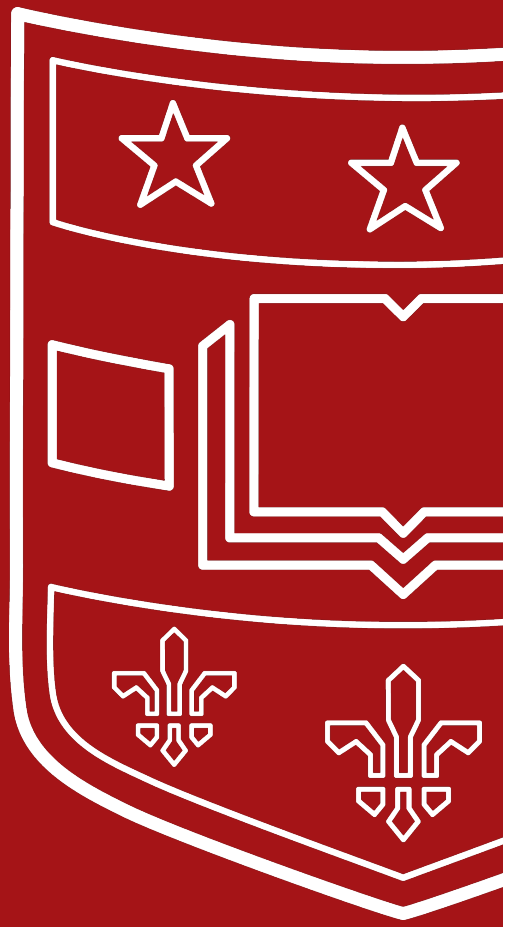
ADVANCING SOCIAL WORK, PUBLIC HEALTH & SOCIAL POLICY

Washington University in St. Louis
BROWN SCHOOL

Optimizing Implementation Strategies to Improve the Quality of Health Services

Byron J. Powell, PhD, LCSW

August 15, 2019
University of Nebraska Medical Center



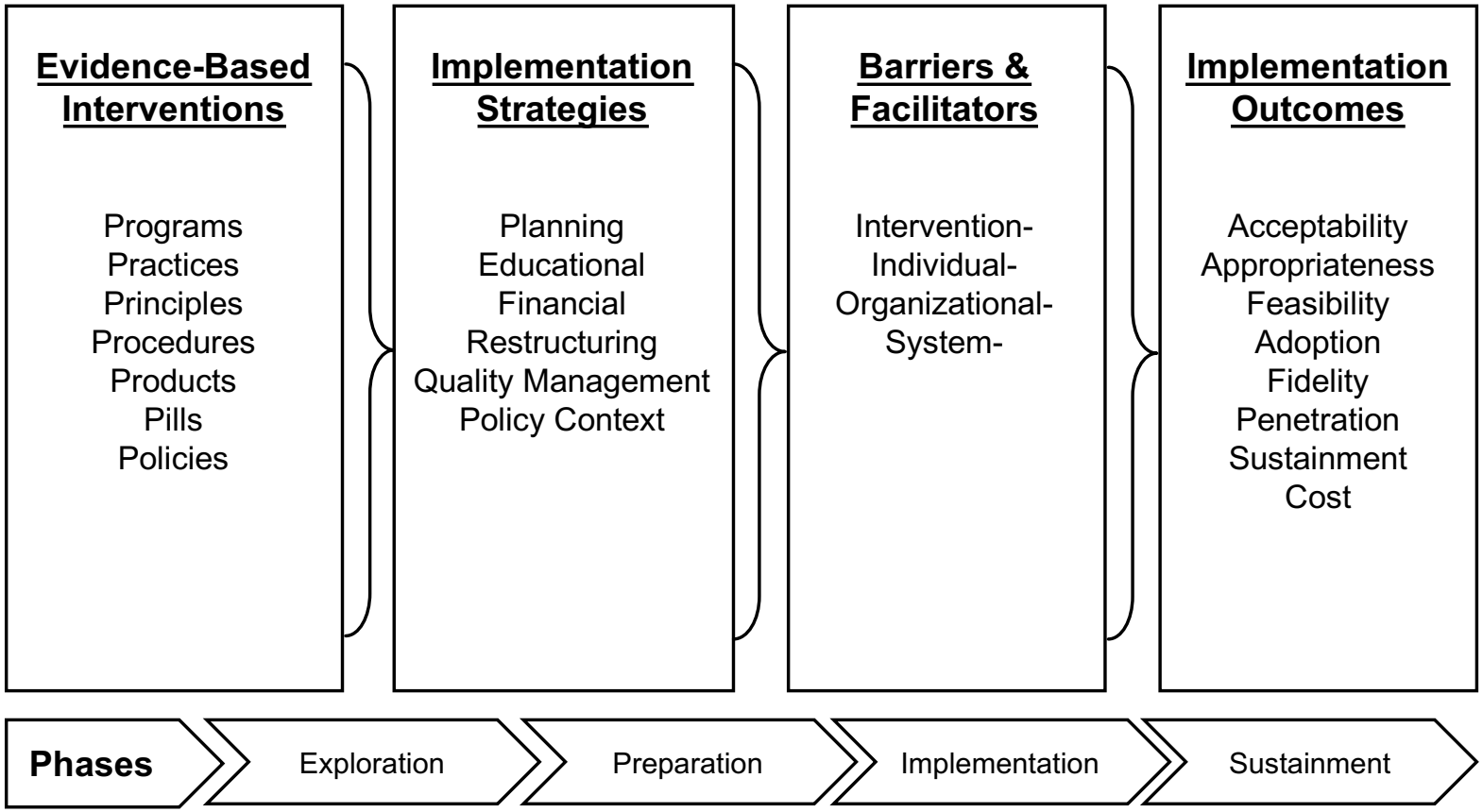
Overview of Today's Presentation:

