Developing Implementation Strategies using Implementation Mapping
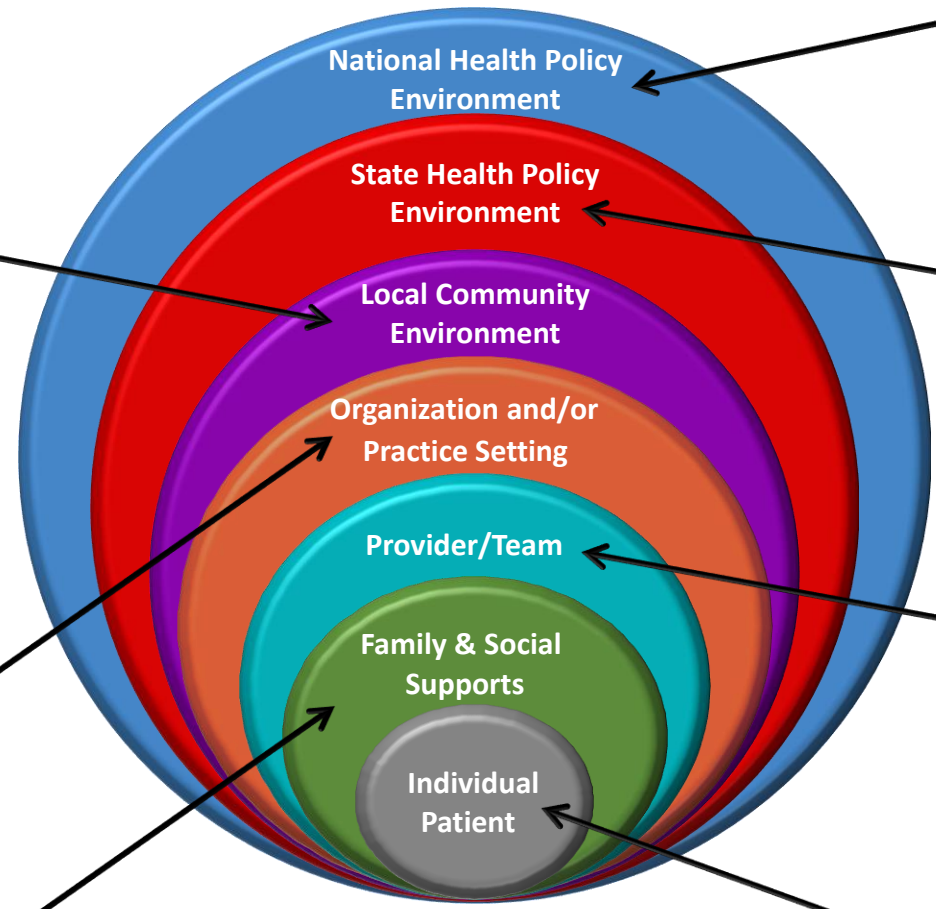
6/3/2022

María E. Fernández, PhD

Lorne Bain Distinguished Professor in Public Health and Medicine
Professor of Health Promotion and Behavioral Sciences
Director, Center for Health Promotion and Prevention Research
Co-Director, UTHealth Institute for Implementation Science

Multiple Levels of Influence

Local Community
Community Level Resources
  Medical care offerings
  Population SES
  Lay support networks
  Private cancer organizations
Local Hospital & Cancer Services
Market
  Market structure
  Level of competition
  Third party payers/insurance
  Pay for performance initiatives
  HMO / managed care penetration
  Percent non-profit
  Specialty mix
Local Professional Norms
  MD practice organizations
  Use of guidelines
  Practice patterns

National Health Policy
Medicare reimbursement
Federal efforts to reform healthcare
National cancer initiatives
Accreditations
Professional standards

State Health Policy
Medicaid reimbursement
Hospital performance data policies
  (dissemination, visibility, etc.)
State cancer plans/programs
Regulations/limitations on
  reimbursement of clinical trials
Activities of state-wide advocacy
  groups

Organization / Practice Setting
Leadership
Organizational structure, policies
  and incentives
Delivery system design
Clinical decision support
Clinical information systems
Patient education & navigation

Provider / Team
Knowledge, communication skills
Perceived barriers, norms, test efficacy
Cultural competency
Staffing mix & turnover
Role definition
Teamwork

Family / Social Supports
Family dynamics
Friends, network support

Individual Patient
Biological factors
Socio-demographics
Insurance coverage
Risk status
Co-morbidities
Knowledge, attitudes, beliefs
Decision-making preferences
Psychological reaction/coping

Circles (outer to inner):
- National Health Policy Environment
- State Health Policy Environment
- Local Community Environment
- Organization and/or Practice Setting
- Provider/Team
- Family & Social Supports
- Individual Patient

Improved Quality of Cancer Care

Improved Cancer-Related Health Outcomes

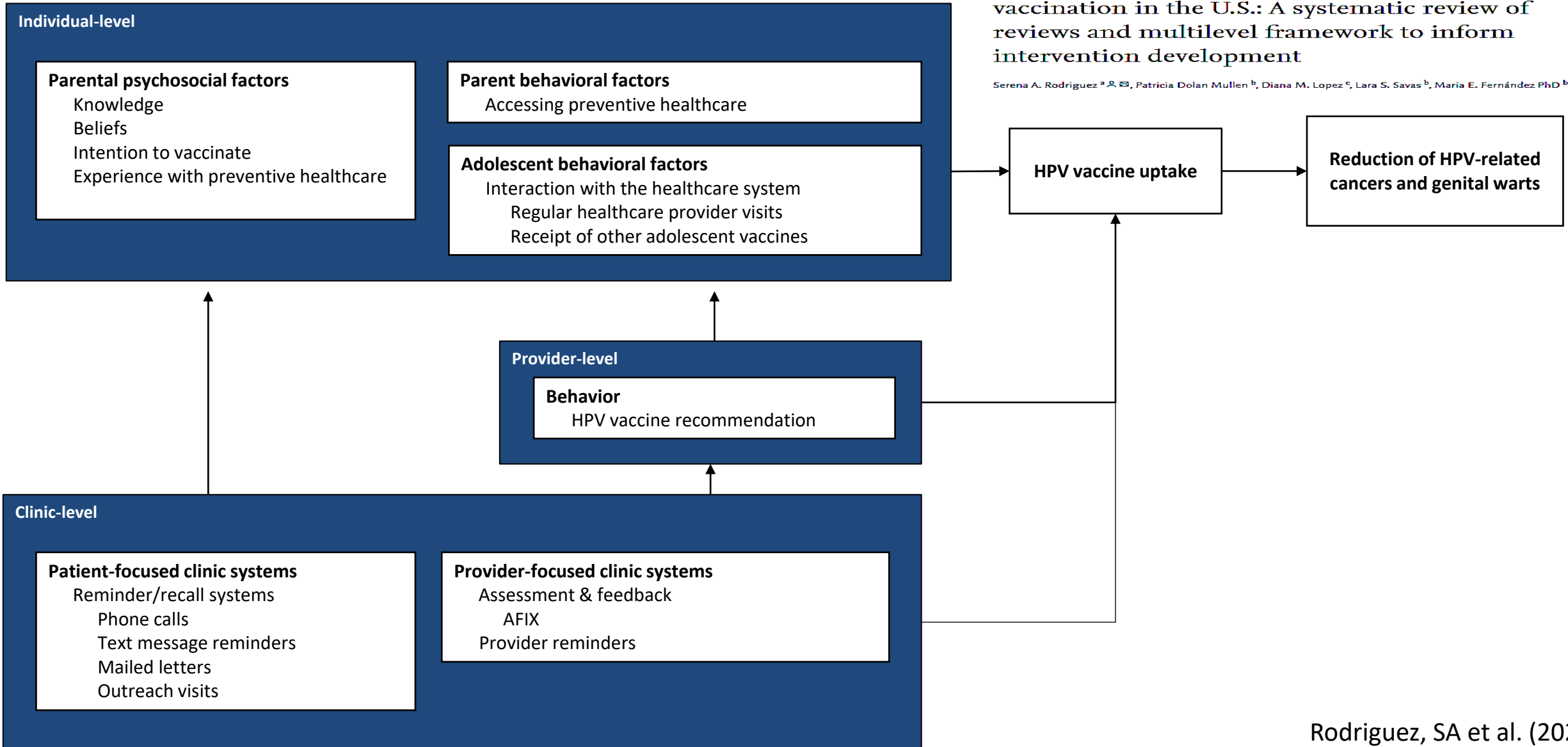(Bronfenbrenner, 1979; Taplin, et al., 2012)

Multilevel Framework of HPV Vaccination among Adolescents in the U.S.

