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

***Bryan R. Garner; Stephen J. Tueller, Steve Martino, Heather J. Gotham, Kate Speck, Michael Chaple, Denna Vandersloot, Michael Bradshaw , Elizabeth Ball, Alyssa Toro, Marianne Kluckmann, Mat Roosa, and Jay Ford**

*Presented by:
Bryan R. Garner, PhD
Senior Implementation Research Scientist
RTI International
3040 E. Cornwallis Rd.
Research Triangle Park, NC 27709-2194
Phone: (919) 597-5159
Email: bgarner@rti.org

Funding provided by the National Institute on Drug Abuse
(NIDA; R01-DA038146; PI: Garner)

The Problem:
Integrating HIV services with other health services

National and international issues

EDITOR'S CHOICE

Costs and efficiency of integrating HIV/AIDS services with other health services: a systematic review of evidence and experience

Sedona Sweeney,[1] Carol Dayo Obure,[1] Claudia B Maier,[2] Robert Greener,[2] Karl Dehne,[2] Anna Vassall[1]

► An additional appendix is published online only. To view this file please visit the journal online (http://sti.bmj.com/content/88/2.toc).

[1]Social and Mathematical Epidemiology Group (SAME), Department of Global Health of Development, London School of Hygiene and Tropical Medicine, London, UK
[2]UNAIDS, Geneva, Switzerland

Correspondence to
Sedona Sweeney, Global Health and Development, London School of Hygiene and Tropical Medicine, WC1E 7HT, London, UK;
sedona.sweeney@lshtm.ac.uk

This article is an abbreviated version of: http://integra.wp.tincan.co.uk/wp-content/uploads/2012/01/UNAIDS-Report.pdf

Accepted 7 November 2011
Published Online First 8 December 2011

ABSTRACT

Objectives To review the literature on the potential efficiency gains of integrating HIV services with other health services.

Design Systematic literature review. Search of electronic databases, manual searching and snowball sampling. Studies that presented results on cost, efficiency or cost-effectiveness of integrated HIV services were included, focusing on low- and middle-income countries. Evidence was analysed and synthesised through a narrative approach and the quality of studies assessed.

Results Of 666 citations retrieved, 46 were included (35 peer reviewed and 11 from grey literature). A range of integrated HIV services were found to be cost-effective compared with 'do-nothing' alternatives, including HIV services integrated into sexual and reproductive health services, integrated tuberculosis/HIV services and HIV services integrated into primary healthcare. The cost of integrated HIV counselling and testing is likely to be lower than that of stand-alone counselling and testing provision; however, evidence is limited on the comparative costs of other services, particularly HIV care and treatment. There is also little known about the most efficient model of integration, the efficiency gain from integration beyond the service level and any economic benefit to HIV service users.

Conclusions In the context of increasing political commitment and previous reviews suggesting a strong public health argument for the integration of HIV services, the authors found the evidence on efficiency broadly supports further efforts to integrate HIV services. However, key evidence gaps remain, and there is an urgent need for further research in this area.

INTRODUCTION

Integration is a growing priority in the context of the AIDS response. HIV/AIDS is intrinsically linked to many other health problems. Integration has the potential to improve the quality and continuity of care for those living with HIV or bring HIV services to those who would otherwise not have access to them.[1 2] For some interventions, such as prevention of mother-to-child transmission of HIV (PMTCT) or prevention and treatment of tuberculosis (TB) co-infection, integration is clinically essential. The integration of HIV services is supported by a wide range of evidence on its clinical and public health benefit.[3–7] These highlight its benefits to patients with co-morbidities, benefits in terms of continuity of care and increased access to HIV services. It has therefore been called for in a number of global policies and high-level position papers, most recently in the 2011 UN Declaration on HIV/AIDS.[8] It is also commonly assumed that integration can improve programme efficiency.[2 9 10] This is of particular interest in the current economic climate, as many countries are seeking to rationalise their health-related expenditure. However, to date, the evidence base to support this assertion remains unclear, despite the numerous reviews that focus on HIV integration more generally.[9–18] This paper therefore summarises the current evidence on the impact of integration of HIV services on the efficiency of health services, focusing on low- and middle-income countries.

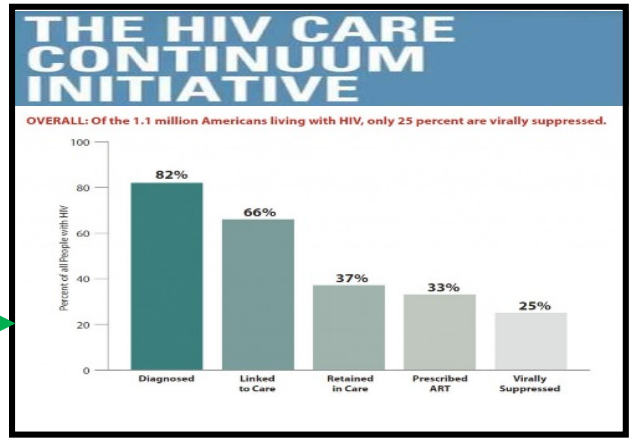
Integration has been approached differently in a wide variety of settings, making the concept of integration difficult to tie down. Although there has been some consensus recently in the field of sexual and reproductive health (SRH) on terminology,[19] there remain several differing discourses on integration.[12 20–23] The most common understanding relates to horizontal integration or integration at the point of service delivery; this can range from structured referrals to physical incorporation providing a one-stop approach.[21] Integration can also be seen as part of a wider system of co-ordination at the policy and planning, human resources and financing levels, sometimes referred as linkages.[19] For the purposes of this review, we use the UNAIDS definition of programme integration: 'joining together different kinds of services or operational programmes in order to maximize outcomes, e.g. by organizing referrals from one service to another or offering one-stop comprehensive and integrated services'.[W1] This includes services from a singular provider and from separate providers (within one site) where there is a clearly functional referral system.

Economic theory suggests several potential efficiency advantages at various levels of a health system arising from the integration of HIV and other health services.[15 24] Integration has the potential to improve both technical efficiency (providing services or producing outputs at the lowest cost) and allocative efficiency (achieving health outcomes at a low cost). Technical efficiency focuses on using the right mix of resources to produce health services and can be assessed by measuring the unit cost of HIV services. Allocative efficiency is also concerned with whether the right

"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 <u>negatively impact</u> ASOs ability to achieve goals of the HIV Care Continuum

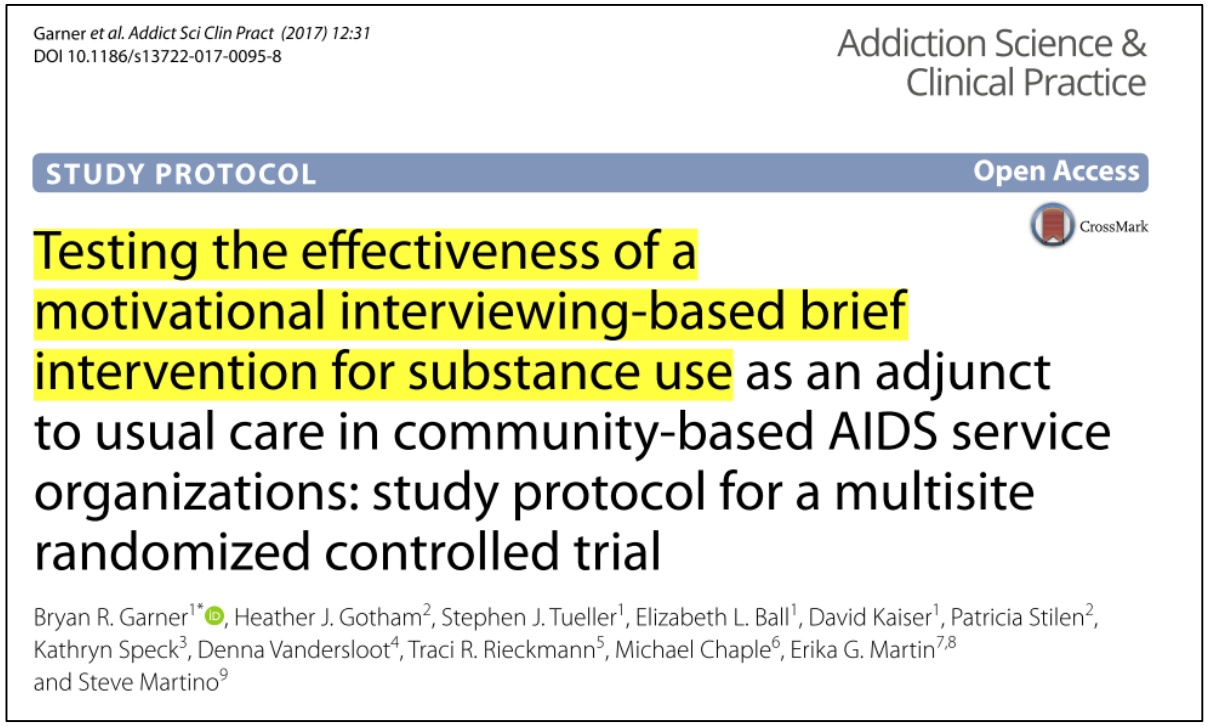


SAT 2 HIV

FUNDED BY THE NATIONAL INSTITUTE ON DRUG ABUSE

Integration of Motivational Interviewing-based brief intervention for substance use

The Substance Abuse Treatment to HIV Care (SAT2HIV) Project:
A *doubly randomized* type 2 effectiveness-implementation hybrid trial



Garner *et al. Addict Sci Clin Pract (2017) 12:31*
DOI 10.1186/s13722-017-0095-8

Addiction Science & Clinical Practice

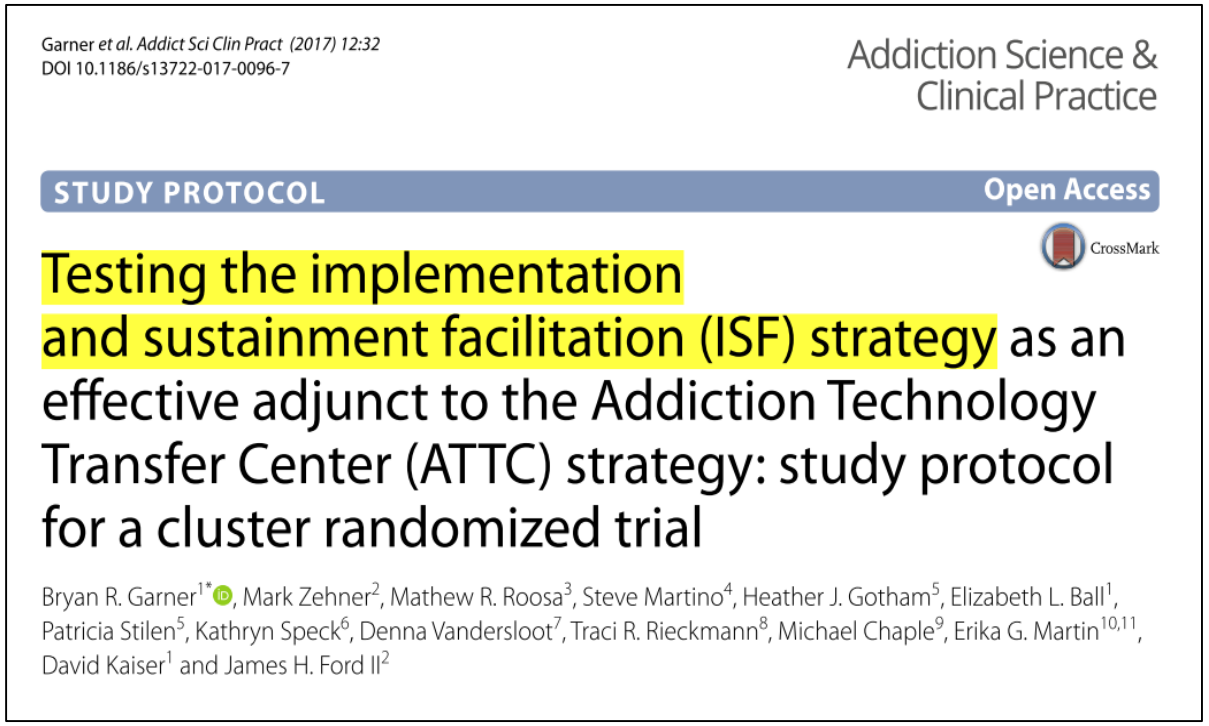
STUDY PROTOCOL Open Access

CrossMark

Testing the effectiveness of a motivational interviewing-based brief intervention for substance use as an adjunct to usual care in community-based AIDS service organizations: study protocol for a multisite randomized controlled trial

