

# Models, theories, and frameworks for complex interventions: From concepts to application in primary care

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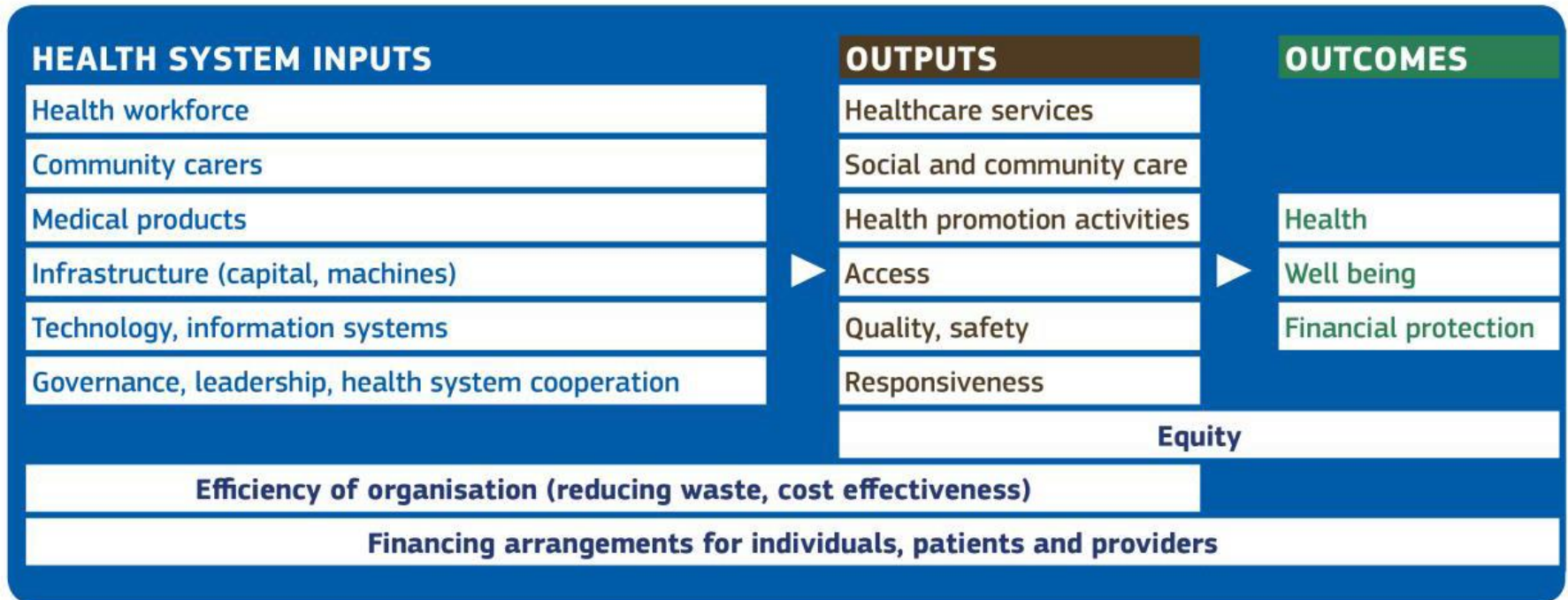
Biocruces Bizkaia Health Research Institute

Basque Country, SPAIN





# The Big Picture: A Conceptual Framework of Interacting Components



[European Commission Expert Panel on Effective  
Ways of Investing in Health \(EXPH\), 2020](#)

# Complex Interventions

- Goal: Deliver solutions for real world practice
- Perspective: Interventions are events in complex adaptive systems
- Dynamic interactions: Intervention X Context
- Framing: Research questions and approaches

Does the intervention work?

Why does the intervention work in one place and not another?

Under what conditions does an intervention work best?

Who benefits most from the intervention?

How do we scale up an effective intervention?

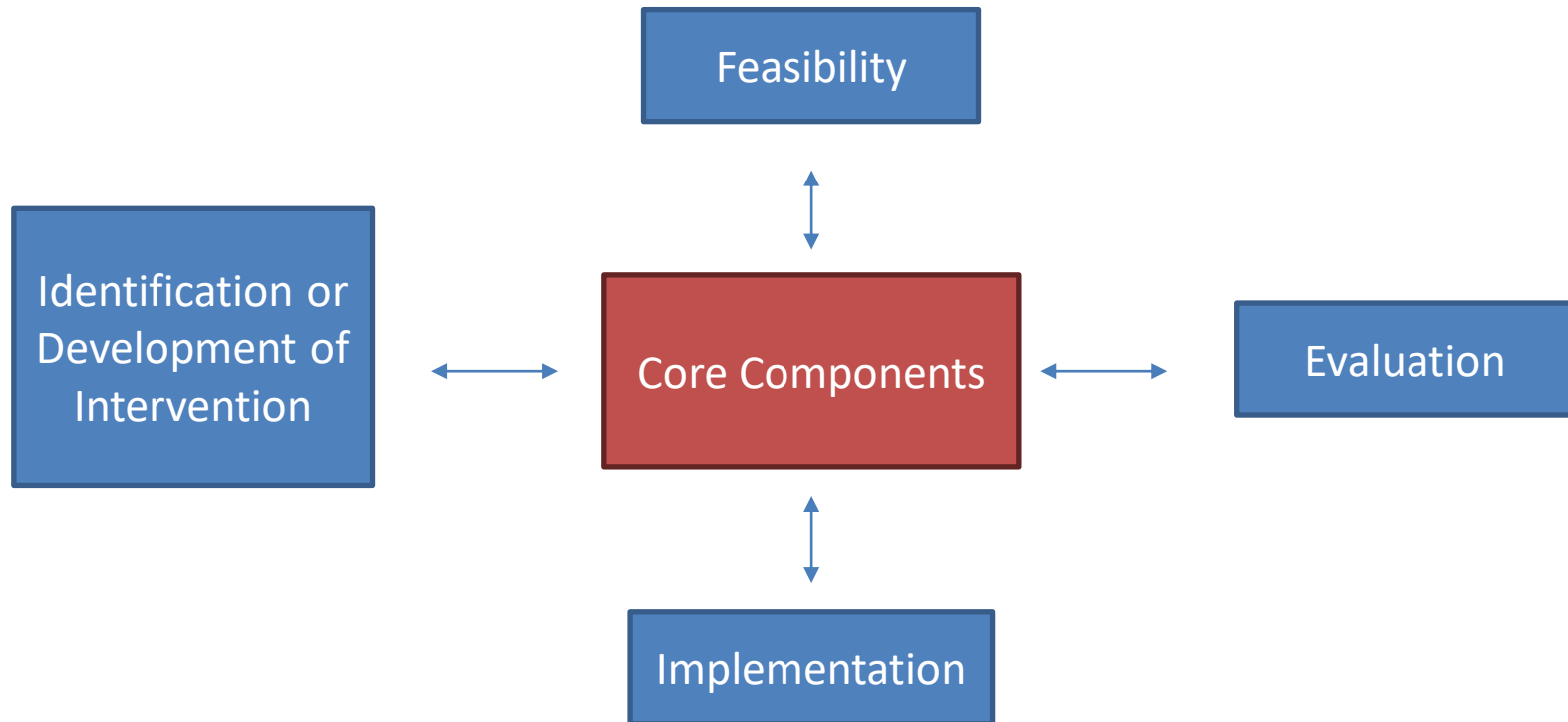
What can we do to increase the likelihood of intervention effectiveness?

[Plsek and Greenhalgh, 2001](#)

[Petticrew, 2011](#)

# Framework for developing and evaluating complex interventions

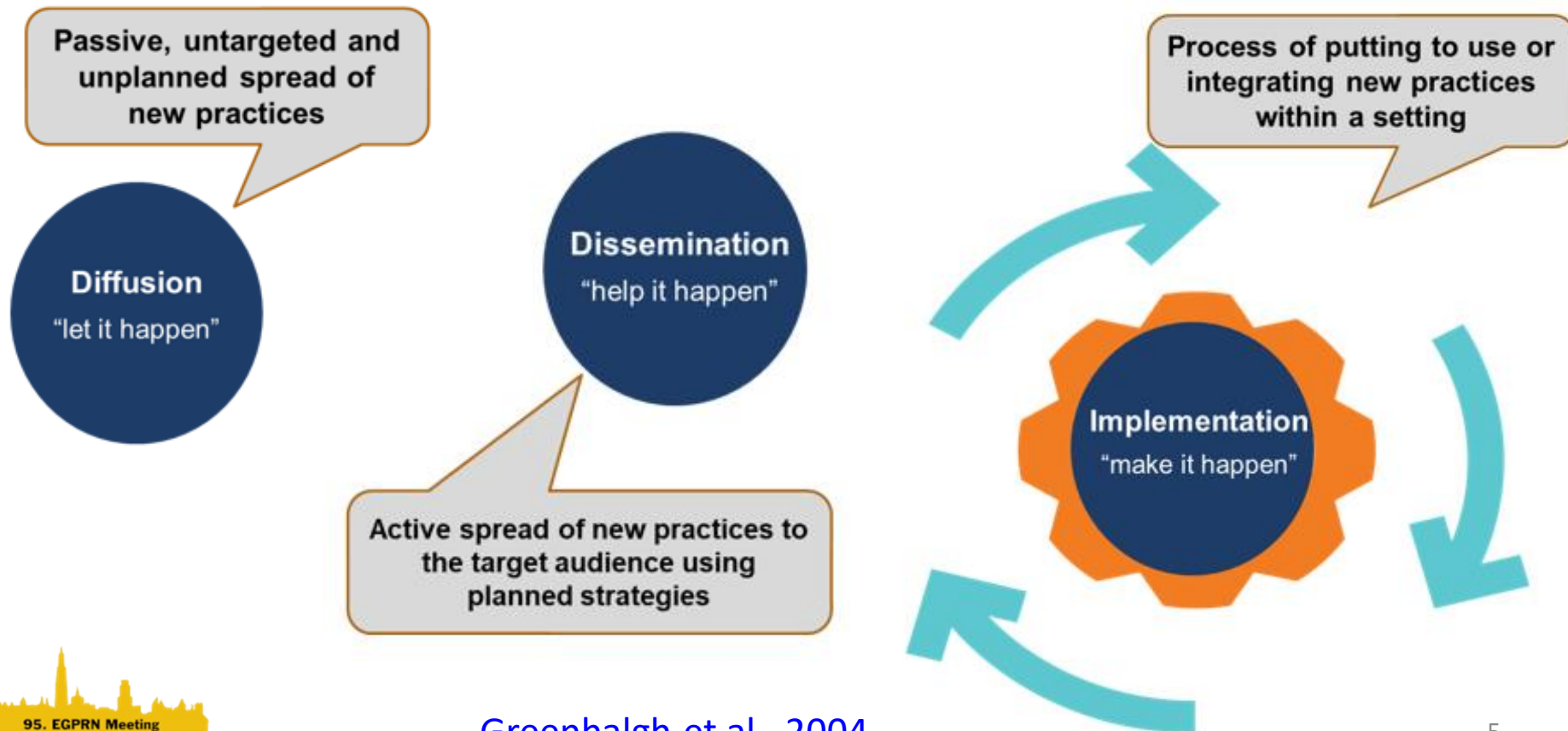
- From the UK Medical Research Council and National Institute for Health Research
- Initial version in 2000, updated in 2006