Review Article

Factors associated with adolescent HPV vaccination in the U.S.: A systematic review of reviews and multilevel framework to inform intervention development

Serena A. Rodriguez [a] ✉, Patricia Dolan Mullen [b], Diana M. Lopez [c], Lara S. Savas [b], Maria E. Fernández PhD [b]

Individual-level

Parental psychosocial factors
- Knowledge
- Beliefs
- Intention to vaccinate
- Experience with preventive healthcare

Parent behavioral factors
- Accessing preventive healthcare

Adolescent behavioral factors
- Interaction with the healthcare system
  - Regular healthcare provider visits
  - Receipt of other adolescent vaccines

Provider-level

Behavior
- HPV vaccine recommendation

Clinic-level

Patient-focused clinic systems
- Reminder/recall systems
  - Phone calls
  - Text message reminders
  - Mailed letters
  - Outreach visits

Provider-focused clinic systems
- Assessment & feedback
  - AFIX
- Provider reminders

HPV vaccine uptake

Reduction of HPV-related cancers and genital warts

Rodriguez, SA et al. (2020)

Implementation Strategies

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

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

Multifaceted Strategy *or* **Implementation Intervention** – Combination of multiple discrete strategies.

Powell et al. (2012; 2015; 2019); Proctor et al. (2013)

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

"Everything should be made as simple as possible. But not simpler."

Albert Einstein
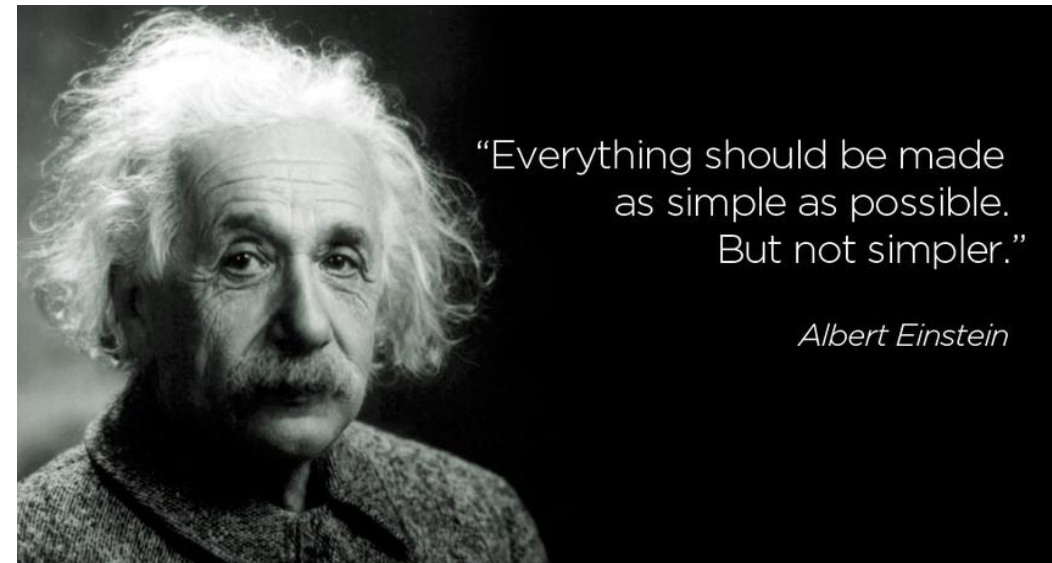
Challenges in Selecting Implementation Strategies

- 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)

- Limitations of the empirical literature in describing strategies

- Underutilization of conceptual models and theories in the literature,

- Variations related to the EBPs and the contexts in which they are implemented

Waltz, et al. 2014; Powell et al. 2017

Community and Stakeholder Engagement

Cancer causes & control : CCC
Author Manuscript   HHS Public Access

Participatory implementation science to increase the impact of evidence-based cancer prevention and control

Shoba Ramanadhan, ScD, MPH, Melinda M. Davis, PhD, [...], and Ross C. Brownson, PhD

Knowledge generation comes from the hands of practitioners/implementers as much as it comes from those usually playing the role of intervention researcher.

Hawe, P. (2015). Lessons from Complex Interventions to Improve Health. *Annual Review of Public Health*, *36*(1), 307–323. doi: 10.1146/annurev-publhealth-031912-114421

Methods for Designing and Tailoring Implementation Strategies

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

Methods to Improve the Selection and Tailoring of Implementation Strategies

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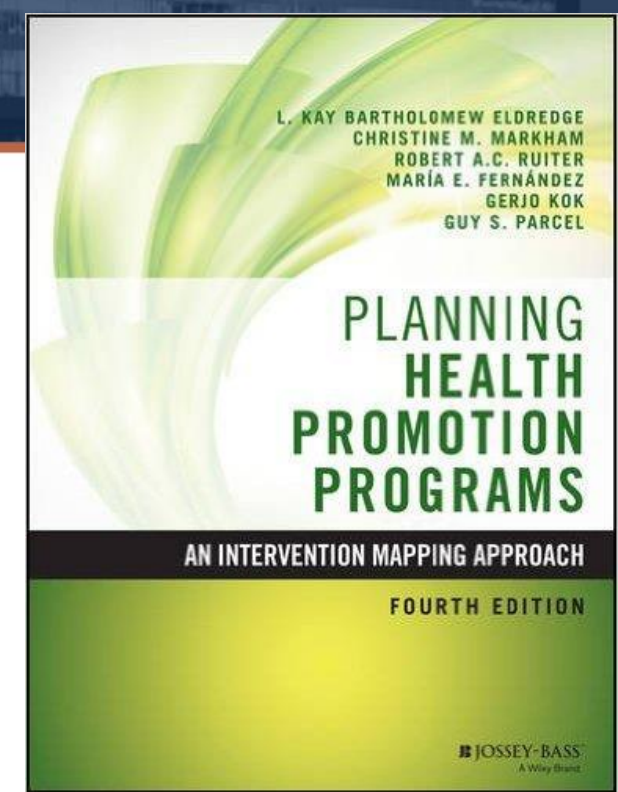Gregory A. Aarons, PhD
J. Curtis McMillen, PhD
Enola K. Proctor, PhD
David S. Mandell, ScD

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

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
  - Theory
  - Empirical evidence
  - New data
  - Community input
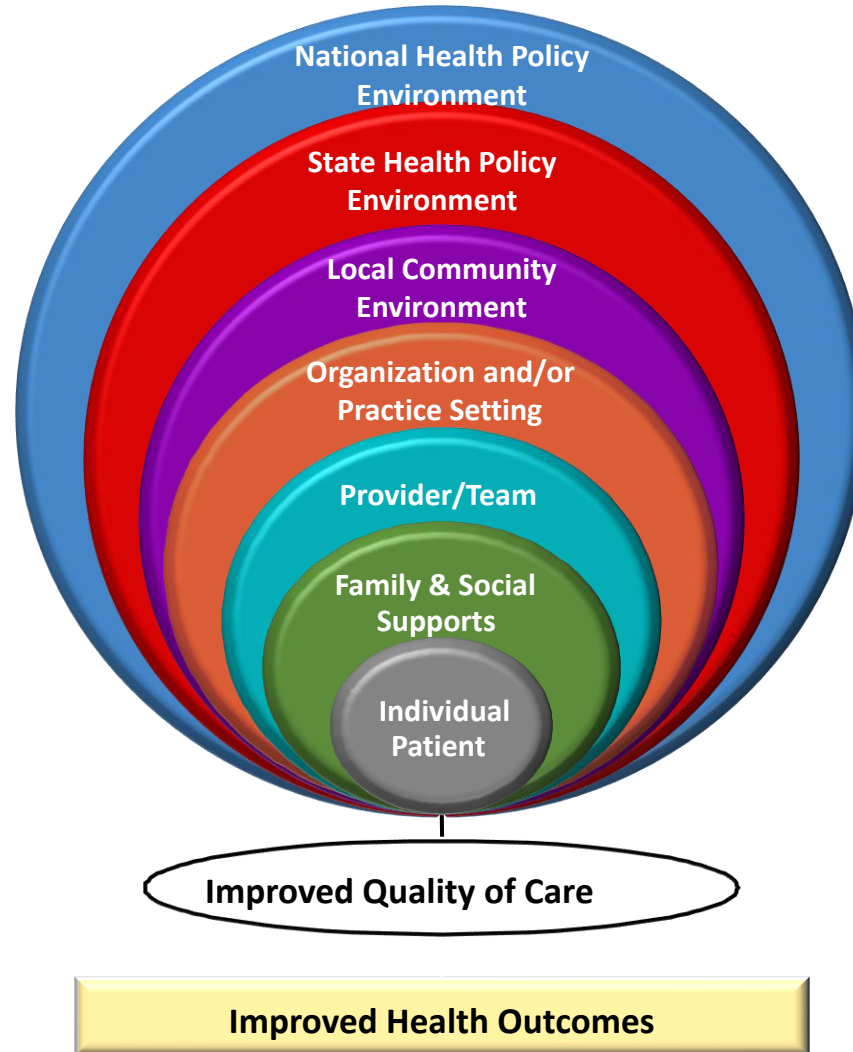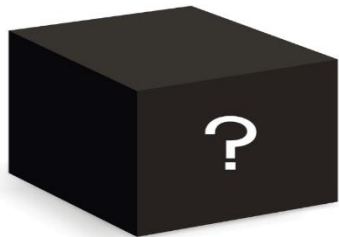- Incorporates **community participatory** processes

Bartholomew Eldredge, LK, Markham, CM, Ruiter, RAC, Fernández, M.E., Kok, G, Parcel, GS (Eds.). Jan 2016. *Planning health promotion programs: An Intervention Mapping approach* (4th ed.). San Francisco, CA: Jossey-Bass

History of Intervention Mapping

Stimulated by questions that include <u>how and when to</u>:

➢ Use theory?