Bryan R. Garner[1*], Heather J. Gotham[2], Stephen J. Tueller[1], Elizabeth L. Ball[1], David Kaiser[1], Patricia Stilen[2], Kathryn Speck[3], Denna Vandersloot[4], Traci R. Rieckmann[5], Michael Chaple[6], Erika G. Martin[7,8] and Steve Martino[9]

Garner, B. R., Gotham, H. J., Tueller, S. J., Ball, E. L., Kaiser, D., Stilen, P., ... Martino, S. (2018). Testing the effectiveness of a motivational interviewing-based brief intervention for substance use as an adjunct to usual care in community-based AIDS service organizations: study protocol for a multisite randomized controlled trial. *Addiction Science & Clinical Practice, 13*, 9.



Garner *et al. Addict Sci Clin Pract (2017) 12:32*
DOI 10.1186/s13722-017-0096-7

Addiction Science & Clinical Practice

STUDY PROTOCOL Open Access

CrossMark

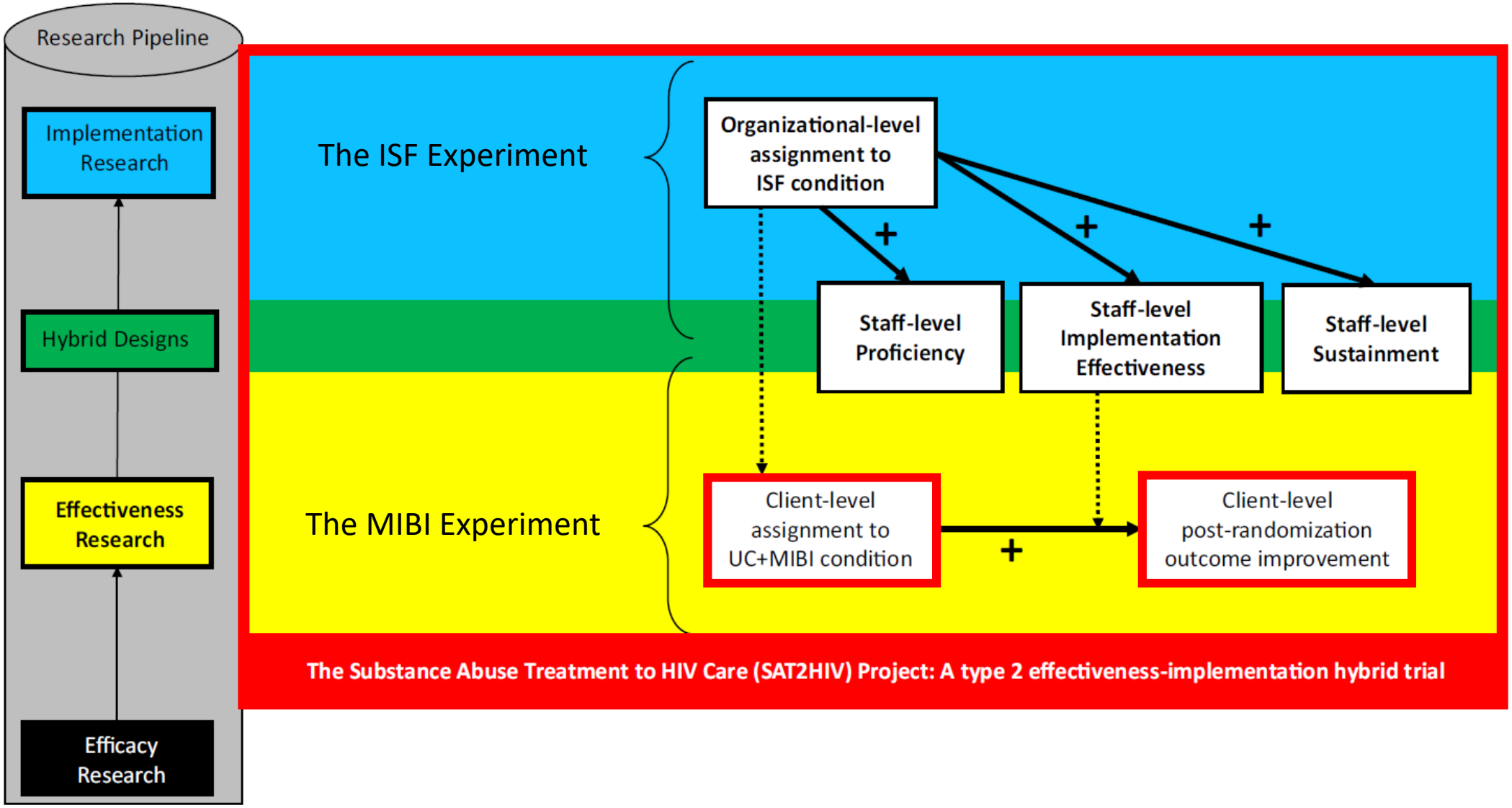
Testing the implementation and sustainment facilitation (ISF) strategy as an effective adjunct to the Addiction Technology Transfer Center (ATTC) strategy: study protocol for a cluster randomized trial

Bryan R. Garner[1*], Mark Zehner[2], Mathew R. Roosa[3], Steve Martino[4], Heather J. Gotham[5], Elizabeth L. Ball[1], Patricia Stilen[5], Kathryn Speck[6], Denna Vandersloot[7], Traci R. Rieckmann[8], Michael Chaple[9], Erika G. Martin[10,11], David Kaiser[1] and James H. Ford II[2]

Garner, B. R., Zehner, M., Roosa, M. R., Martino, S., Gotham, H. J., Ball, E. L., ... Ford, J. H. (2017). Testing the implementation and sustainment facilitation (ISF) strategy as an effective adjunct to the Addiction Technology Transfer Center (ATTC) strategy: Study protocol for a cluster randomized trial. Addiction Science & Clinical Practice, 12(1), 32.

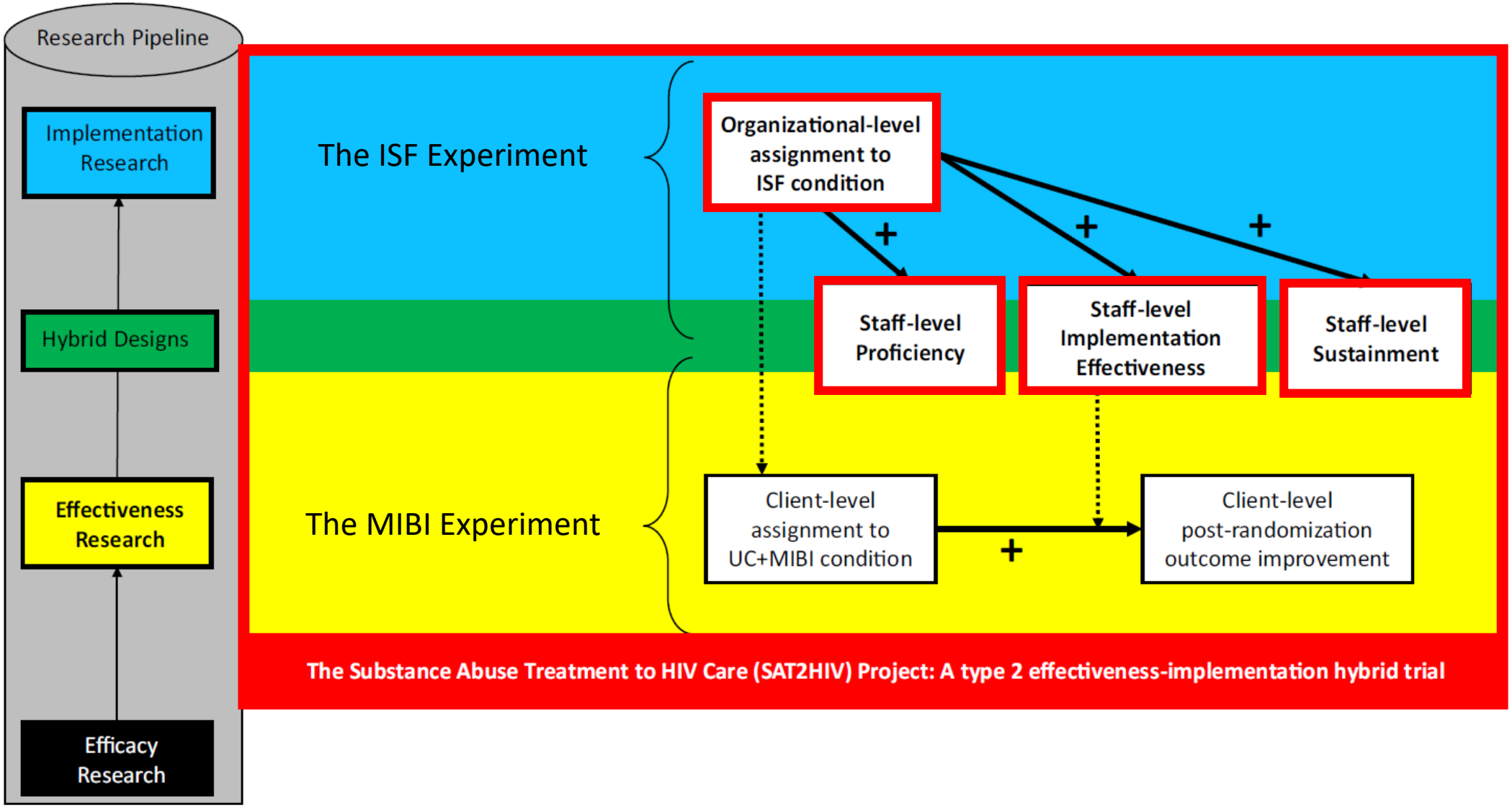
The Method:

