

Developing and Tailoring Implementation Strategies: An Implementation Mapping Approach

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March 2021 VA Quality Enhancement Research Initiative (QUERI)
Implementation Research Group Cyber Seminar Program
Thursday, March 4, 2021

Overview



- ▣ Health Promotion and Intervention Mapping
- ▣ ***Implementation*** Mapping
- ▣ What problems does it solve?
- ▣ Example
- ▣ IM Adapt

Health Promotion

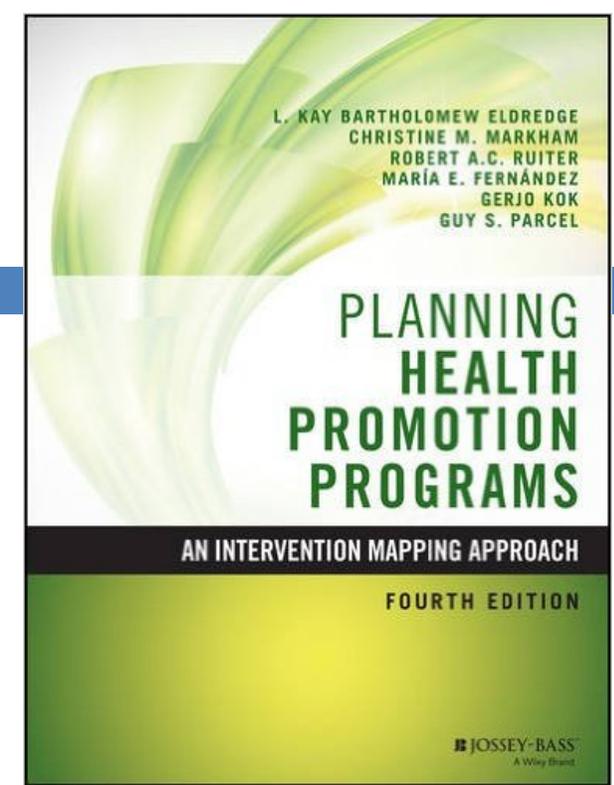
“Any planned combination of educational, political, regulatory, or organizational supports for actions and conditions of living conducive to the health of individuals, groups, and communities” (Green & Kreuter, 2005).

Importance of socio-cultural and economic influences of health.

- 1) Health Behavior
- 2) Health Services
- 3) Health Policy
- 4) Community Action
- 5) Supportive Environments

What is Intervention Mapping?

- A **systematic approach** to multilevel intervention development, implementation & evaluation
- Uses an **ecological** approach
- Provides a **framework** for decision-making at each step of development
- Incorporates **community participatory** processes



History of Intervention Mapping

Stimulated by questions that include how and when to:

- Use theory?
- Apply empirical evidence?
- Collect new data?

...to create effective behavior or systems change interventions



- How to take an ecological approach to program planning?
 - How to address changing the behavior of people in the environment?
 - How to address the complexity of multi-causation of problems and multi-level intervention points?

Community and Stakeholder Engagement



- Builds on strengths
- Facilitates collaborative leadership, control
- Fosters co-learning and capacity building
- Balance between research and benefit
- Focuses on the local relevance
- Applies a systems approach
- Disseminates results
- Commitment to sustainability

Intervention Mapping Steps

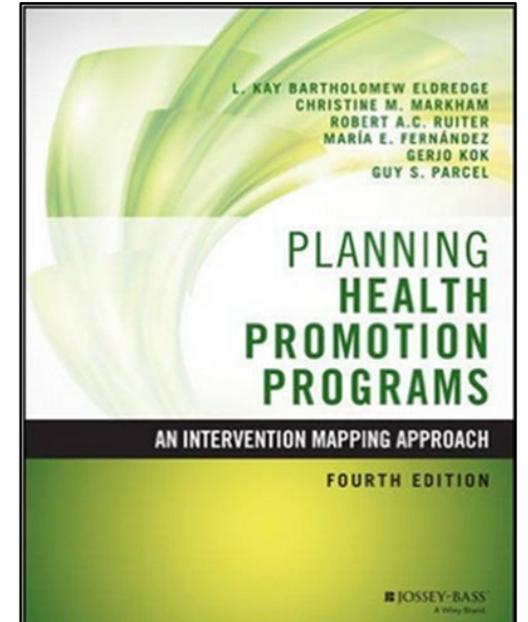
1. Logic model of the problem
2. Program outcomes and objectives
(logic model of change)
3. Program design *(theoretical change methods and practical applications)*
4. Program production
5. Program implementation plan
6. Evaluation plan



Intervention Mapping in Implementation Science

A Systematic Approach for Intervention Development, Implementation and Adaptation

1. Designing multi-level interventions in ways that enhance their potential for being adopted, implemented, and sustained
2. Using IM processes to adapt evidence-based multilevel interventions
3. Designing implementation strategies to influence adoption, implementation and continuation
(*Implementation Mapping*)



Bartholomew Eldredge, LK, et al. Planning health promotion programs: An Intervention Mapping approach (4th ed.). San Francisco, CA: Jossey-Bass. 2016; Fernández ME, Ruiters RAC, Markham CM and Kok G. Intervention Mapping: Theory- and Evidence-Based Health Promotion Program Planning: Perspective and Examples. *Frontiers in Public Health*. 2019; Fernández ME, , et al. Implementation Mapping: Using Intervention Mapping to Develop Implementation Strategies, *Frontiers in Public Health*, 2019

Implementation Strategy Types/Taxonomies

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

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 Waltz², Matthew J Chinman^{3,4}, Laura J Damschroder⁵, Jeffrey L Smith⁶,
Monica M Matthieu^{6,7}, Enola K Proctor⁸ and JoAnn E Kirchner^{6,9}

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

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. Powell³, Monica M. Matthieu^{4,5,10}, Laura J. Damschroder², Matthew J. Chinman^{6,7},
Jeffrey L. Smith^{5,10}, Enola K. Proctor⁸ and JoAnn E. Kirchner^{5,9,10}

How do we select or develop implementation strategies?

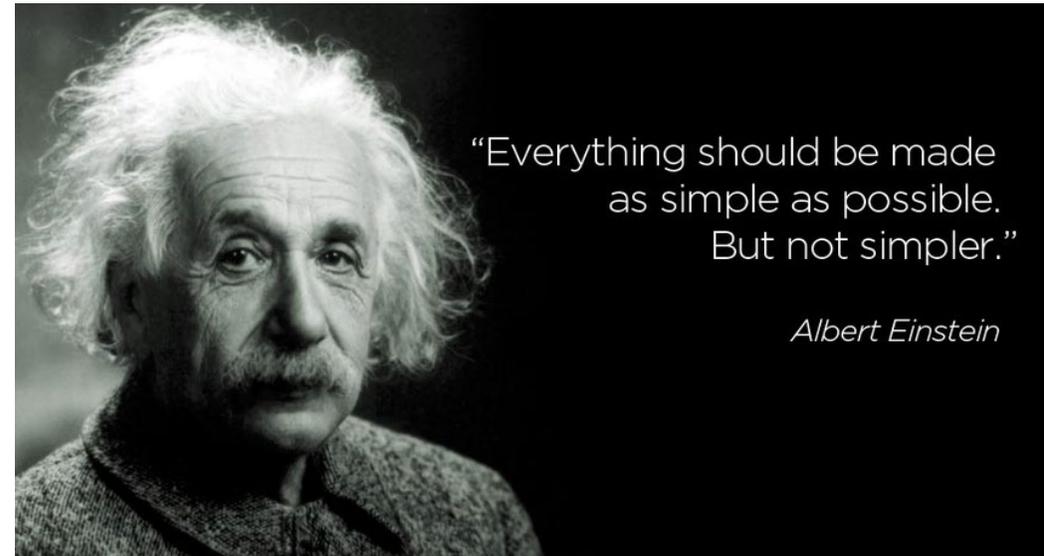


1. Conduct an assessment of factors that influence implementation processes and outcomes (e.g. characteristics of the innovation, setting, preferences of involved stakeholders, barriers and facilitators)
2. Develop or select and tailor strategies to address these.