[Skivington et al., 2021](#)

# Implementation

- The carrying out of planned, intentional activities that aim to turn evidence and ideas into policies and practices that work for people in the real world.
- It is about putting a plan into action, the 'how' as well as the 'what'.



[Greenhalgh et al., 2004](#)

# Implementation Science

Implementation science is the scientific study of methods to promote the **systematic uptake of research findings and other evidence-based practices into routine practice** to improve the quality and effectiveness of services.

[Bauer et al., 2015](#)

# Why focus on Implementation?

- Establishing evidence for a policy or intervention does not mean it will be implemented
- In health, < 50% clinical innovations ever make it into practice

Gap between evidence and what's delivered in practice:

- ~ 17-20 years to get innovations used in health
- Global policy action to protect the ozone layer lagged scientific understanding by ~ 30 years

- There are multiple determinants of how *quickly* and how *well* innovations are implemented

[Bauer and Kirchner, 2020](#)

[UN Global Sustainable Development Report, 2015](#)

# Why do we need Implementation Science?

**Effective  
interventions  
alone**



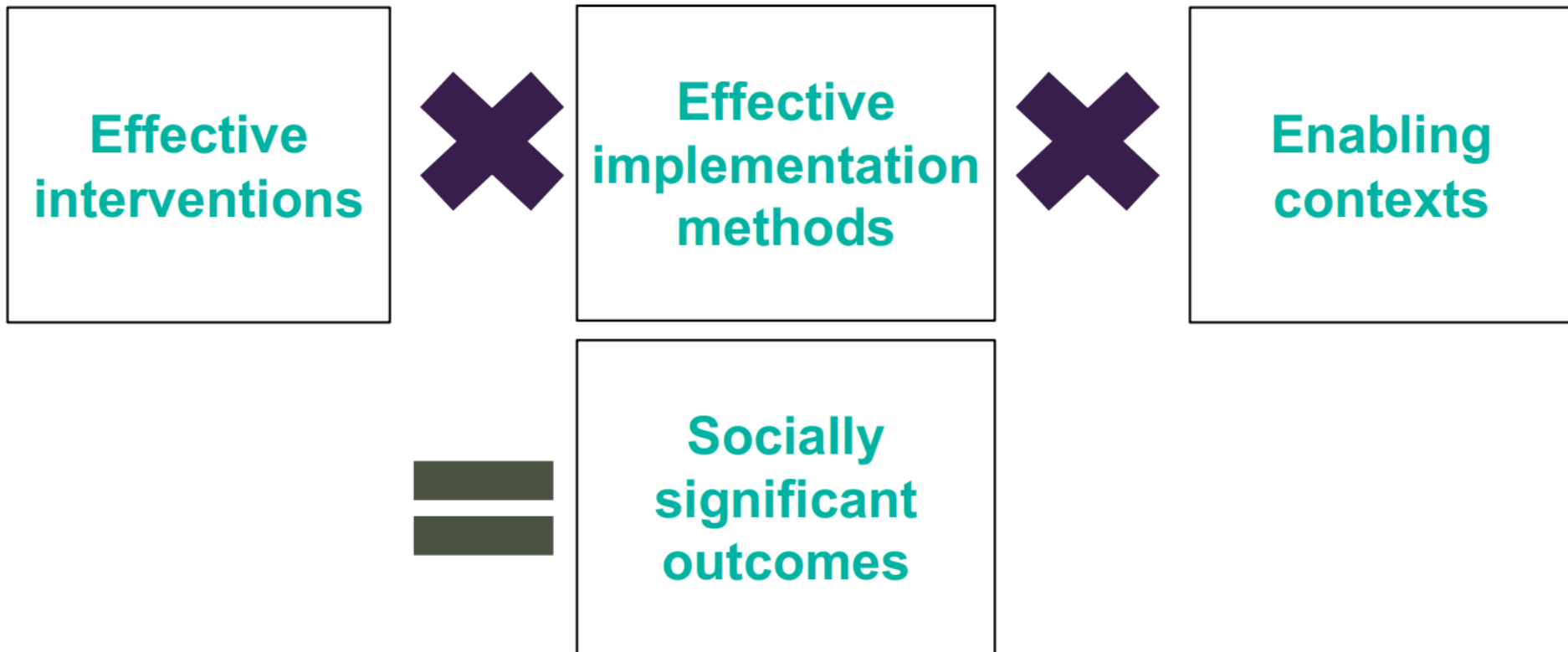
**Positive  
outcomes for  
service users**

**Intervention** means any evidence-informed policy, practice, service or programme being implemented, be it a change to an *existing* policy, practice, service or programme, or a *new* intervention

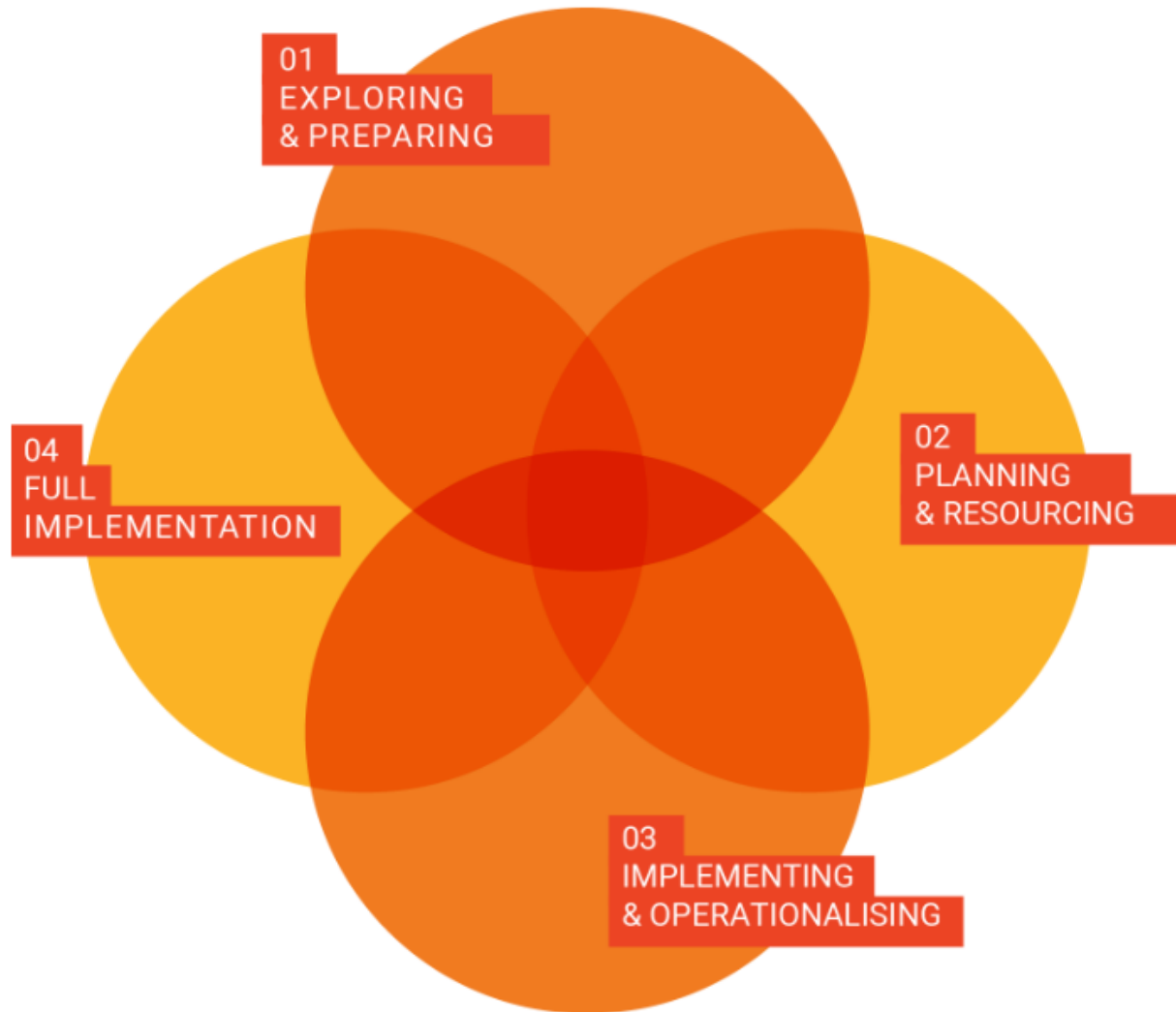
**Outcomes** are changes that occur in a person, group, organisation or population, as a result of something else having changed or been provided (i.e. an intervention.) They can be short-term, medium-term or long-term.