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

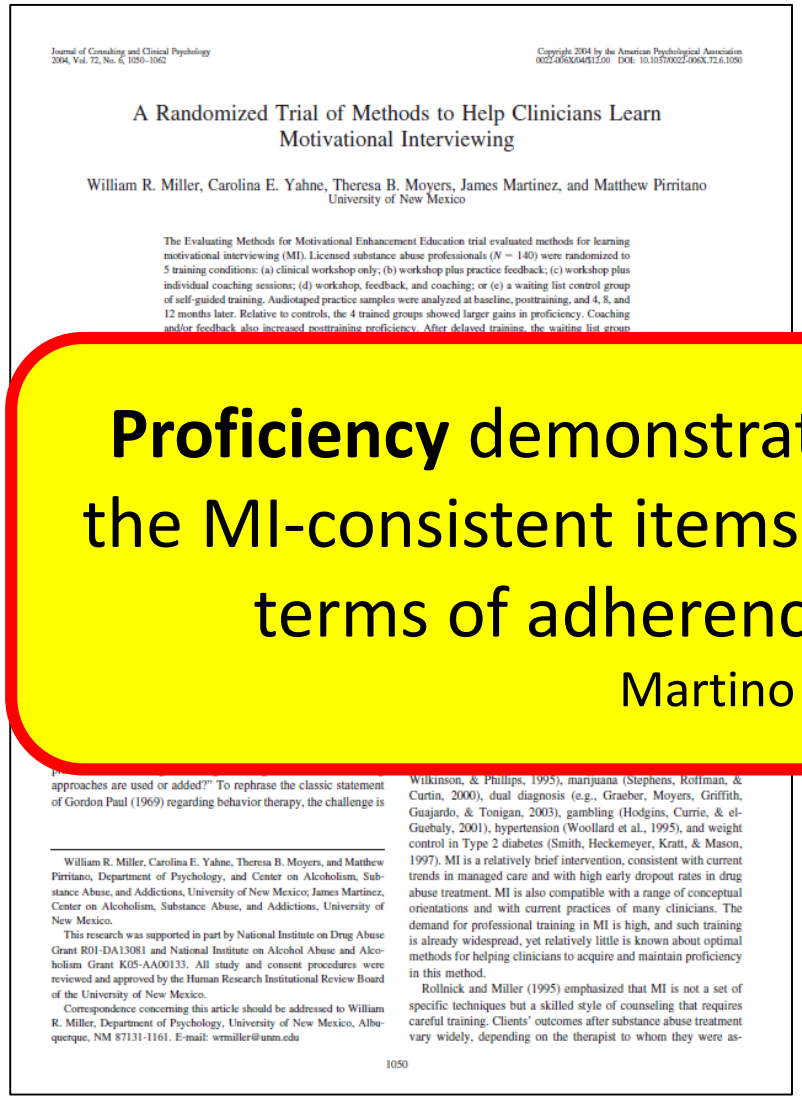


The Method:

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



Staff-level Proficiency
(Miller et al., 2004; Martino et al. 2008)



Journal of Consulting and Clinical Psychology
2004, Vol. 72, No. 6, 1050–1062

Copyright 2004 by the American Psychological Association
0022-006X/04/$12.00 DOI: 10.1037/0022-006X.72.6.1050

A Randomized Trial of Methods to Help Clinicians Learn Motivational Interviewing

William R. Miller, Carolina E. Yahne, Theresa B. Moyers, James Martinez, and Matthew Pirritano
University of New Mexico

The Evaluating Methods for Motivational Enhancement Education trial evaluated methods for learning motivational interviewing (MI). Licensed substance abuse professionals ($N = 140$) were randomized to 5 training conditions: (a) clinical workshop only; (b) workshop plus practice feedback; (c) workshop plus individual coaching sessions; (d) workshop, feedback, and coaching; or (e) a waiting list control group of self-guided training. Audiotaped practice samples were analyzed at baseline, posttraining, and 4, 8, and 12 months later. Relative to controls, the 4 trained groups showed larger gains in proficiency. Coaching and/or feedback also increased posttraining proficiency. After delayed training, the waiting list group

approaches are used or added?" To rephrase the classic statement of Gordon Paul (1969) regarding behavior therapy, the challenge is

Wilkinson, & Phillips, 1995), marijuana (Stephens, Roffman, & Curtin, 2000), dual diagnosis (e.g., Graeber, Moyers, Griffith, Guajardo, & Tonigan, 2003), gambling (Hodgins, Currie, & el-Guebaly, 2001), hypertension (Woollard et al., 1995), and weight control in Type 2 diabetes (Smith, Heckemeyer, Kratt, & Mason, 1997). MI is a relatively brief intervention, consistent with current trends in managed care and with high early dropout rates in drug abuse treatment. MI is also compatible with a range of conceptual orientations and with current practices of many clinicians. The demand for professional training in MI is high, and such training is already widespread, yet relatively little is known about optimal methods for helping clinicians to acquire and maintain proficiency in this method.

Rollnick and Miller (1995) emphasized that MI is not a set of specific techniques but a skilled style of counseling that requires careful training. Clients' outcomes after substance abuse treatment vary widely, depending on the therapist to whom they were as-

William R. Miller, Carolina E. Yahne, Theresa B. Moyers, and Matthew Pirritano, Department of Psychology, and Center on Alcoholism, Substance Abuse, and Addictions, University of New Mexico; James Martinez, Center on Alcoholism, Substance Abuse, and Addictions, University of New Mexico.

This research was supported in part by National Institute on Drug Abuse Grant R01-DA13081 and National Institute on Alcohol Abuse and Alcoholism Grant K05-AA00133. All study and consent procedures were reviewed and approved by the Human Research Institutional Review Board of the University of New Mexico.

Correspondence concerning this article should be addressed to William R. Miller, Department of Psychology, University of New Mexico, Albuquerque, NM 87131-1161. E-mail: wrmiller@unm.edu

Available online at www.sciencedirect.com
ScienceDirect
Drug and Alcohol Dependence 96 (2008) 37–48
DRUG and ALCOHOL DEPENDENCE
www.elsevier.com/locate/drugalcdep

Community program therapist adherence and competence in motivational enhancement therapy

Steve Martino *, Samuel A. Ball, Charla Nich, Tami L. Frankforter, Kathleen M. Carroll
Yale University School of Medicine, Department of Psychiatry, Division of Substance Abuse, 950 Campbell Avenue, West Haven, CT 06516, USA

Received 10 May 2007; received in revised form 23 January 2008; accepted 23 January 2008

lated substantial empirical support across single and multi-site clinical trials for enhancing treatment engagement and reducing substance use among clients abusing or dependent on alcohol (Bien et al., 1993; Brown and Miller, 1993; Miller et al., 1988, 1993; Project MATCH Research Group, 1997), heroin (Saunders et al., 1995), cocaine (Stotts et al., 2001), marijuana (MTP Research Group, 2004; Steinberg et al., 2002) and mixed substances (Carroll et al., 2001; Martino et al., 2000, 2006b).

act with clients in a style that is collaborative, supportive of client autonomy and self-efficacy, and eliciting of client "change talk"; namely, statements that indicate client's movement toward behavior change. These components embody the "spirit" of MI delivery (Miller and Rollnick, 2002; Rollnick and Miller, 1995). Therapists use both fundamental, or what Miller and Rollnick (2002) have referred to as "microskills" (open-ended questions, affirmations and reflections delivered with MI spirit), and advanced skills (multiple methods for evoking change talk and handling client resistance) and avoid strategies inconsistent with the approach (such as unsolicited advice or direct confrontation) to increase client motivation for change during the session (Miller and Rollnick, 2002; Rollnick and Miller, 1995). Therapists attend to the balance of client statements sup-

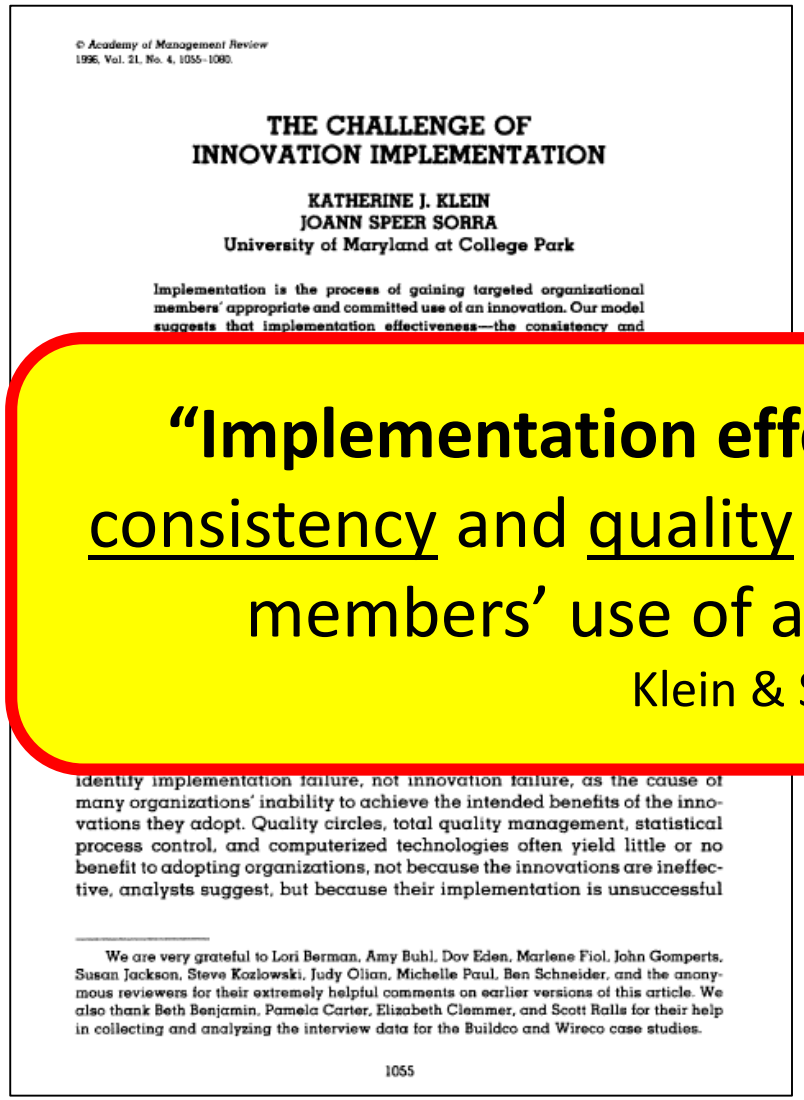
* Corresponding author at: Yale University School of Medicine, Department of Psychiatry, VA Connecticut Healthcare System, 950 Campbell Avenue (151-D), West Haven, CT 06516, USA.
E-mail address: steve.martino@yale.edu (S. Martino).

doi:10.1016/j.drugalcdep.2008.01.020

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)



© Academy of Management Review
1996, Vol. 21, No. 4, 1055–1080.

