

Implementation of complex interventions: Applying the concepts of functions and forms to align them to local contexts.

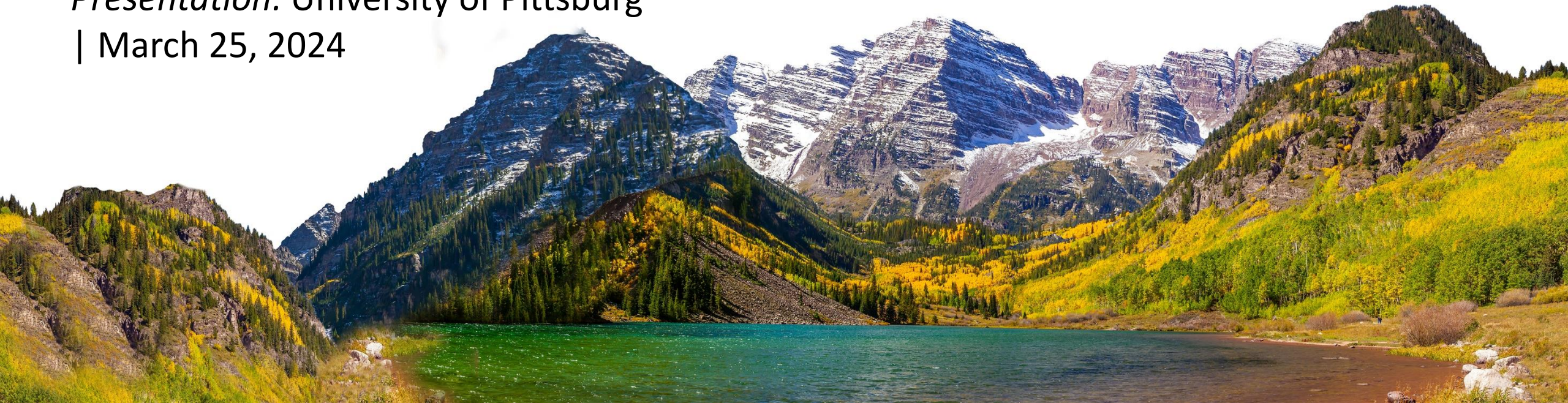
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ACCORDS (Adult and Child Center for Outcomes Research and Delivery Science)

Presentation: University of Pittsburg

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No conflicts to report

Acknowledgments: Russ Glasgow, Meredith Fort, Elizabeth Kessler, Borsika Rabin, Amy Huebschmann, ACCORDS colleagues, COISC3, and researchers cited throughout this talk.



Presentation Outline

- I. Introduction: Complex contexts and interventions
- II. Aligning interventions to local contexts: Approaches
 - 1) Use of D&I Frameworks
 - 2) Equity focus
 - 3) Concepts of Core Functions and Forms
 - 4) Participatory research engagement – Co-creation
- III. Case example
- IV. Other resources
- V. Home take messages

Presentation Outline

- I. Introduction: Complex contexts and interventions

Aligning interventions to local contexts:

**Contexts can have an impact
on your intervention before,
during and after
implementation**



Contexts reflect the rich diversity, goals, and values of local communities



Acknowledge contextual complexity

Dynamic and
evolving
contexts

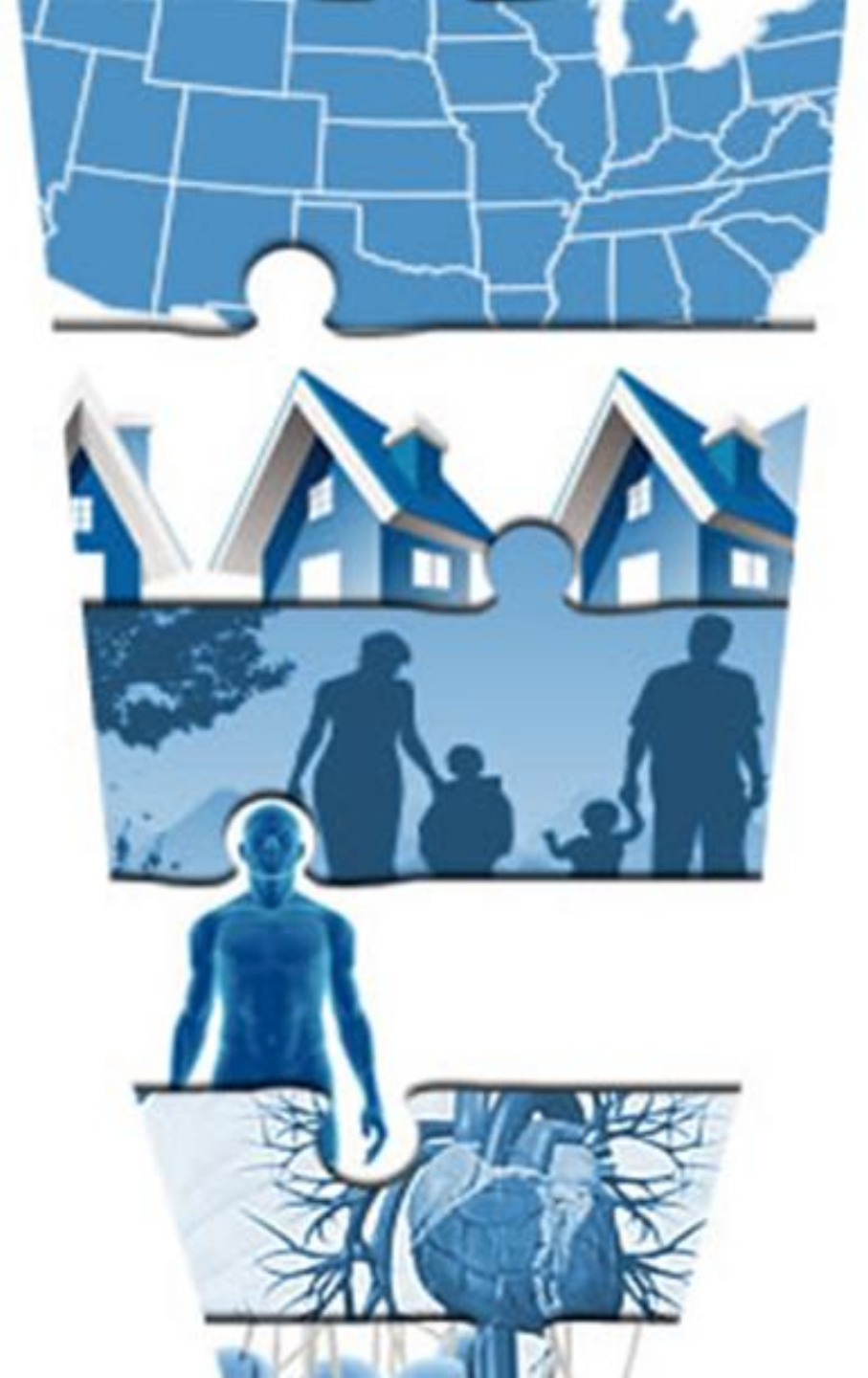


Introduction

Multi-source problems require multi-level solutions!

