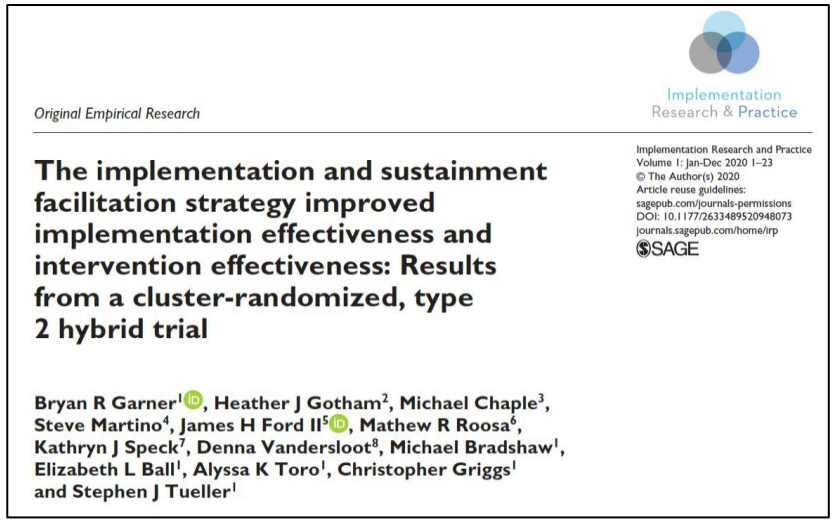
The Implementation and Sustainment Facilitation (ISF) Strategy: A promising strategy for improving implementation climate, implementation effectiveness, and intervention effectiveness



Original Empirical Research

Implementation Research & Practice

The implementation and sustainment facilitation strategy improved implementation effectiveness and intervention effectiveness: Results from a cluster-randomized, type 2 hybrid trial

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Bryan R Garner[1], Heather J Gotham[2], Michael Chaple[3], Steve Martino[4], James H Ford II[5], Mathew R Roosa[6], Kathryn J Speck[7], Denna Vandersloot[8], Michael Bradshaw[1], Elizabeth L Ball[1], Alyssa K Toro[1], Christopher Griggs[1] and Stephen J Tueller[1]

Garner, B. R., Gotham, H. J., Chaple, M., Martino, S., Ford, J. H., Roosa, M. R., ... & Tueller, S. J. (2020). The implementation and sustainment facilitation strategy improved implementation effectiveness and intervention effectiveness: Results from a cluster-randomized, type 2 hybrid trial. *Implementation Research and Practice*, *1*, 2633489520948073.

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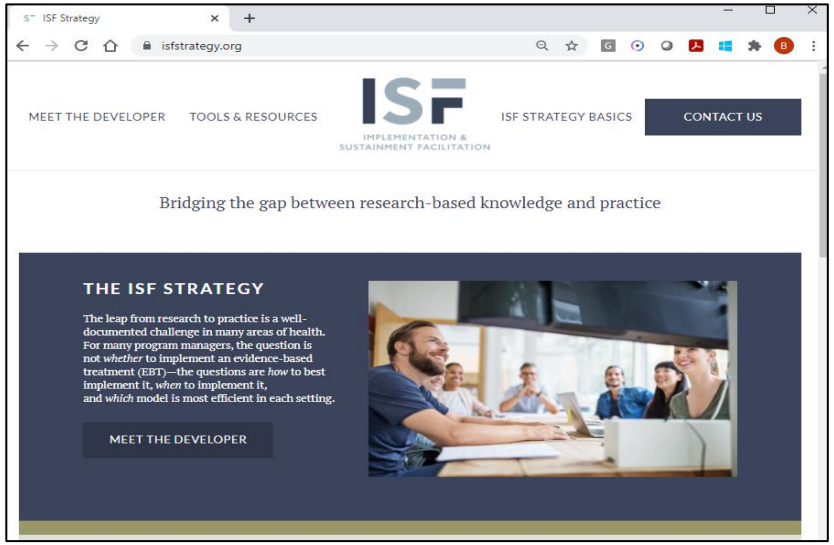

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An enduring problem:
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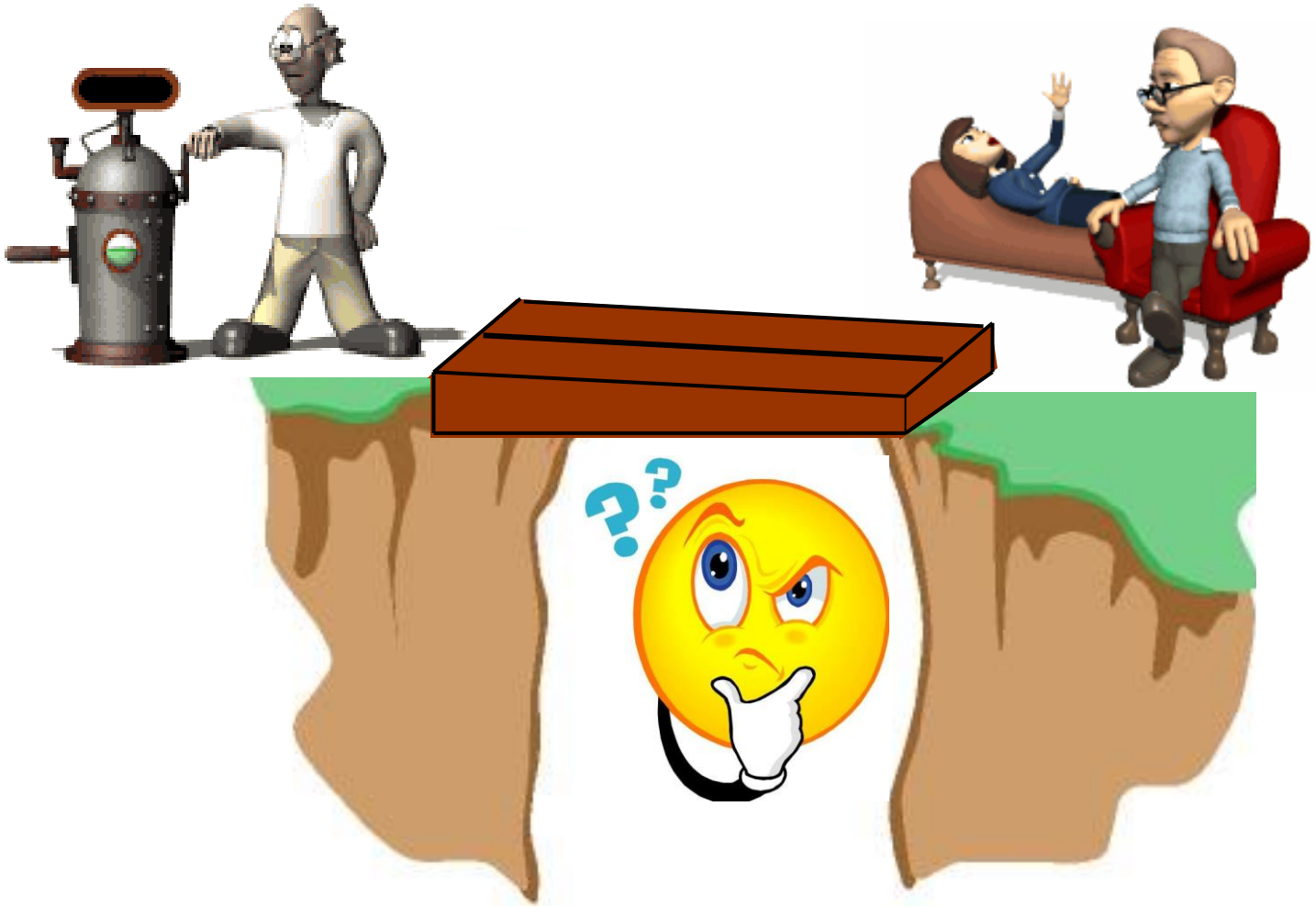
Which strategies can help bridge the research-to-practice gap, effectively and cost-effectively?



A compilation of strategies

Review

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

Byron J. Powell[1], J. Curtis McMillen[2], Enola K. Proctor[1], Christopher R. Carpenter[3], Richard T. Griffey[3], Alicia C. Bunger[4], Joseph E. Glass[1], and Jennifer L. York[3]

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.

This article, submitted to *Medical Care Research and Review* on July 11, 2011, was revised and accepted for publication on October 20, 2011.

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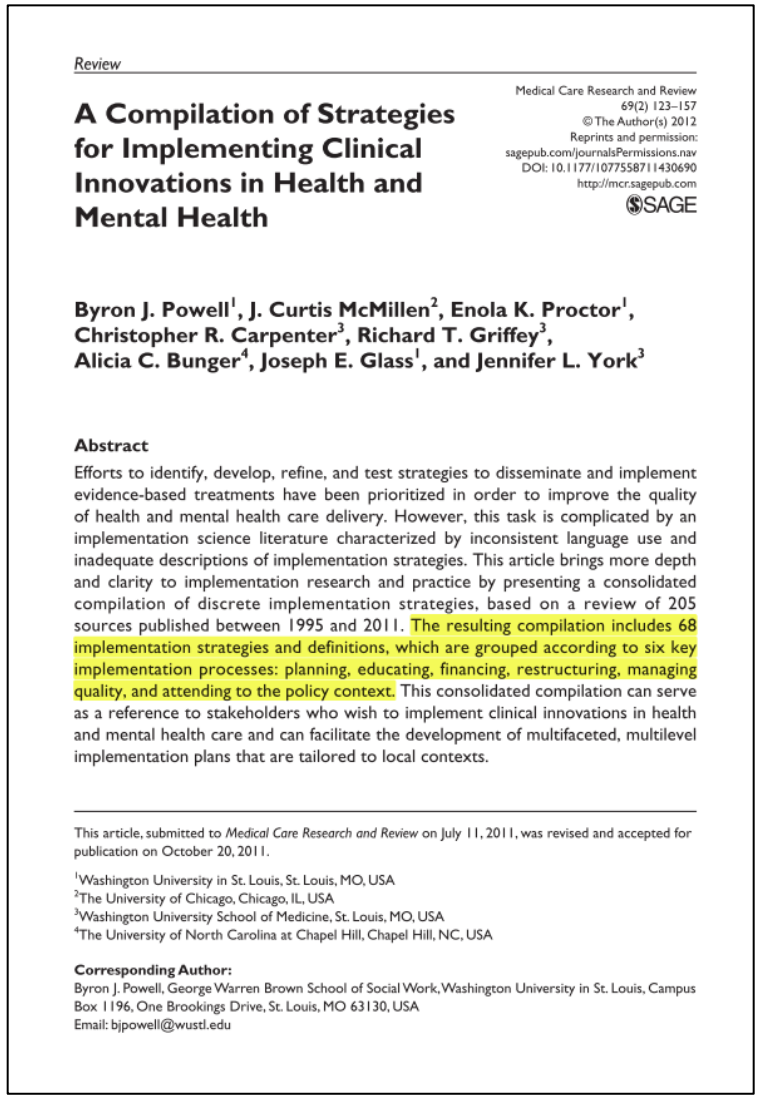
"We differentiate discrete, multifaceted, and blended implementation strategies."