How do we select or develop implementation strategies?

1. Conduct an assessment of factors that influence implementation processes and outcomes (e.g. characteristics of the innovation, setting, preferences of involved stakeholders, barriers and facilitators)
2. Develop or select and tailor strategies to address these.

It's not that easy



Challenges in Selecting Implementation Strategies

- While some compilations exist, they may be less relevant for certain settings (clinical vs public health or community settings)
- Strategies included in compilations are broad and may represent qualitatively different things (delivery channel, assessments, processes)
- Underutilization of conceptual models and theories in the literature,
- Variations related to the EBPs and the contexts in which they are implemented

“But I have my list of ERIC strategies.....”

When you select a strategy (e.g. develop educational material, use mass media, train the trainer strategies, provide TA) you still have to develop the content to include in the strategy.

AND it has to contain the mechanism of change (change methods) to be effective.



Using Theories and Frameworks

Why should we?

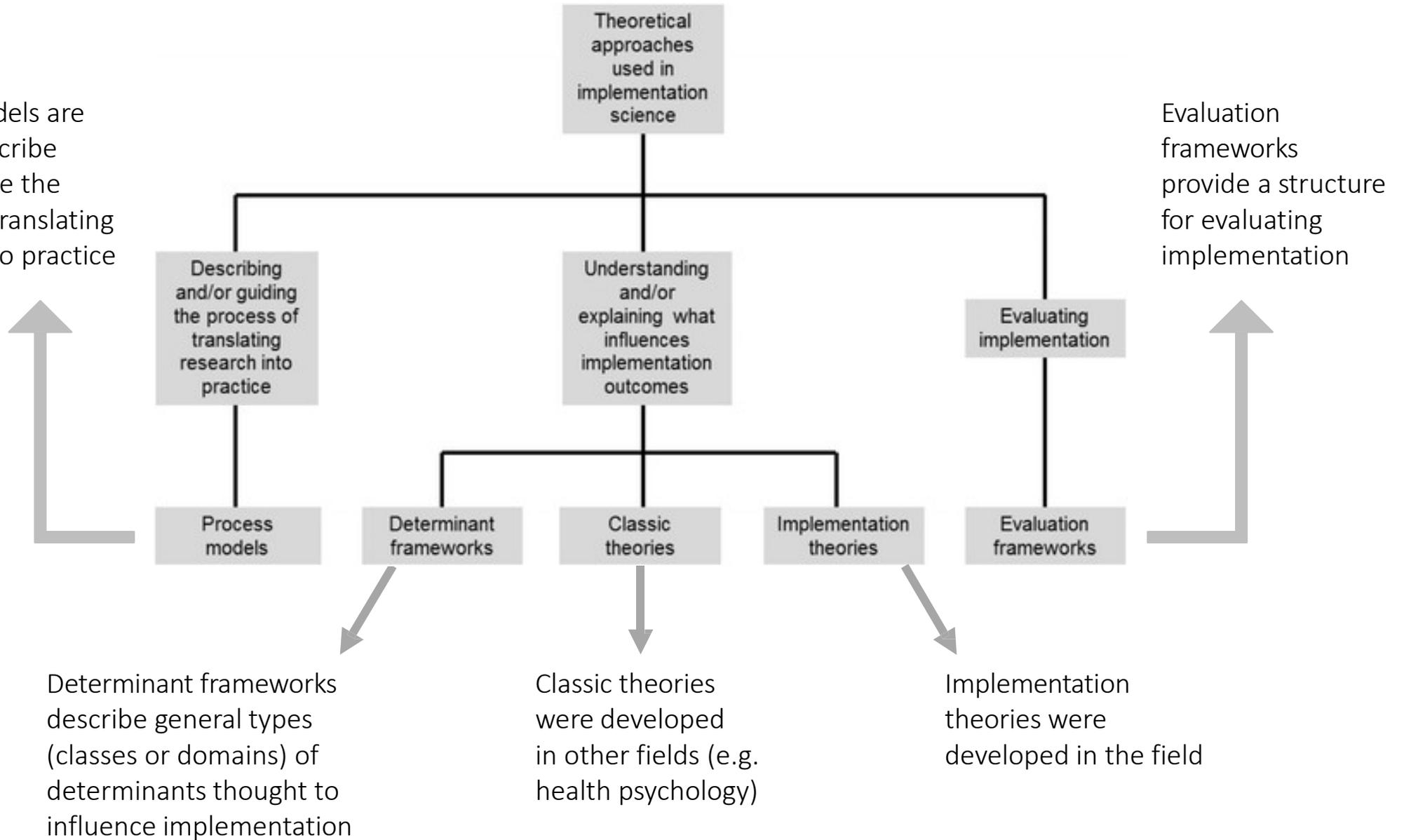
- Can inform planning by clarifying causal mechanisms, core components, active ingredients
- Help explain what outcomes to expect
- HOW and WHY certain outcomes are achieved

“There is nothing so practical as a good theory”

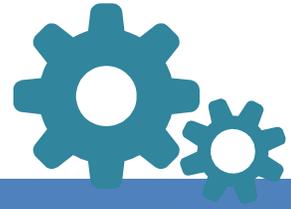
(Kurt Lewin, 1952)



Process models are used to describe and/or guide the process of translating research into practice



Methods for Designing and Tailoring Implementation Strategies



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

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

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

What is Implementation Mapping?

The Use of the Intervention Mapping Protocol for planning Implementation Strategies (Implementation Interventions).

Implementation Science + Intervention Mapping = **Implementation Mapping**



Implementation Mapping: Using Intervention Mapping to Develop Implementation Strategies

Maria E. Fernandez^{1}, Gill A. ten Hoor², Sanne van Lieshout³, Serena A. Rodriguez^{1,4}, Rinad S. Beidas^{5,6}, Guy Parcel¹, Robert A. C. Ruiter², Christine M. Markham¹ and Gerjo Kok²*

¹ Center for Health Promotion and Prevention Research, University of Texas Health Science Center at Houston School of Public Health, Houston, TX, United States, ² Department of Work and Social Psychology, Maastricht University, Maastricht, Netherlands, ³ Department of Public Health, Amsterdam UMC, University of Amsterdam, Amsterdam, Netherlands, ⁴ Department of Population and Data Sciences, University of Texas Southwestern Medical Center, Dallas, TX, United States, ⁵ Department of Psychiatry, University of Pennsylvania, Philadelphia, PA, United States, ⁶ Department of Medical Ethics and Health Policy, University of Pennsylvania, Philadelphia, PA, United States

Fernández ME, et al. Implementation Mapping: Using Intervention Mapping to Develop Implementation Strategies, *Frontiers in Public Health*, 2019, 7:158. doi: 10.3389/fpubh.2019.00158. eCollection 2019. PMID: 31275915; PMCID: PMC6592155.