Complex Interventions

- ✓ CIs have multiple components that interact with each other in an inter-dependent fashion
- ✓ Individuals delivering and receiving the intervention exhibit a high set of coordinated behaviors
- ✓ CIs require adaptations/tailoring at the organizational, workforce, and/or patient levels (at least two)
- ✓ Outcomes are numerous and they can change over time
- ✓ There is a need for flexibility in how the intervention is

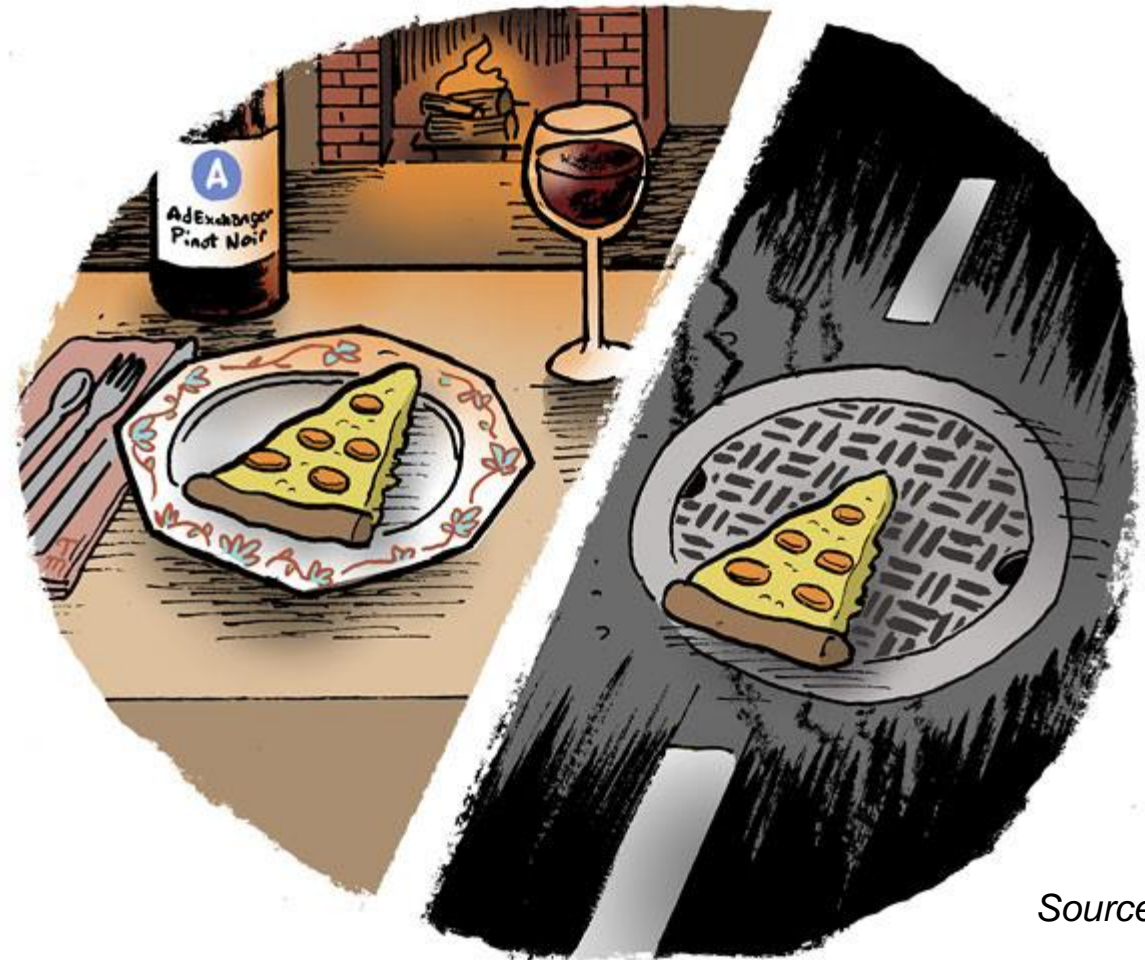


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 - 1) Use of D&I Frameworks

IS Theories, Models + Frameworks are Available!

You have MANY options – more than 159* The good news is there are *many similarities such as:*




Source: AdExchanger

Context Matters

IS Theories, Models + Frameworks are Available!

You have MANY options – more than 159* The good news is there are *many similarities such as:*

- Focus on **external validity**
- Begin with **invested partners**—take their perspective(s)
- Find a balance between fidelity to the intervention and adaptations to local settings
- Unlikely you need to create a new model



*“D&I theories are kind of like toothbrushes:
Everybody has one and no one wants to use
somebody else’s”*

~ Christian Schunn (2001)

*Gorman et. al. (2003) “Spherical Horses
and Shared Toothbrushes”



Overview of Practical Robust Implementation and Sustainability Model (PRISM)

- **Context-based implementation science framework**
- Has been used as a Determinant, Process, Implementation, and Evaluation framework
- **Incorporates RE-AIM** outcomes (Reach, Effectiveness, Adoption, Implementation, Maintenance)



Purpose and History of RE-AIM Framework

- Intended to facilitate translation of research to practice, policy, and real-world application
- **Balance internal and external validity, and emphasizes representativeness and equity**
- Individual (RE) and Multi-level setting (AIM) factors - community, organization, staff
- **Ultimate Impact depends on all elements** (reach x effectiveness, etc.)

www.re-aim.org

Glasgow RE et al. RE-AIM at 20. Frontiers Public Health. 2019; 7: 64

Glasgow et al. Amer J Public Health. 1999; 89: 1322-1327

**Equity opportunities
at EACH STAGE of
the
RE-AIM process:
Representation and
Representativeness**

Reach

Effectiveness

Adoption

Implementation

Maintenance

Overview of Practical Robust Implementation and Sustainability Model (PRISM)

- Offers guidance on how to conceptualize, assess, and address contextual domains with a focus on health equity
- New applications:

PRISM from an **equity, systems, and co-creation engagement focus**



Pérez Jolles, M., Fort, M.P., Glasgow, R. E., Aligning the planning, development, and implementation of complex interventions to local contexts with an equity focus: Application of the PRISM/RE-AIM Framework. (In Press).

Fort MP, Manson SM, Glasgow RE. Applying an equity lens to assess context and implementation in public health and health services research and practice using the PRISM framework. *Frontiers in Health Services*. 2023;3:1139788.

Rabin, B.A., Cakici, J., Golden, C.A., Estabrooks, P.A., Glasgow, R.E. and Gaglio, B., 2022. A citation analysis and scoping systematic review of the operationalization of the Practical, Robust Implementation and Sustainability Model (PRISM). *Implementation Science*, 17(1), pp.1-26.