1) Introduction and Overview of Implementation Strategies
2) Evidence for Implementation Strategies
3) Priorities for Enhancing the Impact of Implementation Strategies
4) Acknowledgments and Discussion

Introduction and Overview of Implementation Strategies

"Evidence-based medicine should be complemented by evidence-based implementation"

Grol & Grimshaw (1999)



Aarons et al. (2011); Brown et al. (2017); Powell et al. (2012); Proctor et al. (2009 & 2011)

Definition & Types of Strategies

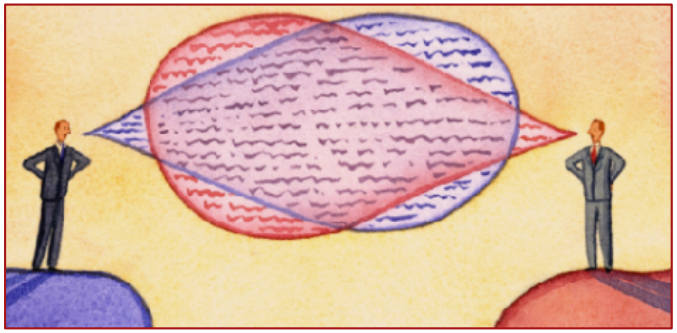
Implementation Strategies – Methods or techniques used to enhance the adoption, implementation, sustainment, and scale-up of a program or practice.

Discrete – Single action or process (e.g., reminders, audit and feedback, supervision)

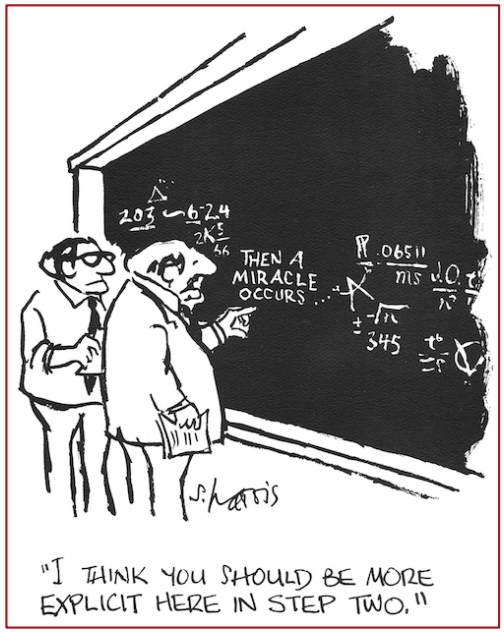
Multifaceted – Combination of multiple discrete strategies (e.g., educational workshops + consultation), some of which have been protocolized and branded (e.g., Glisson's ARC, Aarons' LOCI)

Powell et al. (2012; 2015)

Literature Reveals Problems



“Tower of Babel”



Poor Reporting

Limited “Menu”

McKibbon et al. (2010); Michie et al. (2009); Powell et al. (2012); Proctor et al. (2013)

Powell et al. (2012)

Updated Compilation

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]

Waltz *et al. Implementation Science* (2015) 10:109
DOI 10.1186/s13012-015-0295-0

IMPLEMENTATION SCIENCE

SHORT REPORT Open Access

Use of concept mapping to characterize relationships among implementation strategies and assess their feasibility and importance: results from the Expert Recommendations for Implementing Change (ERIC) study

Thomas J. Waltz[1,2*], Byron J. Powell[3], Monica M. Matthieu[4,5,10], Laura J. Damschroder[2], Matthew J. Chinman[6,7], Jeffrey L. Smith[5,10], Enola K. Proctor[8] and JoAnn E. Kirchner[5,9,10]

See Additional File 6 of Powell et al. (2015) for most complete version of the compilation

Utility of Compilation

- Identifying “building blocks” of multi-level, multi-faceted strategies for research *and* practice
- Promoting a common language and improving reporting
- Tracking strategy use and assessing fidelity
- Highlighting under-researched strategies and room for further development

Application & Extensions

National Institutes of Health
Turning Discovery Into Health

U.S. Department of Veterans Affairs

Substance Abuse and Mental Health Services Administration
SAMHSA

The National Academies of SCIENCES ENGINEERING MEDICINE

pcori®

School mental health settings (Cook et al., 2019; Lyon et al., 2019)

Technical assistance in child welfare (Metz et al., 2019)

Child maltreatment prevention programs in LMICs (Martin, PI, DDCF)