Implementation Mapping Tasks



Task 1. Conduct a needs and assets assessment and identify adopters and implementers

Task 2. Identify adoption and implementation outcomes, performance objectives, and determinants; create matrices of change.

Task 3. Choose theoretical methods; Select or create implementation strategies.

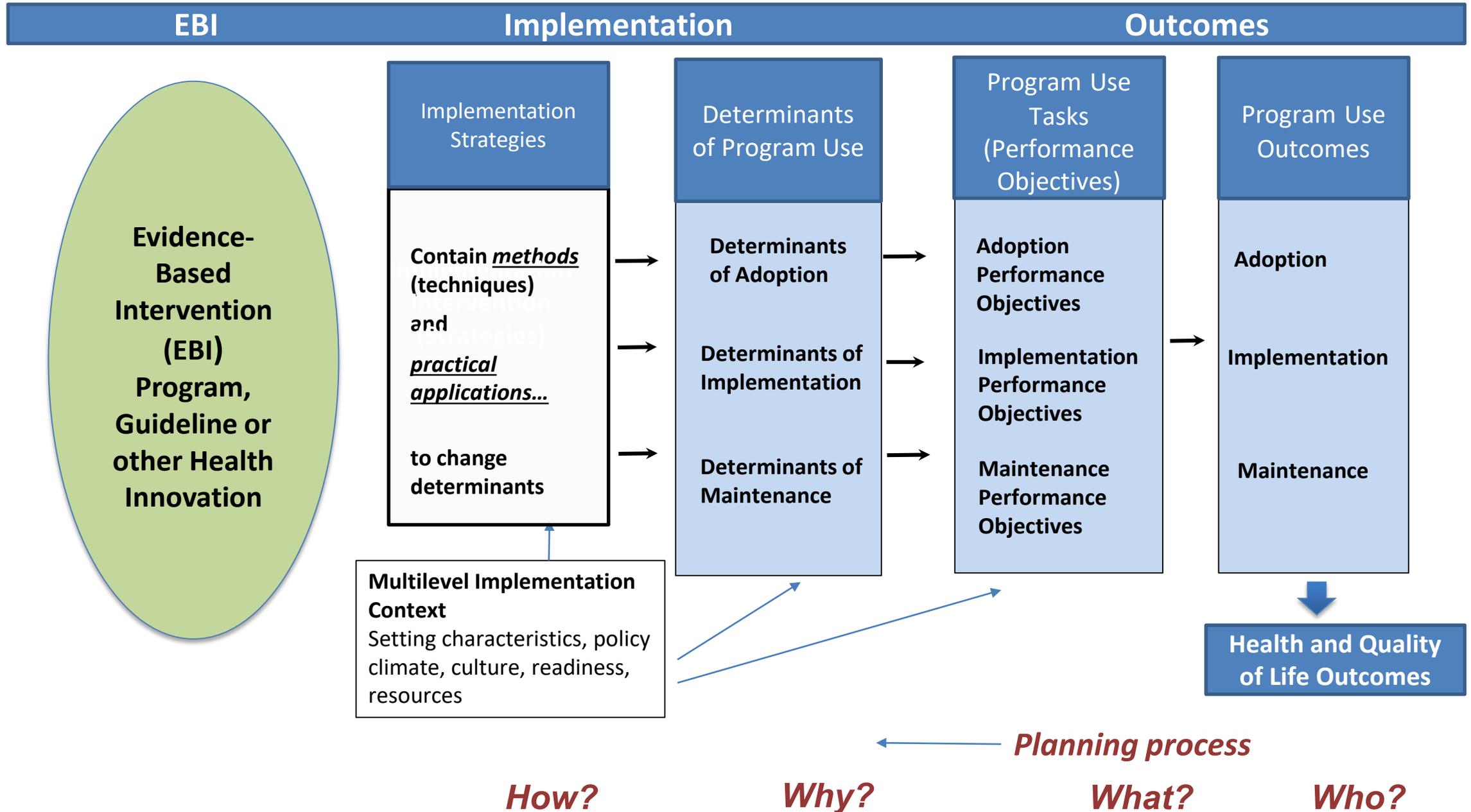
Task 4. Produce implementation protocols and materials.

Task 5. Evaluate Implementation Outcomes

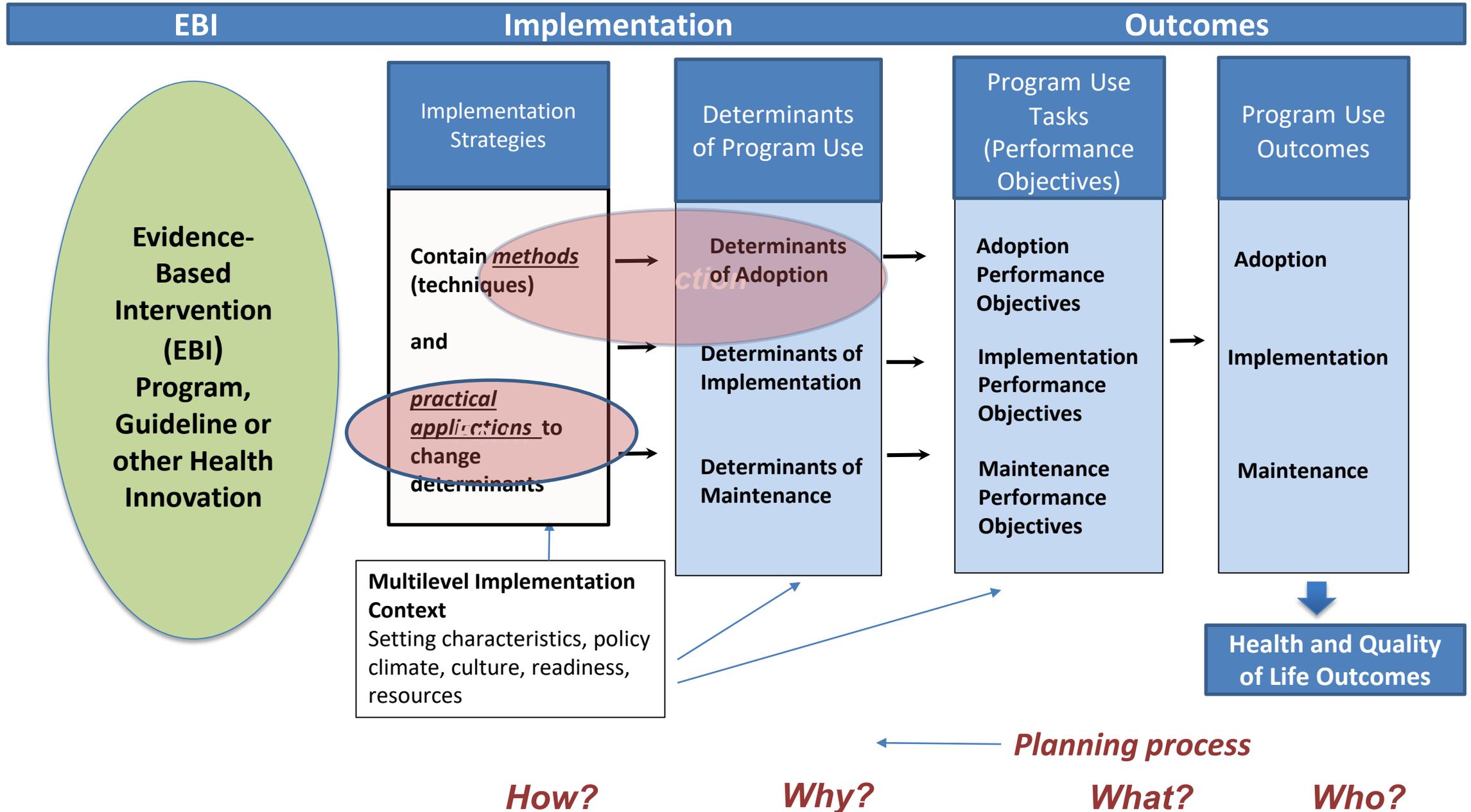
Guides the D&I planner/researcher to answer the following questions:

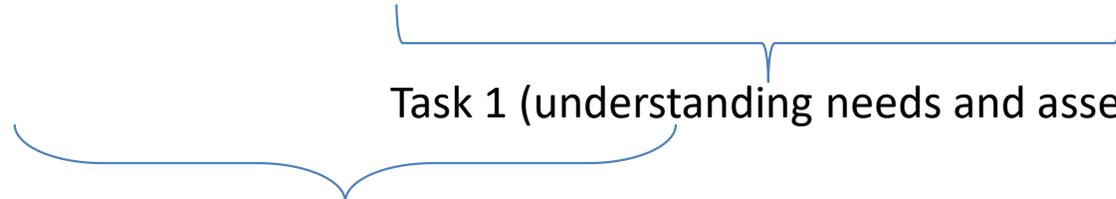
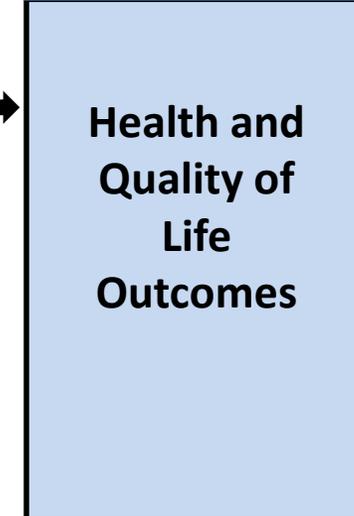
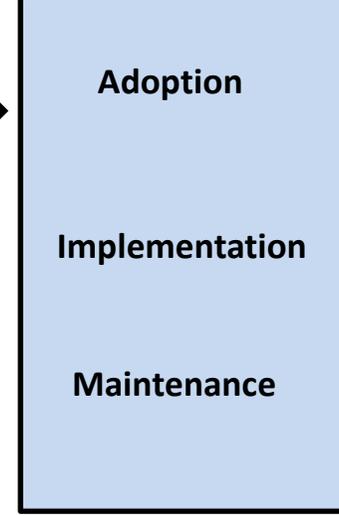
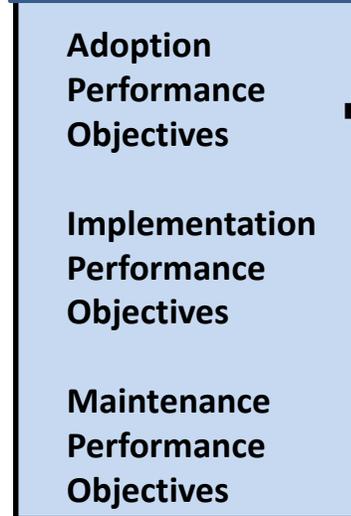
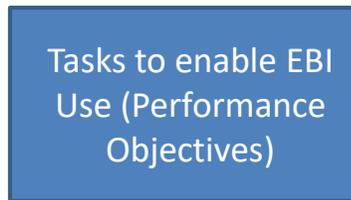
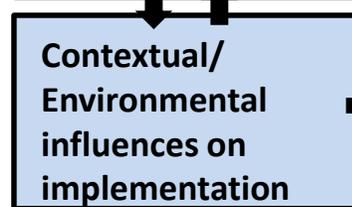
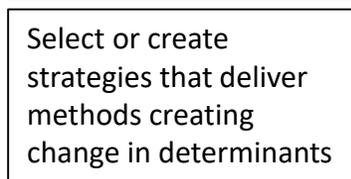
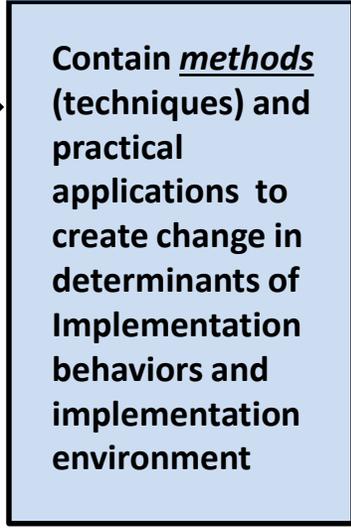
- Who will decide to use the program?
- Who will implement the program?
- Who will assure that the program continues over time?
- What do they need to do?
- Why would they do it (determinants)?
- How (what methods and strategies) do we influence these adoption, implementation, and maintenance behaviors and conditions?

Implementation Mapping Logic Model



Implementation Mapping Logic Model





Figuring out the **WHAT** before the *HOW*

Specify Implementation Performance Objectives:

What are the subcomponents of the Implementation behavior?

- What do the program implementers need to do to deliver the essential program components with acceptable completeness, fidelity and adaptation?

Now the How...

Implementation Strategies have change *Methods* and *Practical Applications*

- A *method* is a general process for influencing changes in the determinants of behavior and environmental conditions
(*element of core functions*)
- A *practical application* is a concrete, real-world technique for the operationalizing methods in ways that fit with the intervention group and the context in which the intervention will be conducted

=*how you will present and deliver the theoretical method*

(*Forms- activities that operationalize, carry out & achieve the functions*)

Example Performance Objectives for Implementation

Clinic decision makers will:

- Communicate with staff about practice change/role changes for patients due for mammography
- Designate time for EBI training

Program champion will:

- Arrange for any change to EHR or reporting for PMP
- Arrange for patient referrals for mammograms

Patient navigator will:

- Conduct telephone barrier counseling
- Use active-listening protocol when talking with patient

Identify implementation determinants, methods and practical applications to address determinants

What are the subcomponents of the Implementation behavior?

Determinants: Outcome expectations, Self-efficacy, Attitudes

Methods: Persuasion, Active learning, Social support, Dissonance reduction, Modeling, Skill building

Practical Applications (how these methods are operationalized): Workshops, Discussion, Problem analysis, Role playing, Team meeting, Problem solving, Guided practice, Newsletters, Model stories, Resources, Information

Peace of Mind Program Implementation Plan

Stage	Agent	Determinants/ Change Objectives	• Theoretical Change Methods	• Practical Applications/ Strategy
Implementation	Program Champion Navigator	Awareness/ Perceptions Outcome Expectations Skills and Self- efficacy Feedback and Reinforcement	<ul style="list-style-type: none"> • Information • Persuasion • Skill building and guided practice • Modeling • Monitoring and feedback • Technical assistance / capacity building • Facilitation • Vicarious reinforcement 	<ul style="list-style-type: none"> • Face to face training held over two four hour sessions. BHC navigators model EBI behavior and provide ongoing implementation support on-site • PMP research team available via email, phone and training booster sessions as needed • Paperwork processes to provide funds for patients needing financial assistance from PMP

Highfield, L, Valeria MA, Fernandez, ME, Bartholomew-Eldridge, K. Development of an implementation intervention using intervention mapping to increase mammography among low income women.(2018) *Frontiers in Public Health* | doi: 10.3389/fpubh.2018.00300.