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PERSPECTIVE article

Front. Health Serv., 13 April 2023

Sec. Implementation Science

Volume 3 - 2023 | <https://doi.org/10.3389/frhs.2023.1139788>

This article is part of the Research Topic

Perspectives and Opinions in Health Services: 2022

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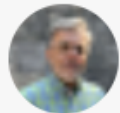
Applying an equity lens to assess context and implementation in public health and health services research and practice using the PRISM framework



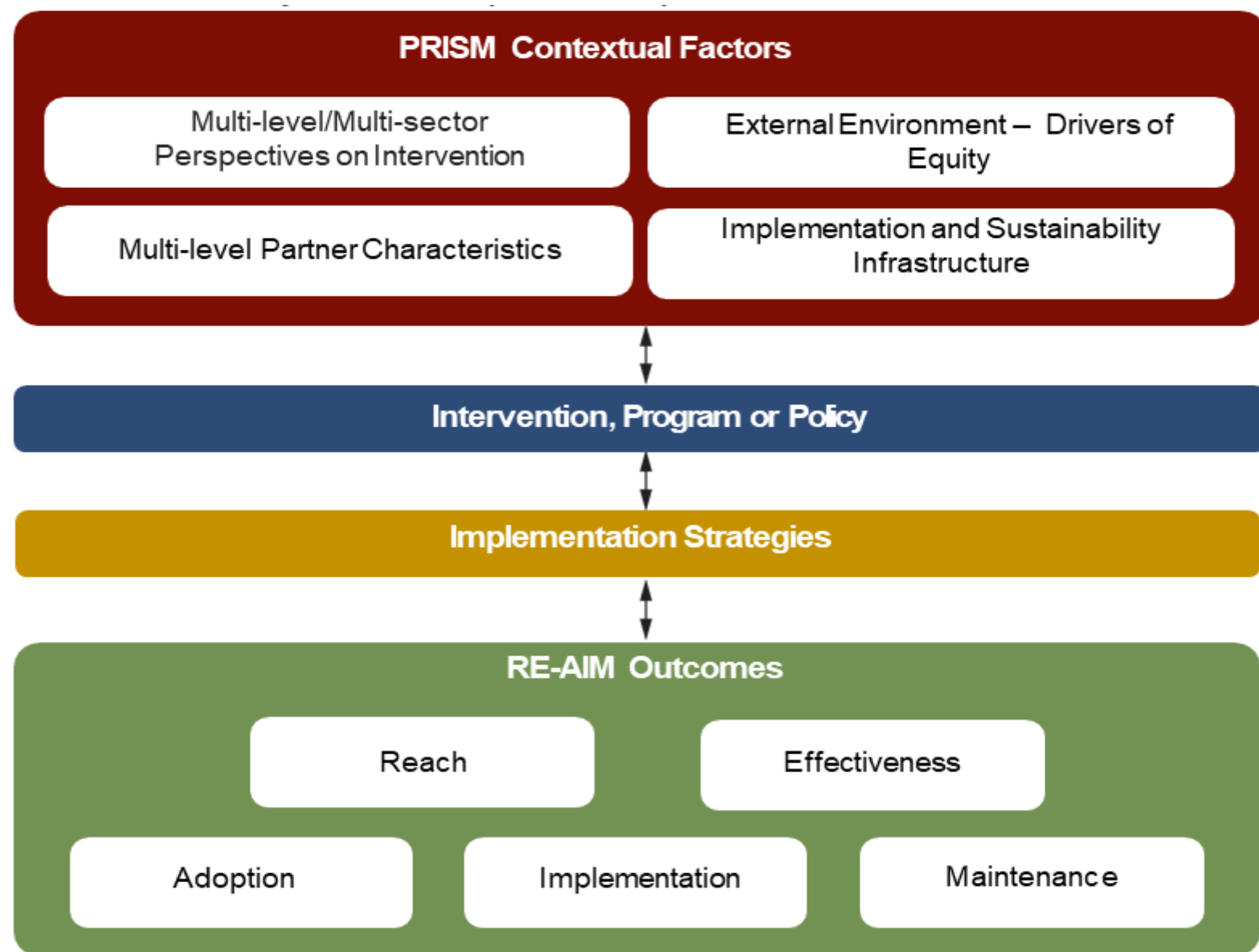
Meredith P. Fort^{1,2*†}



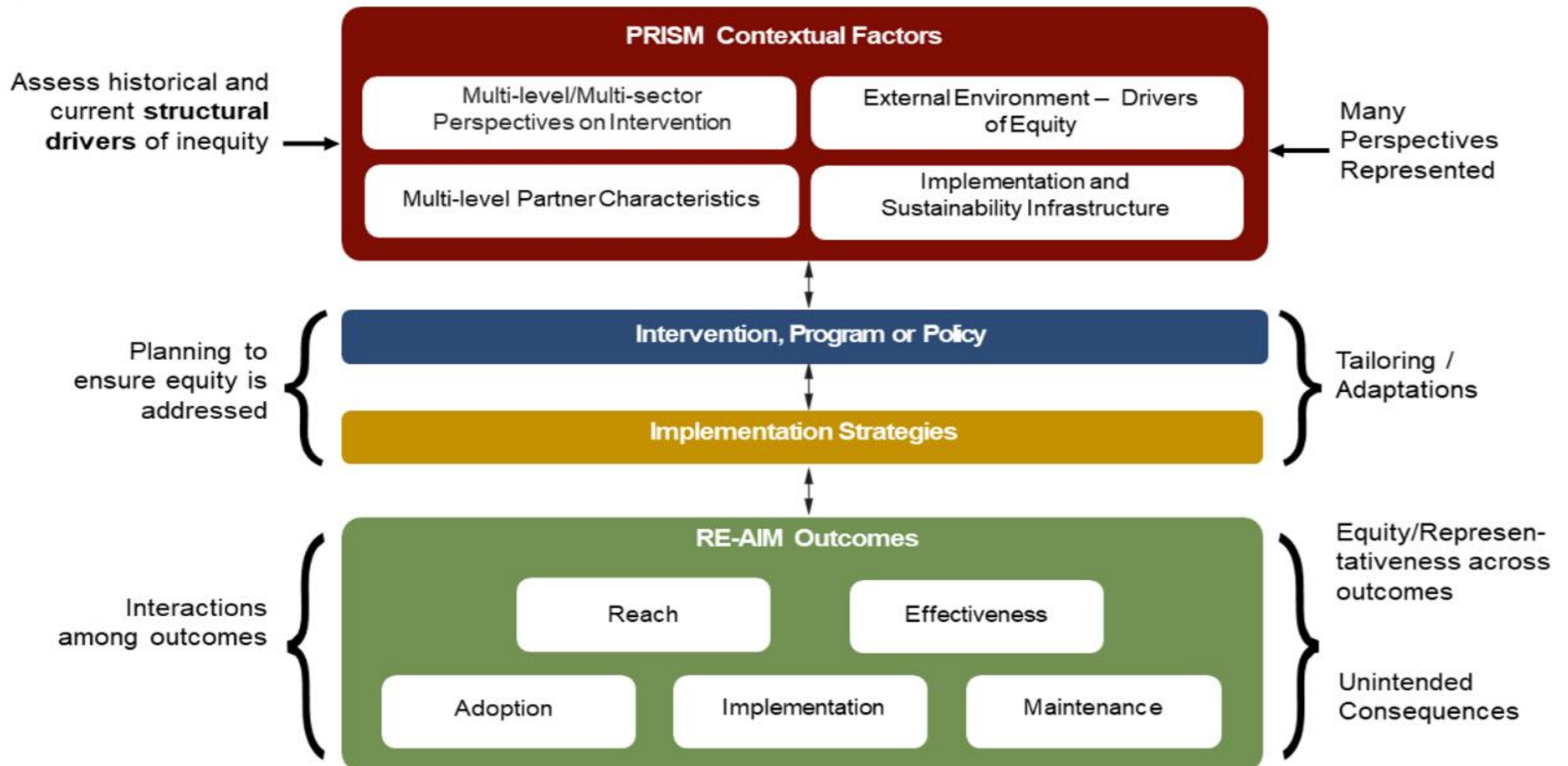
Spero M. Manson¹



Russell E. Glasgow³



Fort MP, Manson SM, Glasgow RE. Applying an equity lens to assess context and implementation in public health and health services research and practice using the PRISM framework. *Frontiers in Health Services*. 2023;3:1139788.