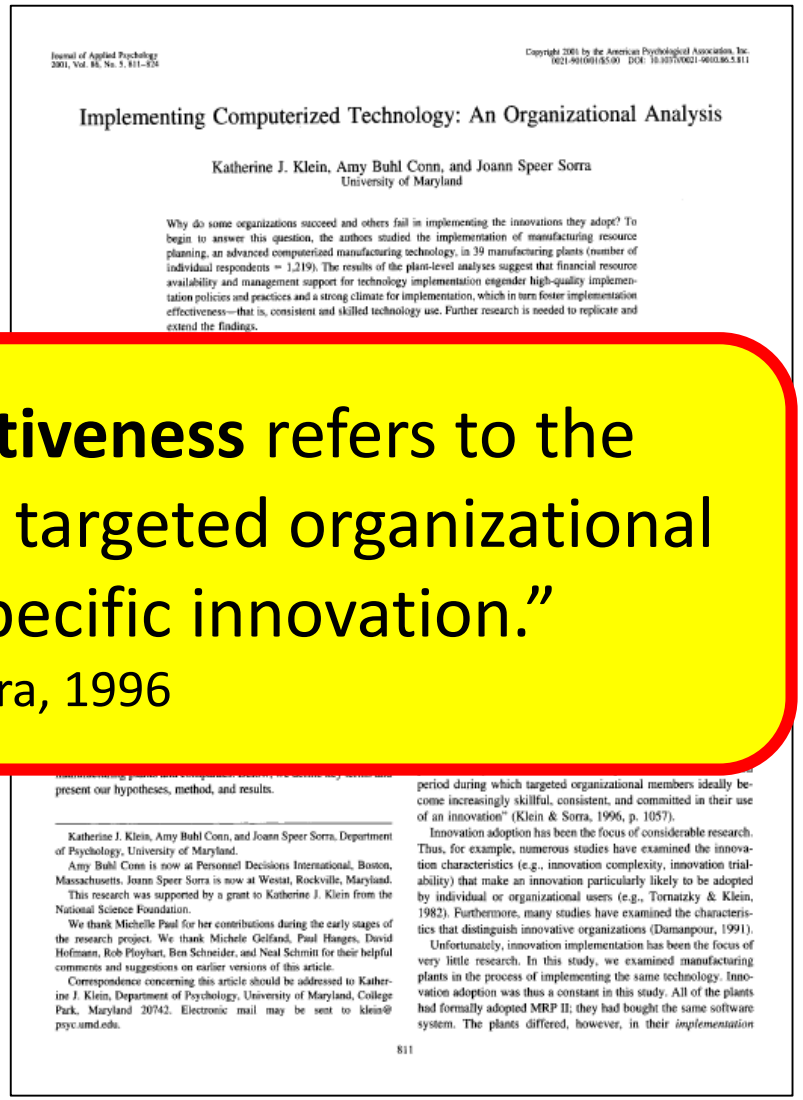
THE CHALLENGE OF
INNOVATION IMPLEMENTATION

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

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

We are very grateful to Lori Berman, Amy Buhl, Dov Eden, Marlene Fiol, John Gomperts, Susan Jackson, Steve Kozlowski, Judy Olian, Michelle Paul, Ben Schneider, and the anonymous reviewers for their extremely helpful comments on earlier versions of this article. We also thank Beth Benjamin, Pamela Carter, Elizabeth Clemmer, and Scott Ralls for their help in collecting and analyzing the interview data for the Buildco and Wireco case studies.



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

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.

present our hypotheses, method, and results.

Katherine J. Klein, Amy Buhl Conn, and Joann Speer Sorra, Department of Psychology, University of Maryland.
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.
We thank Michelle Paul for her contributions during the early stages of the research project. We thank Michele Gelfand, Paul Hanges, David Hofmann, Rob Ployhart, Ben Schneider, and Neal Schmitt for their helpful comments and suggestions on earlier versions of this article.
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.

period during which targeted organizational members ideally become increasingly skillful, consistent, and committed in their use of an innovation" (Klein & Sorra, 1996, p. 1057).

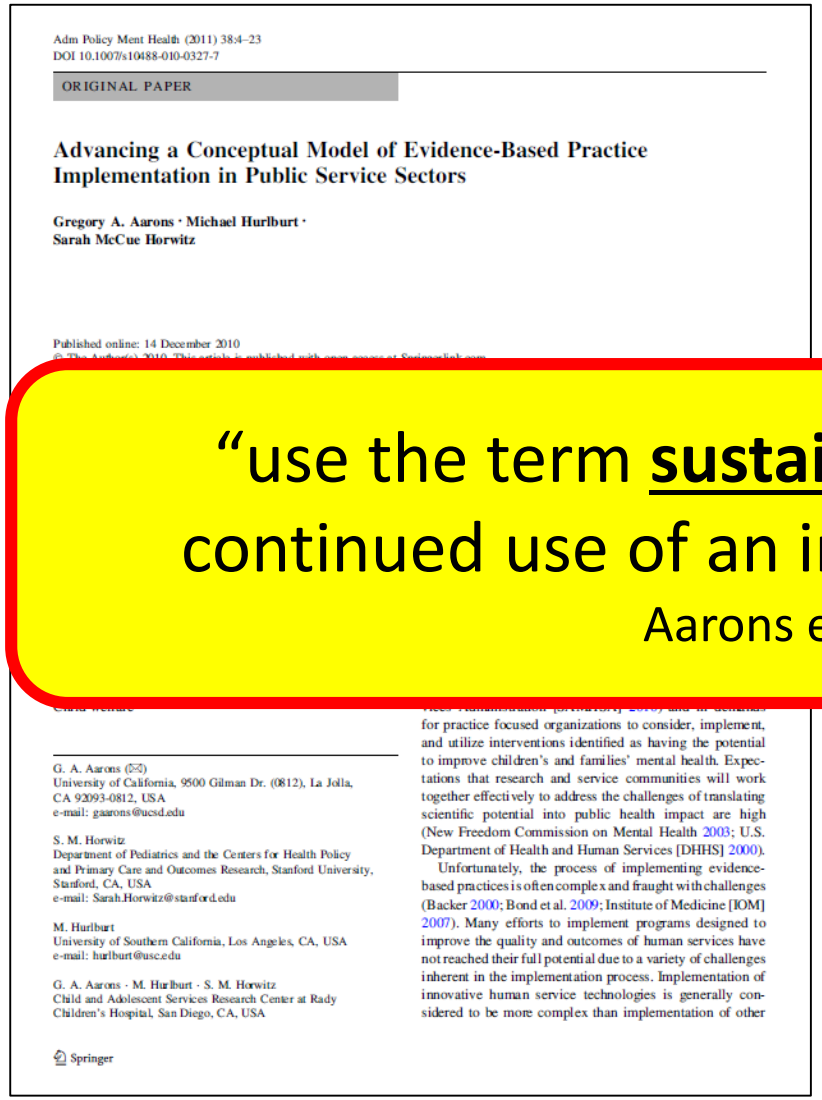
Innovation adoption has been the focus of considerable research. Thus, for example, numerous studies have examined the innovation characteristics (e.g., innovation complexity, innovation trialability) that make an innovation particularly likely to be adopted by individual or organizational users (e.g., 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*

"Implementation effectiveness refers to the consistency and quality of targeted organizational members' use of a specific innovation."

Klein & Sorra, 1996

Staff-level of Sustainment
(Aarons et al., 2011; Hunter et al., 2014)



Adm Policy Ment Health (2011) 38:4–23
DOI 10.1007/s10488-010-0327-7

ORIGINAL PAPER

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

Gregory A. Aarons · Michael Hurlburt · Sarah McCue Horwitz

Published online: 14 December 2010

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

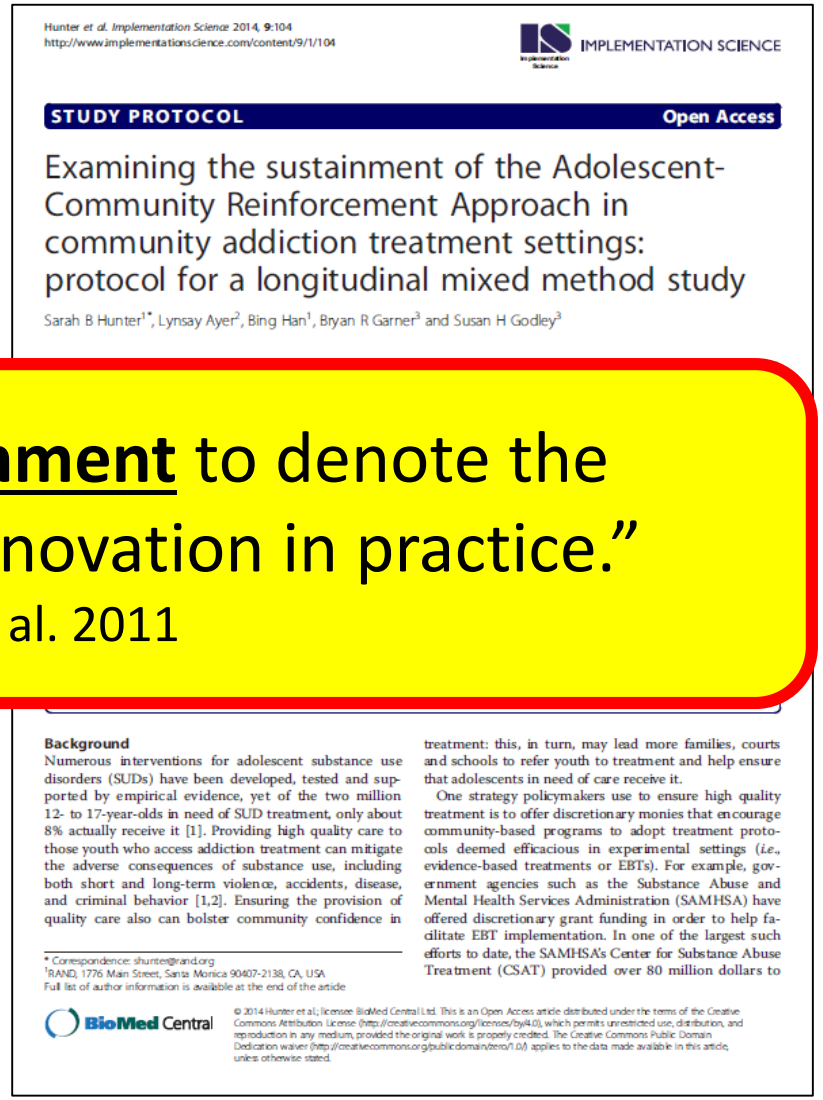
G. A. Aarons (✉)
University of California, 9500 Gilman Dr. (0812), La Jolla, CA 92093-0812, USA
e-mail: gaarons@ucsd.edu

S. M. Horwitz
Department of Pediatrics and the Centers for Health Policy and Primary Care and Outcomes Research, Stanford University, Stanford, CA, USA
e-mail: Sarah.Horwitz@stanford.edu

M. Hurlburt
University of Southern California, Los Angeles, CA, USA
e-mail: hurlburt@usc.edu

G. A. Aarons · M. Hurlburt · S. M. Horwitz
Child and Adolescent Services Research Center at Rady Children's Hospital, San Diego, CA, USA

Springer



Hunter et al. Implementation Science 2014, 9:104
http://www.implementationscience.com/content/9/1/104

IMPLEMENTATION SCIENCE

STUDY PROTOCOL Open Access

Examining the sustainment of the Adolescent-Community Reinforcement Approach in community addiction treatment settings: protocol for a longitudinal mixed method study

Sarah B Hunter[1*], Lynsay Ayer[2], Bing Han[1], Bryan R Garner[3] and Susan H Godley[3]

Background

Numerous interventions for adolescent substance use disorders (SUDs) have been developed, tested and supported by empirical evidence, yet of the two million 12- to 17-year-olds in need of SUD treatment, only about 8% actually receive it [1]. Providing high quality care to those youth who access addiction treatment can mitigate the adverse consequences of substance use, including both short and long-term violence, accidents, disease, and criminal behavior [1,2]. Ensuring the provision of quality care also can bolster community confidence in treatment: this, in turn, may lead more families, courts and schools to refer youth to treatment and help ensure that adolescents in need of care receive it.