Discrete, multifaceted, and blended implementation strategies



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Discrete strategies are the most recognizable and commonly cited implementation actions (e.g., reminders, educational meetings) and involve one process or action.

A **multifaceted implementation strategy** uses two or more discrete strategies (e.g., training plus technical assistance).

We reserve the term **blended strategy** for instances in which a number of discrete strategies, addressing multiple levels and barriers to change, are interwoven and packaged as a protocolized or branded implementation intervention. Blended strategies are inherently multifaceted; however, all multifaceted strategies are not blended.

A refined compilation of strategies

Powell et al. Implementation Science (2015) 10:21
DOI 10.1186/s13012-015-0209-1

IMPLEMENTATION SCIENCE

RESEARCH Open Access

A refined compilation of implementation strategies: results from the Expert Recommendations for Implementing Change (ERIC) project

Byron J Powell[1*], Thomas J Waltz[2], Matthew J Chinman[3,4], Laura J Damschroder[5], Jeffrey L Smith[6], Monica M Matthieu[6,7], Enola K Proctor[8] and JoAnn E Kirchner[6,9]

Abstract

Background: Identifying, developing, and testing implementation strategies are important goals of implementation science. However, these efforts have been complicated by the use of inconsistent language and inadequate descriptions of implementation strategies in the literature. The Expert Recommendations for Implementing Change (ERIC) study aimed to refine a published compilation of implementation strategy terms and definitions by systematically gathering input from a wide range of stakeholders with expertise in implementation science and clinical practice.

Methods: Purposive sampling was used to recruit a panel of experts in implementation and clinical practice who engaged in three rounds of a modified Delphi process to generate consensus on implementation strategies and definitions. The first and second rounds involved Web-based surveys soliciting comments on implementation strategy terms and definitions. After each round, iterative refinements were made based upon participant feedback. The third round involved a live polling and consensus process via a Web-based platform and conference call.

Results: Participants identified substantial concerns with 31% of the terms and/or definitions and suggested five additional strategies. Seventy-five percent of definitions from the originally published compilation of strategies were retained after voting. Ultimately, the expert panel reached consensus on a final compilation of 73 implementation strategies.

Conclusions: This research advances the field by improving the conceptual clarity, relevance, and comprehensiveness of implementation strategies that can be used in isolation or combination in implementation research and practice. Future phases of ERIC will focus on developing conceptually distinct categories of strategies as well as ratings for each strategy's importance and feasibility. Next, the expert panel will recommend multifaceted strategies for hypothetical yet real-world scenarios that vary by sites' endorsement of evidence-based programs and practices and the strength of contextual supports that surround the effort.

Keywords: Implementation research, Implementation strategies, Knowledge translation strategies, Mental health, US Department of Veterans Affairs

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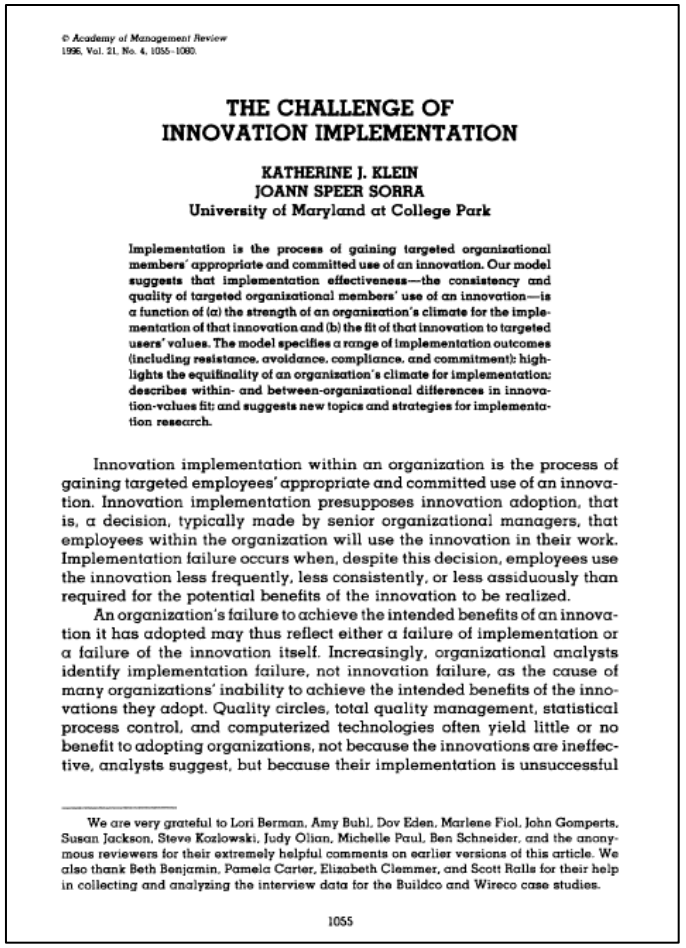
The Implementation and Sustainment Facilitation (ISF) Strategy: A promising strategy for improving implementation climate, implementation effectiveness, and intervention effectiveness

The focus of this presentation is on the ISF Strategy's …

- **Guiding theory, framework, and principles**
- **Standardized tools/exercises**
- **Empirical evidence supporting its effectiveness and cost-effectiveness**
- **Ongoing tests of its effectiveness and cost-effectiveness**

The ISF Strategy's Guiding Theory: The Theory of Implementation Effectiveness



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1996, Vol. 21, No. 4, 1055–1080.

THE CHALLENGE OF INNOVATION IMPLEMENTATION

KATHERINE J. KLEIN
JOANN SPEER SORRA
University of Maryland at College Park

Implementation is the process of gaining targeted organizational members' appropriate and committed use of an innovation. Our model suggests that implementation effectiveness—the consistency and quality of targeted organizational members' use of an innovation—is a function of (a) the strength of an organization's climate for the implementation of that innovation and (b) the fit of that innovation to targeted users' values. The model specifies a range of implementation outcomes (including resistance, avoidance, compliance, and commitment); highlights the equifinality of an organization's climate for implementation; describes within- and between-organizational differences in innovation-values fit; and suggests new topics and strategies for implementation research.

Innovation implementation within an organization is the process of gaining targeted employees' appropriate and committed use of an innovation. Innovation implementation presupposes innovation adoption, that is, a decision, typically made by senior organizational managers, that employees within the organization will use the innovation in their work. Implementation failure occurs when, despite this decision, employees use the innovation less frequently, less consistently, or less assiduously than required for the potential benefits of the innovation to be realized.

An organization's failure to achieve the intended benefits of an innovation it has adopted may thus reflect either a failure of implementation or a failure of the innovation itself. Increasingly, organizational analysts identify implementation failure, not innovation failure, as the cause of many organizations' inability to achieve the intended benefits of the innovations they adopt. Quality circles, total quality management, statistical process control, and computerized technologies often yield little or no benefit to adopting organizations, not because the innovations are ineffective, analysts suggest, but because their implementation is unsuccessful

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Klein, K. J., & Sorra, J. S. (1996). The challenge of innovation implementation. *Academy of management review*, *21*(4), 1055-1080.

Journal of Applied Psychology
2001, Vol. 86, No. 5, 811–824

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0021-9010/01/$5.00 DOI: 10.1037/0021-9010.86.5.811

Implementing Computerized Technology: An Organizational Analysis

Katherine J. Klein, Amy Buhl Conn, and Joann Speer Sorra
University of Maryland

Why do some organizations succeed and others fail in implementing the innovations they adopt? To begin to answer this question, the authors studied the implementation of manufacturing resource planning, an advanced computerized manufacturing technology, in 39 manufacturing plants (number of individual respondents = 1,219). The results of the plant-level analyses suggest that financial resource availability and management support for technology implementation engender high-quality implementation policies and practices and a strong climate for implementation, which in turn foster implementation effectiveness—that is, consistent and skilled technology use. Further research is needed to replicate and extend the findings.

During the past decade, analysts have admonished organizations to innovate their work practices, products, and services in order to survive and thrive in today's global marketplace (e.g., Barrett, 1995; Jick, 1995; Slocum, McGill, & Lei, 1995). And yet, many organizations adopt innovations—for example, total quality management, statistical process control, and manufacturing resource planning—with disappointing results. Recent analyses suggest that the reason is not innovation failure but implementation failure (Bushe, 1988; Pfeffer, 1994; Reger, Gustafson, DeMarie, & Mullane, 1994). That is, many organizations fail to fully implement the innovations they adopt; they fail to gain employees' skilled, consistent, and committed innovation use. In the absence of effective implementation, however, innovation adoption is more likely to yield waste and cynicism than performance improvement.

Unfortunately, research on innovation implementation is very limited (Beyer & Trice, 1978; Nord & Tucker, 1987; Tornatzky & Klein, 1982). Thus, relatively little is known about the organizational characteristics and practices that may explain between-organizational differences in implementation effectiveness: Why do some organizations succeed and others fail in implementing the innovations they adopt? To begin to answer this question, we studied the implementation of manufacturing resource planning (MRP II), a software system designed to streamline and integrate production, purchasing, scheduling, inventory control, and cost accounting, in a sample of manufacturing plants and companies. Below, we define key terms and present our hypotheses, method, and results.

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Amy Buhl Conn is now at Personnel Decisions International, Boston, Massachusetts. Joann Speer Sorra is now at Westat, Rockville, Maryland.
This research was supported by a grant to Katherine J. Klein from the National Science Foundation.
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Correspondence concerning this article should be addressed to Katherine J. Klein, Department of Psychology, University of Maryland, College Park, Maryland 20742. Electronic mail may be sent to klein@psyc.umd.edu.

Innovation Stages, Implementation Effectiveness, and Innovation Effectiveness

Innovation scholars use stage models to describe the many steps of the innovation process. Source-based stage models trace the innovation process from the gestation of the idea to the marketing of the final product (e.g., research, development, testing, manufacturing, dissemination; Amabile, 1988; Tornatzky & Fleischer, 1990). Within these models, an *innovation* is a new product or service that an organization has created for market. Building on source-based stage models, researchers explore the correlates of the development of innovative products and services (see, e.g., Dougherty & Heller, 1994).

User-based stage models, in contrast, trace the stages of innovation from the user's awareness of a need or opportunity to change to the incorporation of the innovation in the user's behavioral repertoire (e.g., awareness, selection, adoption, implementation; Nord & Tucker, 1987; Tornatzky & Fleischer, 1990). Within these models and within our research, an *innovation* is a technology or practice that an organization is using for the first time, regardless of whether other organizations have previously used the technology or practice (Nord & Tucker, 1987). Innovation *adoption* refers to an organization's decision to install an innovation within the organization. Adoption is a decision point, a plan, or a purchase. *Implementation* follows adoption and is "the transition period during which targeted organizational members ideally become increasingly skillful, consistent, and committed in their use of an innovation" (Klein & Sorra, 1996, p. 1057).

Innovation adoption has been the focus of considerable research. Thus, for example, numerous studies have examined the innovation characteristics (e.g., innovation complexity, innovation trialability) that make an innovation particularly likely to be adopted by individual or organizational users (e.g., Tornatzky & Klein, 1982). Furthermore, many studies have examined the characteristics that distinguish innovative organizations (Damanpour, 1991).