# The Implementation Equation



# Stages Guiding the Implementation Process



[Centre for Effective Services \(CES\), Ireland](#)  
[Tools available to assess implementation](#)

# Why do we need models, theories, frameworks?

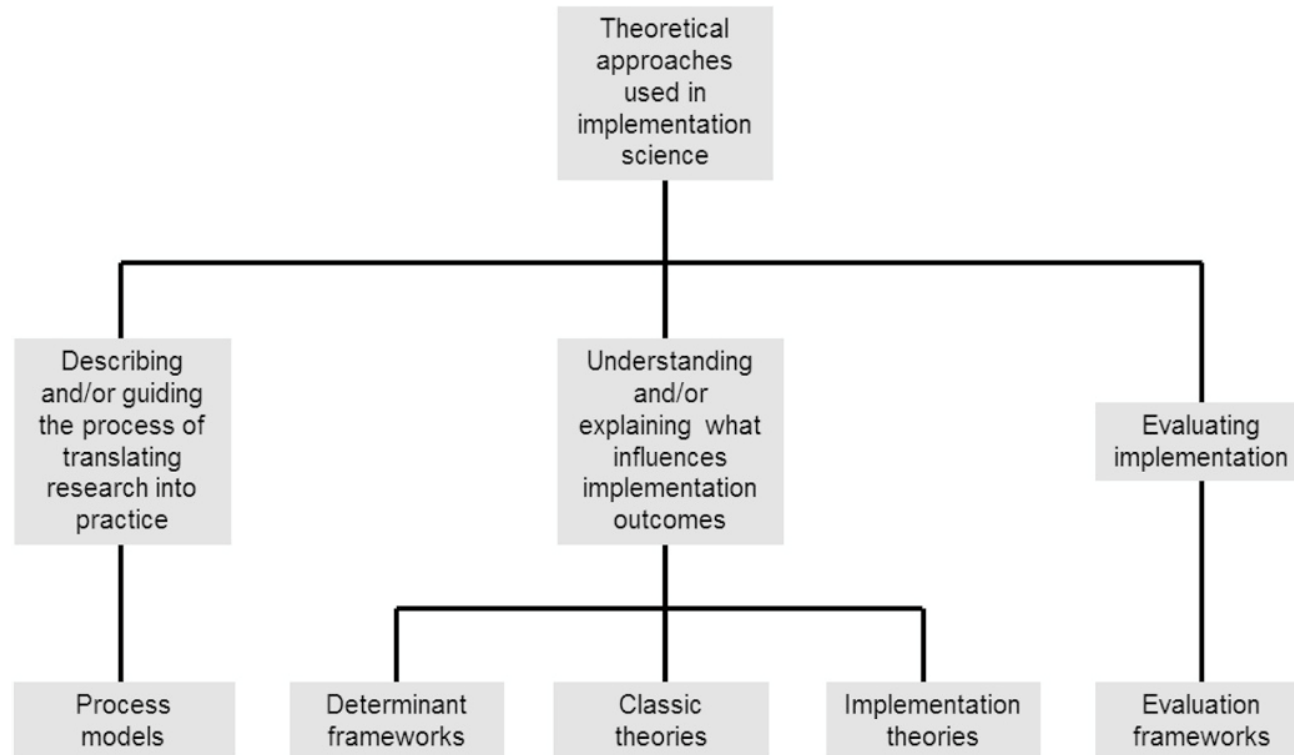
- **Conceptualise** implementation setting, process or mechanisms
- **Plan, guide** and **monitor** the implementation process
  - **Highlight** pitfalls to be avoided
  - **Understand** the implementation context
  - **Identify** implementation barriers and facilitators across multiple levels of context
  - **Guide** selection of implementation strategies
  - **Specify** implementation outcomes
  - **Inform** data collection
  - **Clarify** terminology
- **Evaluate** the implementation of innovations, practices and policies

[Birken et al., 2017](#)

# What is the difference?

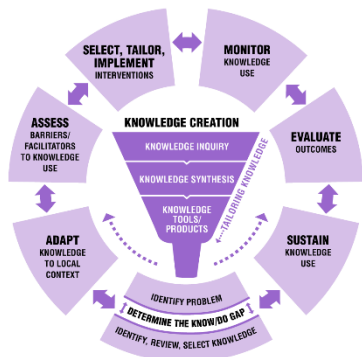
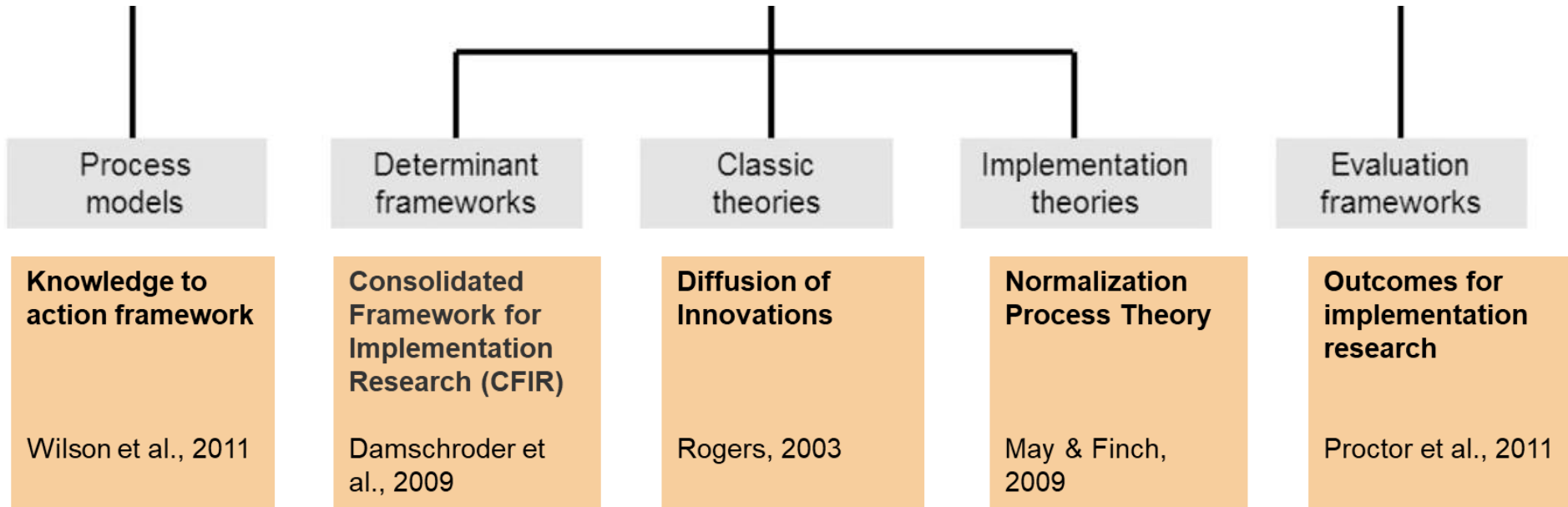
- Models: deliberate simplification of a phenomenon or a specific aspect of a phenomenon; descriptive
- Theories: set of analytic principles or statements designed to structure our observations, understanding and explanation of the world; descriptive and explanatory
- Frameworks: structure, overview, outline, system or plan consisting of various descriptive categories; descriptive

# Framework of Approaches



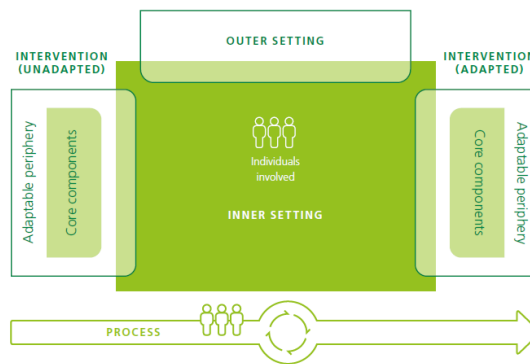
**Figure 1** Three aims of the use of theoretical approaches in implementation science and the five categories of theories, models and frameworks.

[Nilsen, 2015](#)

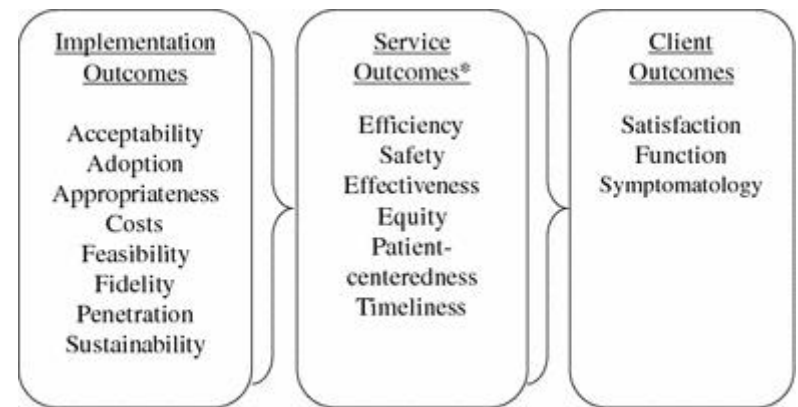


Knowledge to Action Framework (Graham et al., 2006). Used with permission.