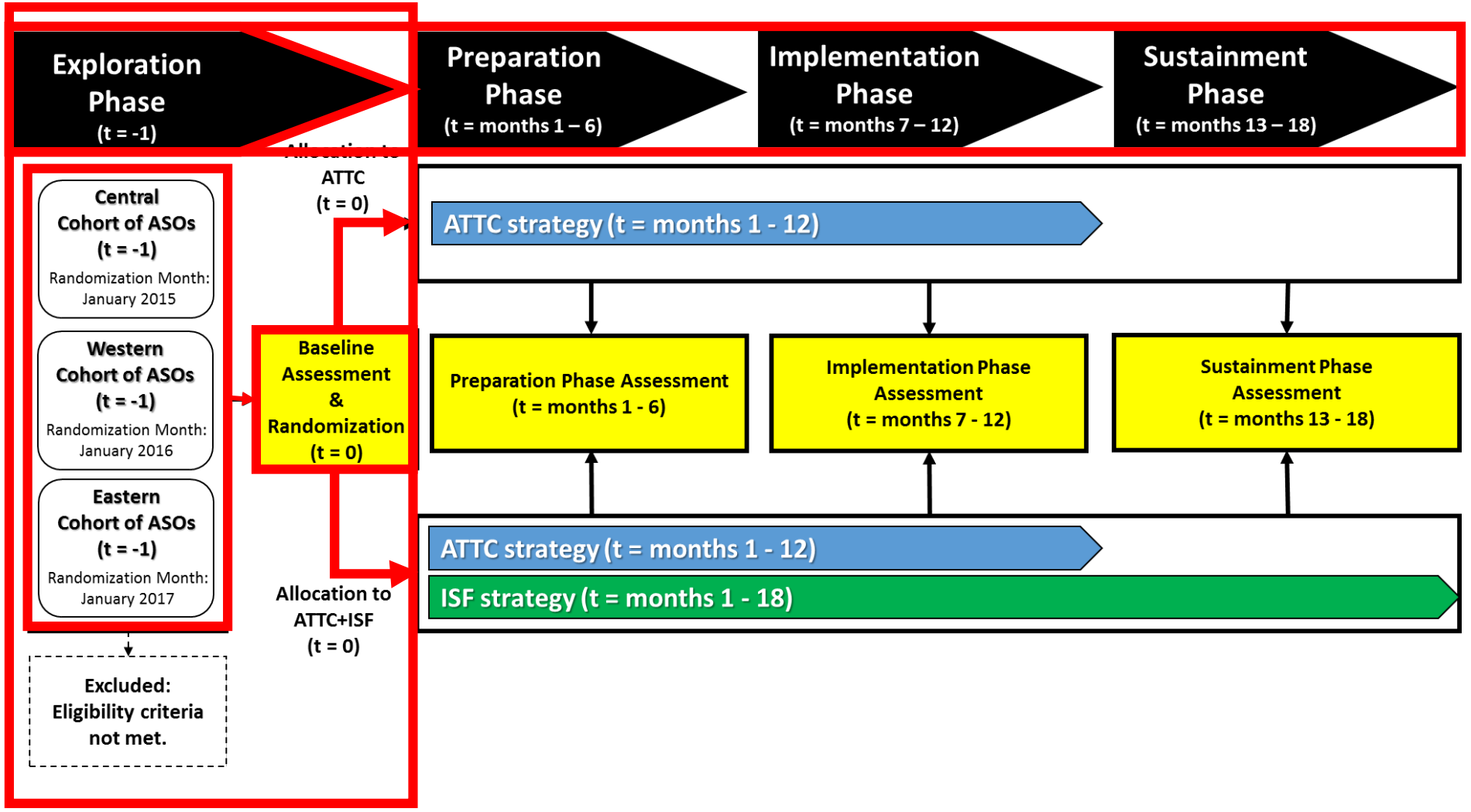
One strategy policymakers use to ensure high quality treatment is to offer discretionary monies that encourage community-based programs to adopt treatment protocols deemed efficacious in experimental settings (*i.e.*, evidence-based treatments or EBTs). For example, government agencies such as the Substance Abuse and Mental Health Services Administration (SAMHSA) have offered discretionary grant funding in order to help facilitate EBT implementation. In one of the largest such efforts to date, the SAMHSA's Center for Substance Abuse Treatment (CSAT) provided over 80 million dollars to

* Correspondence: shunter@rand.org
[1]RAND, 1776 Main Street, Santa Monica 90407-2138, CA, USA
Full list of author information is available at the end of the article

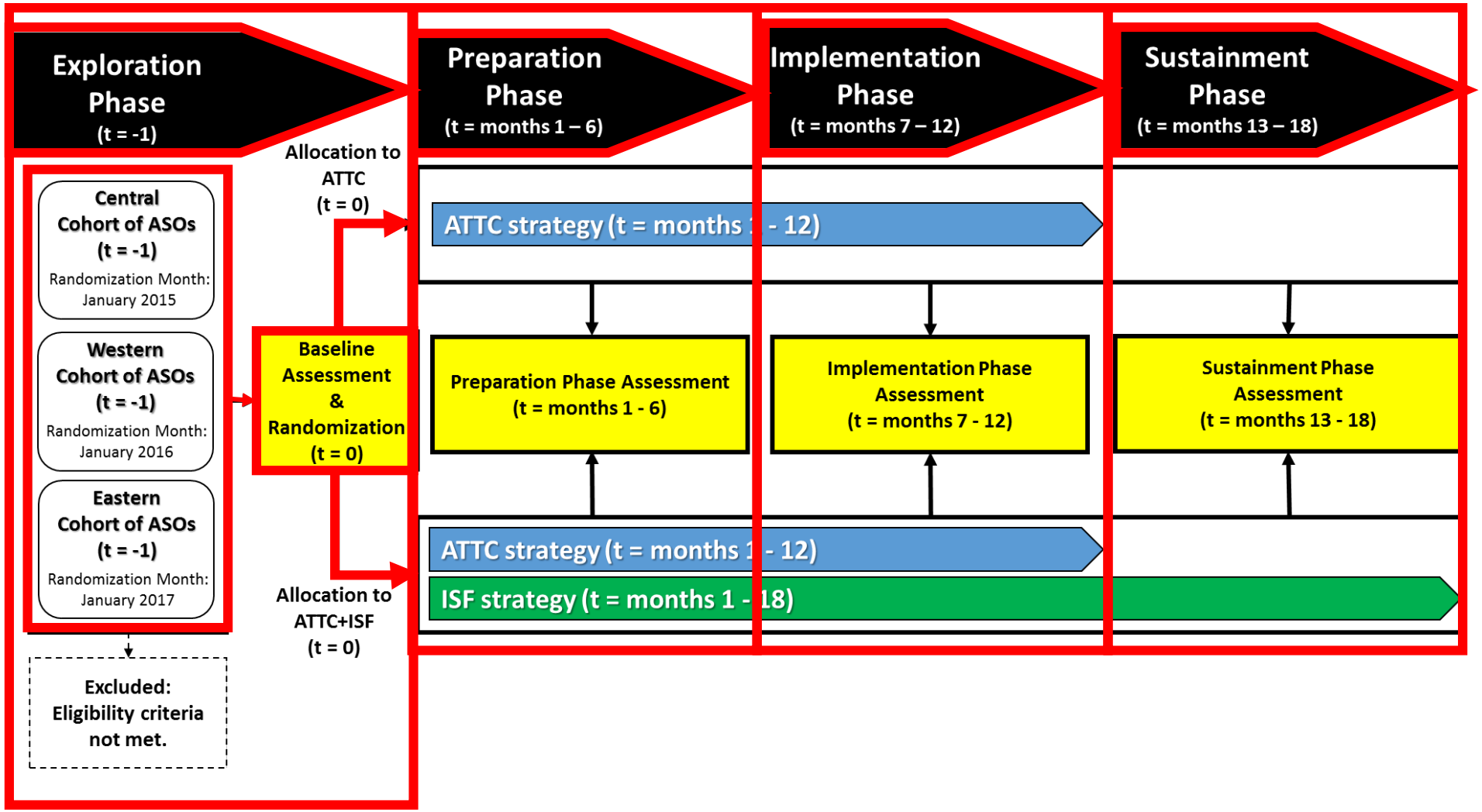
"use the term **sustainment** to denote the continued use of an innovation in practice."

Aarons et al. 2011

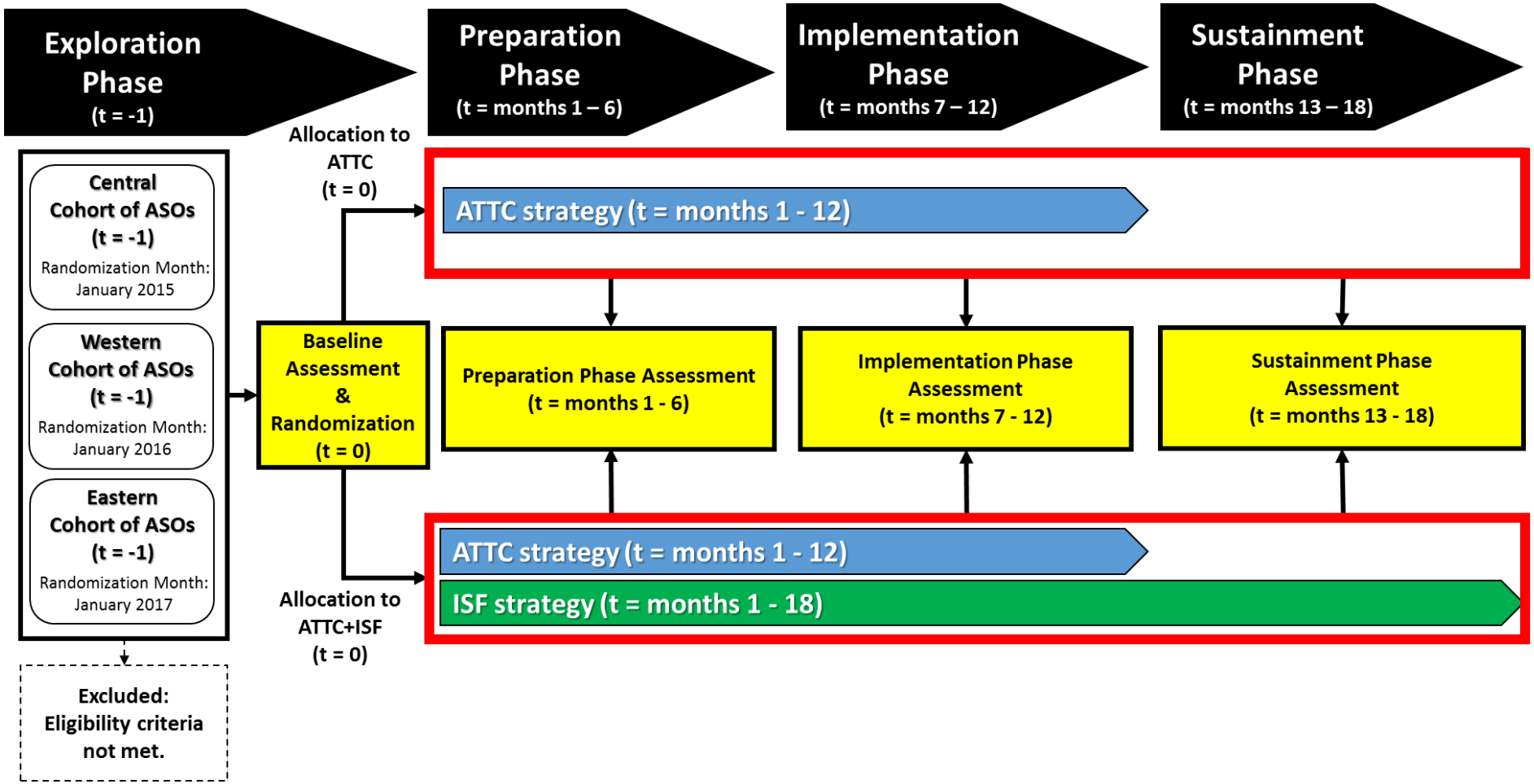
The Method:
Participant Flow



The Method:
Participant Flow



The Method:
Participant Flow



The Method:
Implementation Conditions

Proctor *et al. Implementation Science* 2013, 8:139
http://www.implementationscience.com/content/8/1/139