➢ Apply empirical evidence?

➢ Collect new data?

...to create effective behavior or systems change interventions

National Health Policy Environment

State Health Policy Environment

Local Community Environment

Organization and/or Practice Setting

Provider/Team

Family & Social Supports

Individual Patient

Improved Quality of Care

Improved Health Outcomes

➢ **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?

Intervention Mapping: A Systematic Approach for Intervention Development, Implementation and Adaptation

1. Co-creating interventions in ways that enhance their potential for being adopted, implemented, and sustained

2. Collaborative adaptations using IM Adapt to improve fit of evidence-based interventions

3. Co-Designing implementation strategies to influence adoption, implementation and sustainment of evidence-based approaches (*Implementation Mapping*)
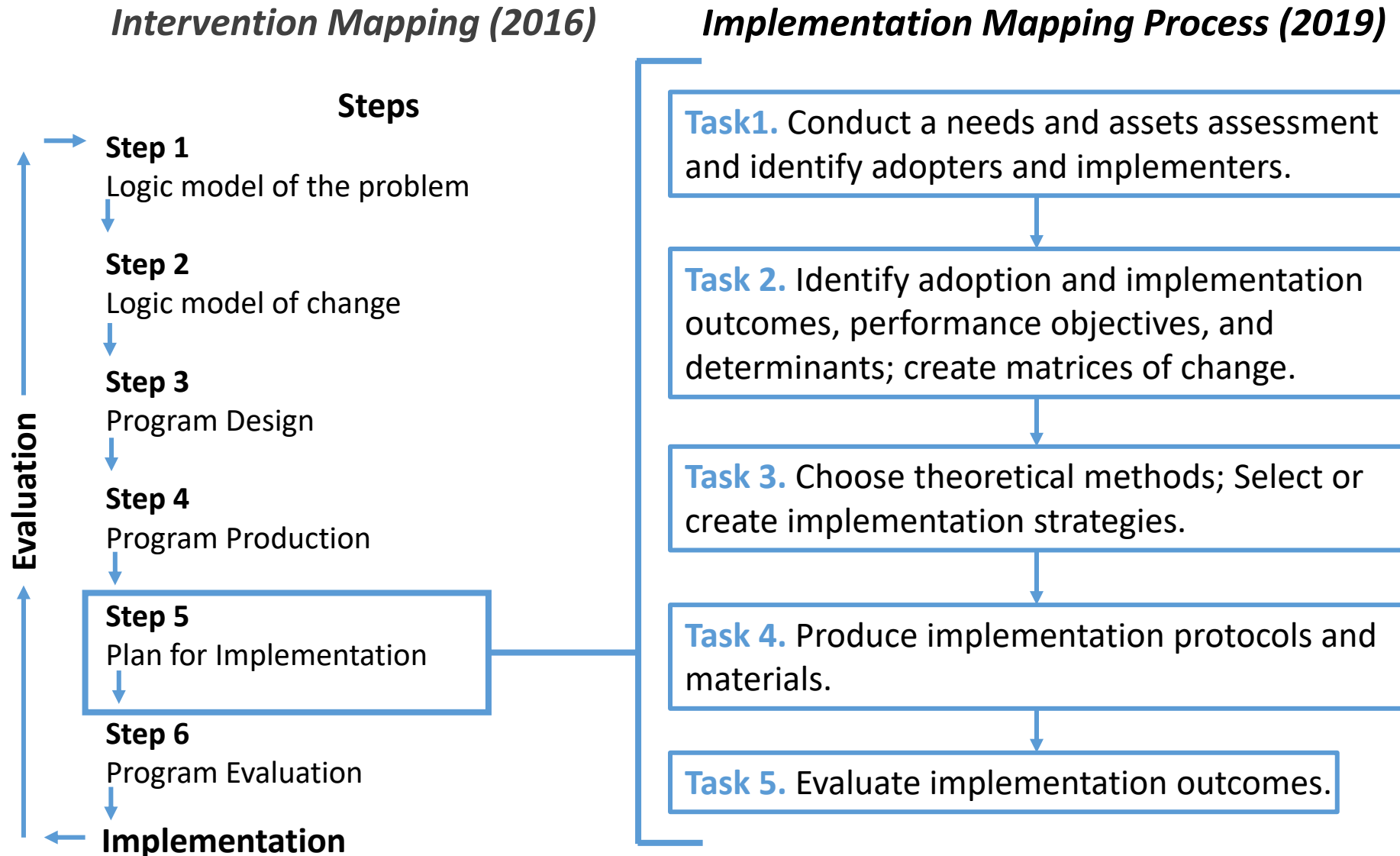
https://www.imadapt.org
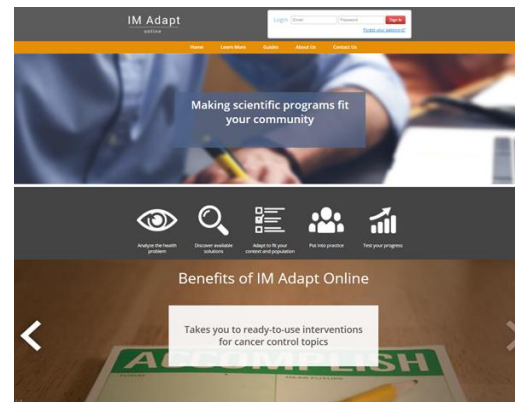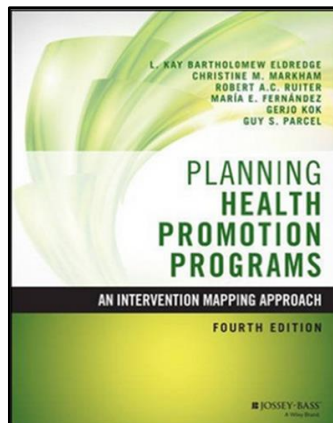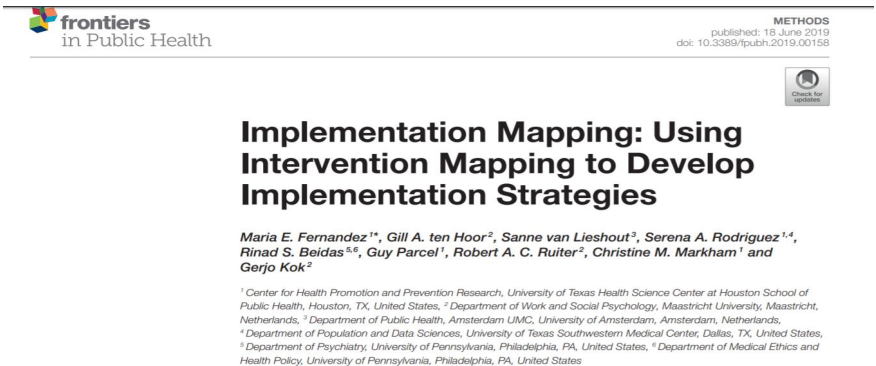
Bartholomew Eldredge, LK, et al. Planning health promotion programs: An Intervention Mapping approach (4th ed.). San Francisco, CA: Jossey-Bass. 2016; Fernández ME, Ruiter RAC, Markham CM and Kok G. Intervention Mapping: Theory- and Evidence-Based Health Promotion Program Planning: Perspective and Examples. Frontiers in Public Health. 2019; Fernández ME, , et al. Implementation Mapping: Using Intervention Mapping to Develop Implementation Strategies, Frontiers in Public Health, 2019

Implementation Mapping

Intervention Mapping (2016)

Steps

Step 1
Logic model of the problem

Step 2
Logic model of change

Step 3
Program Design

Step 4
Program Production

Step 5
Plan for Implementation

Step 6
Program Evaluation

Evaluation

Implementation

Implementation Mapping Process (2019)

Task1. 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.

Fernandez Maria E., ten Hoor Gill A., van Lieshout Sanne, Rodriguez Serena A., Beidas Rinad S., Parcel Guy, Ruiter Robert A. C., Markham Christine M., Kok Gerjo. Implementation Mapping: Using Intervention Mapping to Develop Implementation Strategies. *Frontiers in Public Health,* 7, 2019.

What is Implementation Mapping?

The Use of the Intervention Mapping Protocol for planning Implementation Strategies (Implementation Interventions).
Implementation Science + Intervention Mapping **= Implementation Mapping**

Tasks for Developing the Implementation Plan

From Intervention Mapping Text (2016)

Task1. Identify potential program implementers.

Task 2. State outcomes and performance objectives for program use

Task 3. Construct matrices of change objectives for program use

Task 4. Design implementation interventions

Implementation Mapping Process (2019)

Task1. 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.