Unfortunately, innovation implementation has been the focus of very little research. In this study, we examined manufacturing plants in the process of implementing the same technology. Innovation adoption was thus a constant in this study. All of the plants had formally adopted MRP II; they had bought the same software system. The plants differed, however, in their *implementation*

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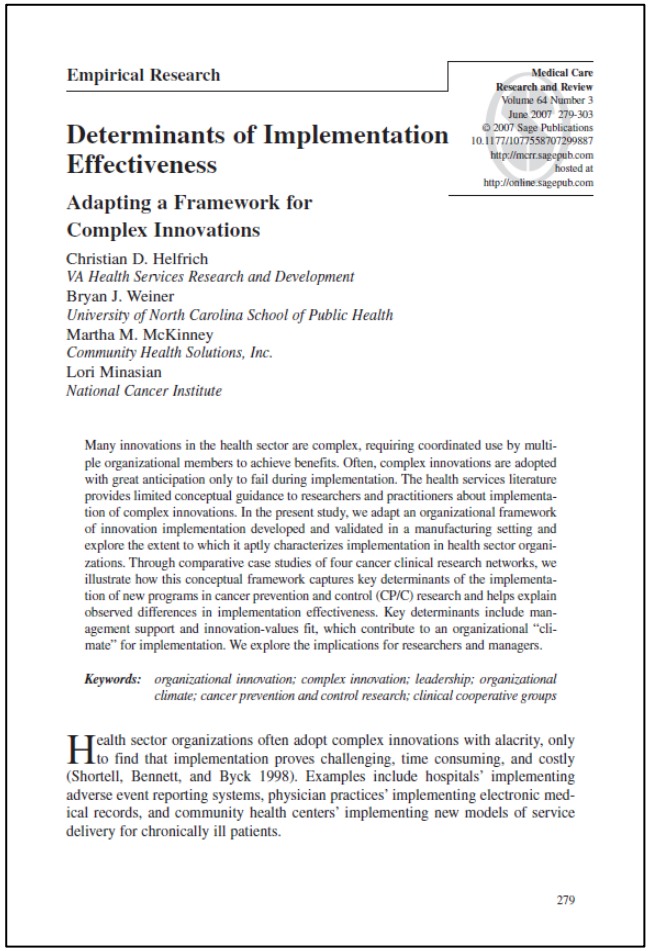

Empirical Research

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Determinants of Implementation Effectiveness

Adapting a Framework for Complex Innovations

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VA Health Services Research and Development
Bryan J. Weiner
University of North Carolina School of Public Health
Martha M. McKinney
Community Health Solutions, Inc.
Lori Minasian
National Cancer Institute

Many innovations in the health sector are complex, requiring coordinated use by multiple organizational members to achieve benefits. Often, complex innovations are adopted with great anticipation only to fail during implementation. The health services literature provides limited conceptual guidance to researchers and practitioners about implementation of complex innovations. In the present study, we adapt an organizational framework of innovation implementation developed and validated in a manufacturing setting and explore the extent to which it aptly characterizes implementation in health sector organizations. Through comparative case studies of four cancer clinical research networks, we illustrate how this conceptual framework captures key determinants of the implementation of new programs in cancer prevention and control (CP/C) research and helps explain observed differences in implementation effectiveness. Key determinants include management support and innovation-values fit, which contribute to an organizational "climate" for implementation. We explore the implications for researchers and managers.

Keywords: *organizational innovation; complex innovation; leadership; organizational climate; cancer prevention and control research; clinical cooperative groups*

Health sector organizations often adopt complex innovations with alacrity, only to find that implementation proves challenging, time consuming, and costly (Shortell, Bennett, and Byck 1998). Examples include hospitals' implementing adverse event reporting systems, physician practices' implementing electronic medical records, and community health centers' implementing new models of service delivery for chronically ill patients.

Helfrich, C. D., Weiner, B. J., McKinney, M. M., & Minasian, L. (2007). Determinants of implementation effectiveness: adapting a framework for complex innovations. *Medical care research and review*, *64*(3), 279-303.

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"Implementation effectiveness refers to the consistency and quality of targeted organizational members' use of a specific innovation."
Klein & Sorra, 1996

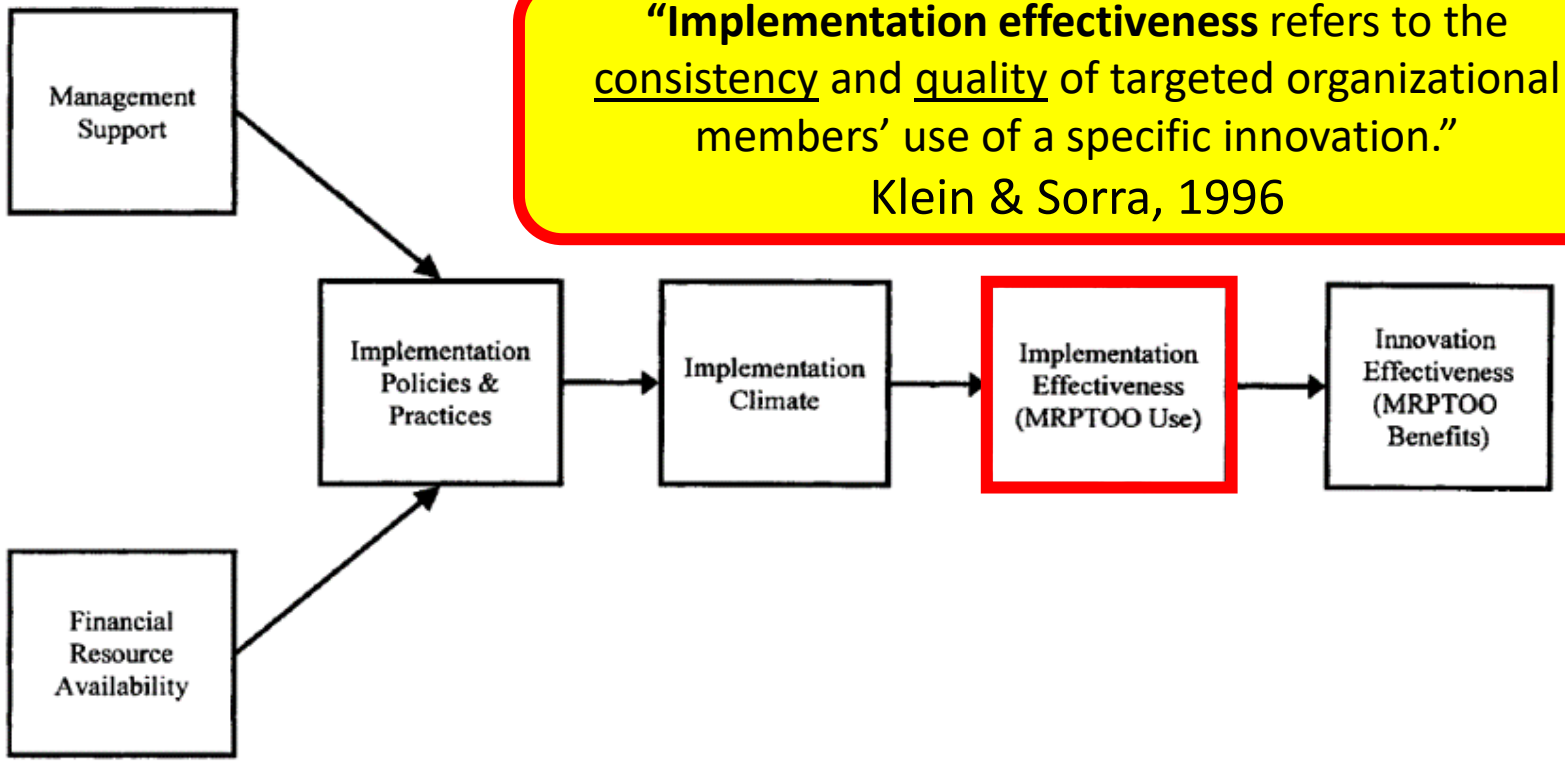
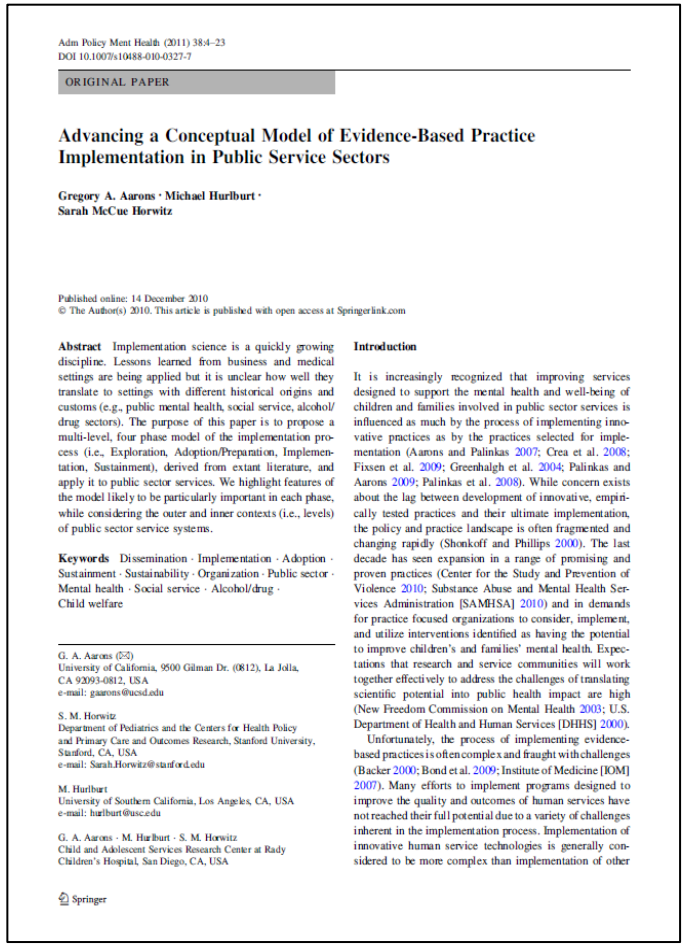


Figure 1. Hypothesized predictors of implementation effectiveness (innovation use) and innovation effectiveness (benefits of innovation implementation). MRPTOO = a pseudonym for a manufacturing resource-planning package.

The ISF Strategy's Guiding Framework:
The Exploration, Preparation, Implementation, Sustainment (EPIS) Framework



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ORIGINAL PAPER

Advancing a Conceptual Model of Evidence-Based Practice Implementation in Public Service Sectors

Gregory A. Aarons · Michael Hurlburt · Sarah McCue Horwitz

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Abstract Implementation science is a quickly growing discipline. Lessons learned from business and medical settings are being applied but it is unclear how well they translate to settings with different historical origins and customs (e.g., public mental health, social service, alcohol/drug sectors). The purpose of this paper is to propose a multi-level, four phase model of the implementation process (i.e., Exploration, Adoption/Preparation, Implementation, Sustainment), derived from extant literature, and apply it to public sector services. We highlight features of the model likely to be particularly important in each phase, while considering the outer and inner contexts (i.e., levels) of public sector service systems.

