. Establish dynamic         |                                     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| human resource feedback     |                                     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| H. Monitor ongoing           |                                     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| implementation             |                                     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| I. Establish and support     |                                     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| collaborative learning       |                                     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |

6. Use an improvement and implementation advisor

| Improvement and Implementation Advisor | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C | A+B+C |
|----------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| A. Develop tools for quality          | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     |
| management                              |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| B. Organize implementation              | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     |
| team meetings                           |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| C. Identify and prioritize              | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     |
| charitable values                       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| D. Review readiness and identity       | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     |
| elements                                |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| E. Conduct individual                   | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     |
| consultations                          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| F. Conduct group consultations          | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     |
| G. Establish typical                   | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     | +     |
| small tasks of change                   |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
The Substance Abuse Treatment to HIV Care (SAT2HIV) Project: A doubly randomized type 2 effectiveness-implementation hybrid trial


Results: Main Findings

Exploration Phase
- Organizational-level assignment to ISF condition
  - OR = 0.98

Preparation Phase
- Staff-level Proficiency

Implementation Phase
- Staff-level Implementation Effectiveness
  - OR = 1.92**

Client-level assignment to UC+MIBI condition
- OR = 0.11*

Client-level Substance Use

* p < .05; ** p < .01
Discussion:
Key Takeaways, Lessons Learned, and Next Steps
Discussion: Key Takeaways

39 Distinct ASOs
Discussion: Key Takeaways

Exploration Phase

Preparation Phase

Implementation Phase

39 Distinct ASOs

39 Distinct ASOs (100%)
Discussion:
Key Takeaways

Exploration Phase
- 39 Distinct ASOs

Preparation Phase
- 39 Distinct ASOs (100%)

Implementation Phase
- 34 Distinct ASOs (87%)
Discussion: Key Takeaways

**ISF had a significant impact on an implementation outcome**

**ISF had a significant impact on a client outcome**

\[ \text{OR} = 1.92^{**} \]

\[ \text{OR} = 0.11^{*} \]

* * p < .05; ** p < .01
Discussion: Lessons Learned

Type 2 effectiveness-implementation hybrid trials are not for the faint of heart.
Discussion:
Lessons Learned

Type 2 effectiveness-implementation hybrid trials are possible... with the right infrastructure and team
Discussion: Lessons Learned
Discussion:
Next Steps

Other grants testing the ISF strategy