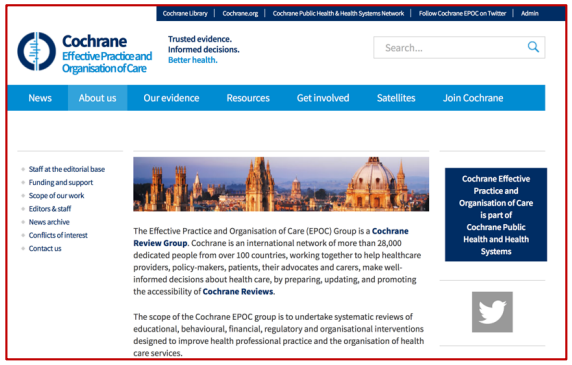
Evidence for Implementation Strategies

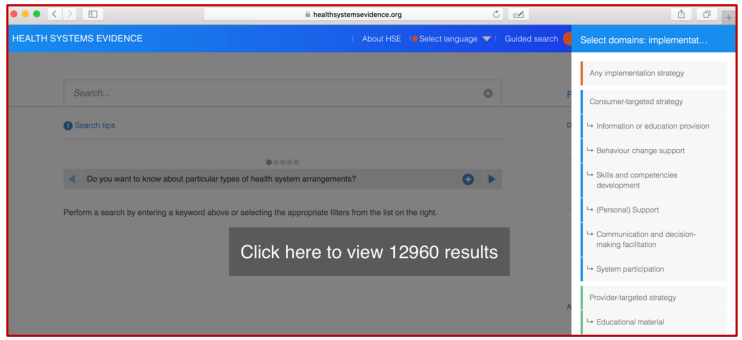
Strategy Review	Number of Trials	Effect Sizes
Printed Educational Materials	14 Randomized Trials 31 ITS	Median absolute improvement 2.0% (range 0% to 11%)
Educational Meetings	81 Randomized Trials	Median absolute improvement 6% (IQR 1.8% to 15.3%)
Educational Outreach	69 Randomized Trials	Median absolute improvement in prescribing behaviors 4.8% (IQR 3% to 6.6%), other behaviors 6% (IQR 3.6% to 16%)
Local Opinion Leaders	18 Randomized Trials	Median absolute improvement 12% (6% to 14.5%)
Audit and Feedback	140 Randomized Trials	Median absolute improvement 4.3% (IQR .5 to 16%)
Computerized Reminders	28 Randomized Trials	Median absolute improvement 4.2% (IQR .8 to 18.8%)
Tailored Interventions	26 Randomized Trials	Meta-Regression using 15 trials. Pooled odds ratio of 1.56 (95% CI, 1.27 to 1.93, $p < .001$)

Cochrane EPOC; Grimshaw et al. (2012); Powell et al. (2019)

Resources to Assess Evidence for Implementation Strategies

- **Cochrane EPOC** (epoc.cochrane.org)
- **Campbell Collaboration** (campbellcollaboration.org)
- **Health Systems Evidence** (healthsystemsevidence.org)





Priorities for Enhancing the Impact of Implementation Strategies

Now what?

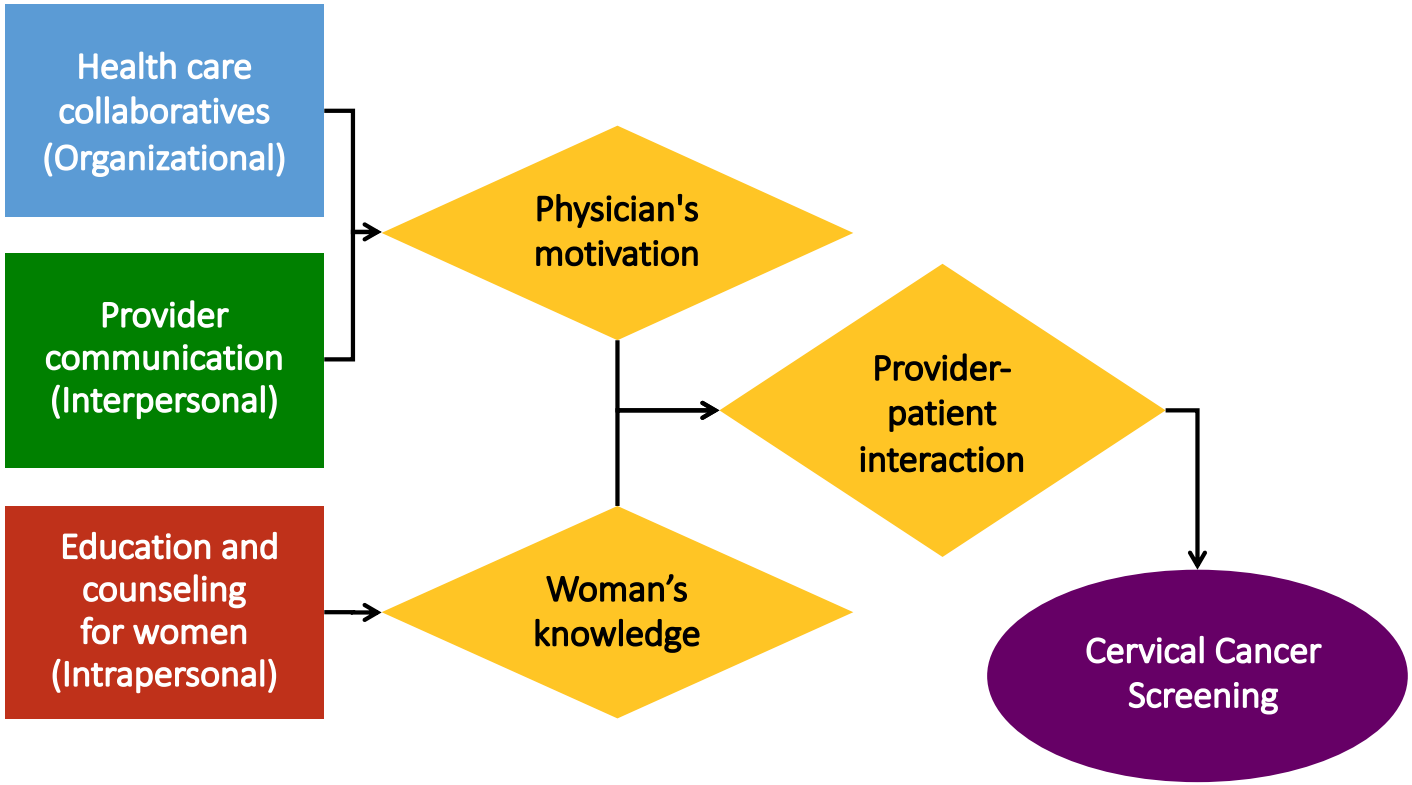
There is an increasing focus on how and why implementation strategies work, and how we can design and tailor them to enhance effectiveness

Discrete Strategy Examples

Identified Barriers	Relevant Implementation Strategies
Lack of knowledge	Interactive education sessions
Perception/reality mismatch	Audit and feedback
Lack of motivation	Incentives/sanctions
Beliefs/attitudes	Peer influence/opinion leaders

Bhattacharya (2012); Palda (2007)