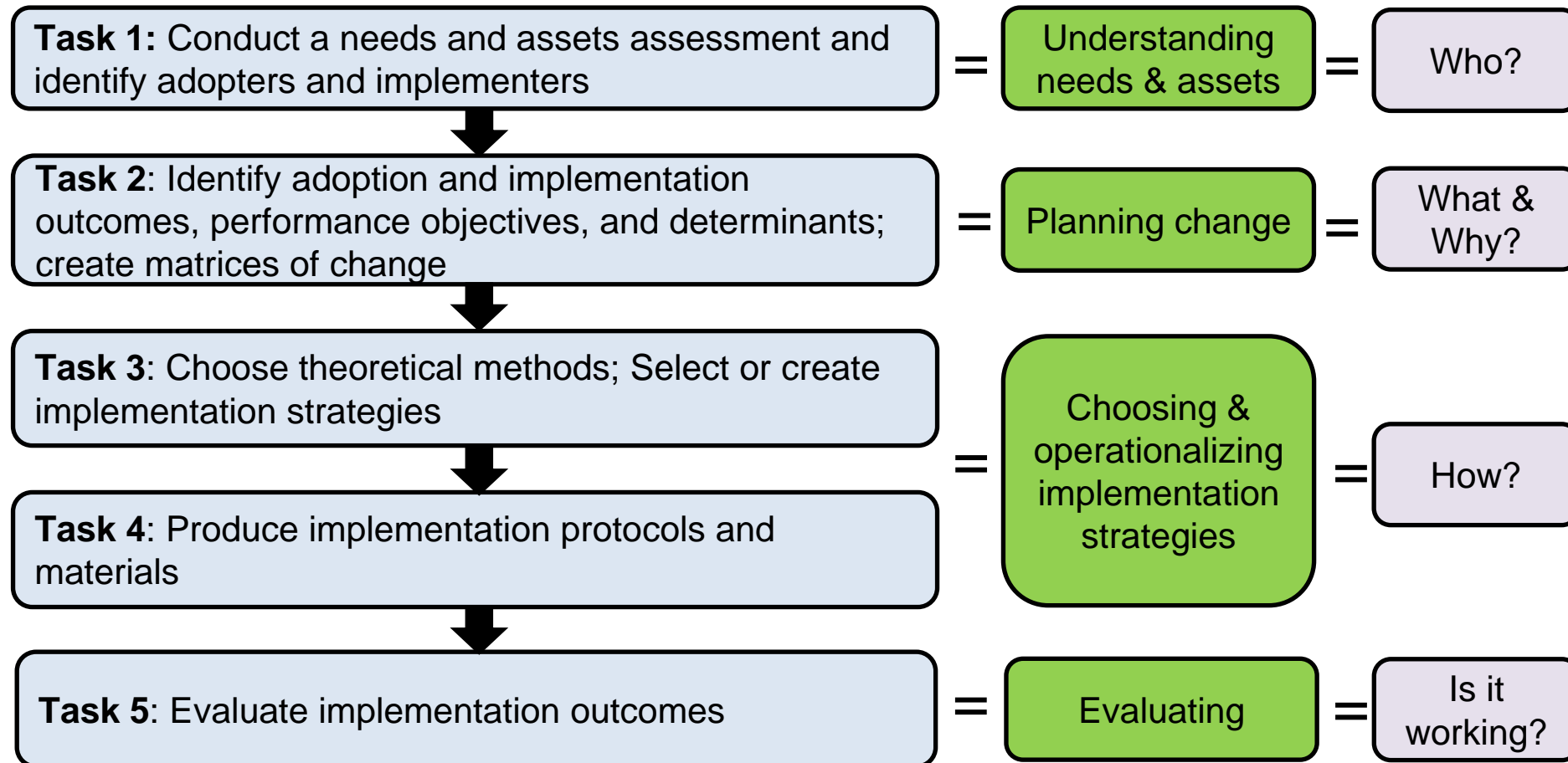Task 3. Choose theoretical methods; Selector create implementation strategies.

Task 4. Produce implementation protocols and materials.

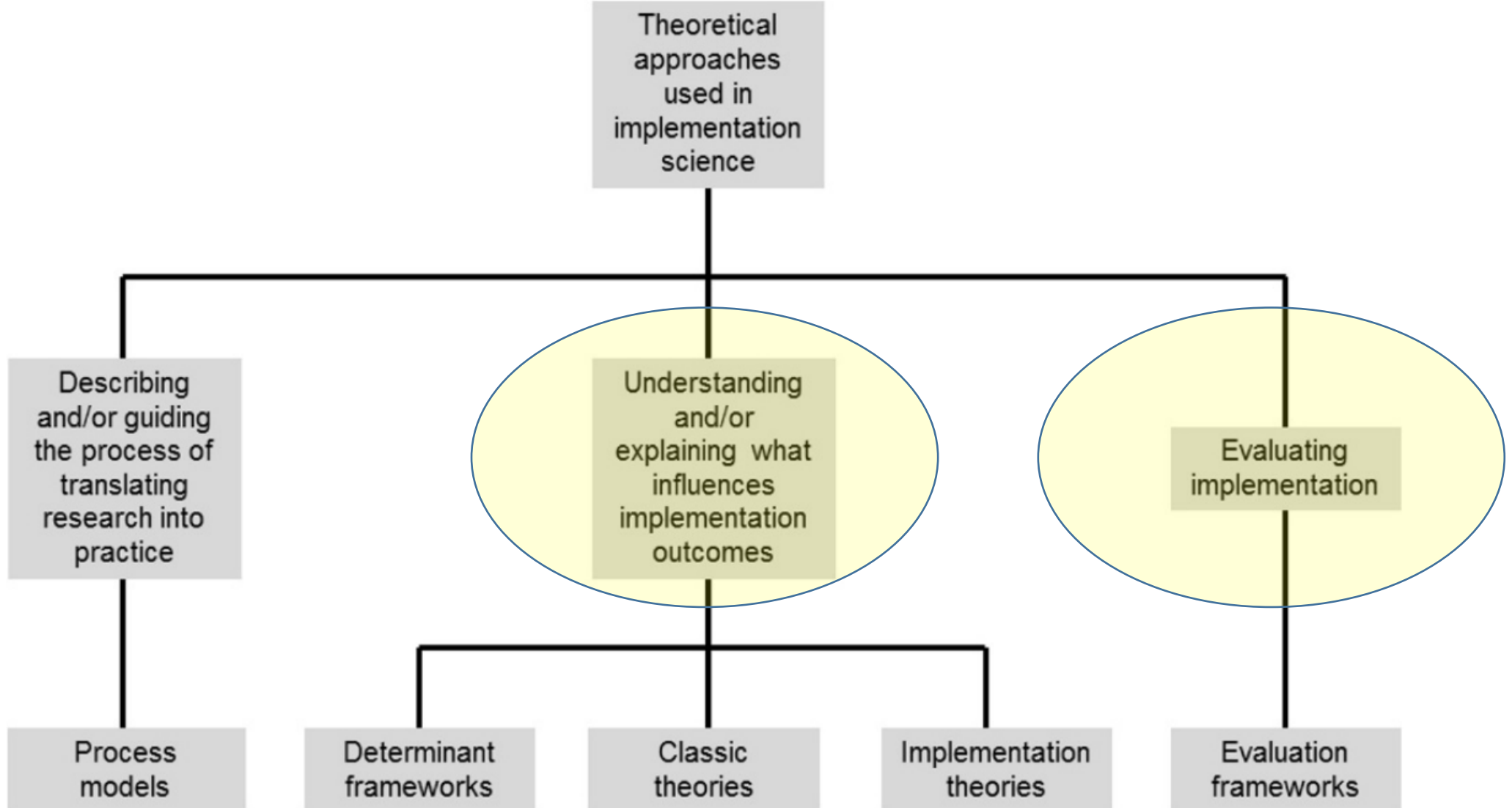Task 5. Evaluate Implementation Outcomes.

Fernandez Maria E., ten Hoor Gill A., van Lieshout Sanne, Rodriguez Serena A., Beidas Rinad S., Parcel Guy, Ruiter Robert A. C., Markham Christine M., Kok Gerjo. Implementation Mapping: Using Intervention Mapping to Develop Implementation Strategies. *Frontiers in Public Health,* 7, 2019.

This process can be used…

- For new programs, demonstration, and research projects:
  - Plan for initial implementation to ensure program is used as intended during the evaluation trial

- For programs that have already been evaluated:
  - Develop or tailor implementation strategies to improve uptake and use
  - Develop dissemination strategies for "scale-up" and widespread use

Implementation Mapping Tasks

Task 1: Conduct a needs and assets assessment and identify adopters and implementers = Understanding needs & assets = Who?

Task 2: Identify adoption and implementation outcomes, performance objectives, and determinants; create matrices of change = Planning change = What & Why?

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

Task 4: Produce implementation protocols and materials

= Choosing & operationalizing implementation strategies = How?

Task 5: Evaluate implementation outcomes = Evaluating = Is it working?

Fernandez, Maria E., et al. "Implementation mapping: using intervention mapping to develop implementation strategies." *Frontiers in public health* 7 (2019): 158.

Implementation Science Models and Frameworks

Nilsen, P. Making sense of implementation theories, models and frameworks. *Implementation Sci* 10, 53 (2015).