Fort MP, Manson SM, Glasgow RE. Applying an equity lens to assess context and implementation in public health and health services research and practice using the PRISM framework. *Frontiers in Health Services*. 2023;3:1139788.

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 - 3) Concepts of Core Functions and Forms

COMMENT

Open Access



Aligning the planning, development, and implementation of complex interventions to local contexts with an equity focus: application of the PRISM/RE-AIM Framework

Monica Pérez Jolles^{1,3*}, Meredith P. Fort² and Russell E. Glasgow^{1,4}



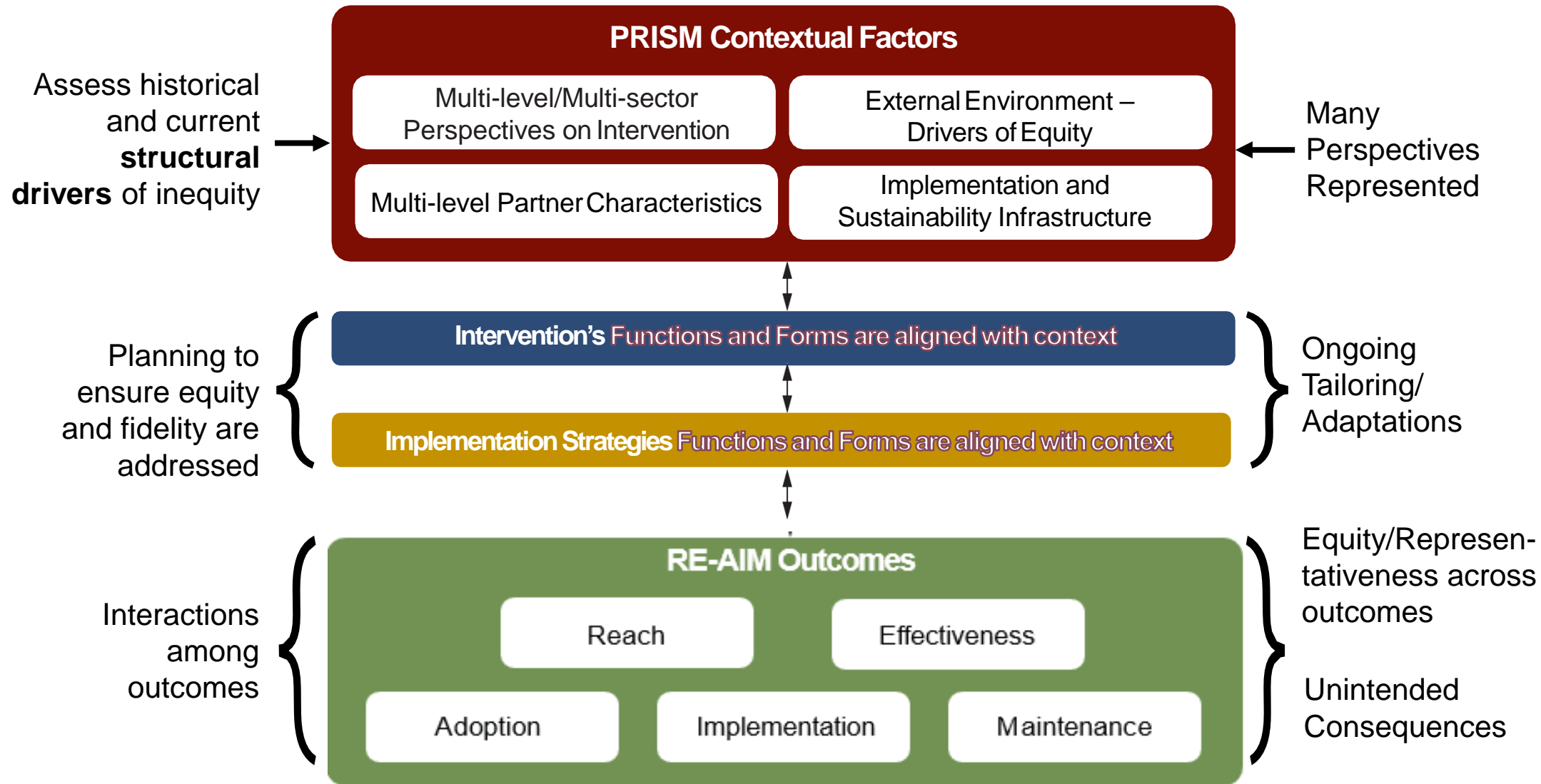
Concepts of Functions and Forms

- Concepts from the complex systems literature
- **Core Functions** refer to “what the intervention was intended to do”, the structural or procedural goals designed to meet system and/or patients’ needs. Critical to preserving the integrity and fidelity of the intervention and the change process.
- **Forms** refer to a flexible menu of activities, procedures, steps or implementation strategies that local communities or healthcare systems adopt to carry out a core function, to make it work for them in their setting.

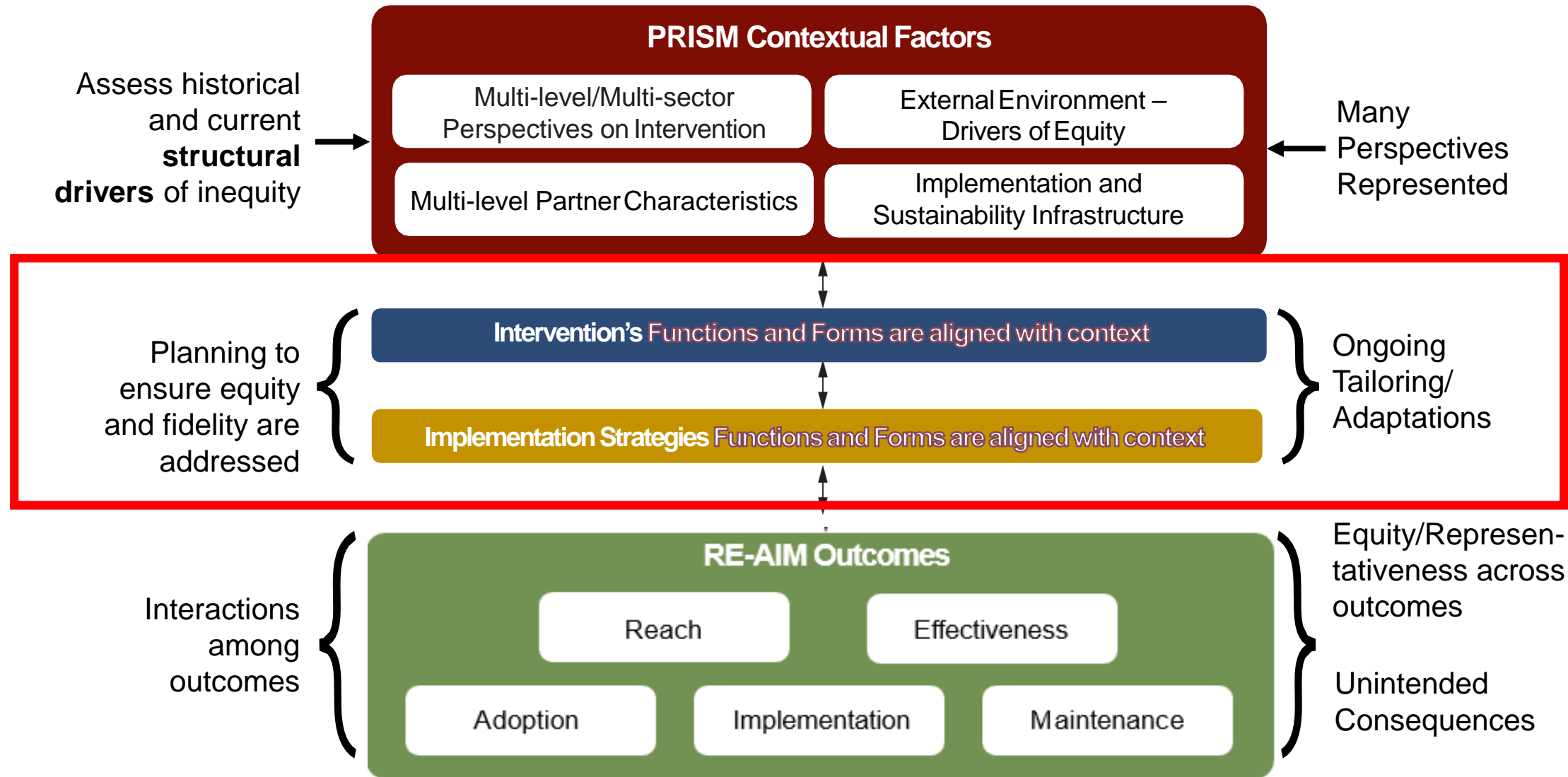
Pérez Jolles, M., Lengnick-Hall, R., Mittman, B. (2019). Core Functions and Forms of Complex Health Interventions: A Patient-Centered Medical Home Illustration. *Journal of General Internal Medicine*, 34(6):1032-1038. DOI: 10.1007/s11606-018-4818-7;