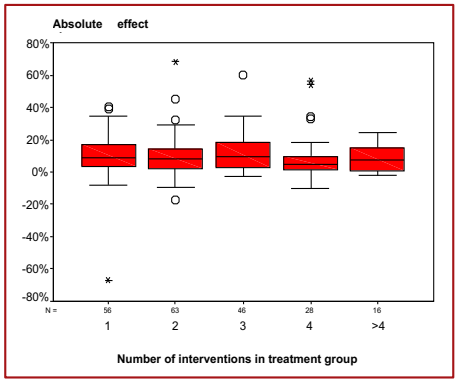
Multifaceted Implementation Strategy Example (Convergence)



Weiner et al. (2012)

Unfortunately, we far too often…

"Train and Pray" Approach



"Kitchen Sink" Approach

"One Size Fits All" Approach

"It seemed like a good idea at the time"
(Eccles)

"ISLAGIATT" Approach

Grimshaw et al. (2004); Henggeler et al. (2002); Squires et al. (2014)

Powell *et al. Implementation Science* 2013, **8**:92
http://www.implementationscience.com/content/8/1/92

IMPLEMENTATION SCIENCE

STUDY PROTOCOL Open Access

A mixed methods multiple case study of implementation as usual in children's social service organizations: study protocol

Byron J Powell[1*], Enola K Proctor[1], Charles A Glisson[2], Patricia L Kohl[1], Ramesh Raghavan[1,3], Ross C Brownson[1,4], Bradley P Stoner[5,6], Christopher R Carpenter[7] and Lawrence A Palinkas[8]

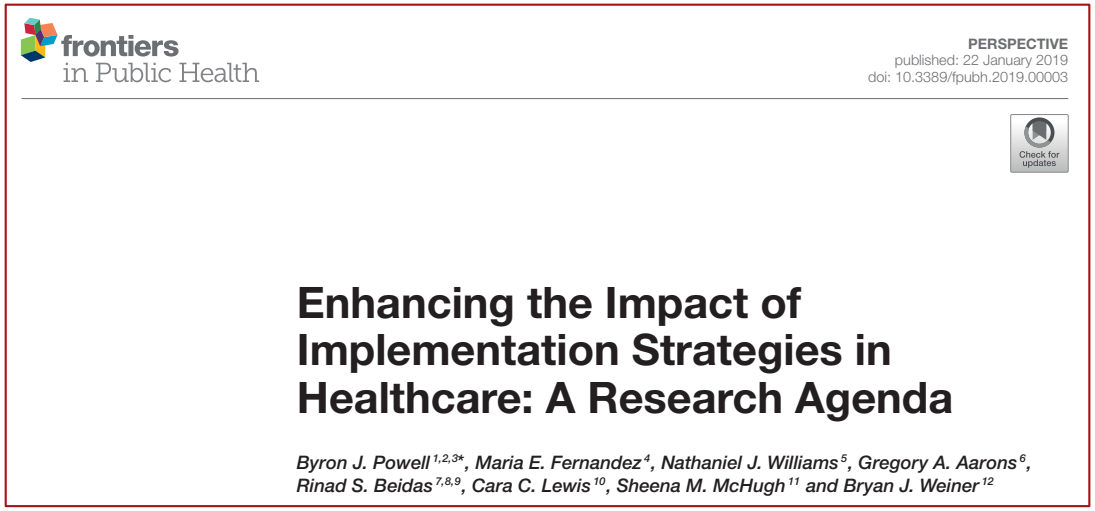
Decision making not driven by evidence, theory, or "best practices"

Strategies not used with frequency, intensity, and fidelity required

"…results suggest a mismatch between identified barriers and the quality improvement interventions selected for use."

Powell et al. (2013); Powell (2014); Powell & Proctor (2016); Bosch et al. (2007)

Priorities for Enhancing the Impact of Implementation Strategies



frontiers in Public Health

PERSPECTIVE
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doi: 10.3389/fpubh.2019.00003

Check for updates

Enhancing the Impact of Implementation Strategies in Healthcare: A Research Agenda

Byron J. Powell[1,2,3], Maria E. Fernandez[4], Nathaniel J. Williams[5], Gregory A. Aarons[6], Rinad S. Beidas[7,8,9], Cara C. Lewis[10], Sheena M. McHugh[11] and Bryan J. Weiner[12]*

1) Enhance methods for designing and tailoring
2) Specify and test mechanisms of change
3) Conduct more effectiveness research
4) Increase economic evaluations
5) Improve tracking and reporting of strategies

1) Enhance Methods for Designing and Tailoring

15 cluster RCTs, OR = 1.56 (95% CI = 1.27 to 1.93, $p < .001$)

"It is not yet clear how best to tailor interventions and therefore not clear what the effect of an optimally tailored intervention would be"

Baker et al. (2015)

1) Enhance Methods for Designing and Tailoring (Cont.)

- Need better methods for identifying and prioritizing barriers
- Need adaptive strategies to address dynamic barriers
- Need "systematic and rigorous methods…to enhance the linkage between identified barriers and strategies"

Baker et al. (2015); Bosch et al. (2007); Colquhoun et al. (2017); Grol et al. (2013); Powell et al. (2017); Wensing (2017)

Potential Methods for Designing and Tailoring

Methods to Improve the Selection and Tailoring of Implementation Strategies

Byron J. Powell, PhD
Rinad S. Beidas, PhD
Cara C. Lewis, PhD
Gregory A. Aarons, PhD
J. Curtis McMillen, PhD
Enola K. Proctor, PhD
David S. Mandell, ScD

- Intervention Mapping
- Concept Mapping
- Conjoint Analysis
- Group Model Building

Colquhoun *et al. Implementation Science* (2017) 12:30
DOI 10.1186/s13012-017-0560-5

Implementation Science

SYSTEMATIC REVIEW Open Access

CrossMark

Methods for designing interventions to change healthcare professionals' behaviour: a systematic review

Heather L. Colquhoun[1*], Janet E. Squires[2,3], Niina Kolehmainen[4], Cynthia Fraser[5] and Jeremy M. Grimshaw[2,6]

- 15 papers w/ replicable methods
- 4 common steps: ID barriers, link barriers and intervention components, use theory, engage users
- Limited focus on orgs/systems

Colquhoun et al. (2017); Powell et al. (2017)

How can we more systematically link strategies to identified barriers?