Specify Implementation Performance Objectives: Figuring out the WHAT before the HOW

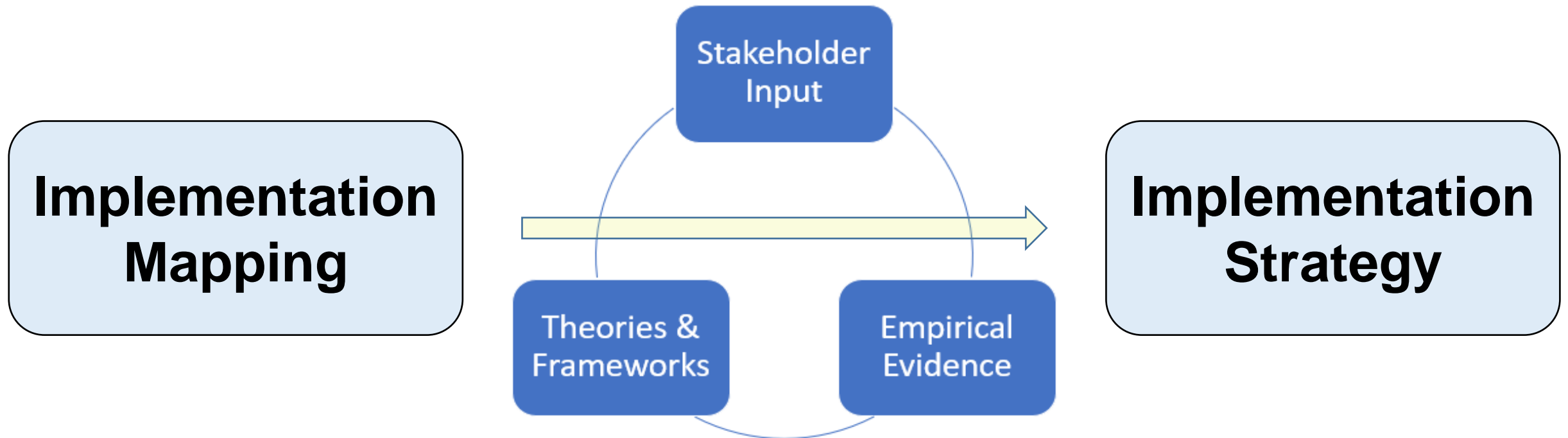## What are the subcomponents of the Implementation behavior?

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

Identify determinants, methods and strategies to address determinants of implementation

Implementation

- **Determinants:** Outcome expectations, Self-efficacy, Attitudes *(Can come from individual theories or integrated frameworks)*

- **Methods:** Persuasion, Active learning, Social support, Dissonance reduction, Modeling, Skill building *(Guidance from individual theories, from IM)*

- **Strategies (how these methods are operationalized):** Workshops, Discussion, Problem analysis, Role playing, Team meeting, Problem solving, Guided practice, Newsletters, Model stories, Resources, Information
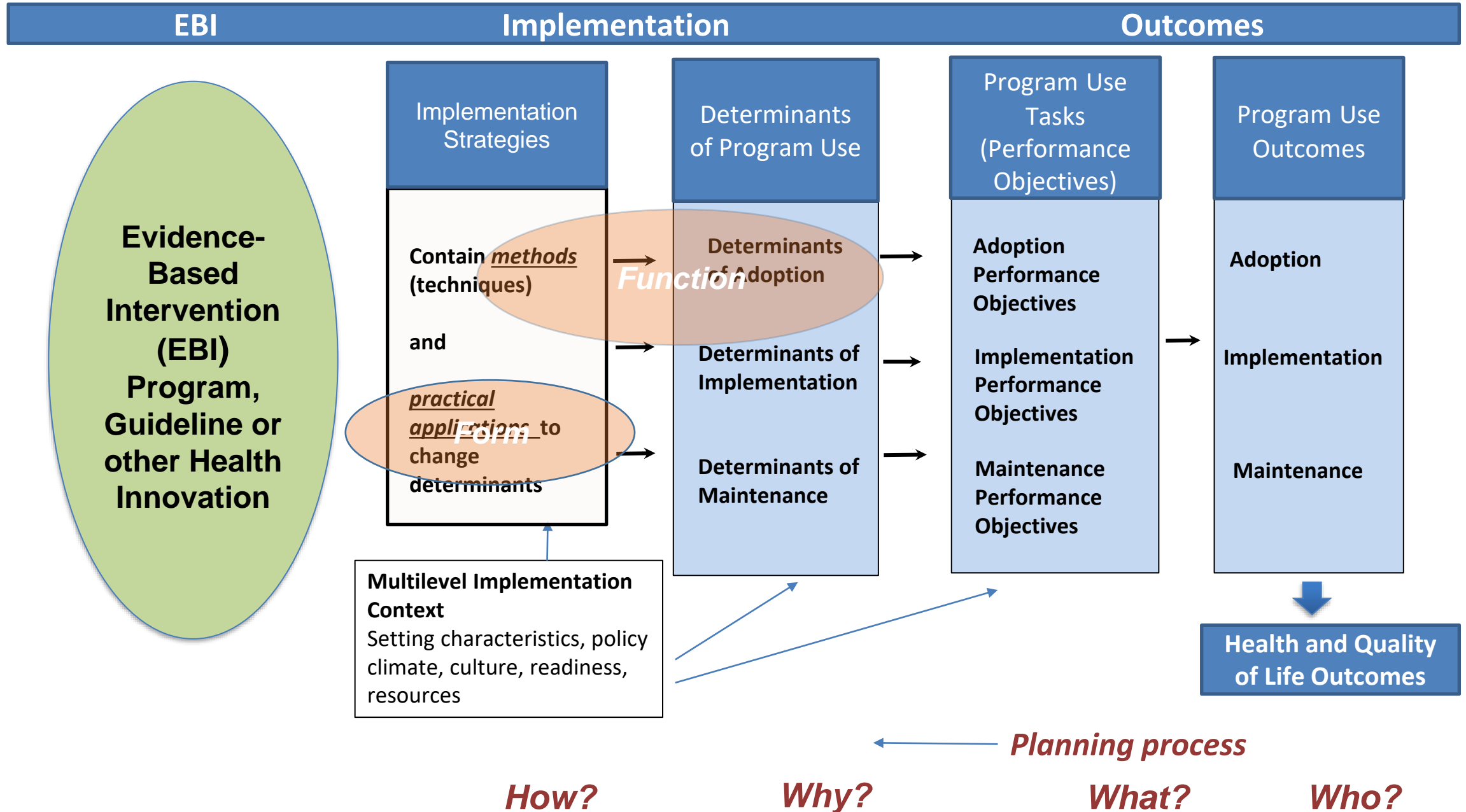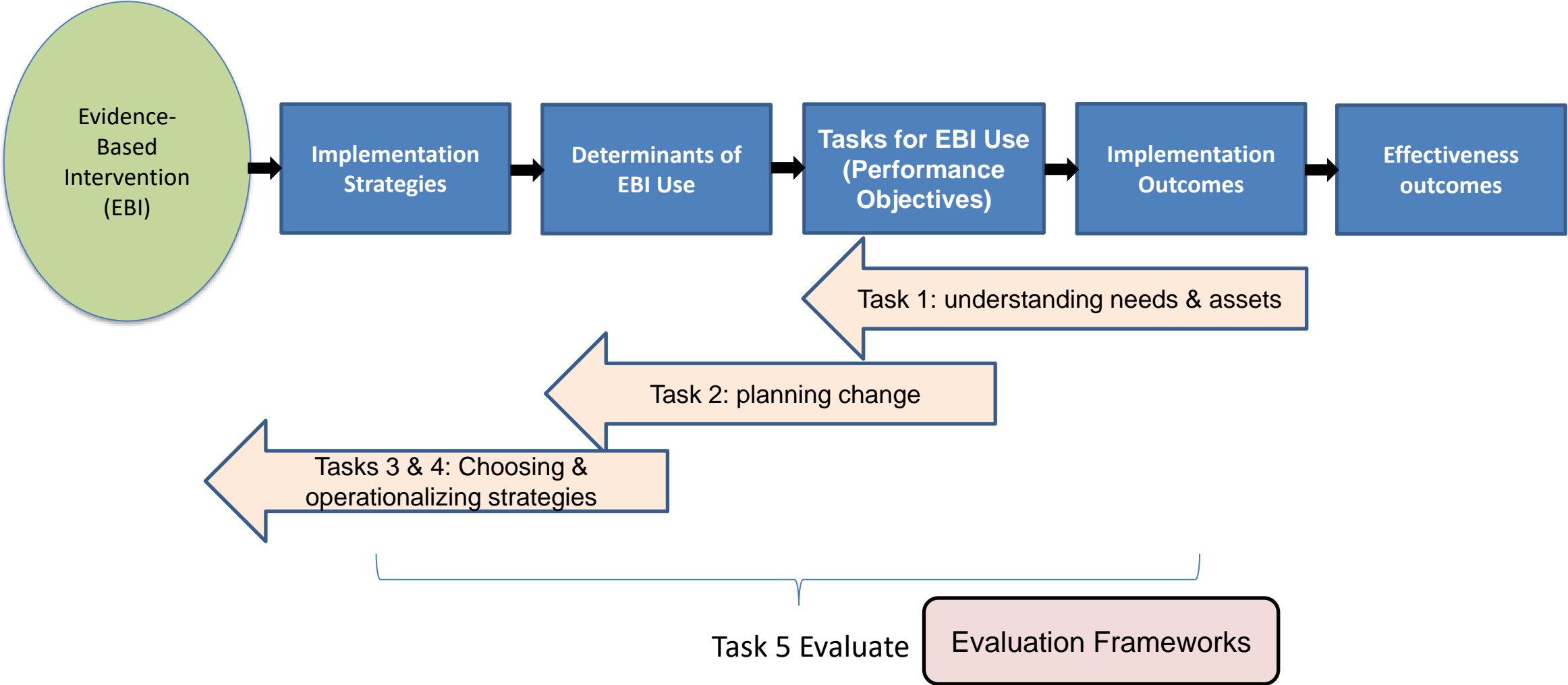
Implementation Mapping