Figure 3: Consolidated framework for implementation research

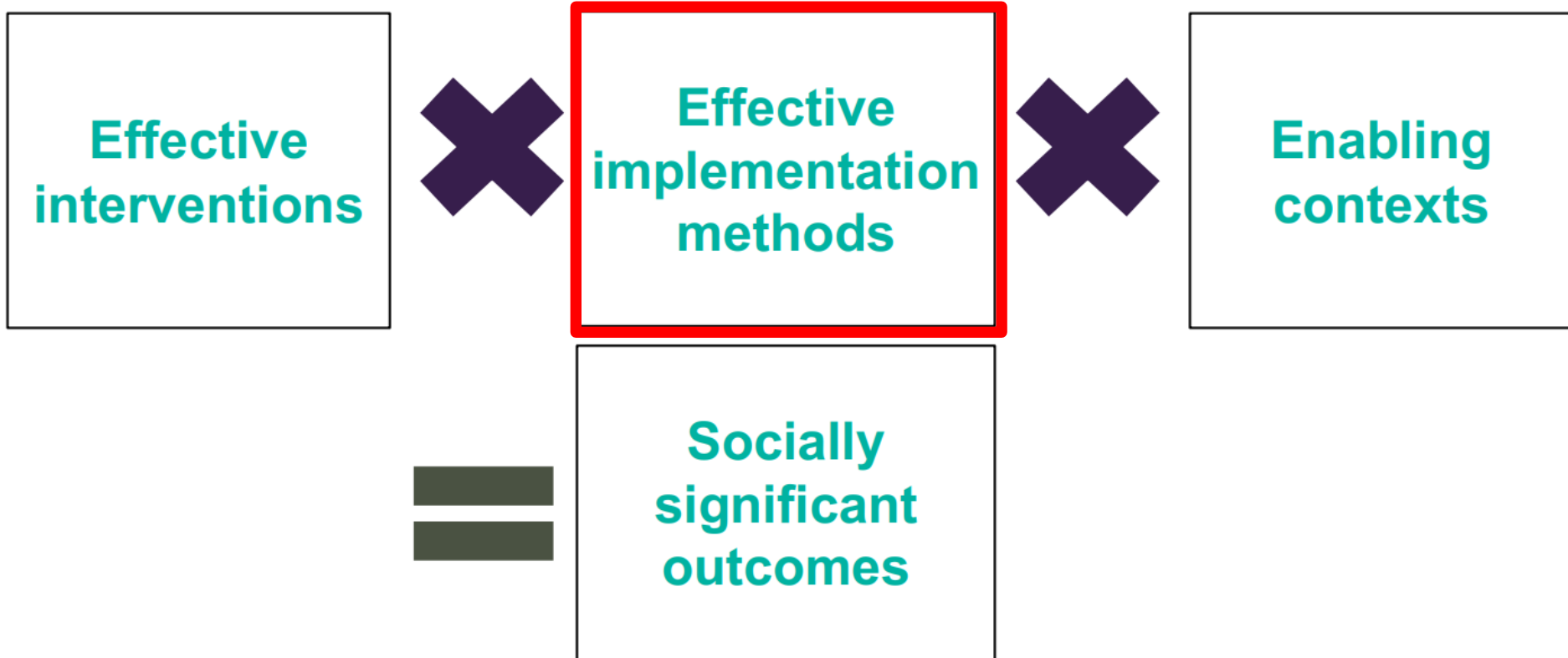


Adapted from Damschroder et al., 2009.<sup>18</sup>



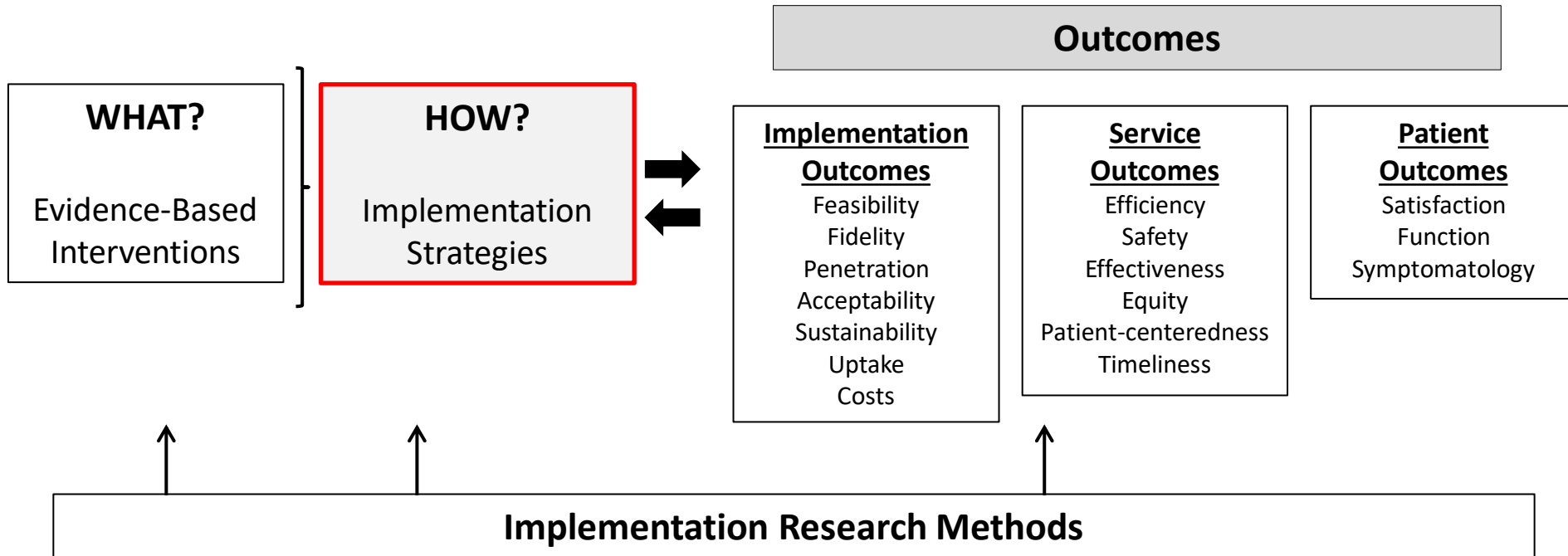
\*IOM Standards of Care

# The Implementation Equation



# What are Implementation Strategies?

“**Methods or techniques** used to enhance the adoption, implementation and sustainability of a clinical program, practice or intervention”

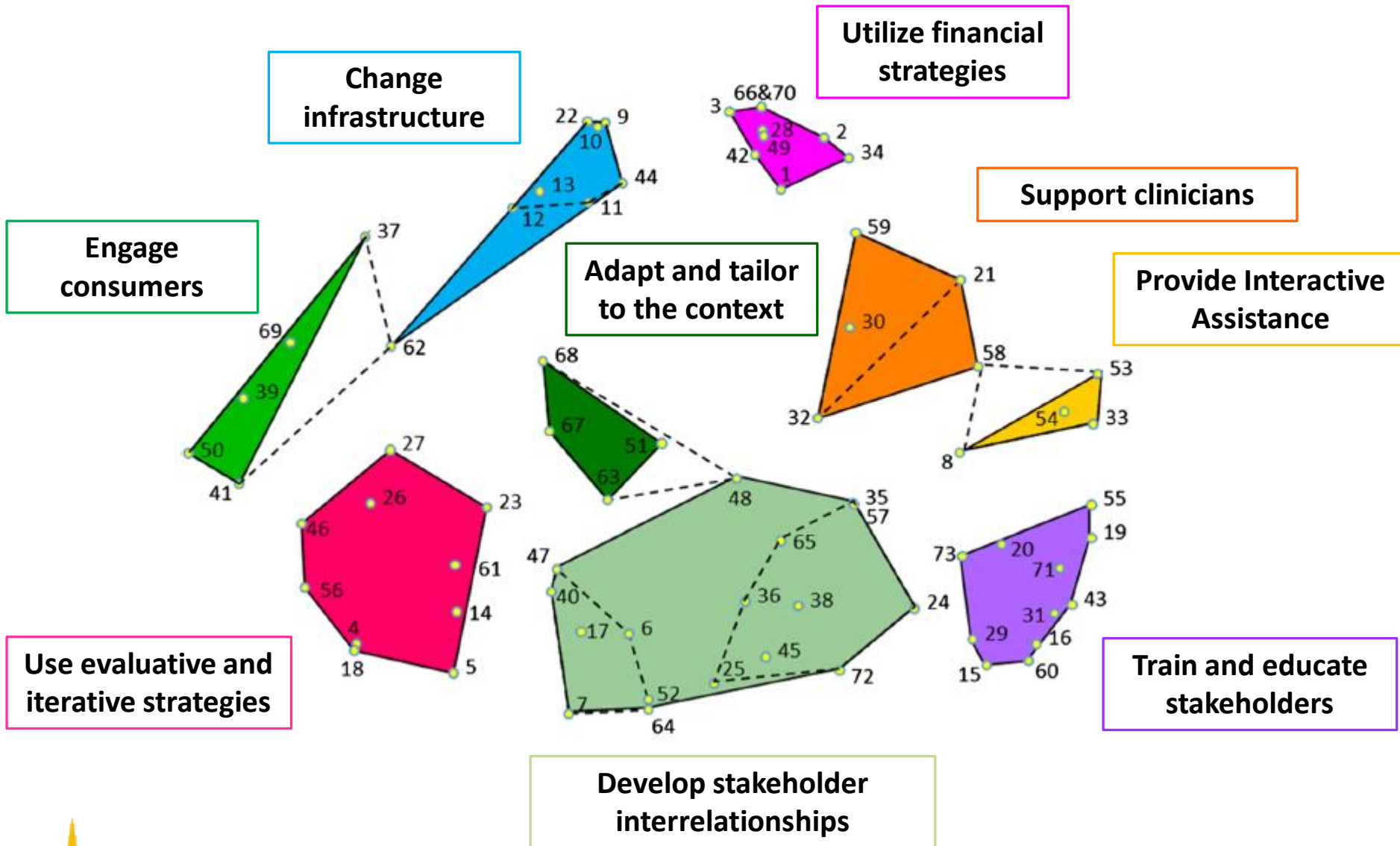


[Proctor et al., 2009](#)