Pérez Jolles, M., Fort, M.P., Glasgow, R. E., (2024). Aligning the planning, development, and implementation of complex interventions to local contexts with an equity focus: Application of the PRISM/RE-AIM Framework. *International Journal for Equity in Health (In press)*.

PRISM from an Equity and Systems Focus



PRISM from an Equity and Systems Focus



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How do we define engagement?

“Patients and other healthcare [stakeholders] being equitable partners, as opposed to research subjects, and who leverage their lived experience and expertise to influence research to be more patient-centered, relevant, and useful.”

Source:

Patient-Centered Outcomes Research Institute. Value of Engagement. 2018; <https://www.pcori.org/engagement/value-engagement#:~:text=Engagement%20in%20Research,centered%2C%20relevant%2C%20and%20useful,2022>.



Implementation Science did not invent it!

- Engagement of clinical and community partners in research implementation efforts and to inform programs is not new
- Important contributions from adjacent fields that include health disparities research, health equity research, global health, and Community-based Participatory Research (CBPR)



Wallerstein, N. and Duran, B., 2010. Community-based participatory research contributions to intervention research: the intersection of science and practice to improve health equity. *American Journal of Public Health*, 100(S1), pp.S40-S46; Carnethon, M.R., Kershaw, K.N. and Kandula, N.R., 2020. Disparities research, disparities researchers, and health equity. *JAMA*, 323(3), pp.211-212.

“For implementation science a redefinition of the term *collaboration* is required...our findings support the **need for a deeper understanding of collaboration...**”

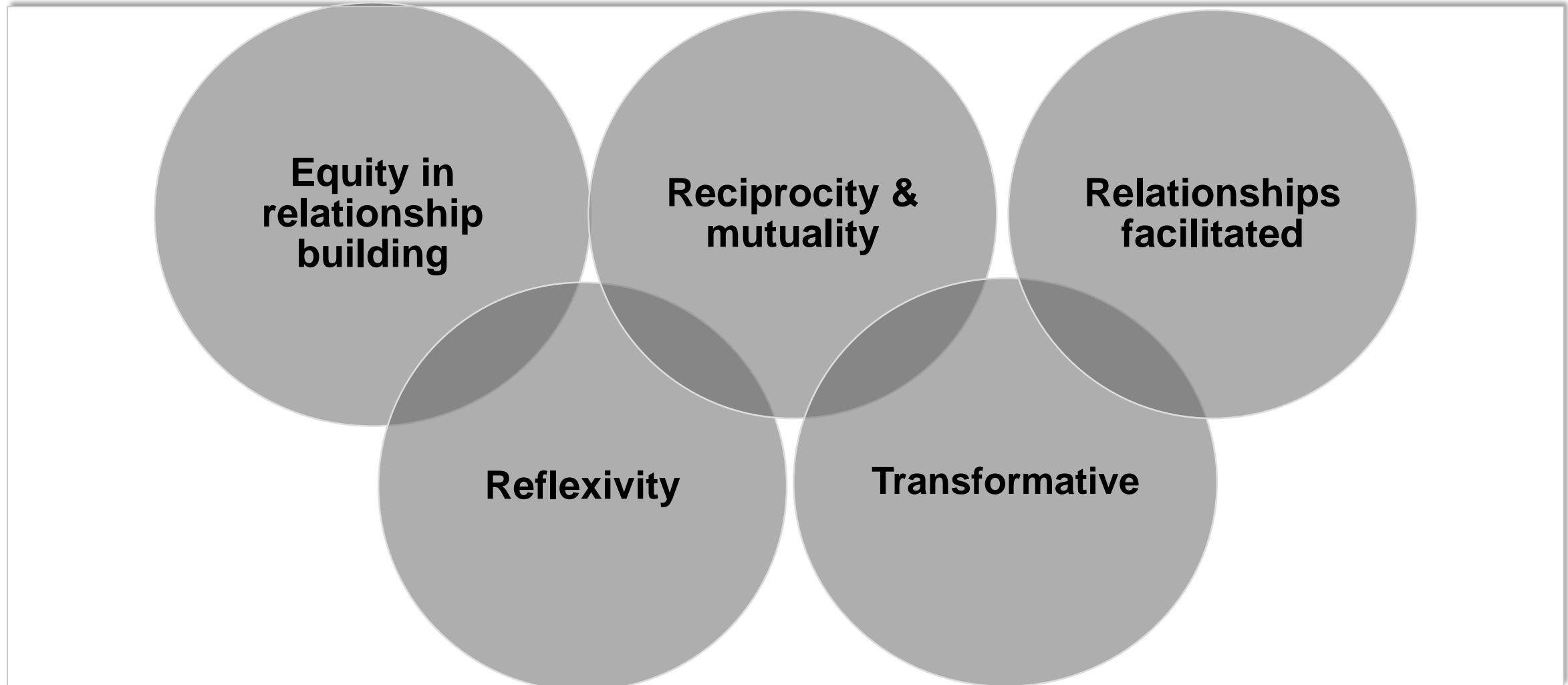
Aarons, Gregory A., Danielle L. Fettes, Michael S. Hurlburt, Lawrence A. Palinkas, Lara Gunderson, Cathleen E. Willging, and Mark J. Chaffin. "Collaboration, negotiation, and coalescence for interagency-collaborative teams to scale-up evidence-based practice." *Journal of Clinical Child & Adolescent Psychology*, 43, no. 6 (2014): 915-928.