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]


Implementation Science

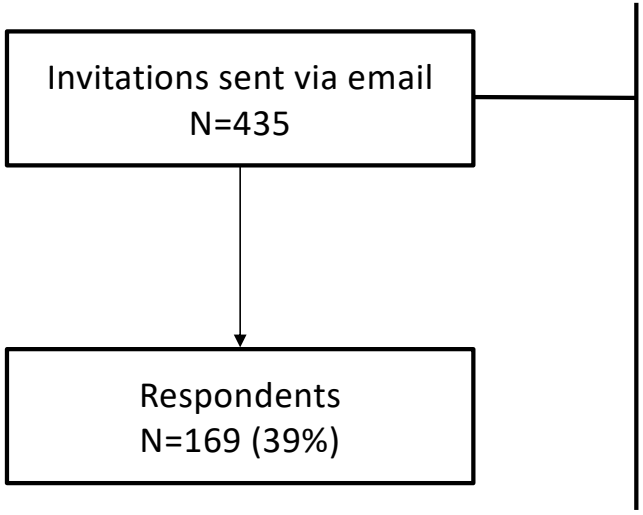
BioMed Central

Research article

Open Access

Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science

Laura J Damschroder*[1], David C Aron[2], Rosalind E Keith[1], Susan R Kirsh[2], Jeffery A Alexander[3] and Julie C Lowery[1]

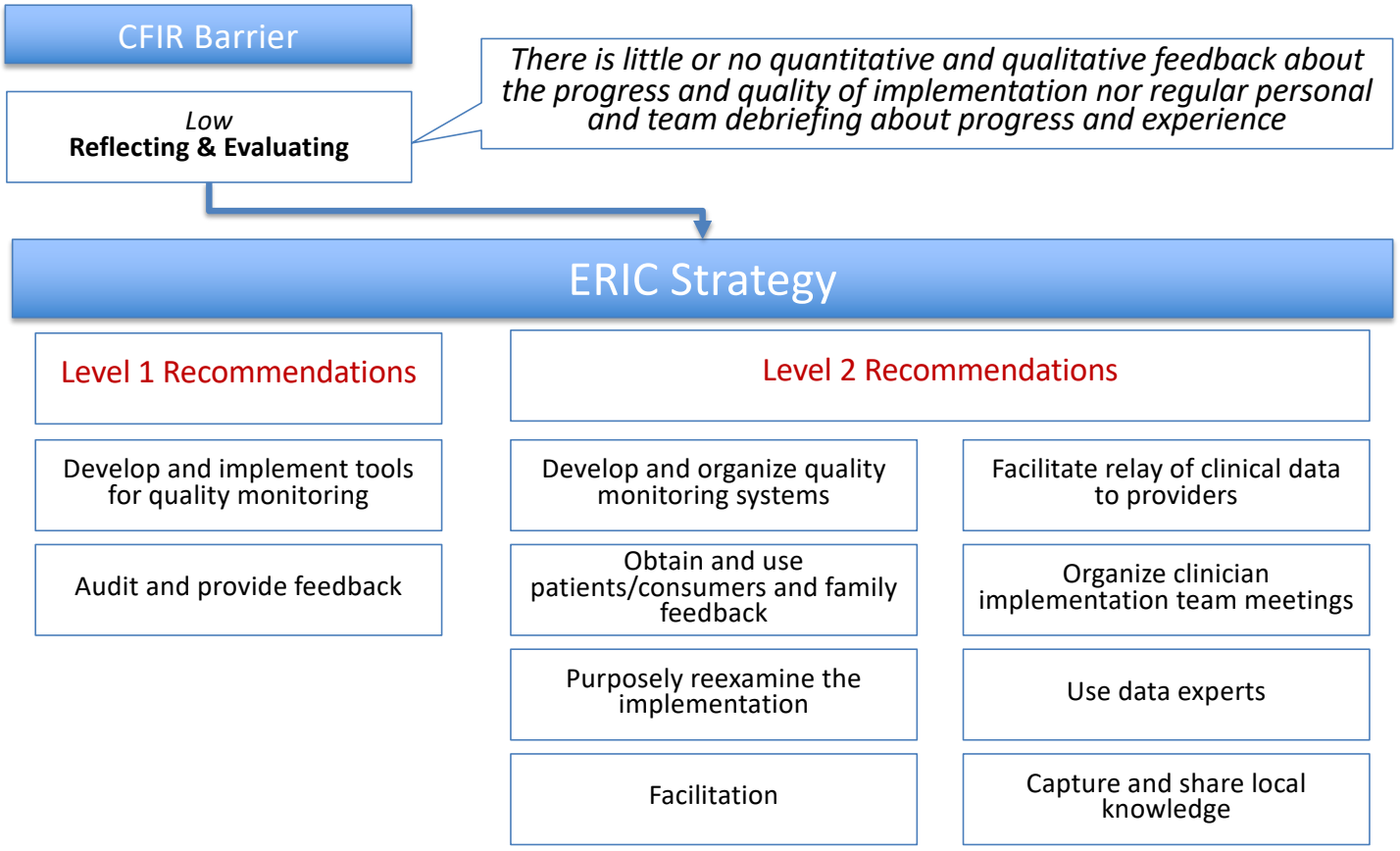


Known users of CFIR

- First authors of articles citing 2009 CFIR article
- Inquiries to CFIR research team
- Participants in earlier user panel for www.CFIRGuide.org technical assistance website

Implementation research communication channels

- National Implementation Research Network (NIRN)
- Society of Implementation Research Collaboration (SIRC)
- Implementation Network mailing list



Waltz et al. (2019)

CFIR-ERIC Matching Tool

Waltz *et al. Implementation Science* (2019) 14:42
https://doi.org/10.1186/s13012-019-0892-4

Implementation Science

RESEARCH Open Access

Choosing implementation strategies to address contextual barriers: diversity in recommendations and future directions

Thomas J. Waltz[1,2], Byron J. Powell[3], María E. Fernández[4], Brenton Abadie[1] and Laura J. Damschroder[2*]

"Because of the wide diversity of responses by our expert respondents and the lack of consensus this represents for the majority of endorsements, this tool must be used with caution."