[Proctor, Powell & McMillen, 2013](#)



# Types of Implementation Strategies



[Waltz et al., 2015](#)

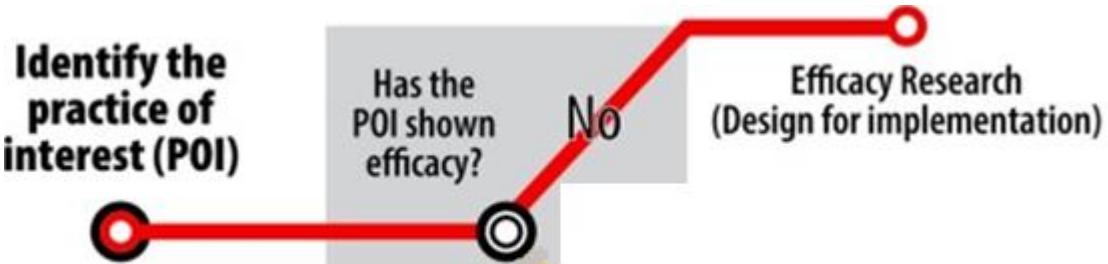
# Clinical research vs. Implementation research

Study Feature	Clinical Research	Implementation Research
	<b>“What”</b>	<b>“How”</b>
<b>Study focus</b>	Clinical intervention	Implementation strategy
<b>Primary outcome(s)</b>	Symptoms, Health Outcomes	Fidelity, adoption, sustained use
<b>Unit of analysis, randomization</b>	Patient	Site, clinic, clinician
<b>Formative evaluation</b>	None	Common
<b>Qualitative data</b>	Sometimes, but secondary	Common

# Transit

# Subway Line of Translational Research

from clinical research...

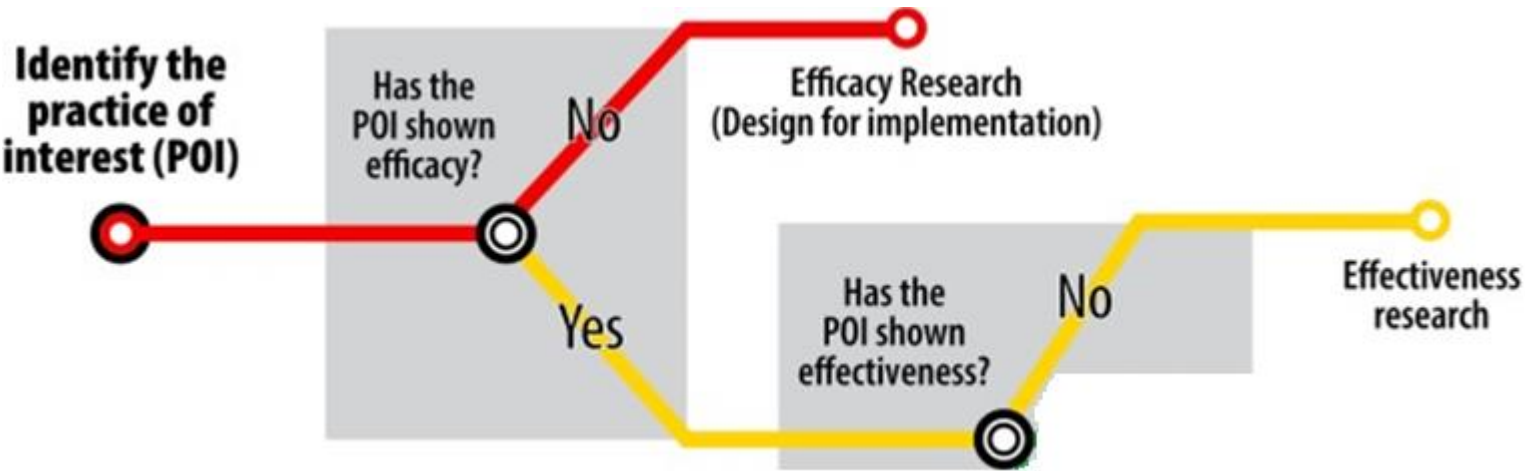


[Lane-Fall, Curran, and Beidas, 2019](#)

# Transit

# Subway Line of Translational Research

from clinical research...

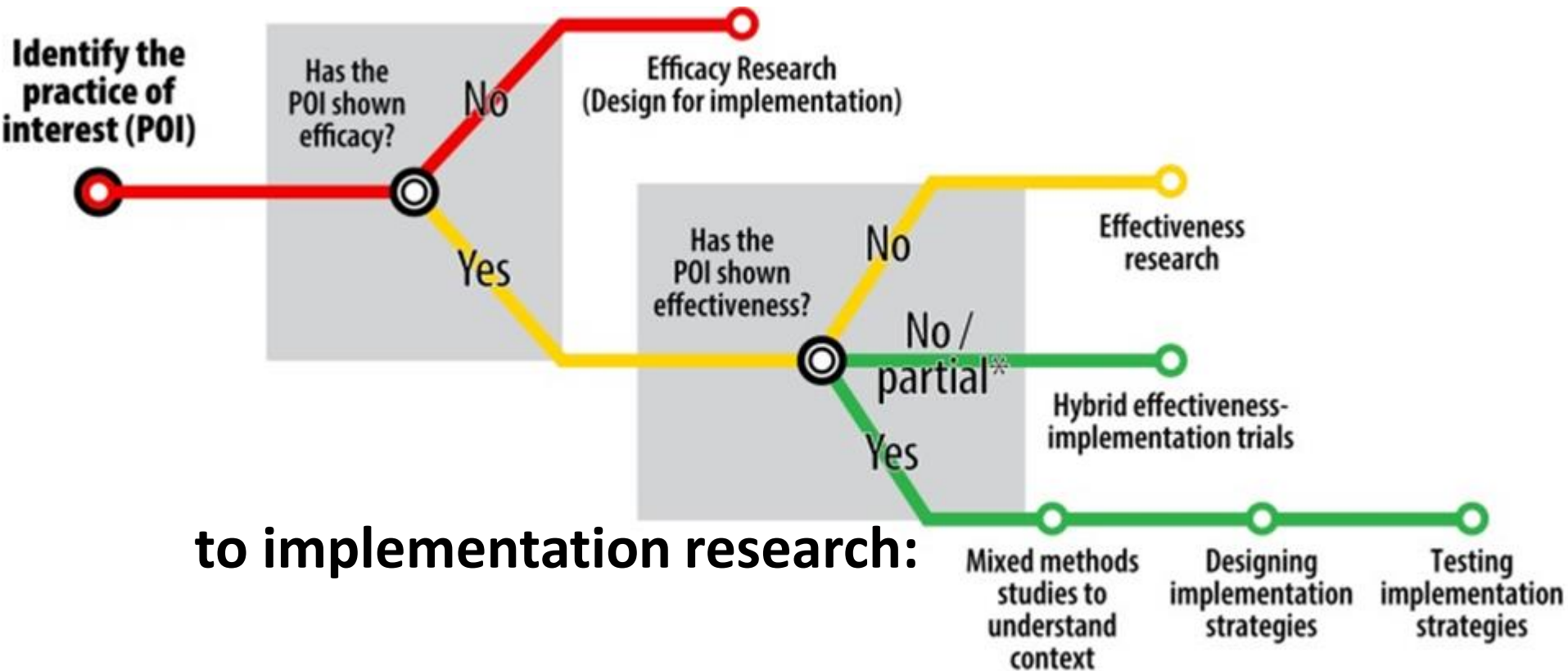


[Lane-Fall, Curran, and Beidas, 2019](#)

# Transit

# Subway Line of Translational Research

from clinical research...