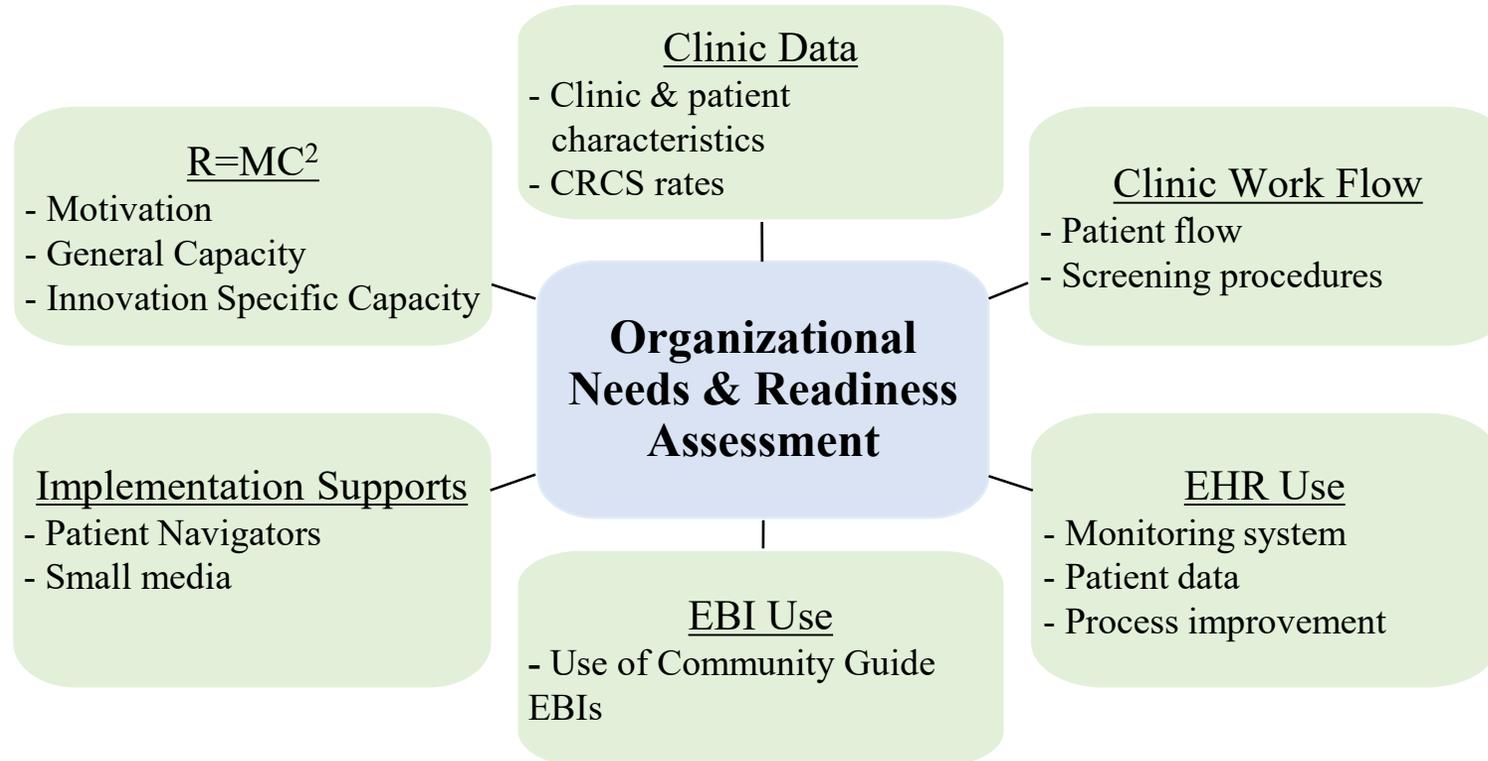
Example of methods and practical applications used in AVP to impact determinants for vaccination behavior

Physicians will vaccinate eligible patients against HPV in accordance with ACIP guidelines

Performance objective: PO.2. Review quarterly assessment and feedback (A&F) report for HPV vaccination

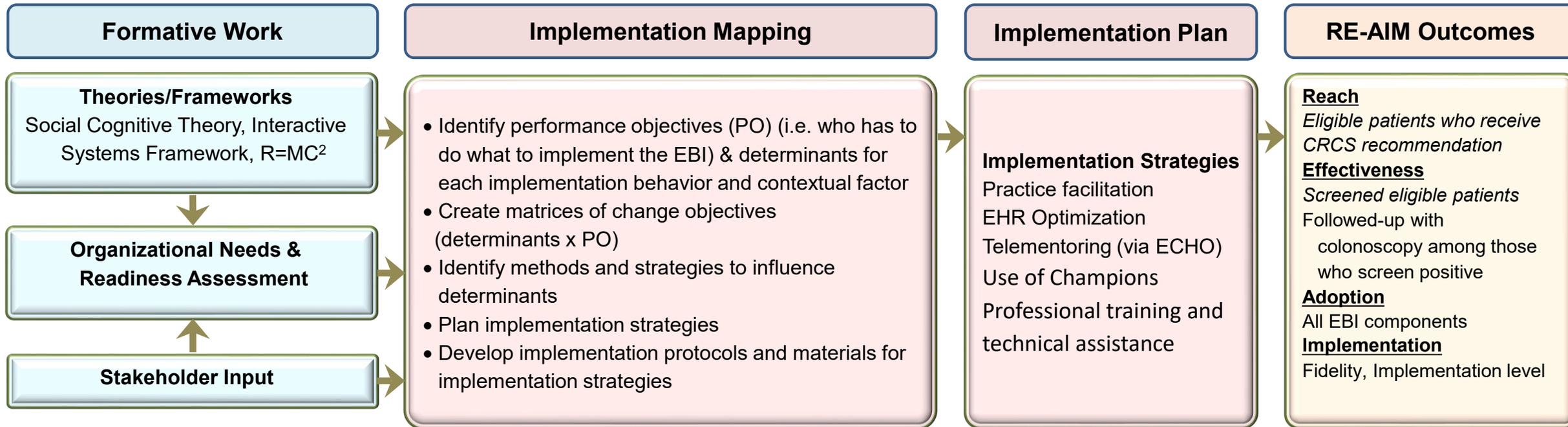
# OBJECTIVE	METHOD	PRACTICAL APPLICATION
KNOWLEDGE		
<p>K.2a: Identify when and how A&F reports will be delivered</p> <p>K.2b: Describe the content of the A&F reports</p> <p>K.2c: Recognize that A&F is one of the most effective strategies to promote vaccination</p>	<p>Skill building and guided practice</p> <p>Chunking</p> <p>Tailoring</p> <p>Feedback</p> <p>Consciousness raising</p>	<ul style="list-style-type: none"> Champions receive one champion binder to hold A&F reports, newsletters, and information about webinars for providers to access. Champions send logs recording each provider's receipt of the A&F report back to the project team. Champions educate providers about the effectiveness of A&F reports. Providers engage in CEs, which provide education regarding the effectiveness of A&F reports.
OUTCOME EXPECTATIONS		
<p>OE.2a: Expect that reviewing A&F reports will allow his/her clinic and staff to track progress toward HPV vaccination goals</p> <p>OE.2b: Expect that reviewing A&F reports will improve personal and clinic-level HPV vaccination rates</p>	<p>Self-assessment</p>	<ul style="list-style-type: none"> Quarterly A&F reports are stored in the champion binder for tracking provider and clinic vaccination rate progress from quarter to quarter.
NORMATIVE BELIEFS		
<p>NB.2: Recognize that vaccinating all eligible patients against HPV in accordance with ACIP guidelines is part of TCP's expectation for optimal physician performance</p>	<p>Persuasive communication</p> <p>Information about others' approval</p>	<ul style="list-style-type: none"> Physician newsletters from the clinic network director provides messaging regarding the network's vaccination initiation and completion goals.