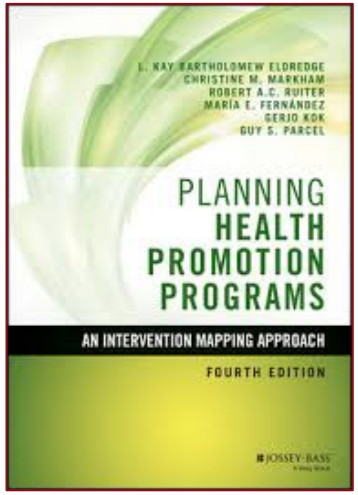
BUT, it might be a very useful first step as you explore potential strategies.

Brown School *at* Washington University in St. Louis

Use of Intervention Mapping to Design and Tailor Strategies

NIMH K01MH113806 (Powell, PI)

NIDA R01DA047876 (Go & Miller, Co-PIs)



frontiers in Public Health

METHODS
published: 18 June 2019
doi: 10.3389/fpubh.2019.00158

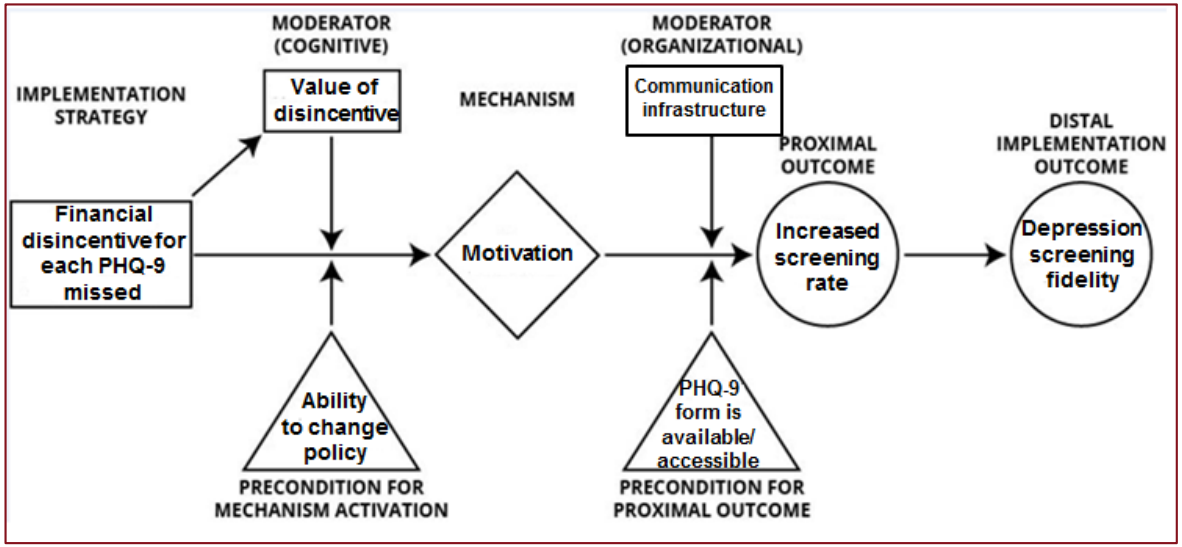
Check for updates

Implementation Mapping: Using Intervention Mapping to Develop Implementation Strategies

Maria E. Fernandez[1], Gill A. ten Hoor[2], Sanne van Lieshout[3], Serena A. Rodriguez[1,4], Rinad S. Beidas[5,6], Guy Parcel[1], Robert A. C. Ruiter[2], Christine M. Markham[1] and Gerjo Kok[2]*

2) Specify Mechanisms

"Process or event through which an implementation strategy operates to affect desired implementation outcomes"



Lewis et al. (2018)

Determinant	Implementation Strategy	Mechanism	Implementation Outcome
Provider knowledge deficit	Education (provision of information)	Awareness-building, knowledge-acquisition	Feasibility, acceptability, appropriateness, adoption
Provider skill deficit	Training (teaching & practice with corrective feedback)	Skill acquisition, refinement, mastery	Fidelity to EBP
Turnover	Train-the-trainer	Continuous on-site expertise available for consultation	Sustainability
Provider engagement	Clinical champion-led implementation team	Implementation climate	Feasibility, acceptability, appropriateness
Unstandardized clinical care options	Guidelines	Clarity of clinical care	Fidelity

Developing a Mechanisms-Focused Research Agenda

SIRC
SOCIETY FOR IMPLEMENTATION RESEARCH COLLABORATION

Join us! September 12-14th in Seattle!