Implementation Mapping Logic Model

EBI	Implementation		Outcomes

Evidence-Based Intervention (EBI) Program, Guideline or other Health Innovation

Implementation Strategies

Contain *methods* (techniques)

and

practical applications...

to change determinants

→

Determinants of Program Use

Determinants of Adoption

Determinants of Implementation

Determinants of Maintenance

→

Program Use Tasks (Performance Objectives)

Adoption Performance Objectives

Implementation Performance Objectives

Maintenance Performance Objectives

→

Program Use Outcomes

Adoption

Implementation

Maintenance

Multilevel Implementation Context
Setting characteristics, policy climate, culture, readiness, resources

Health and Quality of Life Outcomes

← *Planning process*

How? *Why?* *What?* *Who?*

Implementation Mapping Logic Model

EBI	Implementation	Outcomes

Evidence-Based Intervention (EBI) Program, Guideline or other Health Innovation

Implementation Strategies

Contain *methods* (techniques)

and

practical applications to change determinants

Function

Form

Determinants of Program Use

Determinants of Adoption

Determinants of Implementation

Determinants of Maintenance

Program Use Tasks (Performance Objectives)

Adoption Performance Objectives

Implementation Performance Objectives

Maintenance Performance Objectives

Program Use Outcomes

Adoption

Implementation

Maintenance

Multilevel Implementation Context
Setting characteristics, policy climate, culture, readiness, resources

Health and Quality of Life Outcomes

Planning process

How?   *Why?*   *What?*   *Who?*

Simplified Implementation Mapping Logic Model

Fernandez, Maria E., et al. "Implementation mapping: using intervention mapping to develop implementation strategies." *Frontiers in public health* 7 (2019): 158.

Peace of Mind Program Implementation Intervention

- Telephone-based EBI to increase mammography appointment adherence in underserved women
- Designed for use in FQHCs and charity clinics providing access to mammography services

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.

Task 1: Identify Potential Program Implementers

- Who will decide to adopt and use the program?
- Which stakeholders will decision makers need to consult?
- Who will make resources available to implement the program?
- Who will implement the program?
- Will the program require different people to implement different components?
- Who will ensure that the program continues as long as it is needed?

Adoption Outcome

- [Someone] adopts the [innovative program] as indicated by [the evidence to indicate adoption]

  - The management team at [each] clinic decides to adopt the Peace of Mind Program (PMP) as indicated by the clinic director signing a memorandum of understanding
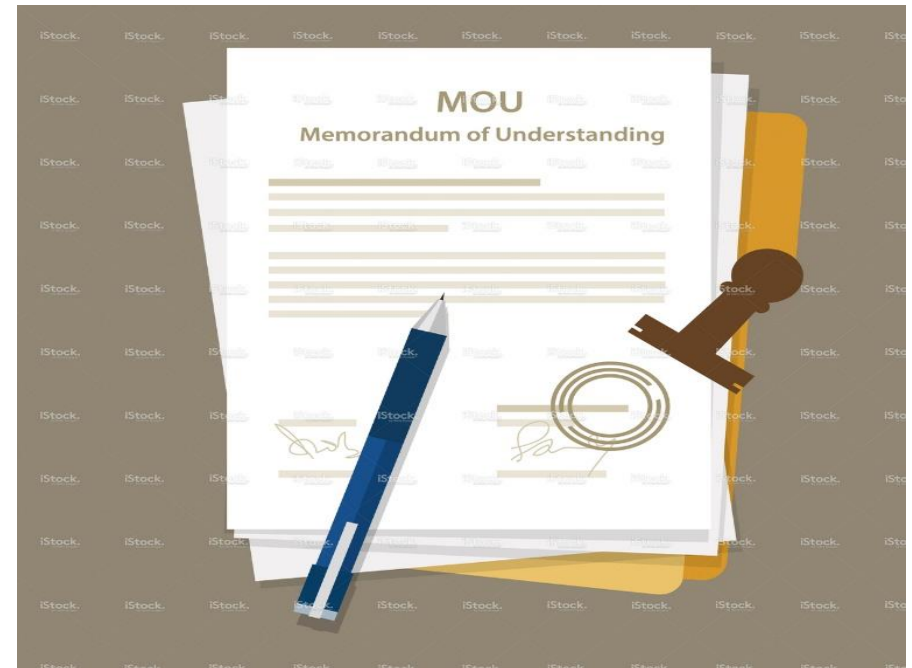
Example Performance Objectives for Adoption (Task 2)

The Management Team members will:

- Review PMP materials and evaluation results
- Compare the intended outcomes with current mammography services and completion rates
- Agree to participate in the PMP
- Agree to expand mammography services
- Provide a program champion for the PMP
- Review the PMP program manual including phone-counseling scripts

Example Performance Objectives for Implementation (Task 2)

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
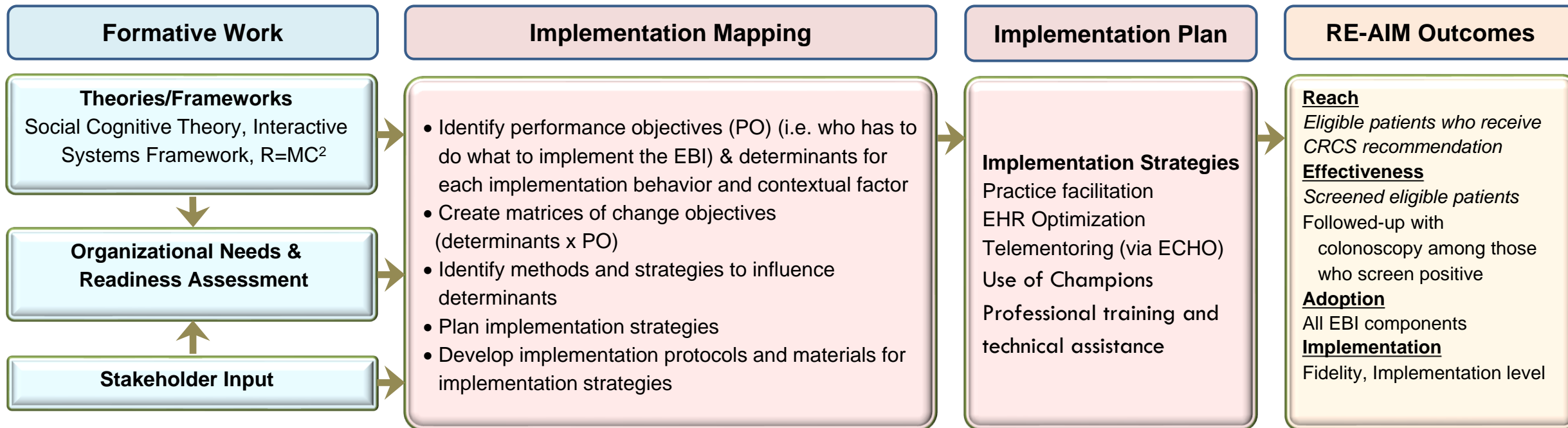- Use active-listening protocol when talking with patient

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.

Identify implementation determinants, methods and practical applications to address determinants (Task 2)

Determinants: Outcome expectations, Self-efficacy, Attitudes about the innovation (relative advantage, complexity, compatibility, etc.)

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

the How…(Tasks 3 and 4)

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-word 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)

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	• Information • Persuasion • Skill building and guided practice • Modeling • Monitoring and feedback • Technical assistance / capacity building • Facilitation • Vicarious reinforcement	• 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

Texas FQHC Partners	Counties Served Urban/Rural	# of Clinic Sites	CRCS Rate (%)	CPRIT CRCS Program	1115 Waiver CRCS Program
TEXAS GULF COAST REGION					
Gulf Coast Health Center	Jefferson, Orange, Hardin/Jasper	5	4.8	X	
Coastal Health & Wellness	Galveston	2	15.4	X	
Amistad Community Health Center	Nueces	1	18.8	X	
Access Health	Austin, Colorado, Fort Bend, Waller/Wharton	5	31.8		X
Avenue 360	Harris	6	34.4		X
EAST TEXAS REGION					
Hope Community Medicine	Panola, Shelby, San Augustine	3	6.0	X	
Genesis PrimeCare	Bowie, Gregg/Cass, Harrison, Marion	3	25.6	X	
Wellness Pointe	Gregg, Upshur/Camp, Titus, Wood	5	27.8	X	
East Texas Community Health Services	Angelina, Nacogdoches	3	53.0	X	
Carevide	Collin, Hunt, Fannin, Delta, Kaufman, Hopkins	6	29.0	X	
Total: 10 FQHCs	Urban: 16 Rural: 16 Total: 32	**39**	**24.7**		