IMPLEMENTATION SCIENCE

DEBATE **Open Access**

Implementation strategies: recommendations for specifying and reporting

Enola K Proctor[1*], Byron J Powell[1] and J Curtis McMillen[2]

Abstract

Implementation strategies have unparalleled importance in implementation science, as they constitute the 'how to' component of changing healthcare practice. Yet, implementation researchers and other stakeholders are not able to fully utilize the findings of studies focusing on implementation strategies because they are often inconsistently labelled and poorly described, are rarely justified theoretically, lack operational definitions or manuals to guide their use, and are part of 'packaged' approaches whose specific elements are poorly understood. We address the challenges of specifying and reporting implementation strategies encountered by researchers who design, conduct, and report research on implementation strategies. Specifically, we propose guidelines for naming, defining, and operationalizing implementation strategies in terms of seven dimensions: actor, the action, action targets, temporality, dose, implementation outcomes addressed, and theoretical justification. Ultimately, implementation strategies cannot be used in practice or tested in research without a full description of their components and how they should be used. As with all intervention research, their descriptions must be precise enough to enable measurement and 'reproducibility.' We propose these recommendations to improve the reporting of implementation strategies in research studies and to stimulate further identification of elements pertinent to implementation strategies that should be included in reporting guidelines for implementation strategies.

Keywords: Implementation strategies, Implementation research, Measurement, Methodology

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

ATTC
Addiction Technology Transfer Center Network
Funded by Substance Abuse and Mental Health Services Administration

Review

Medical Care Research and Review
69(2) 123–157

DOI: 10.1177/1077558711430690
http://mcr.sagepub.com
SAGE

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.

- 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

IMPLEMENTATION & SUSTAINMENT FACILITATION

Review

Medical Care Research and Review
69(2) 123–157

DOI: 10.1177/1077558711430690
http://mcr.sagepub.com
SAGE

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.

- 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

The Method:
Addiction Technology Transfer Center (ATTC) implementation strategy

ATTC
Addiction Technology Transfer Center Network
Funded by Substance Abuse and Mental Health Services Administration

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

Discrete implementation strategies: Defining characteristic according to Proctor and colleagues. [39]	Operational definition of key dimensions for each discrete implementation strategy						
	Actor(s)	Actions(s)	Target(s) of the action	Temporality	Dose	Targeted Implementation Outcome(s)	Justification
A. Centralized technical assistance: Develop and use a system to deliver technical assistance focused on implementation issues.	Regional ATTC (e.g., Mid-America, Northwest, Northeast).	The overarching discrete implementation strategy that encompasses the other discrete implementation strategies listed below.	2 BI staff per ASO.	The initial kickoff meeting should be within 1 month of completing the exploration phase.	See Tables 4 – 6.	Fidelity (i.e., proficiency and implementation effectiveness).	[34, 40-42]
B. Develop educational materials: 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.	Regional ATTC	The Motivational Interviewing-Based Brief Intervention (MIBI) protocol manual, which provides information and knowledge about how the MIBI is intended to be implemented.	2 BI staff per ASO.	Finalization of educational materials (e.g., MIBI protocol manual) should be prior to the initial kickoff meeting.	See Tables 4 – 6.	Fidelity (i.e., proficiency and implementation effectiveness).	[43, 44]
C. Develop and organize quality monitoring system: Develop and organize systems and procedures that monitor clinical processes and/or outcomes for quality assurance and improvement.	Regional ATTC	A Web-based system (sat2hivproject.org), that enables secure and efficient sharing of data relevant to the evidence-based practice (EBP) preparation and implementation process.	2 BI staff per ASO.	Finalization of quality monitoring systems (i.e., sat2hivproject.org) should be prior to the initial kickoff meeting.	See Tables 4 – 6.	Fidelity (i.e., proficiency and implementation effectiveness).	[47-49]

The Method:
Addiction Technology Transfer Center (ATTC) implementation strategy

ATTC
Addiction Technology Transfer Center Network
Funded by Substance Abuse and Mental Health Services Administration

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

Discrete implementation strategies: Defining characteristic according to Proctor and colleagues. [39]	Operational definition of key dimensions for each discrete implementation strategy						
	Actor(s)	Actions(s)	Target(s) of the action	Temporality	Dose	Targeted Implementation Outcome(s)	Justification
K. Use an improvement and implementation advisor: Seek guidance from experts in implementation, including consultation with outside experts (e.g., university-affiliated faculty members, quality improvement experts, implementation professionals).	An individual with training and experience in assisting organizations with practice improvement and implementation efforts.	The overarching implementation strategy that encompasses the other discrete implementation strategies listed below.	An ASO's designated staff working on the project (SWOP) team (2 BI staff and 2 to 4 leadership staff). Implementation Readiness, Implementation Climate, Leadership Engagement.	The initial kickoff meeting should be held within 1 month of completing the exploration phase.	See Tables 4 – 6.	Fidelity (i.e., proficiency and implementation effectiveness) and Sustainment.	[36, 64-67]
L. Develop tools for quality improvement: Develop, test, and introduce quality-improvement tools with inputs (e.g., measures) specific to the innovation being implemented.	An individual with training and experience in assisting organizations with practice improvement and implementation efforts.	Decisional Balance Exercise; Performance Review, Evaluation, and Planning Exercise; Climate Evaluation & Optimization Exercise	SWOP team. Implementation Readiness, Implementation Climate, Leadership Engagement.	Finalization of tools for quality improvement (e.g., decisional balance worksheet) should be prior to the initial kickoff meeting.	See Tables 4 – 6.	Fidelity (i.e., proficiency and implementation effectiveness) and Sustainment.	[29, 36, 70, 99, 100]

Strategy dose during preparation phase

Table 4. Dose for Each Overarching Strategy During the Preparation Phase (Months 1 – 6)

	Blended Strategy and the discrete strategies that it encompasses	Month 1			Month 2			Month 3			Month 4			Month 5			Month 6		
		Training, Coaching, or Facilitation Staff	ASO's Leadership Staff	ASO's BI Staff	Training, Coaching, or Facilitation Staff	ASO's Leadership Staff	ASO's BI Staff	Training, Coaching, or Facilitation Staff	ASO's Leadership Staff	ASO's BI Staff	Training, Coaching, or Facilitation Staff	ASO's Leadership Staff	ASO's BI Staff	Training, Coaching, or Facilitation Staff	ASO's Leadership Staff	ASO's BI Staff	Training, Coaching, or Facilitation Staff	ASO's Leadership Staff	ASO's BI Staff
ADDICTION TECHNOLOGY TRANSFER CENTER (ATTC)	**A. Centralized technical assistance**	As Needed	NA	NA	As Needed	NA	NA	As Needed	NA	5 Hours	16 Hours	NA	16 Hours	As Needed	NA	2-4 Hours	As Needed	NA	2-4 Hours
	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																		
IMPLEMENTATION & SUSTAINMENT FACILITATION (ISF)	**K. Use an improvement and implementation advisor**	As Needed	NA	NA	As Needed	As Needed	As Needed	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour
	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																		

Strategy dose during implementation phase

Table 5. Dose for Each Overarching Strategy During the Implementation Phase (Months 7 – 12)

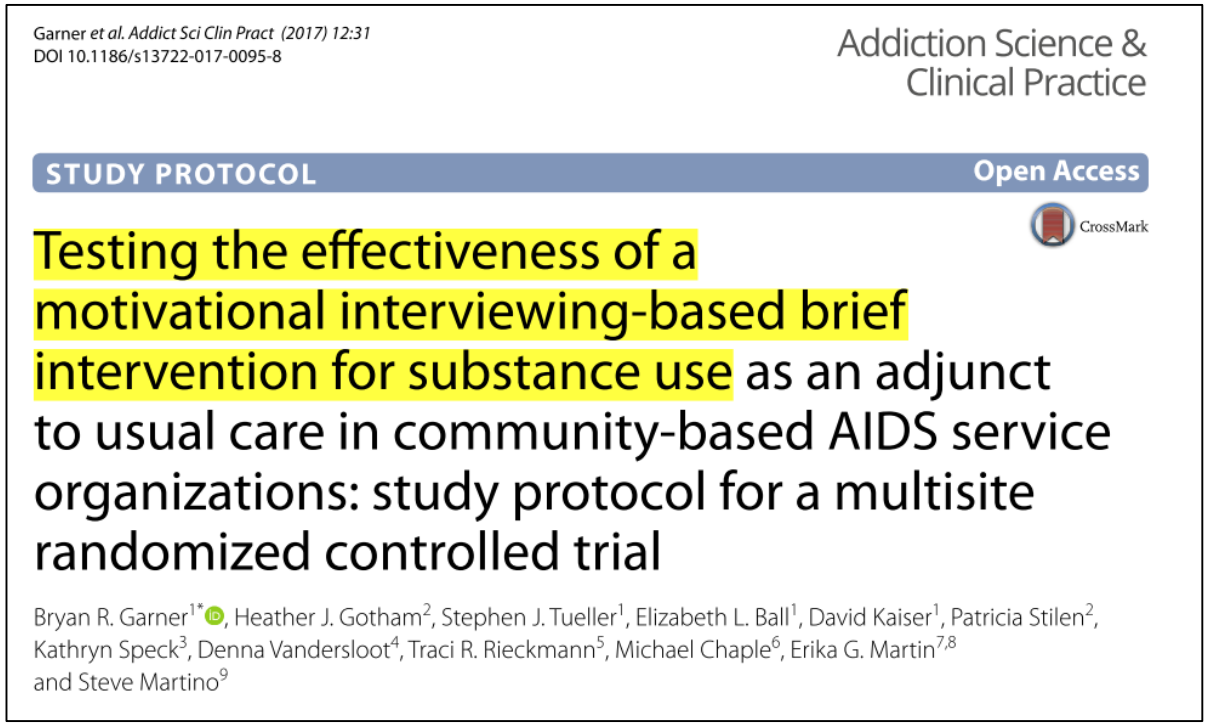
	Blended Strategy and the discrete strategies that it encompasses	Month 1			Month 2			Month 3			Month 4			Month 5			Month 6		
		Training, Coaching, or Facilitation Staff	ASO's Leadership Staff	ASO's BI Staff	Training, Coaching, or Facilitation Staff	ASO's Leadership Staff	ASO's BI Staff	Training, Coaching, or Facilitation Staff	ASO's Leadership Staff	ASO's BI Staff	Training, Coaching, or Facilitation Staff	ASO's Leadership Staff	ASO's BI Staff	Training, Coaching, or Facilitation Staff	ASO's Leadership Staff	ASO's BI Staff	Training, Coaching, or Facilitation Staff	ASO's Leadership Staff	ASO's BI Staff
ADDICTION TECHNOLOGY TRANSFER CENTER (ATTC)	**A. Centralized technical assistance**	As Needed	NA	NA	As Needed	NA	NA	As Needed	NA	5 Hours	16 Hours	NA	16 Hours	As Needed	NA	2-4 Hours	As Needed	NA	2-4 Hours
	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	+		+	+		+	+		+	+		+	+		+	+		+
IMPLEMENTATION & SUSTAINMENT FACILITATION (ISF)	**K. Use an improvement and implementation advisor**	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour
	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				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Strategy dose during sustainment phase