Keywords Dissemination · Implementation · Adoption · Sustainment · Sustainability · Organization · Public sector · Mental health · Social service · Alcohol/drug · Child welfare

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Introduction

It is increasingly recognized that improving services designed to support the mental health and well-being of children and families involved in public sector services is influenced as much by the process of implementing innovative practices as by the practices selected for implementation (Aarons and Palinkas 2007; Crea et al. 2008; Fixsen et al. 2009; Greenhalgh et al. 2004; Palinkas and Aarons 2009; Palinkas et al. 2008). While concern exists about the lag between development of innovative, empirically tested practices and their ultimate implementation, the policy and practice landscape is often fragmented and changing rapidly (Shonkoff and Phillips 2000). The last decade has seen expansion in a range of promising and proven practices (Center for the Study and Prevention of Violence 2010; Substance Abuse and Mental Health Services Administration [SAMHSA] 2010) and in demands for practice focused organizations to consider, implement, and utilize interventions identified as having the potential to improve children's and families' mental health. Expectations that research and service communities will work together effectively to address the challenges of translating scientific potential into public health impact are high (New Freedom Commission on Mental Health 2003; U.S. Department of Health and Human Services [DHHS] 2000).

Unfortunately, the process of implementing evidence-based practices is often complex and fraught with challenges (Backer 2000; Bond et al. 2009; Institute of Medicine [IOM] 2007). Many efforts to implement programs designed to improve the quality and outcomes of human services have not reached their full potential due to a variety of challenges inherent in the implementation process. Implementation of innovative human service technologies is generally considered to be more complex than implementation of other

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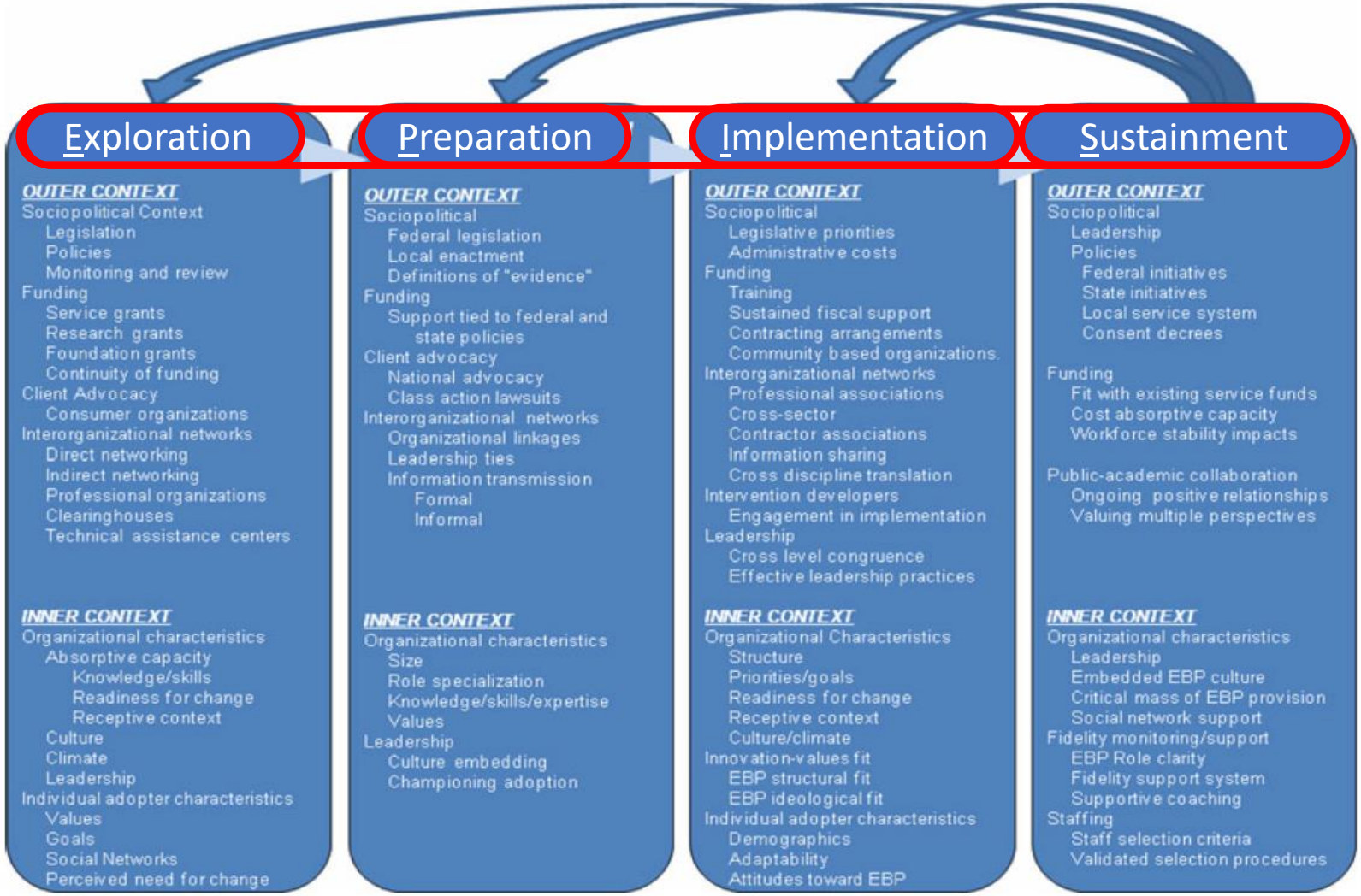
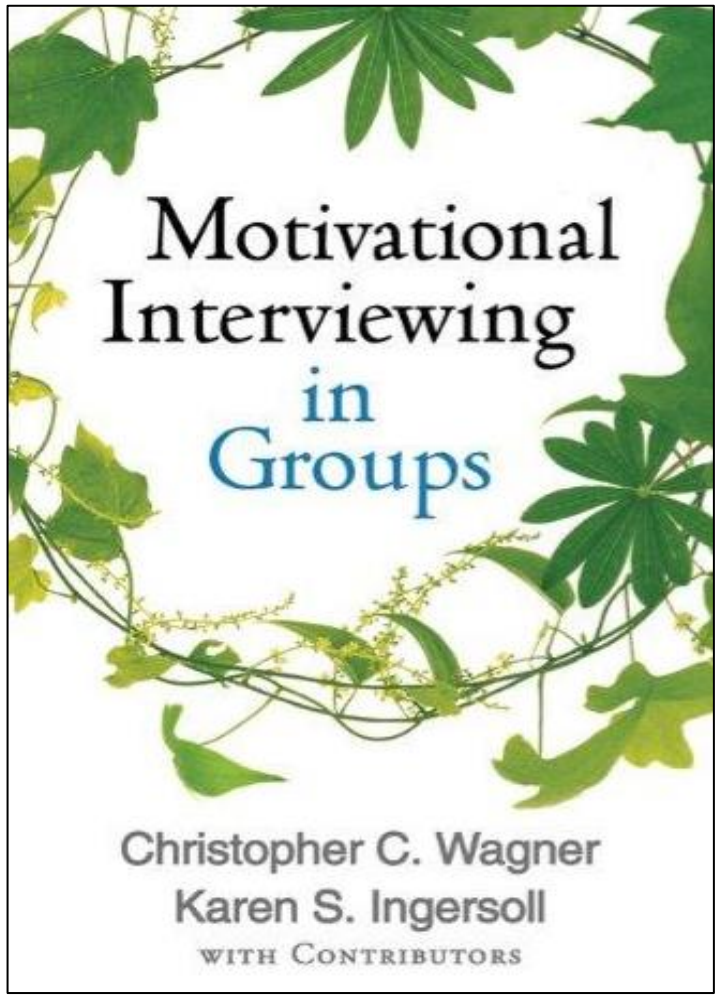
Aarons, G. A., Hurlburt, M., & Horwitz, S. M. (2011). Advancing a conceptual model of evidence-based practice implementation in public service sectors. *Administration and Policy in Mental Health and Mental Health Services Research*, *38*(1), 4-23.



The ISF Strategy's Guiding Principles:
Engaging, Focusing, Evoking, and Planning



Wagner, C. C., & Ingersoll, K. S. (2012). *Motivational interviewing in groups*. Guilford Press.

The ISF Strategy's Guiding Principles

Guided by the principles of motivational interviewing, the ISF Strategy seeks to optimize implementation climate by:

1) **Engaging** the staff working on the project
2) **Focusing** the staff on the two key aspects of implementation effectiveness
3) **Evoking** from the staff thoughts about their current implementation effectiveness
4) **Planning** how to sustain or even improve the level of implementation effectiveness

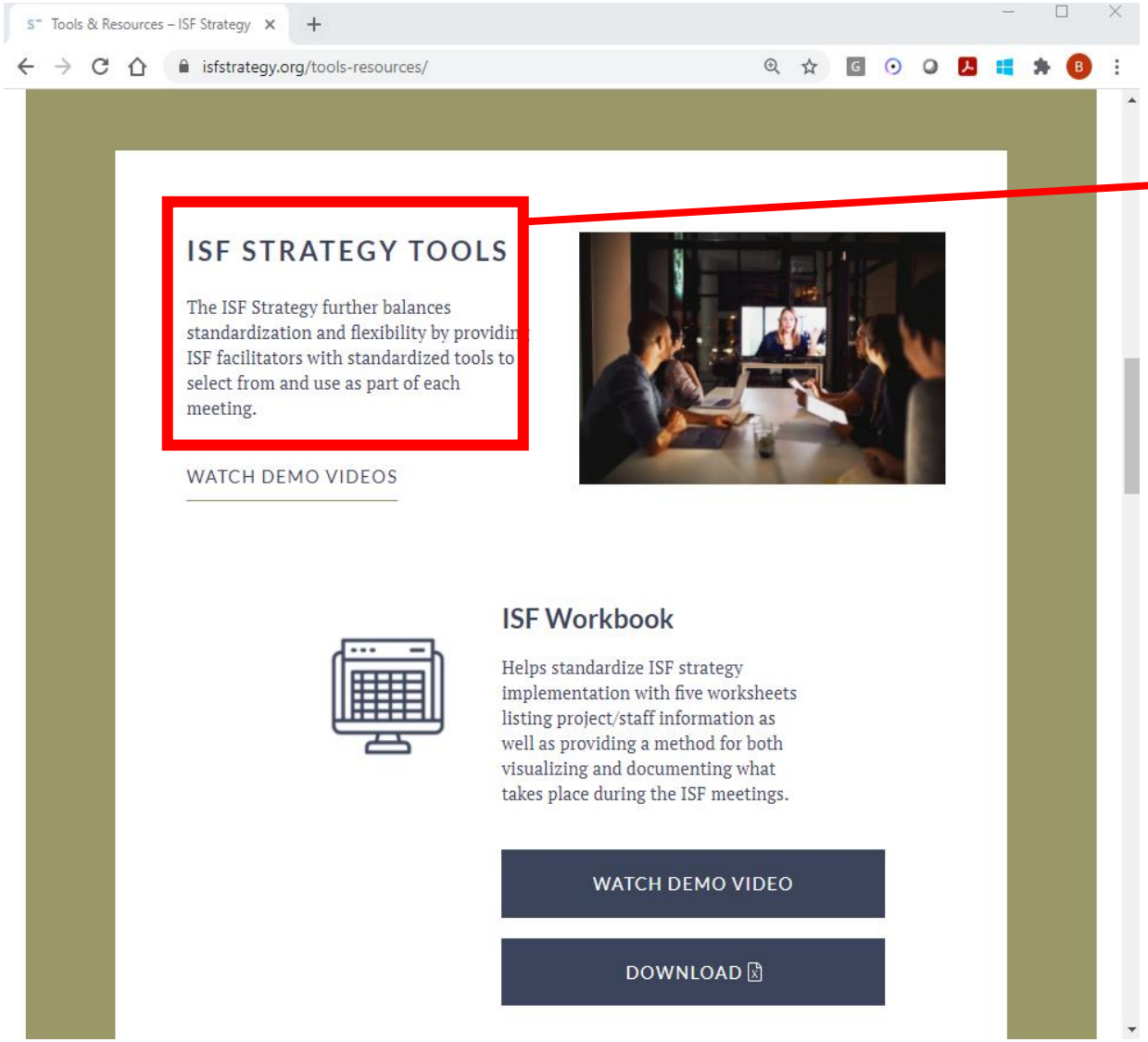
1. Engage
2. Focus
3. Evoke
4. Plan

The Implementation and Sustainment Facilitation (ISF) Strategy: A promising strategy for improving implementation climate, implementation effectiveness, and intervention effectiveness