[Lane-Fall, Curran, and Beidas, 2019](#)

# Health Promotion in Basque Local Health Centers: Implementation Strategy Optimization and Evaluation



## Prescribe Vida Saludable (Prescribing Healthy Life)



Primary Care Research Unit,  
Osakidetza, Basque Country  
Health Care System

&

Biocruces Bizkaia Health  
Research Institute



# Local Primary Health Care Centers = Opportunity for Public Health Intervention

- 75% of the Spanish population visits their local health center at least once per year, and 95% within 5 years



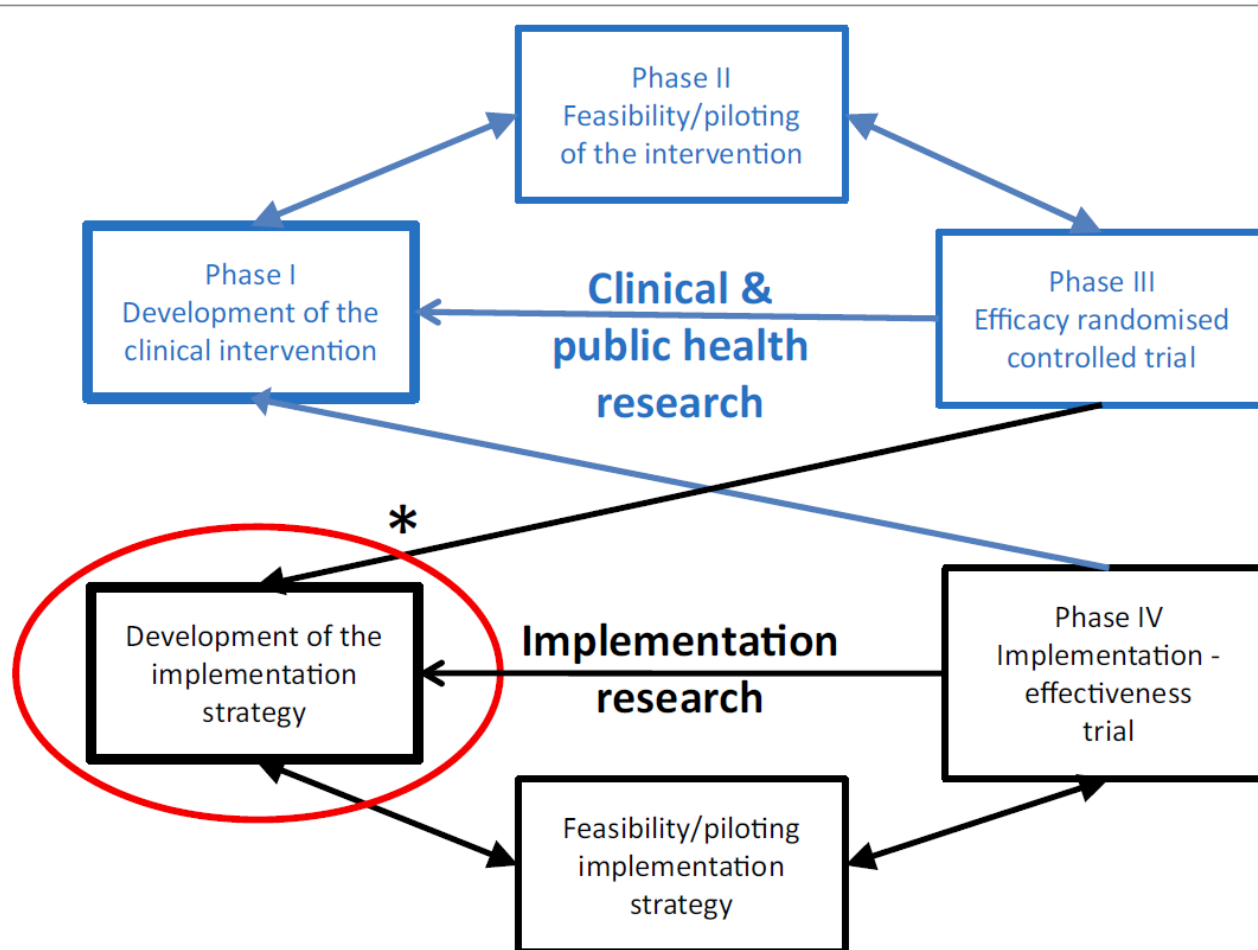
Orueta, Nuño-Solinis, Mateos et al. Health Services Research 2013; 13:269

## The 5 A's

- Evidence-based Clinical Intervention
  - Ask (A1)
  - Advise (A2)
  - Agree (A3)
  - Assist (A4)
  - Arrange follow-up (A5)

Whitlock EP, et al. Evaluating primary care behavioural counseling interventions: an evidence-based approach. Am J Prev Med 2002; 22(4):267-284.

# Multi-Aim Research Framework



**Fig. 1** Extended framework to include implementation research in the process of developing and evaluating complex interventions. Modified from Pinnock et al. [37]. Reproduction authorized by the Editors