Texas CDC Colorectal Cancer Control Program (CRCCP)



Conceptual Framework for Implementation Strategy Development and Tailoring

Texas CDC Colorectal Cancer Control Program



QuitSMART Utah

PCORI Pragmatic Clinical Trial



Goal: Implement and evaluate practical, scalable, evidence based tobacco cessation strategies among populations most impacted by tobacco use



Partnerships

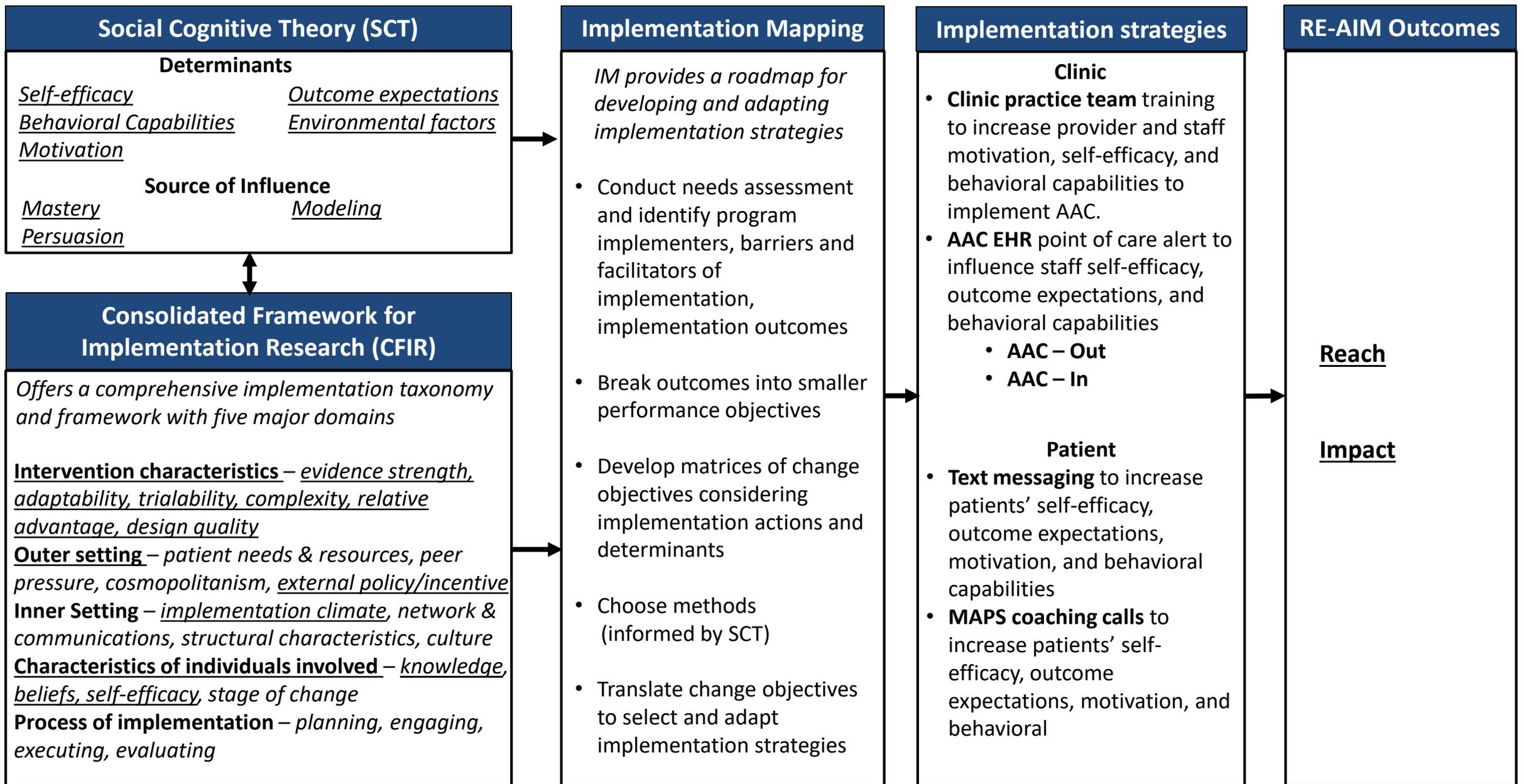
Utah FQHCs (11 systems; 33 clinics)

Utah Tobacco Quit Line

Utah Department of Health

Association for Utah Community Health (AUCH)

Fernandez ME, Schlechter CR, ...Wetter DW. QuitSMART Utah: an implementation study protocol for a cluster-randomized, multi-level Sequential Multiple Assignment Randomized Trial to increase Reach and Impact of tobacco cessation in Community Health Centers. *Implementation Science*. 2020; 15: 9.



Implementation challenges that can be addressed using Implementation Mapping

Research agenda

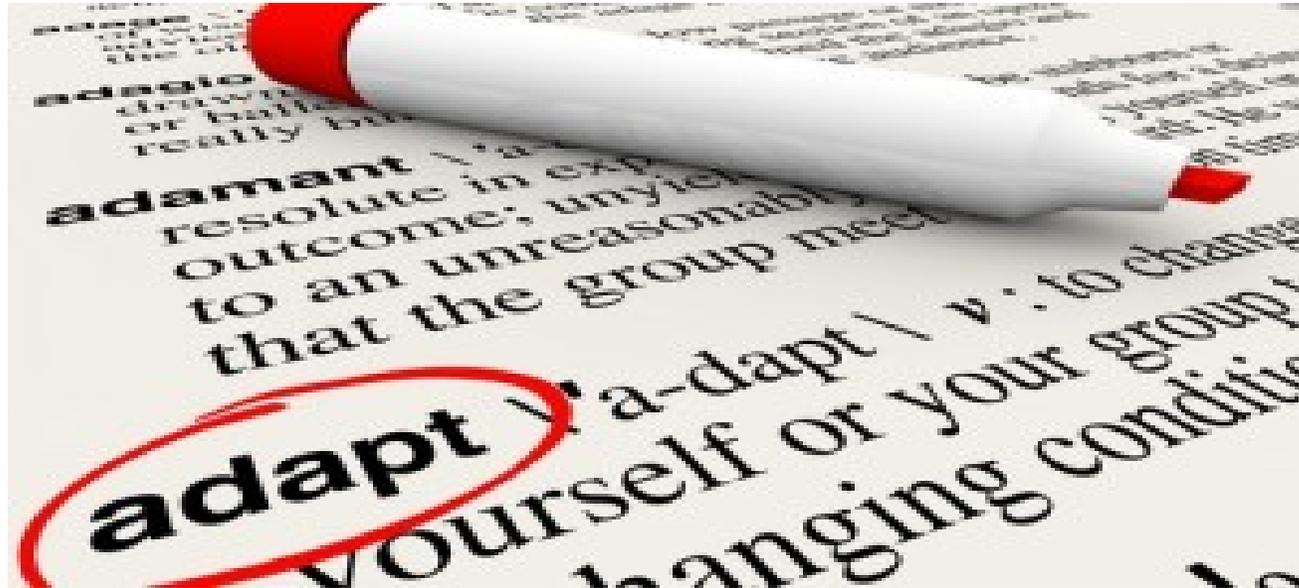
- 1) Improve description, tracking, and reporting
- 2) Enhance methods for developing, selecting and tailoring strategies (e.g. Group model building, conjoint analysis, concept mapping, Implementation Mapping)
- 3) Specify & test mechanisms
- 4) Increase economic evaluations