Workgroup Co-Leads & Key Issues	
Strategy → Mechanism → Outcome Brian Mittman & Byron Powell	**Causal Theory & Context** Rinad Beidas & Nate Williams
Measurement Bryan Weiner & Cara Lewis	**Design & Analysis** Greg Aarons & Aaron Lyon

AHRQ R13HS025632 (Lewis, PI)

3) Conduct More Effectiveness Research

- Diversify the strategies tested
- Need for more comparative studies of discrete, multifaceted, and tailored strategies
- Use a wider range of designs and methods

Brown et al. (2017); Institute of Medicine (2009); Lau et al. (2015); Mazzucca et al. (2018); Powell et al. (2014)

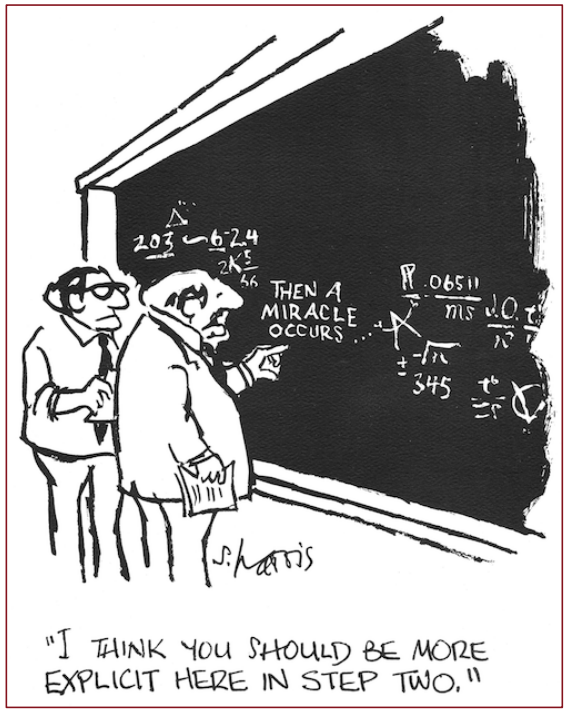
4) Increase Economic Evaluations

- In a review of 235 implementation studies, only 10% provided any information about implementation costs
- Severely inhibits decision making regarding strategies

Listen to Dr. Wen You!

Raghavan et al. (2018); Saldana et al. (2014); Vale et al. (2007); Reeves et al. (2019); Roberts et al. (2019)

5) Improve Description, Tracking, and Reporting of Strategies



- Poor description, tracking and reporting:
  - Limits replication in science and practice
  - Precludes answers to how and why strategies work
  - Fortunately, there is guidance on how to improve reporting

Albrecht et al. (2013); Boyd et al. (2018); Bunger et al. (2017); Hoffman et al. (2014); Proctor et al. (2013)

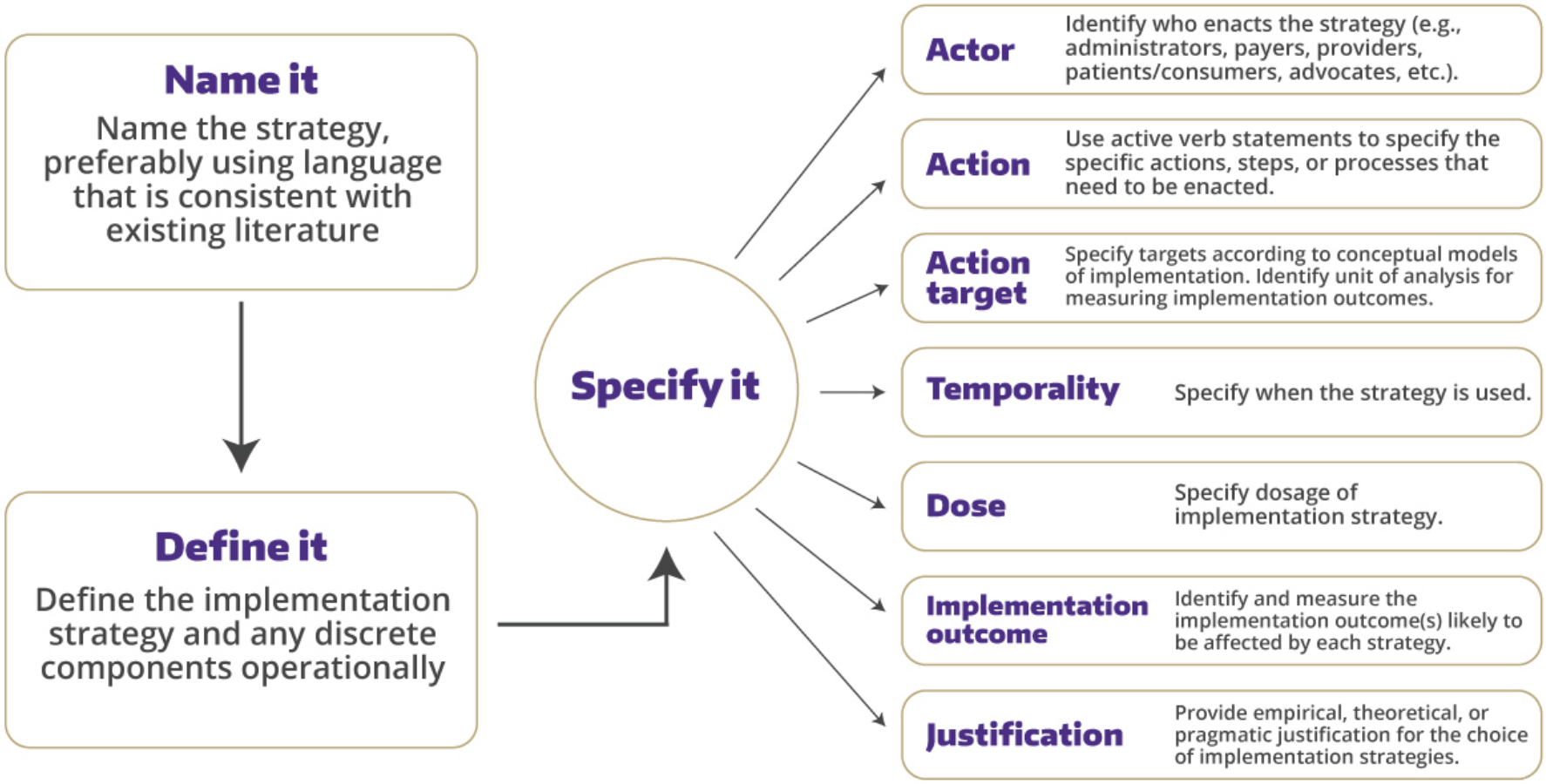
Poor Reporting Limits Accumulation of Evidence