Co-creation

- Collaborative process where multiple actors invest their skills and knowledge to “**set the direction** of development” (Edquist, 2005)
- Concerns with the question: “***What it means for professionals to open up their processes to engage with different partners (including consumers / clients / patients, other agencies)?***” (Tuunas, S. 2015; Ostrom, 1996)
- **Collaborative generation of knowledge** by academics working alongside key partners (Greenhal et al., 2016)



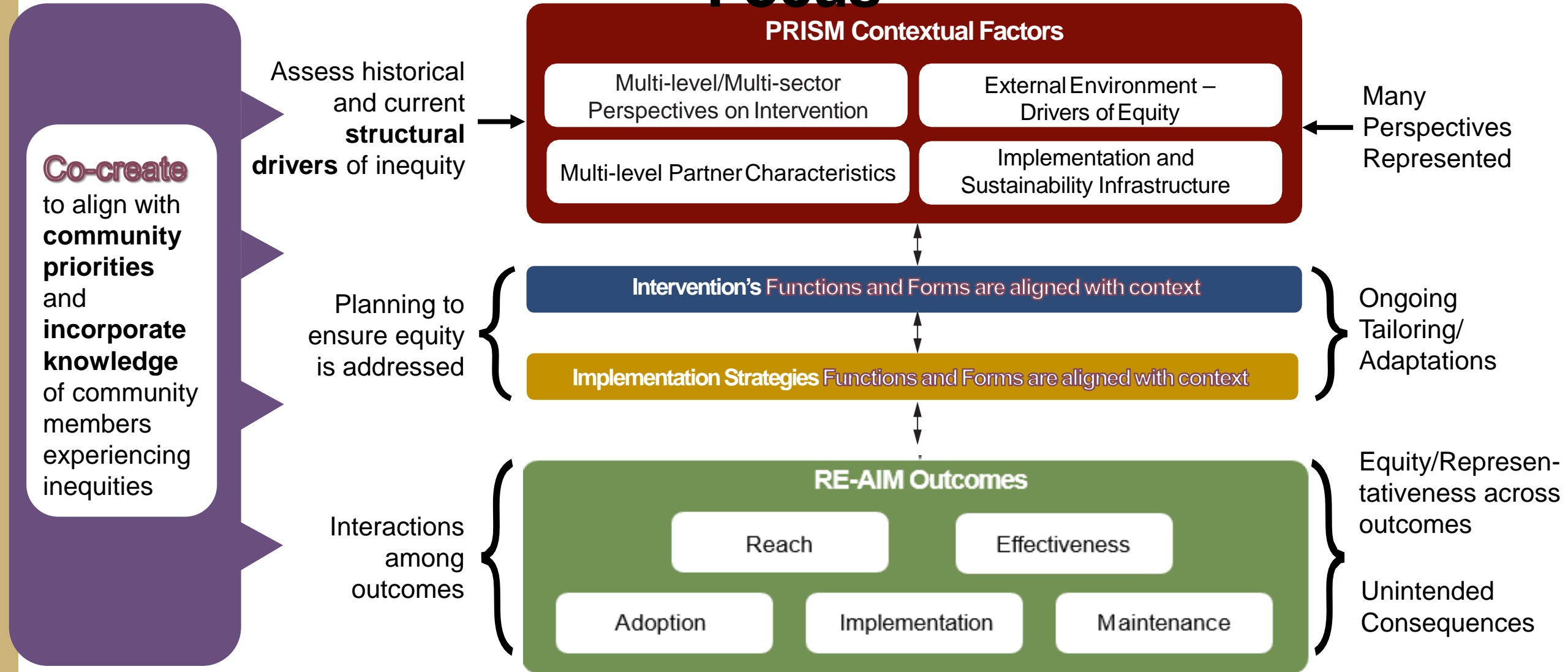
Co-creation Principles



Pérez Jolles, M., Willging, C.E., Stadnick, N.A., Crable, E.L., Lengnick-Hall, R., Hawkins, J. and Aarons, G.A. (2022). Understanding implementation research collaborations from a co-creation lens: recommendations for a path forward. *Frontiers in Health Services*, 2.

PRISM from an Equity, Systems, and Engagement

Focus



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- III. Case example

Use of co-creation workshops to design an Integrated Actionable Aging Assessment for Cancer Patients (IAC3-CP) Tool

Research Team

Elizabeth Kessler, MD – Oncologist, physician-scientist

Mónica Pérez Jolles, PhD – Health Services Researcher and Implementation scientist [Co-creation partner engagement focus]

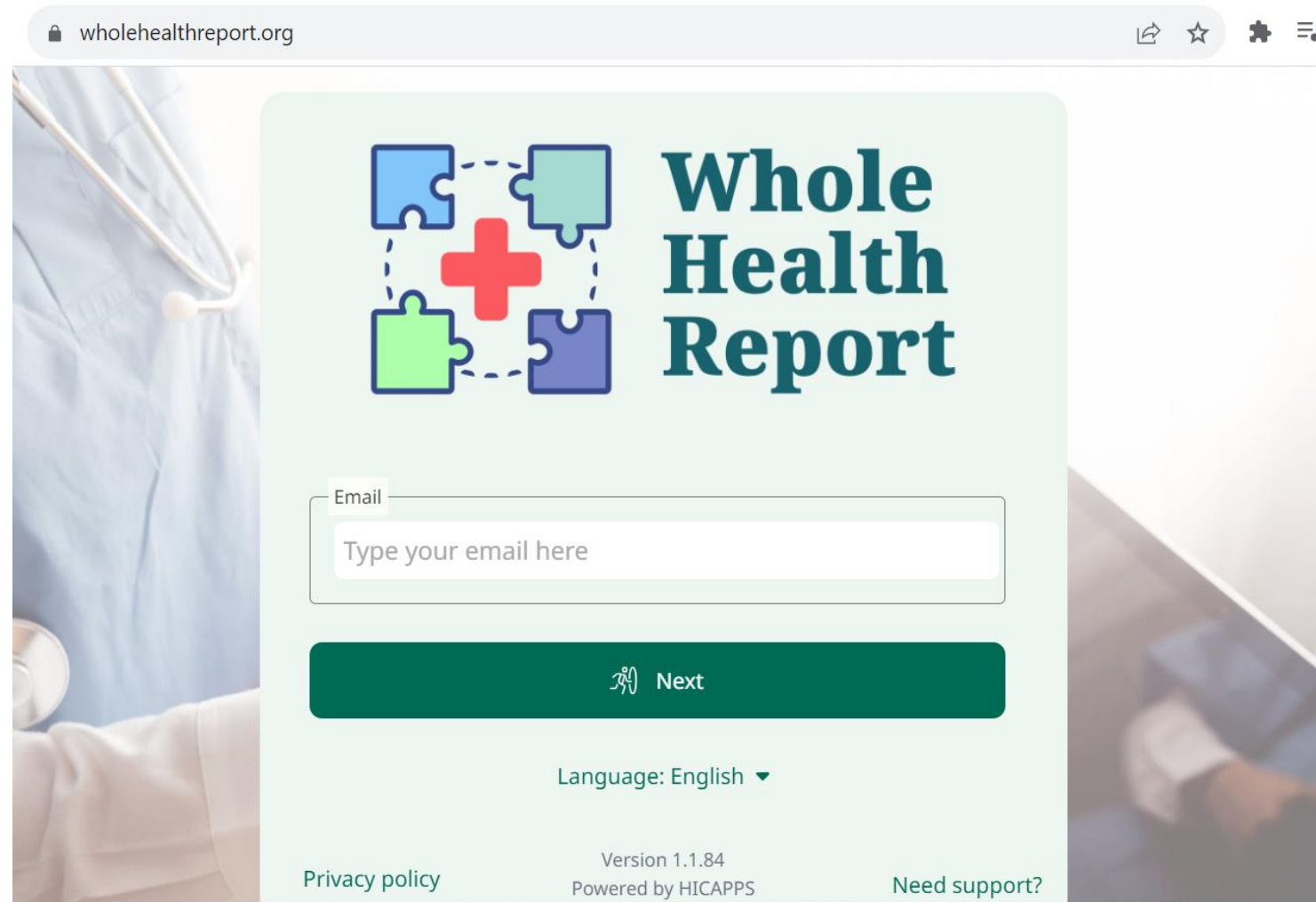
Amy G. Huebschmann, MD, MSc – Primary care physician, Implementation scientist