Powell BJ, Fernández ME, Williams NJ, Aarons GA, Beidas RS, Lewis CC, McHugh SM, Weiner BJ, Enhancing the Impact of Implementation Strategies in Healthcare: A Research Agenda. *Frontiers in Public Health*, 2019, 7:3

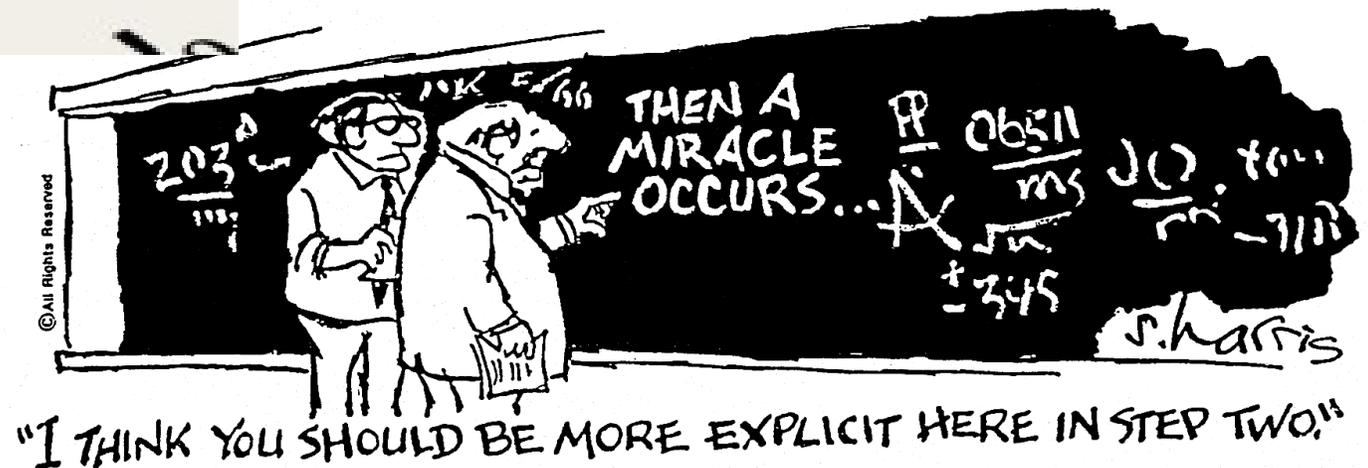
Fernández ME, ten Hoor GA, van Lieshout S, Rodriguez SA, Beidas RS, Parcel G, Robert A.C. Ruiters AC, Markham CM, Kok G. Implementation Mapping: Using Intervention Mapping to Develop Implementation Strategies, *Frontiers in Public Health*, 2019, 7:158.

IM ADAPT: A Systematic Approach for Program Adaptation



Intervention Mapping can help:

- ▶ Designing programs
- ▶ Designing implementation strategies
- ▶ **Adapting EBIs**



IM ADAPT

Intervention Mapping Guided Adaptation

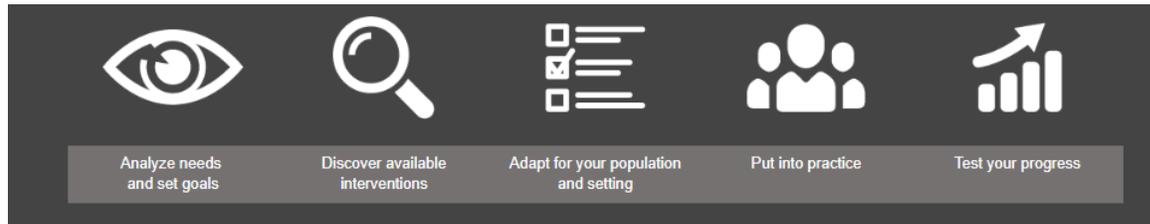
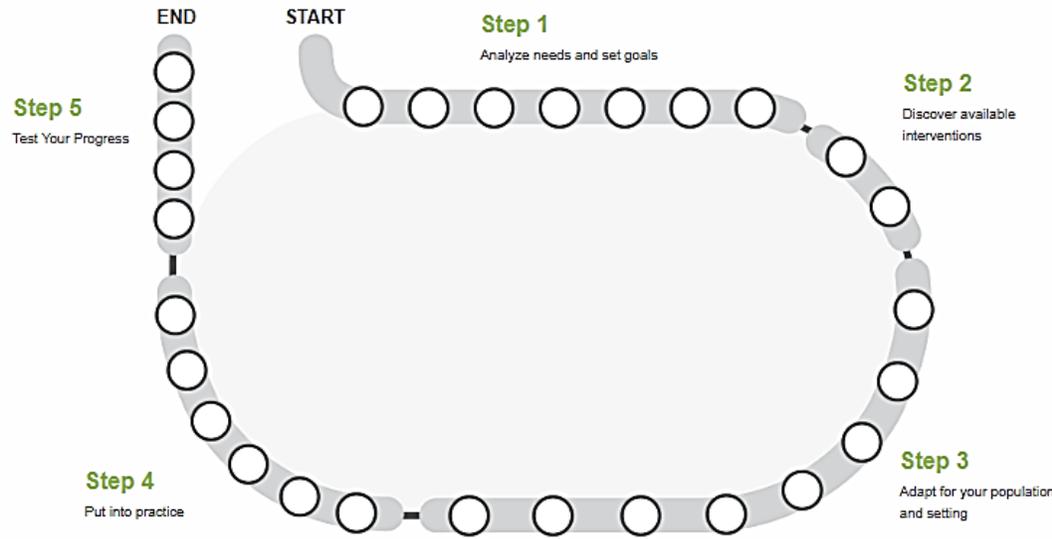
Analyze