Counties
Urban
Rural

0 30 60 120 Miles
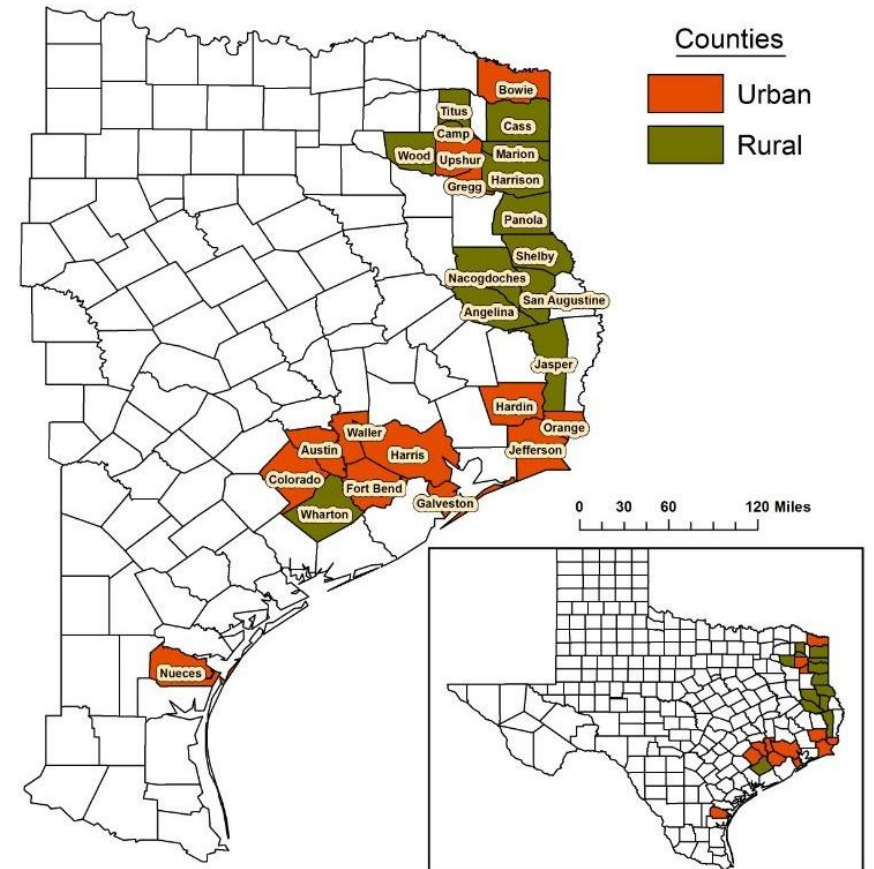
Conceptual Framework for Implementation Strategy Development and Tailoring

Texas CDC Colorectal Cancer Control Program

Formative Work	Implementation Mapping	Implementation Plan	RE-AIM Outcomes

Formative Work

Theories/Frameworks
Social Cognitive Theory, Interactive Systems Framework, R=MC²

Organizational Needs & Readiness Assessment

Stakeholder Input

Implementation Mapping

- Identify performance objectives (PO) (i.e. who has to do what to implement the EBI) & determinants for each implementation behavior and contextual factor
- Create matrices of change objectives (determinants x PO)
- Identify methods and strategies to influence determinants
- Plan implementation strategies
- Develop implementation protocols and materials for implementation strategies

Implementation Plan

Implementation Strategies
Practice facilitation
EHR Optimization
Telementoring (via ECHO)
Use of Champions
Professional training and technical assistance

RE-AIM Outcomes

Reach
Eligible patients who receive CRCS recommendation
Effectiveness
Screened eligible patients
Followed-up with colonoscopy among those who screen positive
Adoption
All EBI components
Implementation
Fidelity, Implementation level

NCFH/UTHealth Partnership: CULTIVANDO LA SALUD

- CDC's National Breast and Cervical Cancer Early Detection Program (NBCCEDP)

- Goal - to increase breast and cervical cancer screening among Hispanic farmworker women 50 years of age and older.

- Develop, test, replicate and disseminate a breast & cervical cancer prevention program targeting Hispanic farmworker women.

- Systematic planning using theory, evidence, and new data (Intervention Mapping)

- Replicable model
    - Adopted in over 50 communities across the country
    - Hays County CLS program began in 2006 supported by a Susan G Komen grant

Cultivando la Salud
Cultivating Health

Cancer
Education
Program

(Fernandez, Gonzales, et al., 2005, HPP; 2009 AJPH)

Original Multisite community-based trial focused on migrant farmworkers

14-County area Adapted to include HPV vaccination, 1-on-1 telephone navigation following CHW group education

Project CLS implemented by BCCS Program

| CLS-NCFH (2003-2008) CDC | CLS-Dissemination (2010-2013) CPRIT | CLS-Puerto Rico (2012-2013) NCI | CLS-El Paso (2012-2016) CPRIT | SEMM-Harris & Corpus Christi (2015-2019) CPRIT | SEMM (2019-2022) CPRIT | PRC Core-SEMM-DIA (2020-ongoing) CDC |

Cultivando la Salud Cultivating Health
Cancer Education Program
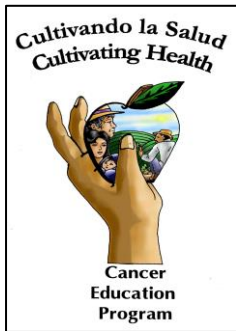
Adapted for Group Delivery in community settings to Women 21+ years

BCCS promotora delivered intervention for low-income women 21+ years in Canóvanas, PR.

Expansion to include virtual group delivery, social marketing outreach in ~20 county area around Houston & Corpus Christi

Salud en Mis Manos
Health in My Hands

Partnering to Plan Implementation Strategies

- Used Implementation Mapping for planning program delivery
- Used **Promotora Model**
- Door to door outreach
- Conducted educational sessions
- Made referrals to screening
- Follow-up

CLS –> *Salud en Mis Manos* (SEMM)

Community-engaged strategies to reach Latinas

(1) CHWs outreach and education in community settings

(2) CHW-delivered behavioral education door to door and group

(3) Telephone-based health coach navigation (HCN) to help women overcome barriers

Percent Screened — Intent-to-Treat: 31.9, 19.7; Per Protocol: 55.4, 28.9 (Intervention)
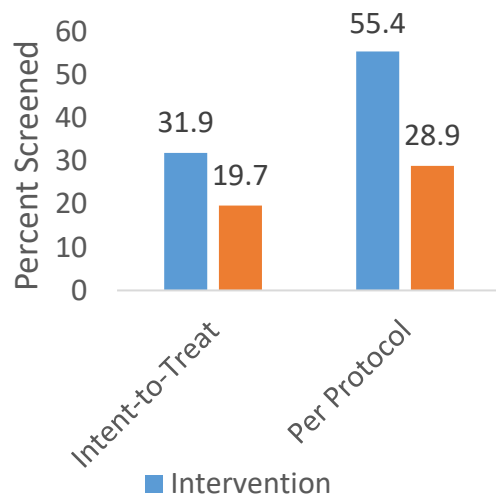
	Adjusted OR	95% C.I.
Intent-to-treat [a]	1.91**	(1.27, 2.88)
Per Protocol [b]	3.09***	(1.88, 5.08)

Figure 1. Proposed target area
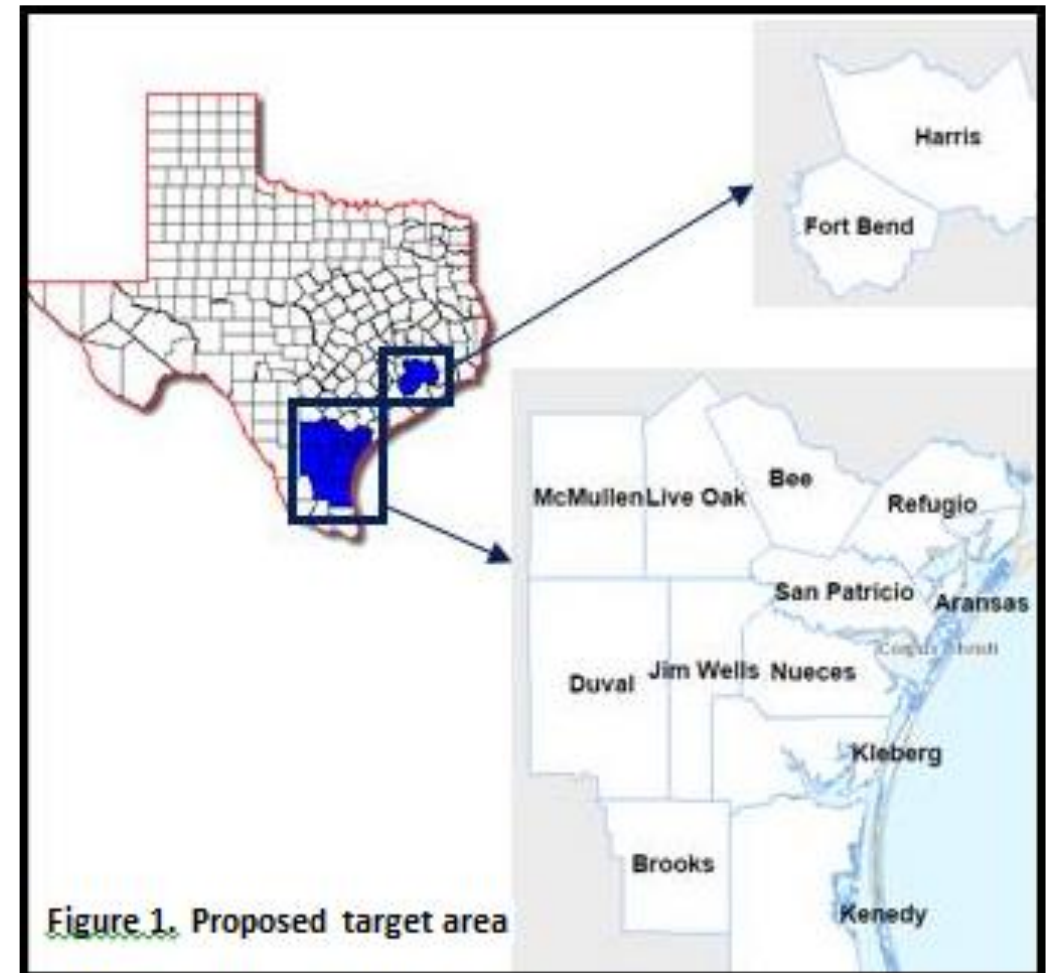
To use Implementation Mapping to develop SEMM-Dissemination and Implementation Assistance (SEMM-DIA) implementation strategy to deliver SEMM in safety net clinics