Rebekah Gomes, MA – Research Services Senior Professional

Bryan Ford, MPH, Program Manager

Russell Glasgow, Ph.D. – Implementation scientist, PI of NCI-funded Colorado Implementation Science Center for Cancer Control and Prevention (**COISC3**)

This work builds on Dr. Krist, Glasgow, Huebschmann and colleagues' research on the My Own Health Report tool (MOHR)



Cancer Center

NCI-DESIGNATED COMPREHENSIVE
CANCER CENTER

Glasgow RE, Huebschmann AG, Krist AH, Degruy FV. An Adaptive, Contextual, Technology-Aided Support (ACTS) System for Chronic Illness Self-Management. Milbank Q. 2019



The Colorado Implementation
Science Center for Cancer Control

Use of co-creation workshops to design an Integrated Actionable Aging Assessment for Cancer Patients (IAC3-CP) Tool

- Geriatric and **patient-centered** assessments can inform patient-provider interactions and guide treatment decisions — social determinants of health (SDoH) and behavioral risk factors
- Pilot study using co-creation engagement strategies with a multi-perspective steering committee, clinic-based workshops, and a diverse group of patients
- Goal to integrate screenings in areas relevant to older adult cancer patients in a way that is feasible, actionable, and sustainable.



Source: Pexels

Use of co-creation workshops to design an Integrated Actionable Aging Assessment for Cancer Patients (IAC3-CP) Tool

Examples of some of the PRISM-relevant contextual domains

- **Organizational perspective:** Inclusion of oncology service line personnel at multiple levels to inform the design, planning, and implementation of the IA3-CP intervention
- **Patient perspectives:** Inclusion of patients with an existing cancer diagnosis during the planning and design of the intervention
- **External environment:** The availability and type of local community resources (e.g., transportation) to support patients' needs, preferences, and lifestyle changes inform the 'linkage' aspect of the tool intervention design

Use of co-creation workshops to design an Integrated Actionable Aging Assessment for Cancer Patients (IAC3-CP) Tool

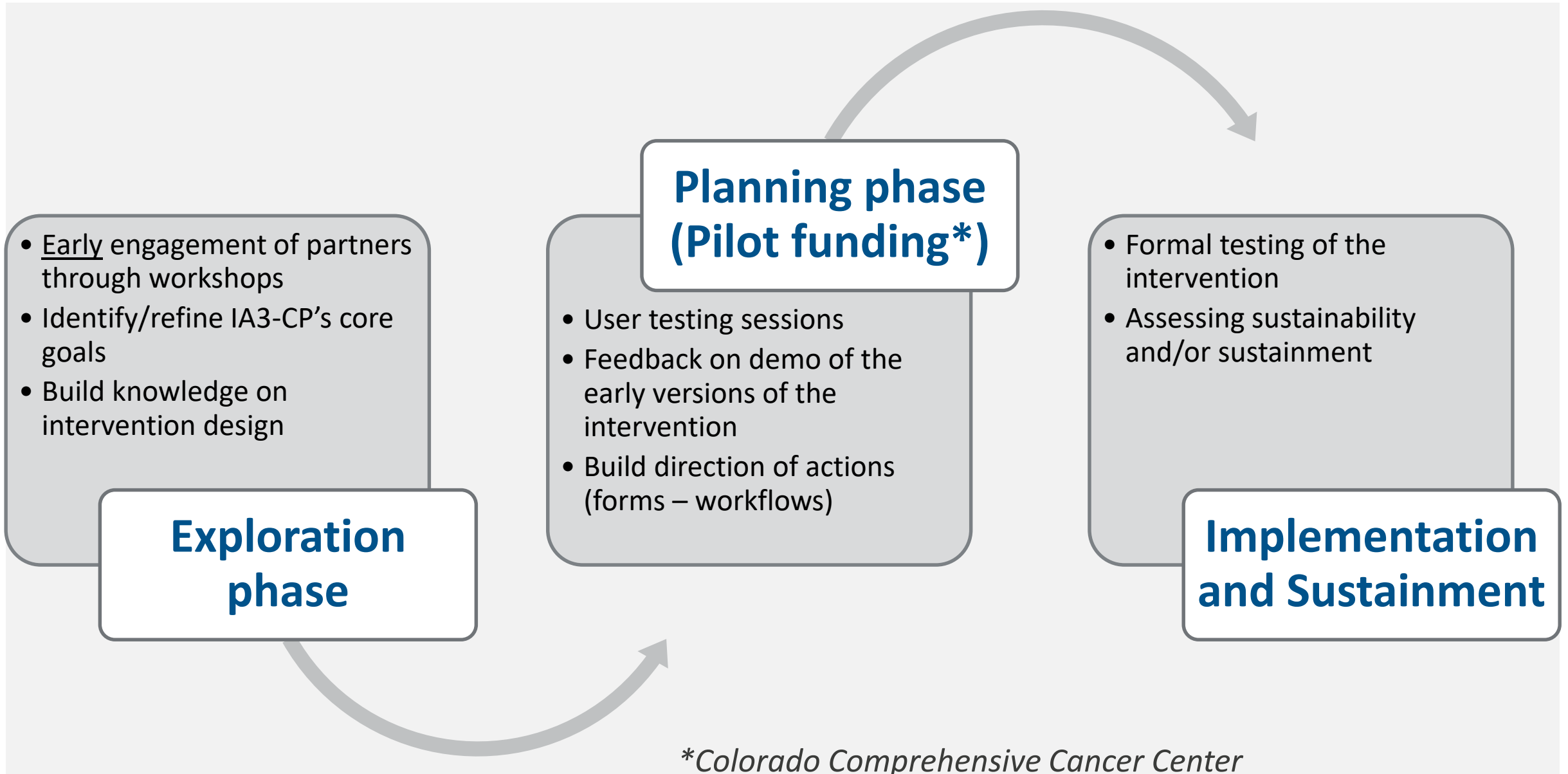
Use of co-creation, informed by functions and forms concepts

- A Steering Committee comprised of clinic personnel was convened starting in the grant proposal writing phase to inform the feasibility of the intervention and key areas to consider in the research study design and planning phase
- Clinic and patient partners participated in co-creation workshops. The intervention's core functions were presented as a starting point and partners worked on refining forms (e.g., clinic workflows)
- Inclusion of diverse patient partners in co-creation workshops to include them in decision-making early on, inform adaptations, and include multiple perspectives