Discover

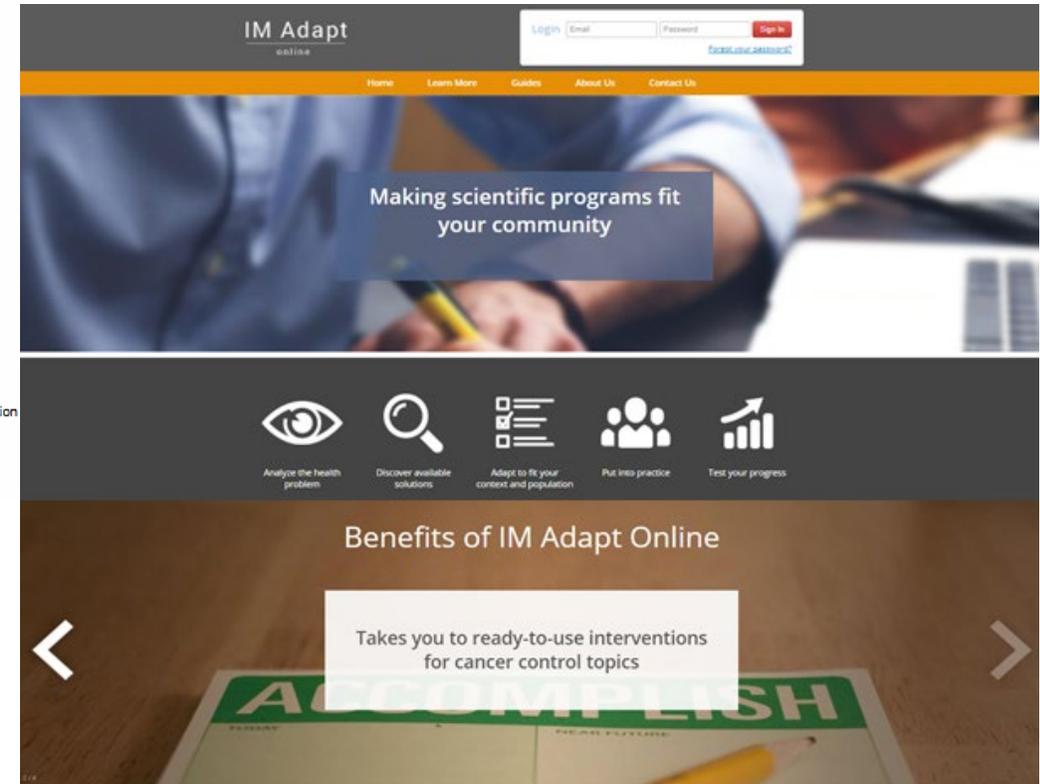
Adapt

Practice

Test



<https://www.imadapt.org>



Summary

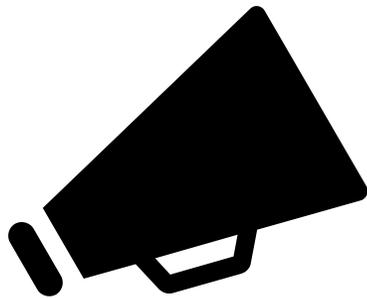
- Implementation Mapping guides the use of theories/frameworks, empirical literature, community and stakeholder engagement and new data to:
 - ▣ help understand determinants of implementation at multiple levels; and
 - ▣ Develop or select and tailor implementation strategies to accelerate and improve scale up and spread of effective interventions.
- Systematic, multi-level planning of implementation strategies can help identify the mechanisms of influence (form and function) and guide the use of theories and frameworks to inform planning
- IM Adapt provides a systematic approach for EBI adaptation decision making



frontiers in Public Health

Special Topic Issue: Implementation Mapping for Selecting, Adapting
and Developing Implementation Strategies

Editors: Maria E Fernandez, Byron Powell, Gil ten Hoor



Call for Abstracts Coming Soon!



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Merging implementation tools with Implementation Mapping

Anne Sales

Center for Clinical Management Research, VA Ann Arbor

Department of Learning Health Sciences, University of Michigan

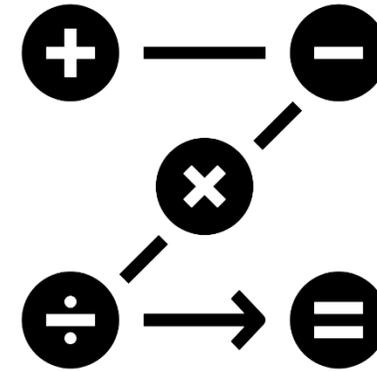
salesann@umich.edu

Implementation Mapping is a comprehensive approach to designing implementation interventions

- Full use of Implementation Mapping is very systematic and yields a structured set of tables and matrices
 - Investing it with the background of *Intervention Mapping* adds important layers of theory and depth of approach
 - As described in the 2019 paper, implementation tools are not integrated into Implementation Mapping– but they could be
- As an aside, I wonder how willing implementation practitioners will be to use the full approach vs. modifying it



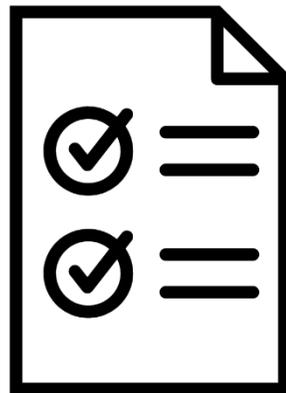
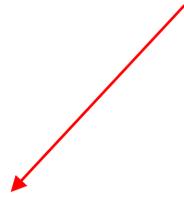
1. Conduct assessment and identify participants by role



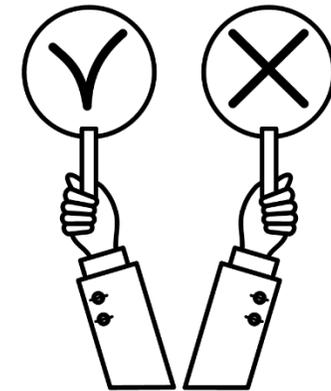
2. Identify outcomes, objectives, determinants; create change matrices



3. Select strategies



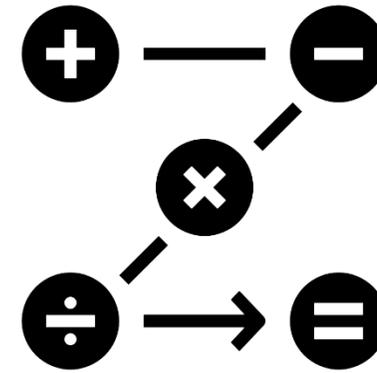
4. Produce implementation protocols and materials



5. Evaluate outcomes

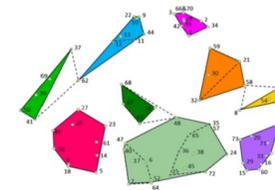


1. Conduct assessment and identify participants by role

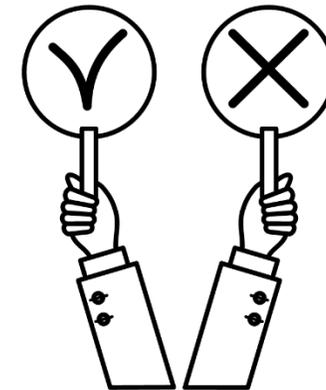


Tailored Implementation for Chronic Diseases checklist
Floortj et al. Implementation Science 2013, 8:35
<http://www.implementationscience.com/content/8/1>

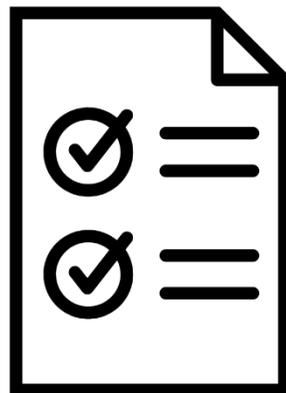
2. Identify outcomes, objectives, **determinants**; create change matrices



3. Select **strategies**



5. Evaluate **outcomes**



4. Produce implementation protocols and materials