# Clinical Intervention in Context

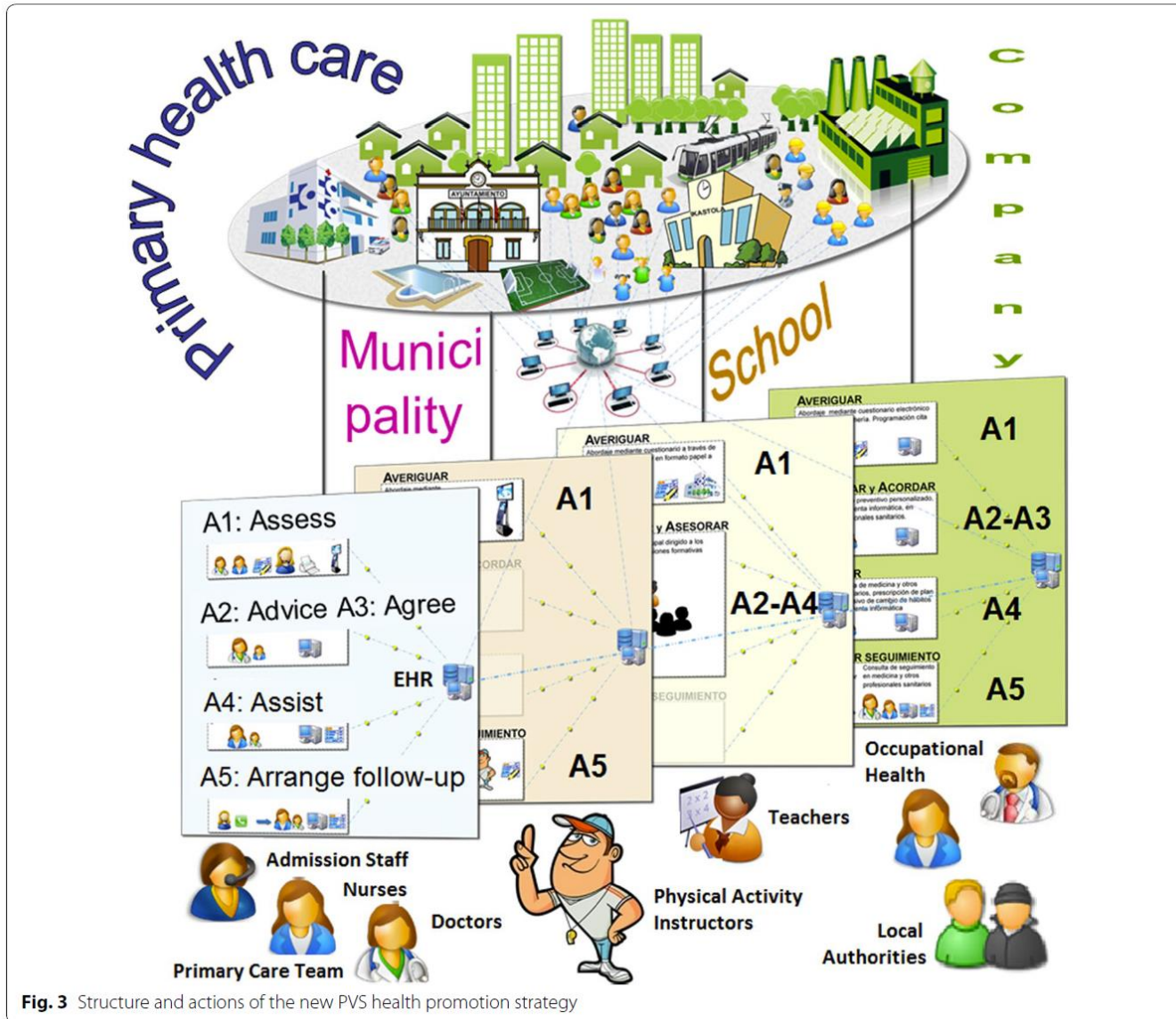


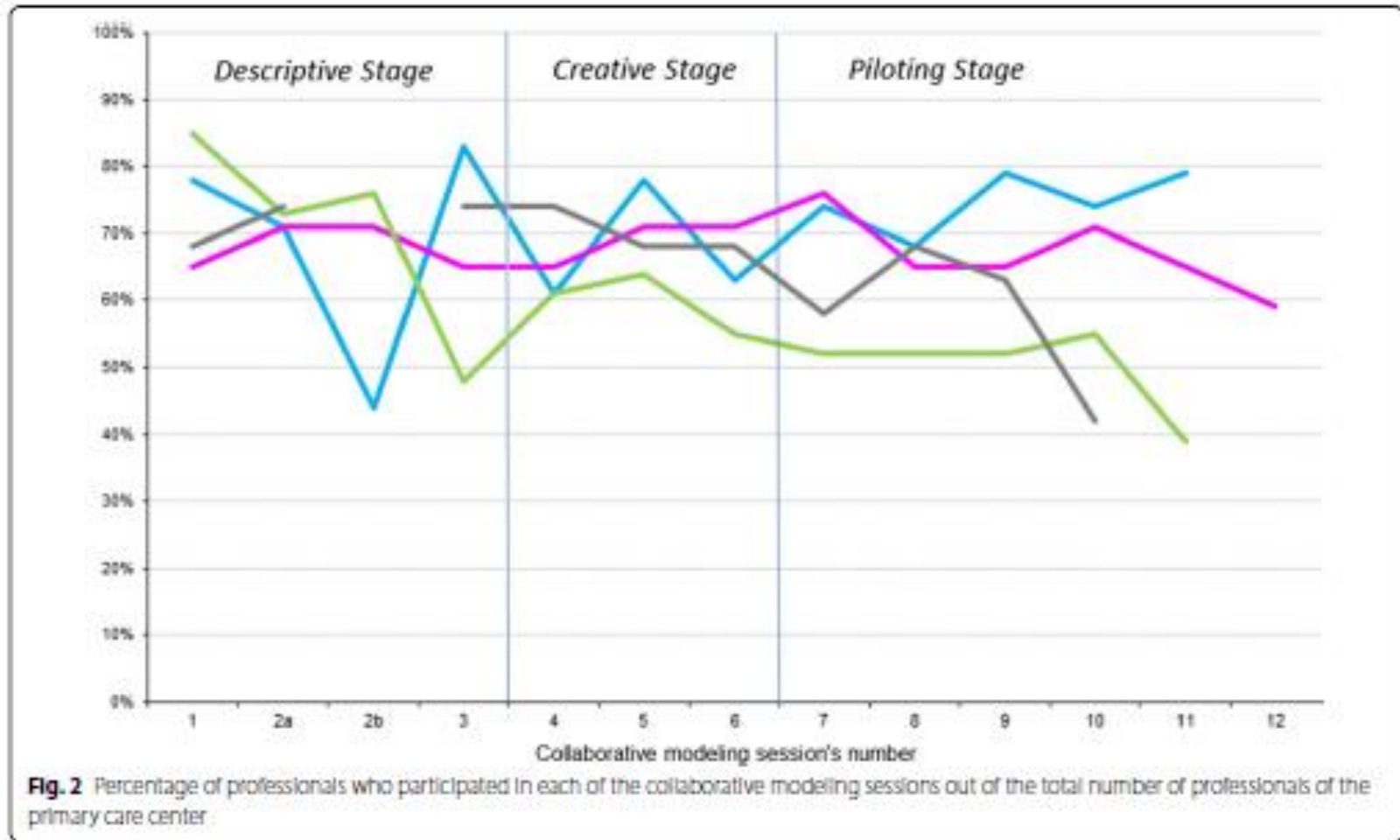
Fig. 3 Structure and actions of the new PVS health promotion strategy

# PVS Implementation Strategy

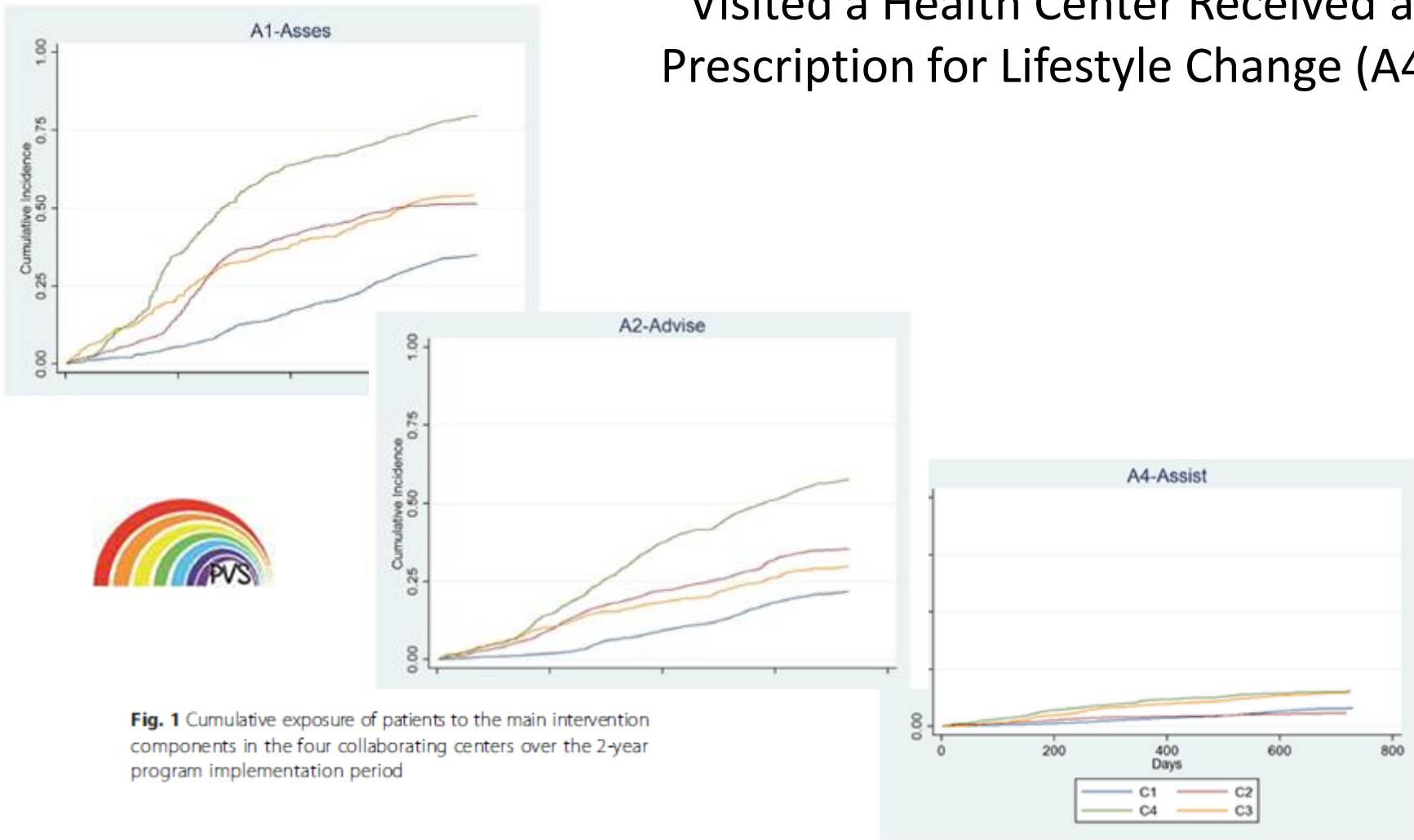
To FACILITATE, through a collaborative process,  
ADOPTION of 5 A's at population level