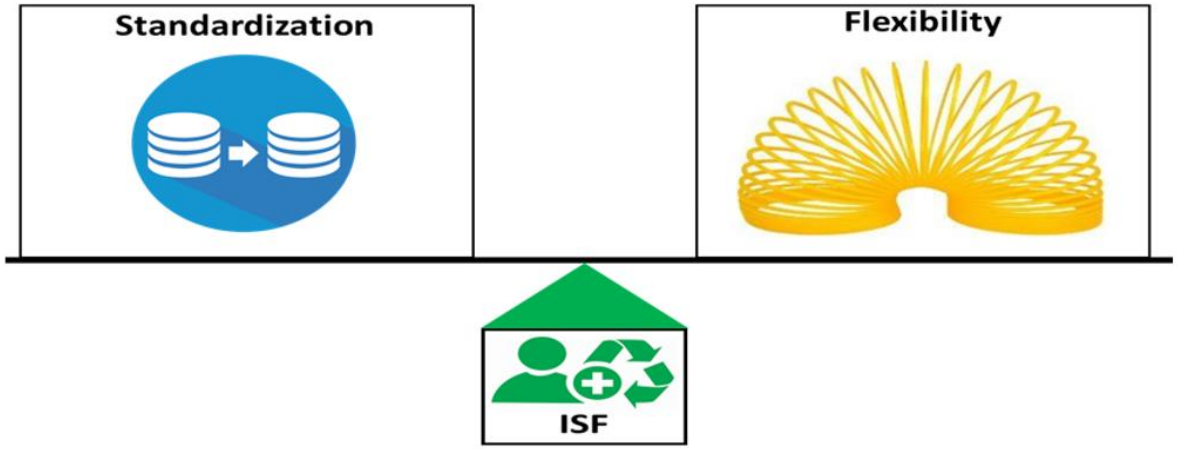
<u>The focus of this presentation is on the ISF Strategy's …</u>

- **Guiding theory, framework, and principles**
- **Tools/exercises**
- **Empirical evidence supporting its effectiveness and cost-effectiveness**
- **Ongoing tests of its effectiveness and cost-effectiveness**

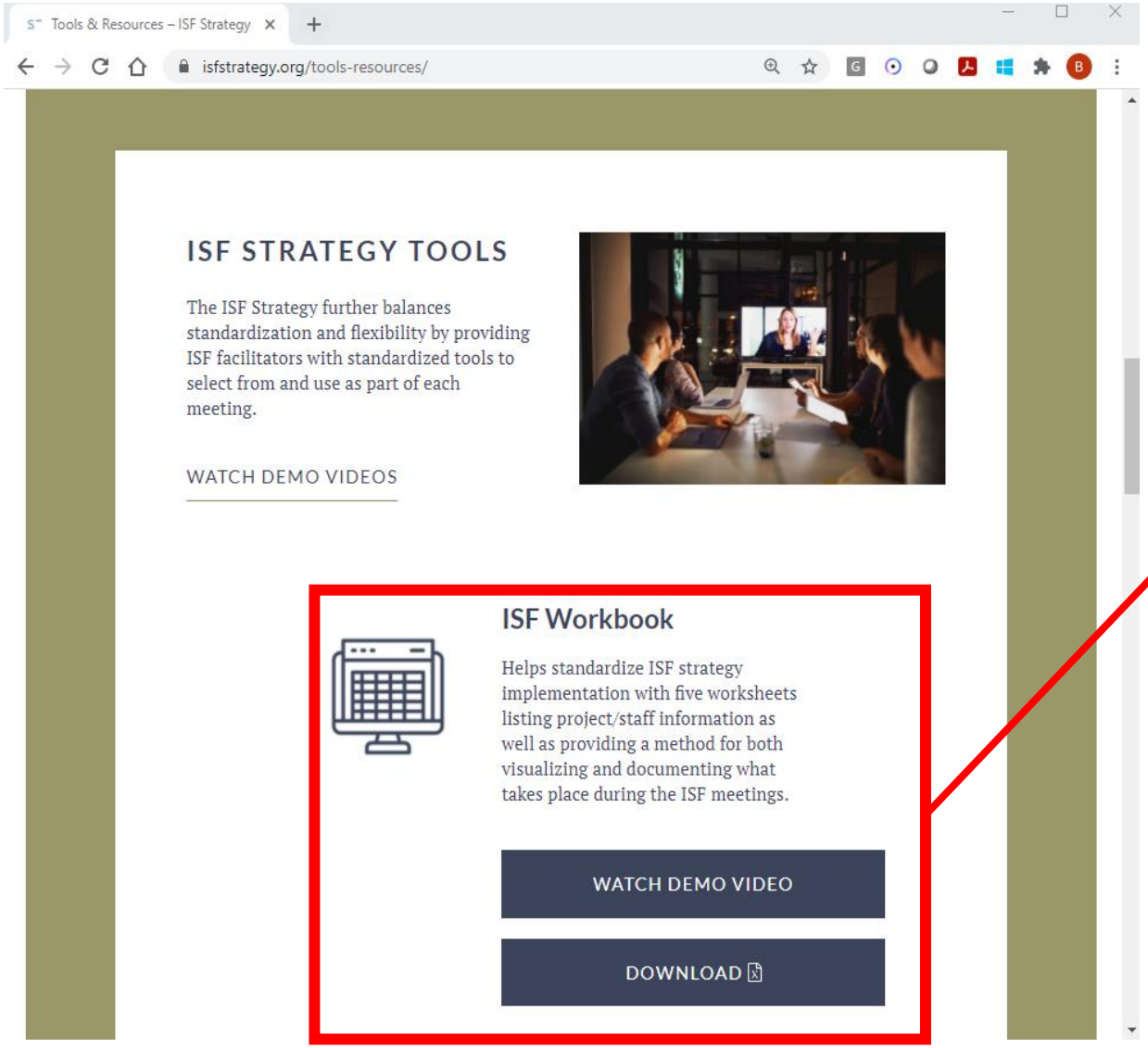
The ISF Strategy's Tools/Exercises: Balancing standardization and flexibility



The ISF Strategy balances <u>standardization</u> and <u>flexibility</u> by providing standardized tools/exercises for the ISF Strategy Facilitator to select from and use as part of each ISF Strategy meeting.



The ISF Strategy's Tools/Exercises: The ISF Workbook



An <u>Excel Workbook</u> that

1. **Standardizes the ISF Strategy implementation**
2. **Provides a method for both visualizing and documenting what takes place during ISF meetings**

Let's take a look at the ISF Workbook

The Implementation and Sustainment Facilitation (ISF) Strategy: A promising strategy for improving implementation climate, implementation effectiveness, and intervention effectiveness

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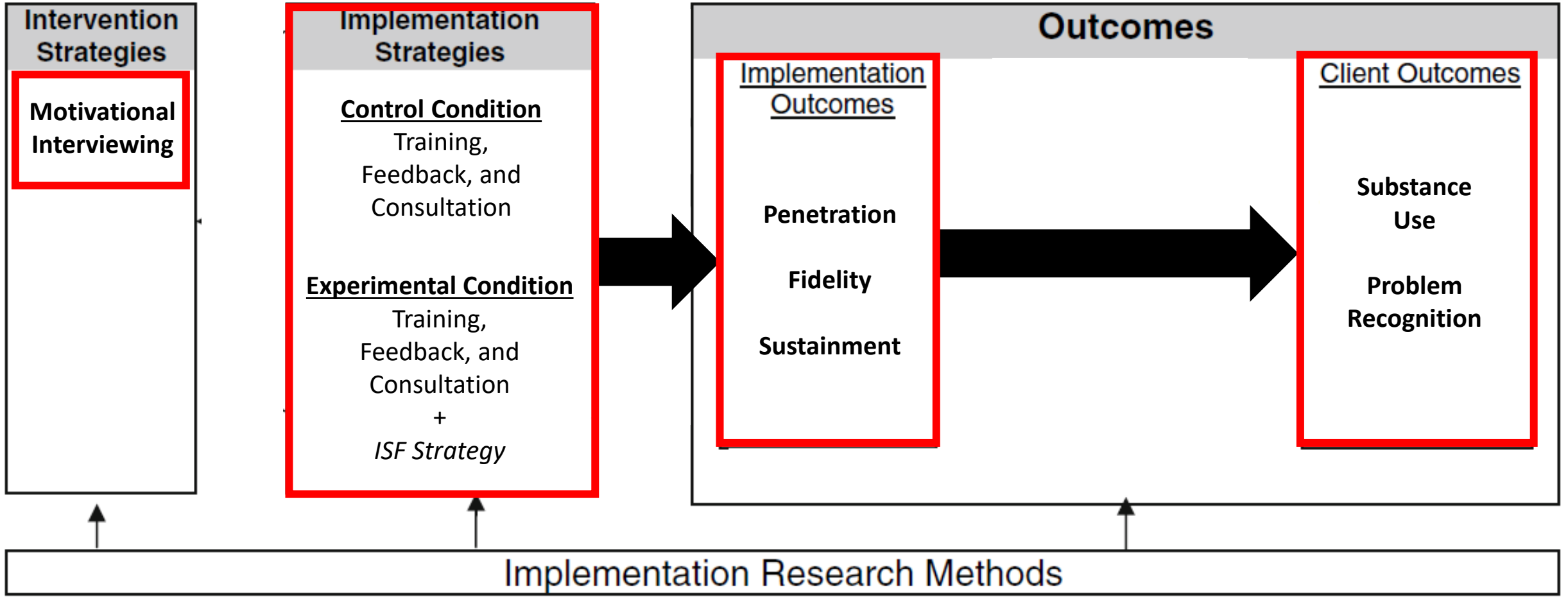
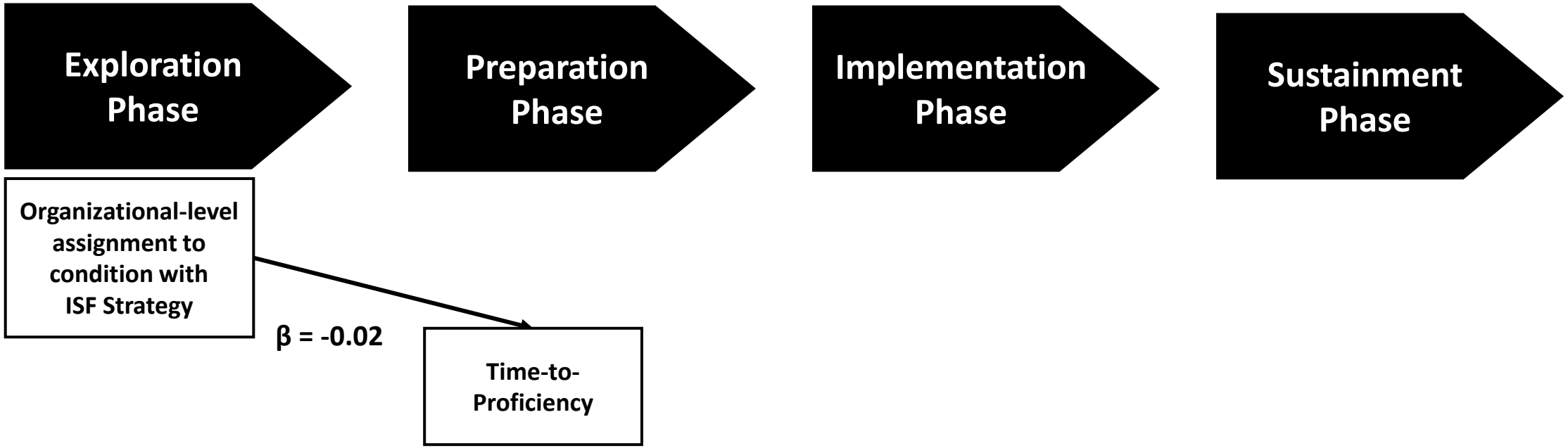
The ISF Strategy's Empirical Support from the SAT2HIV Project: A Brief Overview of the SAT2HIV Project