Understanding the Components of Quality Improvement Collaboratives: A Systematic Literature Review

ERUM NADEEM,[1] S. SERENE OLIN,[1]
LAURA CAMPBELL HILL,[2]
KIMBERLY EATON HOAGWOOD,[1]
and SARAH McCUE HORWITZ[1]

[1]*New York University;* [2]*Columbia University*

"Reporting on specific components of the collaborative was imprecise across articles, rendering it impossible to identify active QIC ingredients linked to improved care."



Proctor, Powell, & McMillen (2013); https://impsciuw.org/implementation-strategies/

Applied Example

TF-CBT Learning Collaborative (11 components)*

- Prepare change package
- Commitment
- Learning sessions
- PDSA cycles
- Conference calls
- Web support
- Quality improvement technique training
- Metrics reporting
- Coaching calls
- Onsite visits
- Rostering

**Each specified according to Proctor et al. (2013) standards*

Bunger et al. (2016)

Table 1 Specification of the TF-CBT learning collaboratives (LCs)

Goal	Expand regional capacity to meet the mental health service needs of youth who have experienced trauma by scaling up TF-CBT among behavioral health agencies funded by the county
Description	The LCs focused on providing clinical training and consultation for clinicians, supervisors, and senior leaders from participating agencies. The LCs also provided training on quality improvement techniques for senior leaders
Actors	-Faculty experts from a local university-based treatment center designed and conducted the LCs, and trained and supported clinicians from other agencies to implement TF-CBT -Agency Implementation Teams (comprised of senior leaders, supervisors, and clinicians) were tasked with implementing TF-CBT

Specification of LC components

	Actions	Target	Temporality	Dose	Outcome	Justification[a]
Preparatory work						
Prepare change package	Faculty experts prepare resources on TF-CBT, and implementation strategies	Agency implementation team members' knowledge	Before learning sessions	Once	Adoption, fidelity, penetration, and sustainment of TF-CBT	*Theoretical* Knowledge (CFIR & TDF); planning (CFIR) *Empirical* Farmer et al. (2011)
Commitment	Implementation team members describe their commitment to, and resources allocated for implementing TF-CBT	Agency implementation team members' awareness of their readiness to implement	Before learning sessions; before TF-CBT implementation	Once	Adoption, fidelity, penetration, and sustainment of TF-CBT	*Theoretical* Leadership engagement; planning (CFIR); intentions; environmental context and resources (TDF)
Active learning						
Learning sessions	Present information about trauma and TF-CBT practice components; skill practice and behavioral rehearsal; case vignettes and problem-based learning; share experiences, expertise, and lessons learned	Agency implementation team members' knowledge, skills, and access to expertise within and outside of their home agency	3 sessions over 12 months (approx. month 1, months 3–4, month 9)	Three 2-day sessions	Adoption, fidelity, penetration, and sustainment of TF-CBT	*Theoretical* Knowledge (CFIR & TDF); self-efficacy (CFIR); skills; beliefs about capabilities (TDF) *Empirical* Herschell et al. (2010)
PDSA cycles	Use TF-CBT with test cases, identify barriers, plan strategies to remove barriers, study and refine strategy; support learning within teams; support team members	Agency implementation team members' knowledge, skills, access to clinical expertise at their home agency; Removes barriers; Promotes supportive organizational climate for TF-CBT	Three action periods in between learning sessions	12 months total	Adoption, fidelity, penetration, and sustainment of TF-CBT	*Theoretical* Planning; executing; reflecting & evaluating (CFIR); environmental context and resources (TDF) *Empirical* Taylor et al. (2014)

Tracking Implementation Strategy Use

Bunger *et al. Health Research Policy and Systems* (2017) 15:15
DOI 10.1186/s12961-017-0175-y

Health Research Policy and Systems

RESEARCH Open Access

Tracking implementation strategies: a description of a practical approach and early findings

Alicia C. Bunger[1*], Byron J. Powell[2], Hillary A. Robertson[3], Hannah MacDowell[1], Sarah A. Birken[2] and Christopher Shea[2]

Available online at www.sciencedirect.com
ScienceDirect
Behavior Therapy xx (2018) xxx–xxx
Behavior Therapy
www.elsevier.com/locate/bt

A Method for Tracking Implementation Strategies: An Exemplar Implementing Measurement-Based Care in Community Behavioral Health Clinics

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Cara C. Lewis
Indiana University, Kaiser Permanente Washington Health Research Institute, and University of Washington School of Medicine

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- NCRR TL1RR024995 (Piccirillo, PI)
- NIMH F31MH098478 (Powell, PI)
- NIMH LRP (Powell, PI)
- NIMH K01MH113806 (Powell, PI)
- NIMH R01MH106510 (Lewis, PI)
- NIMH R01MH103310 (Lewis, PI)
- NIH UL1TR001111 (Buse, PI)
- NIAID P30A1050410 (Golin, PI)
- NIMH R25MH080916 (Proctor, PI)
- NIMH R25MH104660 (Gallo, PI)
- NIDA R01DA044051 (Garner, PI)
- NIDDK R18DK114701 (Gold, PI)
- AHRQ R13HS025632 (Lewis, PI)
- NIDA R01DA047876 (G0, PI)
- NHLBI R01HL137929 (Ward, PI)

North Carolina Child Treatment Program

William T. Grant Foundation


Thank You!