# Building a Successful Community of Practice

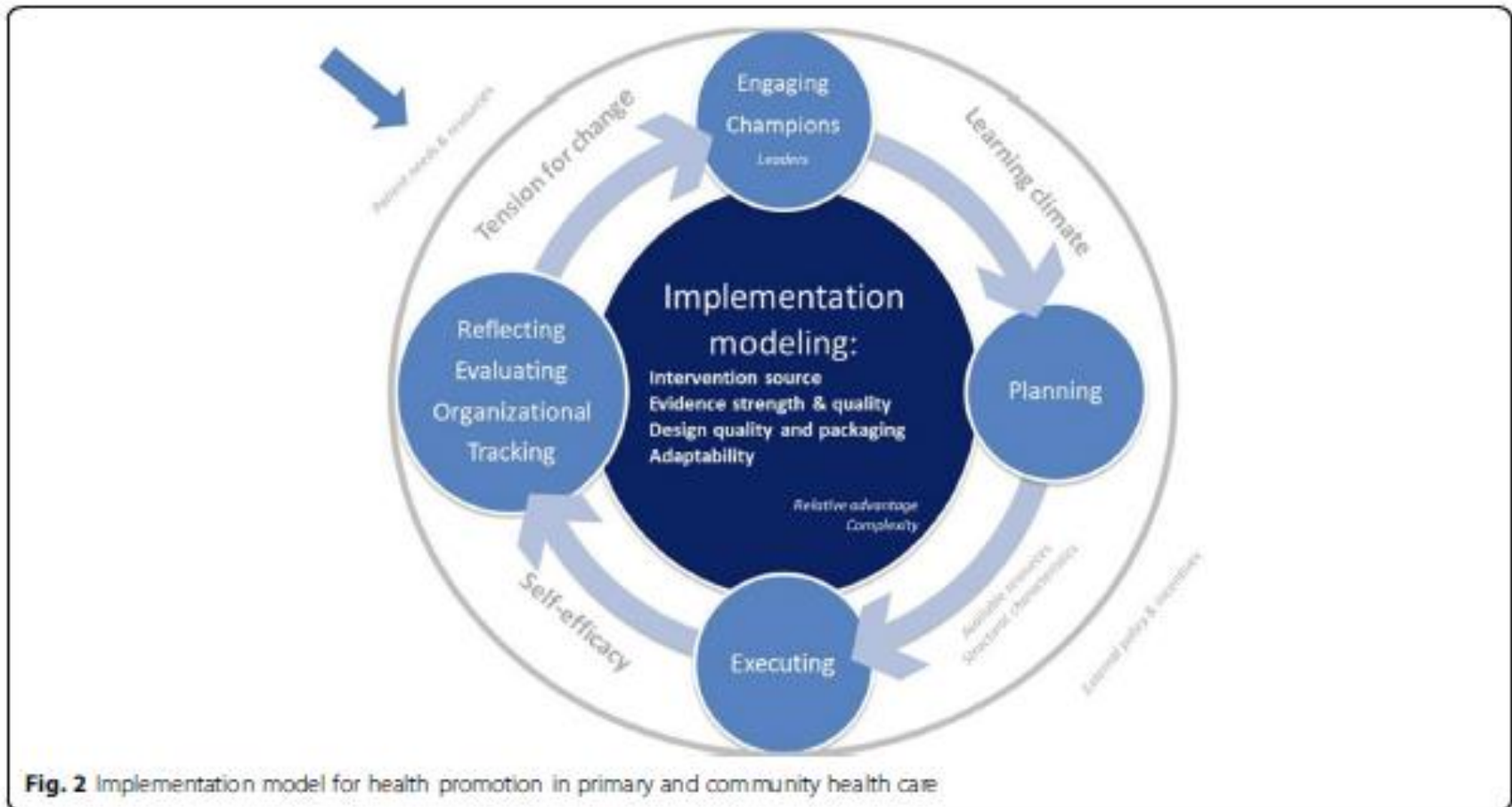


# Reach: Almost 10% of those who Visited a Health Center Received a Prescription for Lifestyle Change (A4)



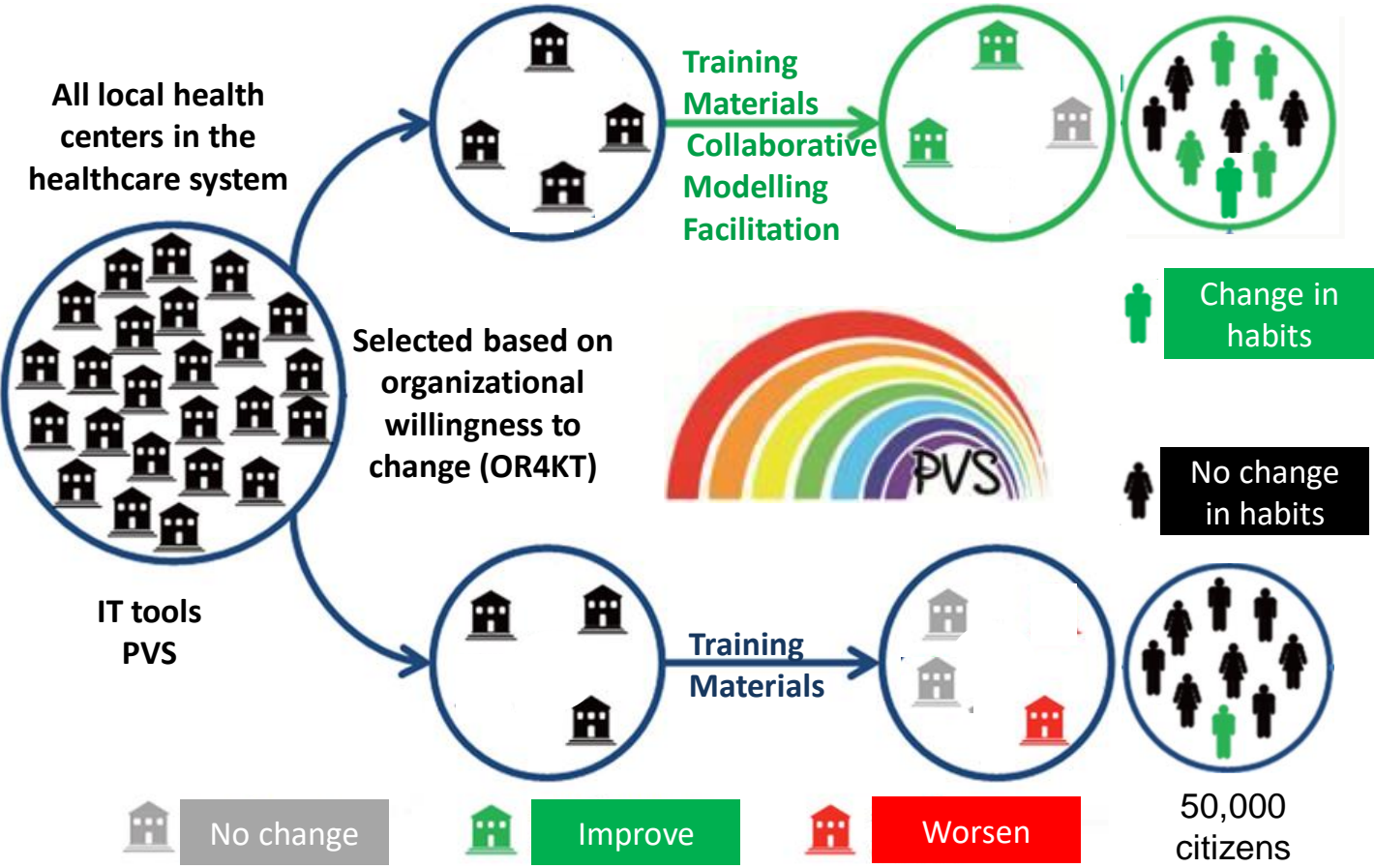
**Fig. 1** Cumulative exposure of patients to the main intervention components in the four collaborating centers over the 2-year program implementation period

# Adoption: Contextual Factors Influence Center-level Implementation Performance



[Martinez et al., 2017](#)

# Optimization of the Implementation Strategy



Process of putting to use or  
integrating new practices  
within a setting





Thank you for your attention.

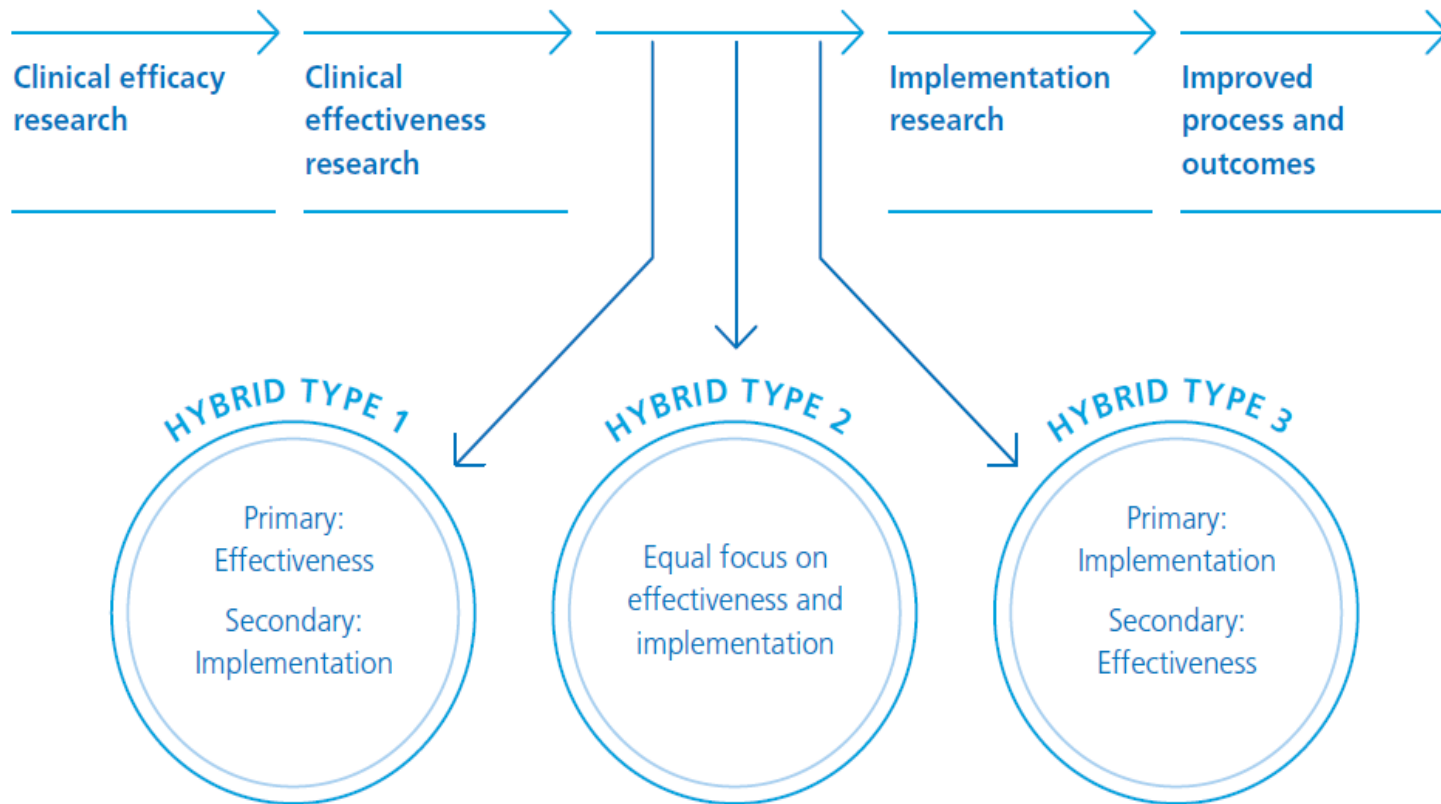
[rogersheatherl@gmail.com](mailto:rogersheatherl@gmail.com)



# Back-up

# Many outcomes at various levels are studied in implementation research

Figure 2: Hybrid effectiveness-implementation designs as part of the clinical research continuum



Adapted from Curran et al, 2012.<sup>9</sup>

Source: ImpRes – Implementation Science Research Development Tool

<https://impsci.tracs.unc.edu/wp-content/uploads/ImpRes-Guide.pdf>

# European Implementation Collaborative (<https://implementation.eu/>)

- The EIC connects individuals, groups, networks, and organizations to reduce the implementation science – practice gap
- Find additional [resources](#) and available [training](#) to learn more
- Contact [existing national networks](#) (German-speaking, Netherlands, Denmark, Norway, Nordic, Ireland, UK, Switzerland)
- Join like-minded individuals at the [European Implementation Event](#) (EIE2023) in Basel, Switzerland on June 8 – 9, 2023