Dual-randomized type 2 hybrid trial

39 HIV Service Organizations, 78 Staff, 824 Clients at baseline, and 698 at follow-up (85% follow-up rate)

The ISF Strategy's Empirical Support from the SAT2HIV Project: Effectiveness results



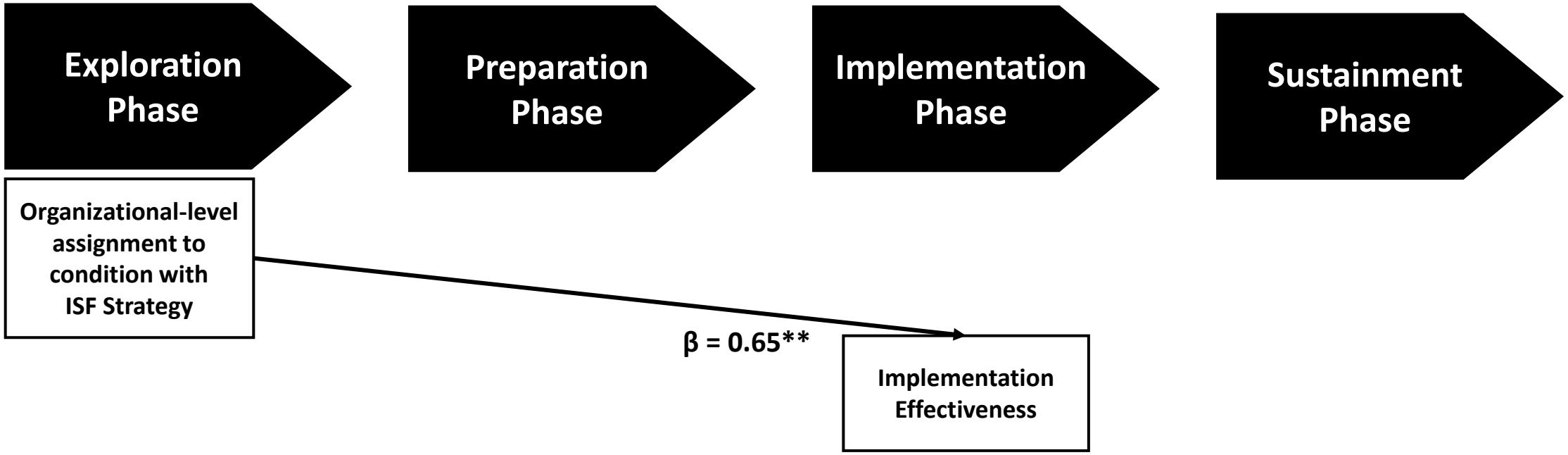
ATTC Strategy
Average of 12.35 days

ATTC+ISF Strategy
Average of 11.44 days (7% decrease)

78 of 78 Staff (100%) trained to proficiency

* $p < .05$; ** $p < .01$

The ISF Strategy's Empirical Support from the SAT2HIV Project: Effectiveness results



ATTC Strategy

Consistency Sum (i.e., penetration) = Average of 3.3 brief interventions

Quality Sum (i.e., fidelity) = Average of 560 quality score

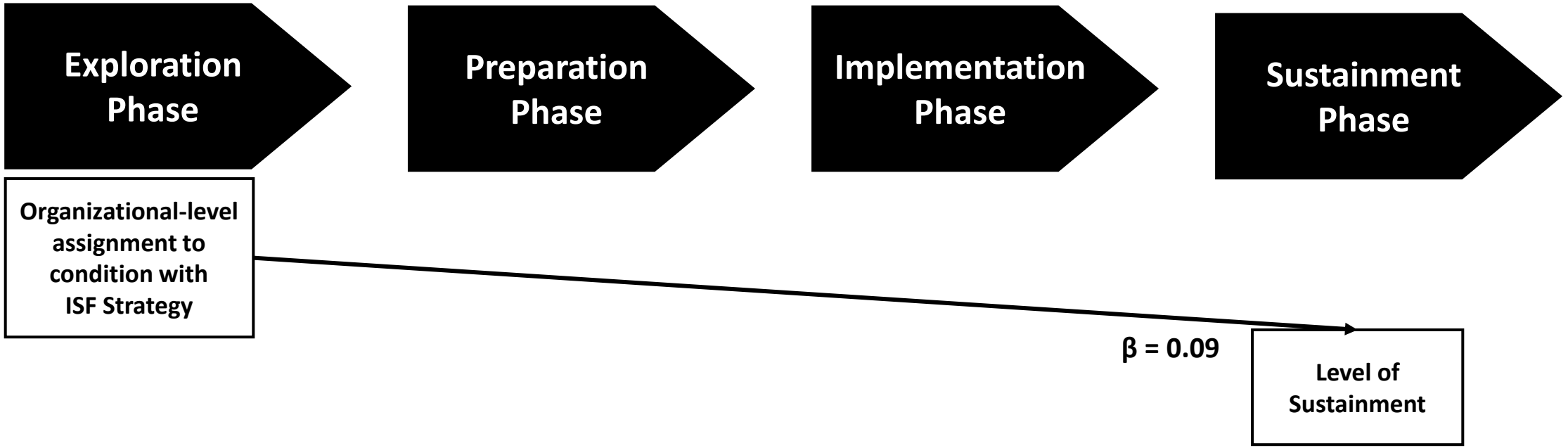
ATTC+ISF Strategy

Consistency Sum (i.e., penetration) = Average of 6.9 brief interventions (109% increase)

Quality Sum (i.e., fidelity) = Average of 1,324 quality score (136% increase)

* $p < .05$; ** $p < .01$

The ISF Strategy's Empirical Support from the SAT2HIV Project: Effectiveness results

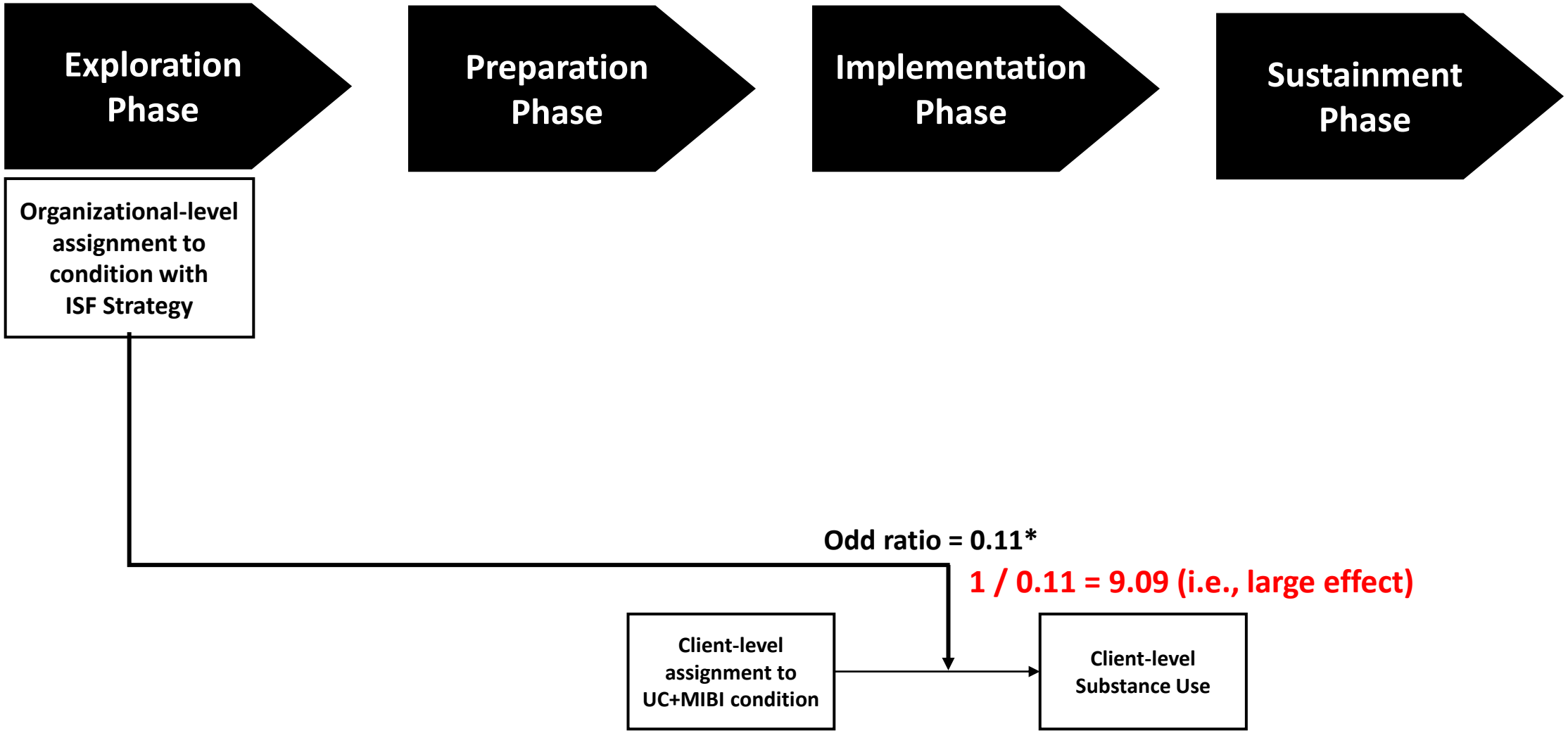


ATTC Strategy
Average of 3.2 brief interventions

ATTC+ISF Strategy
Average of 3.4 brief interventions (6% increase)