Table 6. Dose for Each Overarching Strategy During the Sustainment Phase (Months 13 – 18)

	Blended Strategy and the discrete strategies that it encompasses	Month 1			Month 2			Month 3			Month 4			Month 5			Month 6		
		Training, Coaching, or Facilitation Staff	ASO's Leadership Staff	ASO's BI Staff	Training, Coaching, or Facilitation Staff	ASO's Leadership Staff	ASO's BI Staff	Training, Coaching, or Facilitation Staff	ASO's Leadership Staff	ASO's BI Staff	Training, Coaching, or Facilitation Staff	ASO's Leadership Staff	ASO's BI Staff	Training, Coaching, or Facilitation Staff	ASO's Leadership Staff	ASO's BI Staff	Training, Coaching, or Facilitation Staff	ASO's Leadership Staff	ASO's BI Staff
ADDICTION TECHNOLOGY TRANSFER CENTER (ATTC)	A. Centralized technical assistance	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	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																		
IMPLEMENTATION & SUSTAINMENT FACILITATION (ISF)	K. Use an improvement and implementation advisor	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour	1 Hour
	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	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

The Substance Abuse Treatment to HIV Care (SAT2HIV) Project:
A *doubly randomized* type 2 effectiveness-implementation hybrid trial



Garner *et al. Addict Sci Clin Pract (2017) 12:31*
DOI 10.1186/s13722-017-0095-8

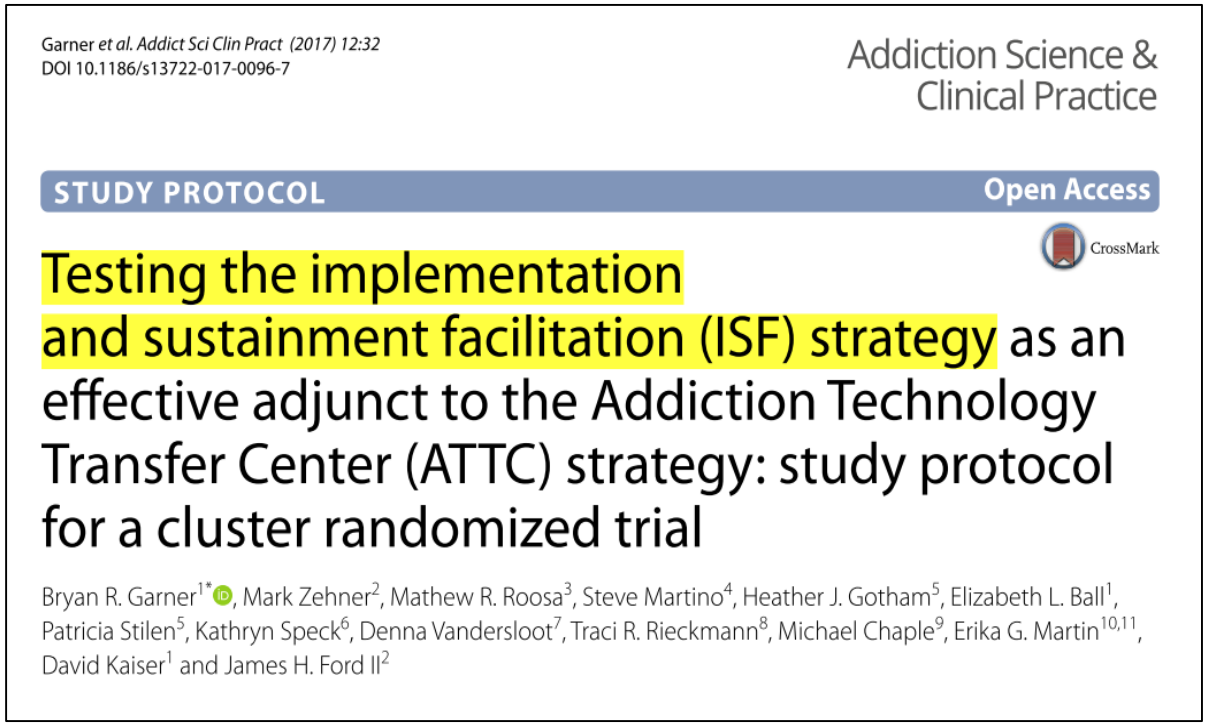
Addiction Science & Clinical Practice

STUDY PROTOCOL Open Access

Testing the effectiveness of a motivational interviewing-based brief intervention for substance use as an adjunct to usual care in community-based AIDS service organizations: study protocol for a multisite randomized controlled trial

Bryan R. Garner[1*], Heather J. Gotham[2], Stephen J. Tueller[1], Elizabeth L. Ball[1], David Kaiser[1], Patricia Stilen[2], Kathryn Speck[3], Denna Vandersloot[4], Traci R. Rieckmann[5], Michael Chaple[6], Erika G. Martin[7,8] and Steve Martino[9]

Garner, B. R., Gotham, H. J., Tueller, S. J., Ball, E. L., Kaiser, D., Stilen, P., ... Martino, S. (2018). Correction to: Testing the effectiveness of a motivational interviewing-based brief intervention for substance use as an adjunct to usual care in community-based AIDS service organizations: study protocol for a multisite randomized controlled trial. *Addiction Science & Clinical Practice, 13*, 9.



Garner *et al. Addict Sci Clin Pract (2017) 12:32*
DOI 10.1186/s13722-017-0096-7

Addiction Science & Clinical Practice

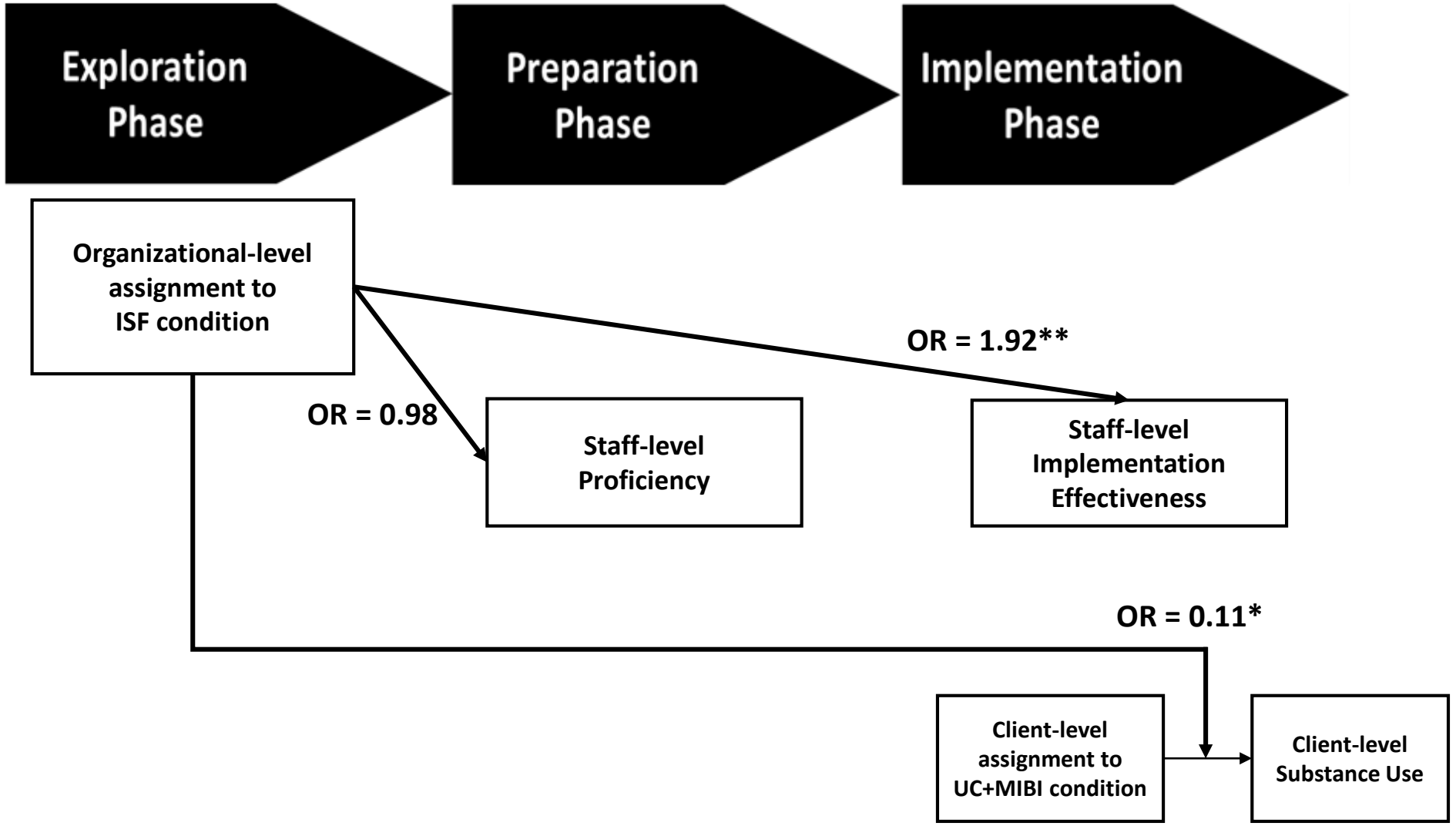
STUDY PROTOCOL Open Access

Testing the implementation and sustainment facilitation (ISF) strategy as an effective adjunct to the Addiction Technology Transfer Center (ATTC) strategy: study protocol for a cluster randomized trial

Bryan R. Garner[1*], Mark Zehner[2], Mathew R. Roosa[3], Steve Martino[4], Heather J. Gotham[5], Elizabeth L. Ball[1], Patricia Stilen[5], Kathryn Speck[6], Denna Vandersloot[7], Traci R. Rieckmann[8], Michael Chaple[9], Erika G. Martin[10,11], David Kaiser[1] and James H. Ford II[2]

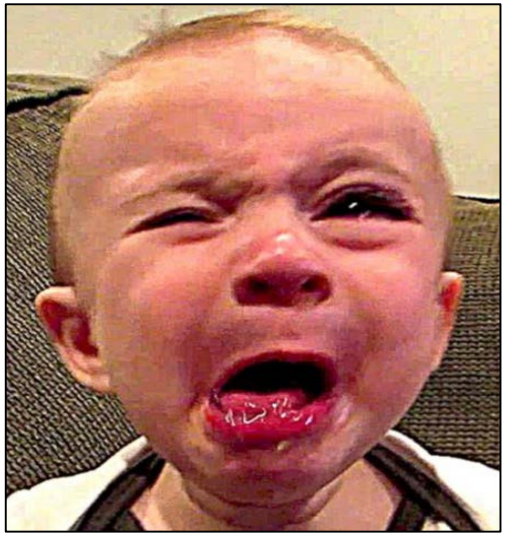
Garner, B. R., Zehner, M., Roosa, M. R., Martino, S., Gotham, H. J., Ball, E. L., ... Ford, J. H. (2017). Testing the implementation and sustainment facilitation (ISF) strategy as an effective adjunct to the Addiction Technology Transfer Center (ATTC) strategy: Study protocol for a cluster randomized trial. Addiction Science & Clinical Practice, 12(1), 32.