Some of the Identified Core Functions and Potential Forms of the IA3-CP system

FUNCTION	EXAMPLE ACTIVITIES
Informed patient-clinician interactions – includes oncology standard of care to address geriatric function in cancer care plan	Clinician (either/both oncologist or other staff) mention IA3-CP data; refer to patient preferences noted; or collaboratively develop patient-centered cancer care plan
Tailor to individualized, supportive and comprehensive cancer care plan	Care planned is shared with care team members; referrals are made and completed; prioritized behavior changes are made

Partner Engagement From Implementation Planning Phase



Use of co-creation workshops to design an Integrated Actionable Aging Assessment for Cancer Patients (IAC3-CP) Tool

Representation and Representativeness

RE-AIM Outcomes:
Reach,
Effectiveness,
Adoption,
Implementation,
Maintenance

- Inclusion of behavioral health questions: patients with new a cancer diagnosis and experiencing high levels of distress and low social support not using the tool
- Spanish-speaking workshops

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Functions and Forms Tracking Matrix

Project Name:							
WHAT IS THE <u>GOAL</u> OF THE HEALTH / PUBLIC HEALTH-RELATED INTERVENTION? (Enter in greyed rows)	WHAT IS THE <u>GOAL</u> OF THE BUNDLE IMPLEMENTATION STRATEGY? (Enter in white rows)	Is this goal still relevant NOW? From 0 to 5 (5=highly relevant and 0=no longer relevant)	HOW DO WE ACHIEVE THAT GOAL? HOW DO WE MAKE IT WORK FOR US? <u>ACTIVITIES?</u>	How well is this activity working now in your clinic? (0-5)	Has this activity been modified? Y/N	What was changed? Select from drop down the main area	If yes
		3					

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iPRISM Webtool

An innovative approach to iteratively applying an implementation science framework across a project's lifespan.

The webtool guides individuals and teams to choose strategies and make adaptations in a systematic way, aligned with their project's context.



iPRISM Webtool

Un enfoque innovador para aplicar iterativamente un marco de ciencia de implementación a lo largo de la vida útil de un proyecto.

La herramienta web guía a individuos y equipos a elegir estrategias y hacer adaptaciones de manera sistemática, alineadas con el contexto de su proyecto.



[Access the D&I Models Webtool](#)[Special Topics](#)[Guidance](#)[Submit TMFs](#)[Register/Login](#)

Health Equity

This section of the webtool provides an introduction to health equity, shares guidance for practitioners and researchers who aim to increase their focus on health equity, and points to specific examples of health equity applications applying dissemination and implementation (D&I) theories, models and frameworks (TMFs). This section begins with an overview and definitions of health equity and shares health equity dimensions linked to case examples applying TMFs. Then, we offer guidance on how to select, combine, adapt, use, and measure TMFs with a health equity lens. We also share and link to articles and resources on the topic of health equity in D&I. While serving as a resource for those working in the field of D&I Science, we acknowledge the experience and scholarship on the topic of health equity from many disciplines and communities of practice, and encourage readers to draw on their contributions to continually improve efforts aimed at increasing health equity.

- ▼ What is Health Equity?
- ▼ What are the dimensions of Health Equity identified in the empirical D&I literature?
- ▼ What does health equity mean in the context of D&I Science?

Pragmatic Application of RE-AIM

RE-AIM Dimension	Key Pragmatic Priorities to Consider and Answer
Reach (Individual Level)	WHO is (was) intended to benefit and who actually participates or is exposed to the 'program' or policy?
Effectiveness (Individual Level)	WHAT is (was) the most important benefit you are trying to achieve and what is (was) the likelihood of negative outcomes?
Adoption (Setting Levels)	WHERE is (was) the program or policy applied WHO applied it?
Implementation (Setting Levels)	HOW consistently is (was) the program or policy delivered? HOW will (was) it be <u>adapted</u>? HOW much will (did) it <u>cost</u>? WHY will (did) the results come about?
Maintenance (Individual and Setting Levels)	WHEN will (was) the program become operational; how long will (was) it be sustained (setting level); and how long are the results sustained (individual level)?

Pragmatic Application of RE-AIM: Select strategies and specific evaluation questions

Dimensions	Questions to Ask of Potential Programs	Strategies to Enhance Future Translation and Dissemination
Reach (individual level)	<ul style="list-style-type: none"> • What percentage of the target population would come in contact with your program? • Will you reach the most needy? • Will research participants reflect the targeted population? 	<ul style="list-style-type: none"> • Formative evaluation with potential users and nonusers • Small-scale recruitment studies to enhance methods • Identify and reduce participation barriers • Use multiple channels of recruitment
Effectiveness (individual level)	<ul style="list-style-type: none"> • Will the intervention likely affect key targeted outcomes? • What unintended adverse consequences may occur? • How will impact on quality of life be assessed? 	<ul style="list-style-type: none"> • Incorporate tailoring to individuals • Reinforce messages via repetition, multiple modalities, social support and systems change • Consider stepped care approaches • Evaluate adverse outcomes and quality of life for program revision and cost-to-benefit analysis
Adoption (setting or organizational level)	<ul style="list-style-type: none"> • What percentage of target settings and organizations will use the program? • Do organizations include high-risk or underserved populations? • Does program fit with organizational goals and capacities? 	<ul style="list-style-type: none"> • Conduct formative evaluation with adoptees and non-adoptees • Recruit settings that have contact with the target audience • Develop recruitment materials outlining program benefits and required resources • Provide various cost options and customization of the intervention

Pragmatic Application of RE-AIM: Select strategies and specific evaluation questions Continuation

Dimensions	Questions to Ask of Potential Programs	Strategies to Enhance Future Translation and Dissemination
Implementation (setting or organizational level)	<ul style="list-style-type: none"> • Can different levels of staff successfully deliver the program? • What proportion of staff within a setting will agree to program delivery? • What is the likelihood that various components will be delivered as intended? 	<ul style="list-style-type: none"> • Provide delivery agents with training and technical assistance • Provide clear intervention protocols Consider automating all/part of the program • Monitor and provide staff feedback and recognition for implementation
Maintenance (individual and setting levels)	<ul style="list-style-type: none"> • Does the program produce long-term individual behavior change? • Will organizations sustain the program over time? • What are characteristics of persons and settings showing maintenance? 	<ul style="list-style-type: none"> • Minimize level of resources required • Incorporate “natural environmental” and community supports • Conduct follow-up assessments and interviews to characterize success at both individual and setting levels • Consider incentives and policy supports

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Take Home Messages:

- Diverse contexts are dynamic, impacted by historical structural and systemic inequities, and modifiable (but often challenging)
- PRISM is an evolving model to help us focus thinking/reflection and attention to key issues related to implementation, equitable outcomes, and sustainment
- Aligning a type of partner engagement to allow researchers to honor, understand, be humble, and learn from local contexts/communities is **critical** in the field of Implementation Science
- **Active engagement** of diverse partners throughout **the planning**, implementation, and sustainment/scale-up of a program is essential to understanding local contexts and keeping a focus on equity
- Identifying and applying the **Functions and Forms** of a complex intervention is one helpful approach to understanding the balance of fidelity and adaptation



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You can hear my name pronounced here:

<https://namedrop.io/monicaperezjolles>

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Questions?

Thank you!
¡Gracias!



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