* $p < .05$; ** $p < .01$

The ISF Strategy's Empirical Support from the SAT2HIV Project: Effectiveness results



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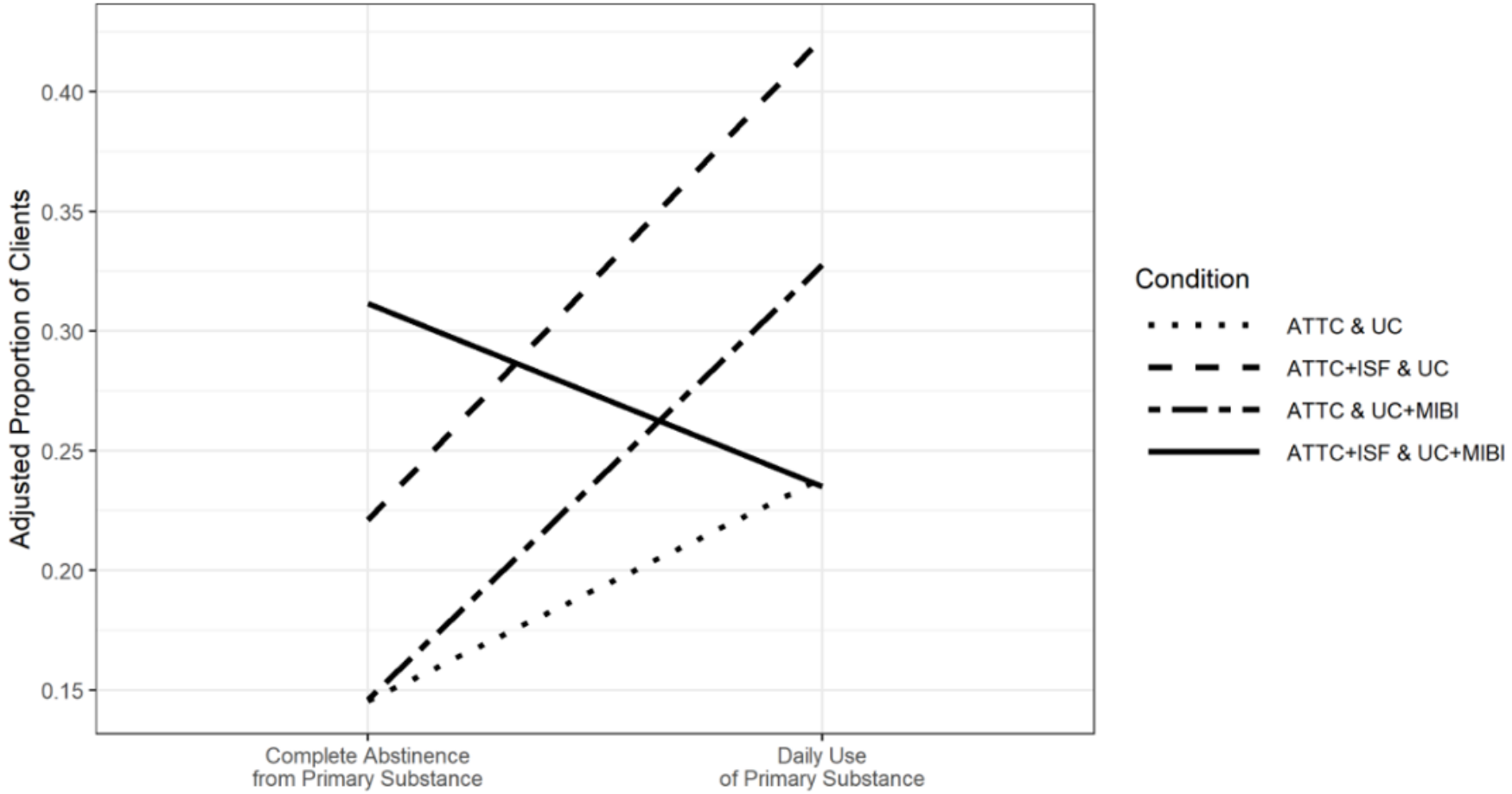
The ISF Strategy's Empirical Support from the SAT2HIV Project: Effectiveness results



The ISF Strategy's Empirical Support from the SAT2HIV Project: Effectiveness results

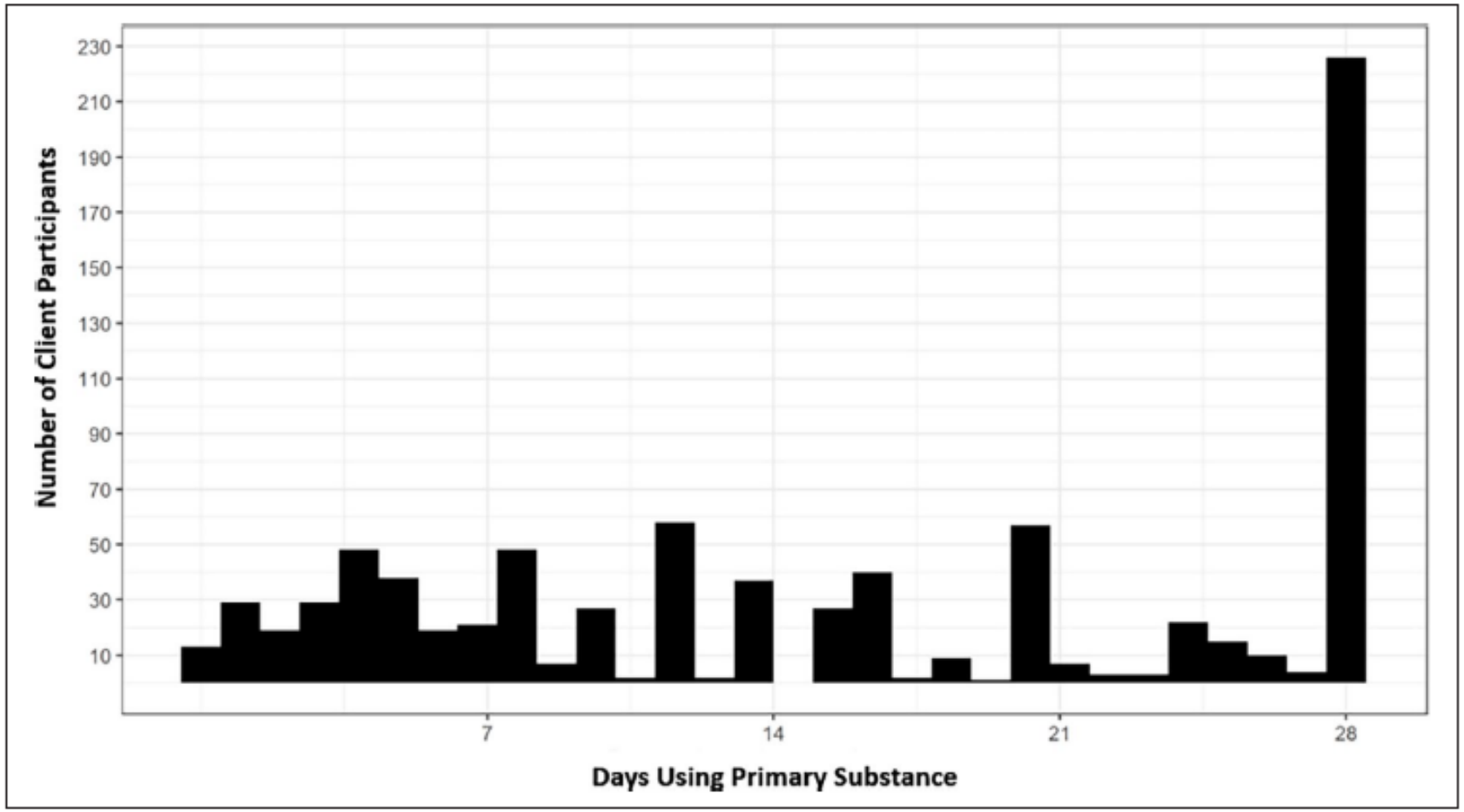


Figure 3. Baseline distribution for client's days of primary substance use.

The ISF Strategy's Empirical Support from the SAT2HIV Project: Effectiveness results