Salud en Mis Manos (SEMM) B&C Cancer Screening Education Campaigns, and Community Partner Distribution

Leveraging Partnerships for Implementation Strategy Development and Tailoring

Theoretical Model

Social Cognitive Theory

Organization Program Coordinators
- Perceived benefit
- Leadership skills
- Outcome expectations
- Self-efficacy

Determinants: LHWs
- Skills & Self-efficacy
- Attitudes
- Behavioral beliefs
- Outcome expectations
- Behavioral capabilities

Theoretical Change Methods
- Modeling
- Persuasion
- Guided practice
- Social support

Intervention Strategy Development

Intervention Mapping (IM)

IM provides a road map to develop CLS-DIA

Identify performance objectives (PO) and determinants of adoption, implementation & maintenance

Create matrices of change objectives (determinants x PO)

Identify methods and strategies to influence determinants

Develop CLS-DIA components, materials and messages

Outcomes

RE-AIM

Intervention
Reach
 % of eligible women identified who complete education session
Effectiveness
 BC & CC screening completion
 HPV vaccination initiation
Implementation Fidelity
 LHWs deliver CLS education, a clinic referral, and at least one follow-up navigation telephone call to each participant
Implementation Dose
 Duration of education session
 # Navigation calls
Maintenance
 Sustained program use at 3 years

Interactive Systems Framework

Synthesis and Translation System

Use CBPR methods to translate and adapt information about CLS program for local context

Prevention Support System

Support (capacity building) for implementing & sustaining EBIs

Improving capacity of LHWs to deliver community-based education programs

Train LHWs on CLS materials, protocols

Prevention Delivery System

Support (capacity building) for implementing CLS (LHW practitioner level)

Support (capacity building; readiness) to fit CLS with practices, protocols in organization

Community Engaged Planning for Adoption, Implementation, and Maintenance

Implementation Mapping Tasks

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

- Identified SEMM program implementation barriers and facilitators.
- Identified the adopters and implementers and explored factors influencing implementation of SEMM.

Task 2. *Identify adoption and implementation outcomes, performance objectives, and determinants*

- Used assessment results, theory, and evidence to identify *why* key actors would adopt and deliver SEMM.
- Articulated performance objectives (*who must do what* and *why?*).
- Identified determinants and contextual factors to support implementation and developed matrices of change objectives.

Task 3. *Choose theoretical methods; select or create implementation strategies*

- Selected methods to address the determinants identified in Task 2.
- Operationalized the methods to develop/selected and tailor implementation strategies.

Task 4. *Produce implementation protocols and materials*

- Produced protocols and materials needed for strategies (identified in Task 3) to be included in the SEMM-DIA implementation package.

Task 5. *Evaluate implementation outcomes*

- Identified implementation outcomes (e.g., fidelity, reach), measures and the data collection approach.

Results of the Implementation Mapping Tasks

The Matrices of Change Objectives (developed in Task 2) served as a road map for selecting evidence-based methods. **(Table 2)**

The change methods were operationalized into tailored implementation strategies (e.g., interactive skills and tips training for CHWs on communicating effectively with participants).

We developed implementation strategies (practical applications) for in-person and online delivery (SEMM-DIA online tool).

These strategies addressed determinants of implementation to support effective program implementation, as well as supporting program adopters in tailoring the intervention approach to ensure fit with the clinic goals, capacity, and culture.

SEMM-DIA Implementation Strategy Components

Implementors	Determinants	Methods	Practical Applications
• Clinic Leadership • SEMM Program Manager/ Champion	• Awareness/ Perceptions • Relative Advantage • Comparability • Complexity • Trialability • Outcome Expectations • Skills & Self-Efficacy • Feedback and Reinforcement	• Persuasion • Advanced organizers • Modeling • Communication • Mobilization • Organizational consultation planning • Environmental reevaluation	• Informational video describing SEMM goals, components, and benefits • Video testimonials of clinic leaders discussing how/why they implemented SEMM in their clinics • SEMM Implementation Action Plan Wizard to support clinic planning • Program planning guide for clinic leadership and/or SEMM managers • Program implementation guide, CHW Handbook • Email templates to get buy-in from Board/C-Suite and clinic staff • Roles and responsibilities Standard Operating Procedure (SOP) / SEMM manager/ champion qualities checklist & role presentation
• CHW/ Navigator	• Awareness/ Perceptions • Outcome Expectations • Skills & Self-Efficacy • Feedback and Reinforcement	• Information • Persuasion • Skill building • Guided practice • Technical assistance /Capacity building • Facilitation • Vicarious reinforcement	• Video testimonials of CHWs/Navigators discussing implementation benefits and challenges • SEMM Implementation inventory /Implementation Readiness checklist • Video/animated tutorial for CHWs • CHW Training manual/curriculum • Computer assisted SEMM training scripts • SEMM in-reach/outreach strategy toolkit

Implementation Mapping Logic Model

SEMM-DIA Online Decision Support Tool

PHASES

| 1. Prioritize / Commit to SEMM (Rows 1-5) [Leadership & SEMM Champ] | → | 2. Assess Clinic Resources for SEMM (Rows 6-16) [SEMM Champ & CHW] | → | 3. Prepare for SEMM (Rows 17-28) [Champion & CHW] | → | 4. Implement SEMM (Rows 29-39) [CHW liaise with SEMM Manager] | → | 5. Maintain SEMM (Rows 40-2) [Leadership/SEMM Manager / CHW] |

TASKS / STEPS

Orientation to SEMM and getting up and running:
1. Recognize the value of SEMM (Row 1)
2. Recognize how SEMM fits with the clinic mission for patient screening & education (Row2)
3. Understand the 5 steps to SEMM
4. Commit to SEMM (MOU) (Row 3)
5. Elect a SEMM Champion (Row 4)
6. Train SEMM Champion (Row 5)

Inventory checklist:
(Assess what capability and resources the clinic has (and needs) to run SEMM)
1. Complete clinic checklist:
   - Personnel (Row 6):
     SEMM Manager
     CHW
   - Strategy options (Row 7):
     In-reach assets (Rows 8,9)
     Outreach assets (Rows 10-15)
     In-person delivery assets
     Phone delivery assets
     Zoom delivery assets
2. Introduce SEMM to the clinic (Row 16)

Implementation Action Plan:
1. Goals (Row 17)
2. Confirm strategy (Row 18)
3. Confirm education delivery mode (Row 19)
4. Implementation plan (Rows 20 & 21)
5. CHW training (Rows 22-28)

CHW-facilitated needs assessment and invitation to SEMM intervention:
1. Patient/woman in community setting completes cancer BC & CS screening and HPV vaccination needs assessment (Row 31) - Self- assessment or CHW facilitated
2. Patient/woman in community setting invited to CHW group education, or receives brief education

Education session: Group or one-on-one (In-person / phone /Zoom):
1. Education session (Row 34) & barrier assessment (Row 35)

1. Maintenance plan (Row 40)
2. Elicit support (Row 41)
3. Report (Row 42)

Ongoing debrief meetings in clinic:
1. Debrief meetings (Scrums) (Row 38)
2. Report & Evaluate progress (Row 39

Follow-up tracking:
1. Completion (Row 36)

The planned SEMM-DIA online decision support tool will provide implementation support to increase clinic general capacity to implement the program, and the implementers' motivation and capacity to deliver SEMM. **(Figure 3)**

Enhancing the Impact of Implementation Strategies

1) Enhance methods for designing and tailoring

2) Specify and test mechanisms of change

3) Improve tracking and reporting of strategies

4) Conduct more effectiveness research

5) Increase economic evaluations

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Thank You!

Maria E Fernandez, PhD

University of Texas Health Science

Center at Houston School of Public Health

Maria.E.Fernandez@uth.tmc.edu

713-500-9626   @Maria_e_prof