Results:
Main Findings



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

Discussion:
Key Takeaways, Lessons Learned, and Next Steps



Discussion:
Key Takeaways

Exploration Phase → Preparation Phase → Implementation Phase

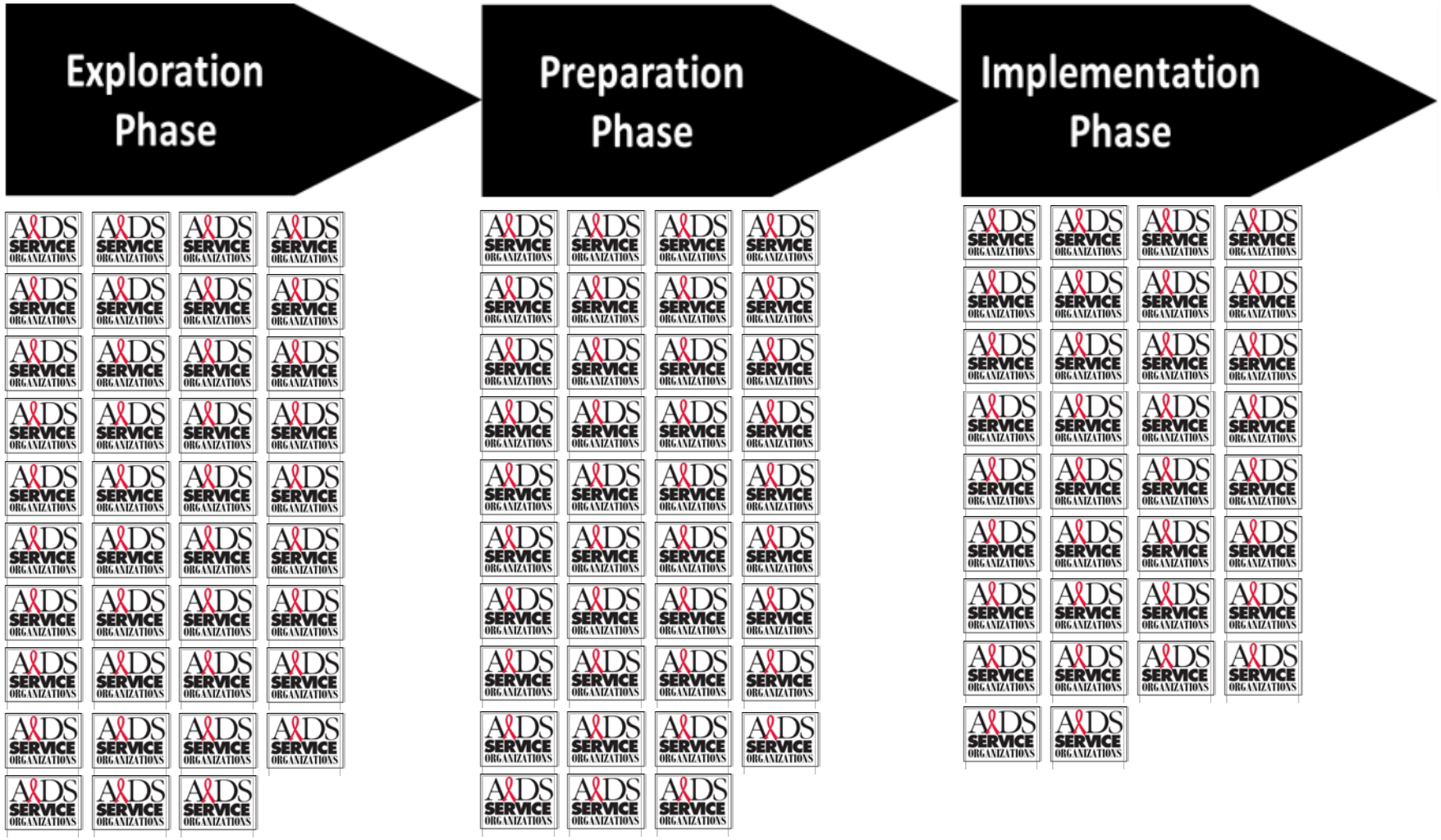
39 Distinct ASOs

Discussion:
Key Takeaways

39 <u>Distinct</u> ASOs

39 <u>Distinct</u> ASOs (100%)

Discussion:
Key Takeaways



39 Distinct ASOs

39 Distinct ASOs (100%)

34 Distinct ASOs (87%)

Discussion:
Key Takeaways

Exploration Phase → Preparation Phase → Implementation Phase

Organizational-level assignment to ISF condition

OR = 1.92**

Staff-level Implementation Effectiveness

ISF had a significant impact on an *implementation outcome*

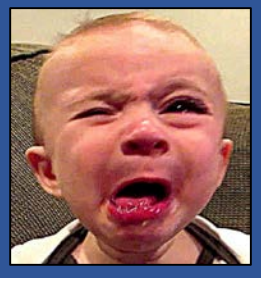
ISF had a significant impact on a *client outcome*

OR = 0.11*

Client-level assignment to UC+MIBI condition

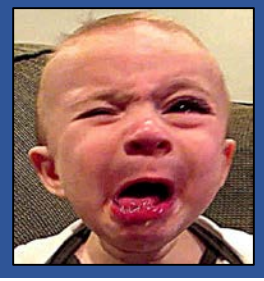
Client-level Substance Use

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



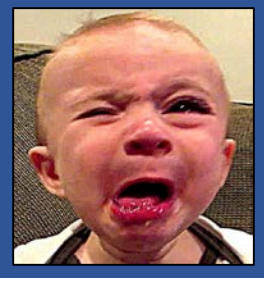
Discussion:
Lessons Learned

Type 2 effectiveness-implementation hybrid trials are <u>not for the faint of heart</u>

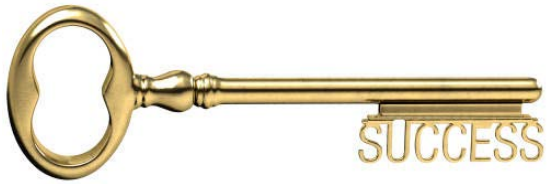


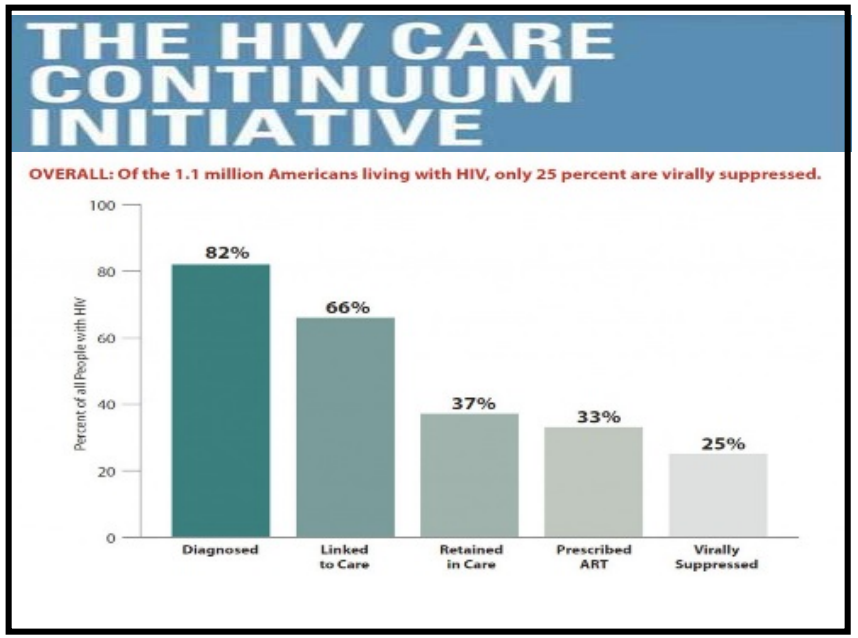
Discussion:
Lessons Learned

Type 2 effectiveness-implementation hybrid trials are possible… <u>with the right infrastructure and team</u>



Discussion:
Lessons Learned





Discussion:
Next Steps

IMPLEMENTATION & SUSTAINMENT FACILITATION

SAT2HIV
FUNDED BY THE NATIONAL INSTITUTE ON DRUG ABUSE

iNod

STS4HIV
FUNDED BY THE NATIONAL INSTITUTE ON DRUG ABUSE

PROJECT MIMIC

Other grants testing the ISF strategy

THANK YOU

UNITED STATES · ENGLISH

EUROPE | ASIA | EURASIA | AFRICA | S. AMERICA | N. AMERICA

The languages included in this map are those with existing Living Language courses.
The countries representing each language were selected based on population.

FRANCE
Merci.
FRENCH

GERMANY
Danke.
GERMAN

ITALY
Grazie.
ITALIAN

CZECH REPUBLIC
Děkuji.
CZECH

GREECE
ef-khah-ree-STO.
Ευχαριστώ.
GREEK

CROATIA
Hvala.
CROATIAN

NETHERLANDS
Dankjewel.
DUTCH

HUNGARY
Köszönöm.
HUNGARIAN

SWEDEN
Tack.
SWEDISH

POLAND
Dziękuję.
POLISH

JAPAN
arigatoo gozaimasu.
ありがとうございます.
JAPANESE

N&S KOREA
gamsahamnida.
감사합니다.
KOREAN

CHINA
xièxie.
谢谢。
CHINESE

ISRAEL
toda.
תודה.
HEBREW

INDIA
dhanyavād.
धन्यवाद।
HINDI

VIETNAM
Cám ơn bạn.
VIETNAMESE

TURKEY
Teşekkür ederim.
TURKISH

RUSSIA
spah-SEE-bah.
Спасибо.
RUSSIAN

EGYPT
shukran.
شكراً.
ARABIC

TANZANIA
Asante.
SWAHILI

BRAZIL
Obrigado/Obrigada.
(male/female)
PORTUGUESE

MEXICO
Gracias.
SPANISH