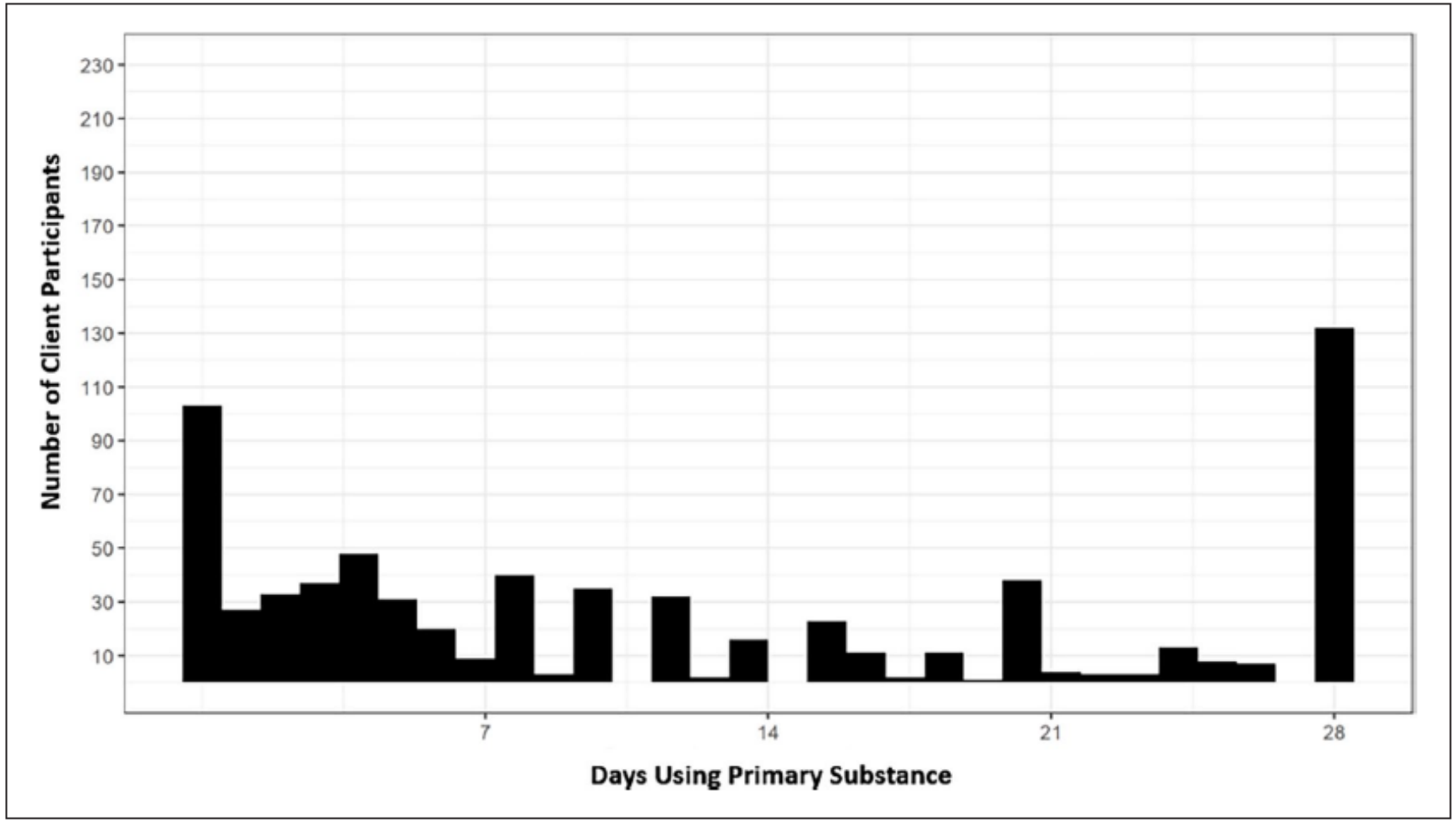
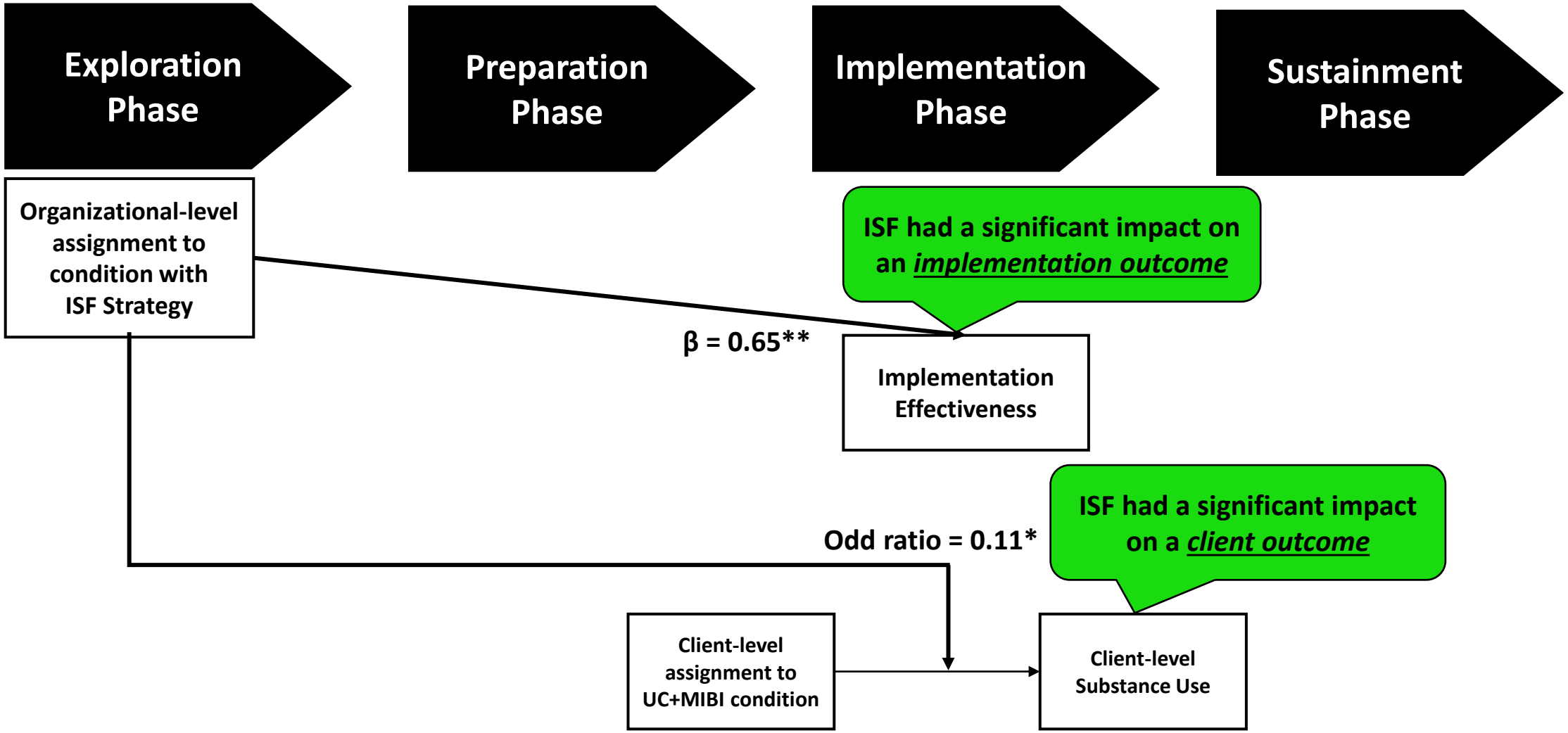


Figure 4. Follow-up distribution for client's days of primary substance use.

The ISF Strategy's Empirical Support from the SAT2HIV Project: Effectiveness results



* $p < .05$; ** $p < .01$

The ISF Strategy's Empirical Support from the SAT2HIV Project: Costs

Table 2

Average Cost per BI Staff

	ATTC-only	ATTC+ISF
Total ATTC Costs	**$3,214**	**$3,414**
Online Training	$184	$178
In-Person Training	$2,445	$2,452
Rated Practice	$430	$499
BI Feedback Reports	$81	$185
Group Consultation Calls	$75	$100
Total ISF Costs	—	**$2,437**
Staff ISF Calls	—	$290
Support Staff ISF Calls	—	$627
Facilitator ISF Calls	—	$389
Facilitator Travel	—	$1,126
Telecommunications	—	$6
Total ATTC + ISF Costs	**$3,214**	**$5,852**
BI Costs	**$42**	**$88**
TOTAL COSTS	**$3,256**	**$5,940**

Note. ATTC, Addiction Technology Transfer Center; BI, brief intervention; ISF, Implementation & Sustainment Facilitation.

The ISF Strategy's Empirical Support from the SAT2HIV Project: Cost-effectiveness results

Table 3

Adjusted Means and ICERs

	ATTC-only	ATTC+ISF	Incremental Difference	ICER
Cost	**$3,258.94**	**$5,937.52**	**$2,679**	
	(99.49)	(144.89)		
Implementation Outcomes				
Consistency	3.27	7.00	3.73	$719
	(0.90)	(0.96)		
Quality	99.88	161.33	61.45	$44
	(18.74)	(14.85)		
Client Outcomes				
Sum of days abstinent at follow-up,	51.45	96.84	45.40	$59
controlling for average baseline days	(11.55)	(15.66)		

Note. ATTC, Addiction Technology Transfer Center; ICER, incremental cost-effectiveness ratio; ISF, Implementation & Sustainment Facilitation.

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The ISF Strategy's on-going tests of its effectiveness and cost-effectiveness

PROJECT MIMIC

Type 3 hybrid trial that is focused on testing the ISF Strategy as a strategy to help improve implementation of contingency management (CM) within Opioid Treatment Programs

STS 4 HIV

FUNDED BY THE NATIONAL INSTITUTE ON DRUG ABUSE

Implementation trial focused on testing the ISF Strategy as a strategy to help improve the integration of any evidence-based substance use services within HIV service organizations

SAT 2 HIV II

FUNDED BY THE NATIONAL INSTITUTE ON DRUG ABUSE

Type 3 hybrid trial focused on testing the extent to which the ATTC+ISF Strategy can be improved upon via the addition of a pay-for-performance (P4P) Strategy (ATTC+ISF vs ATTC+ISF+P4P)

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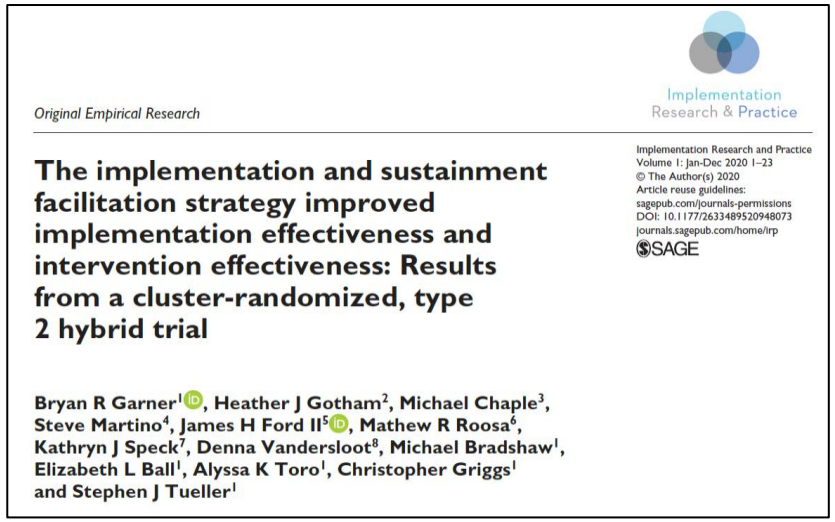
Comments and/or Questions?

The Implementation and Sustainment Facilitation (ISF) Strategy: A promising strategy for improving implementation climate, implementation effectiveness, and intervention effectiveness



Original Empirical Research

Implementation Research & Practice

The implementation and sustainment facilitation strategy improved implementation effectiveness and intervention effectiveness: Results from a cluster-randomized, type 2 hybrid trial

Bryan R Garner[1], Heather J Gotham[2], Michael Chaple[3], Steve Martino[4], James H Ford II[5], Mathew R Roosa[6], Kathryn J Speck[7], Denna Vandersloot[8], Michael Bradshaw[1], Elizabeth L Ball[1], Alyssa K Toro[1], Christopher Griggs[1] and Stephen J Tueller[1]

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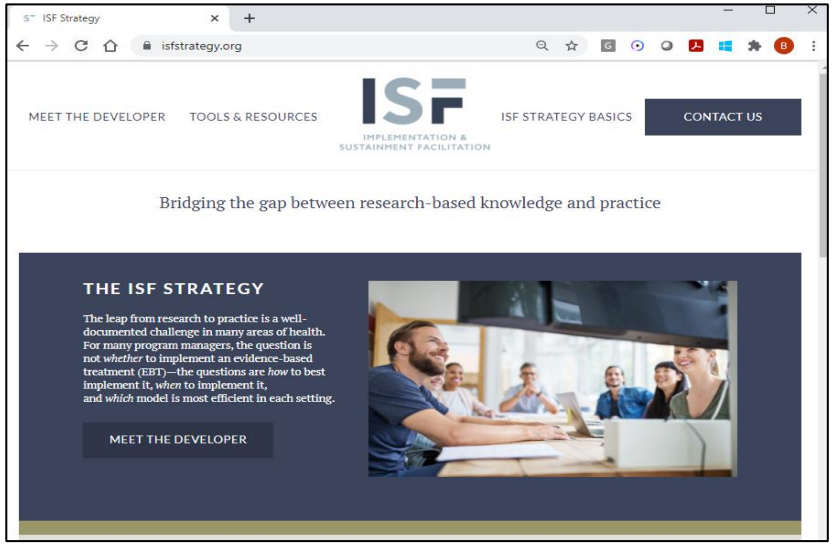

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Thank you!