

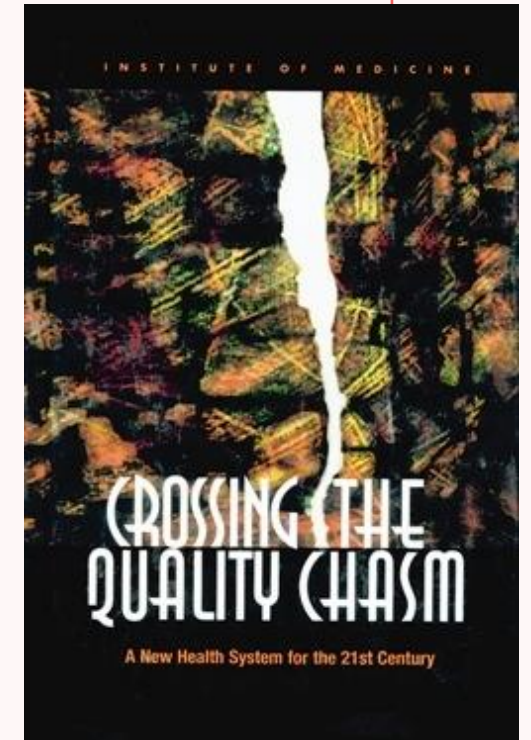
D&I Science: An Overview

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The Need & Premise

- Gap between what we know works and what is done (by organizations, public settings, policymakers)
 - Generating evidence (traditionally EBI) is not enough
- Use of public research funding—return on investment
- Improved impact on population health and health inequities
- New frame for getting implementation research funded
 - NIH, AHRQ, NCATS, SAMHSA, and multiple private funders
- From clinical care: A leaky pipeline



Source: IOM 2001

Definitions

IMPLEMENTATION RESEARCH

NIH PAR 22-105: Study of use of strategies to adopt and integrate evidence-based health interventions (EBI) into clinical and community settings to improve individual outcomes and benefit population health; seeks to understand the behavior of practitioners and support staff, organizations, consumers and family members, and policymakers in context as key influences on the adoption, implementation, and sustainability of evidence-based health interventions.

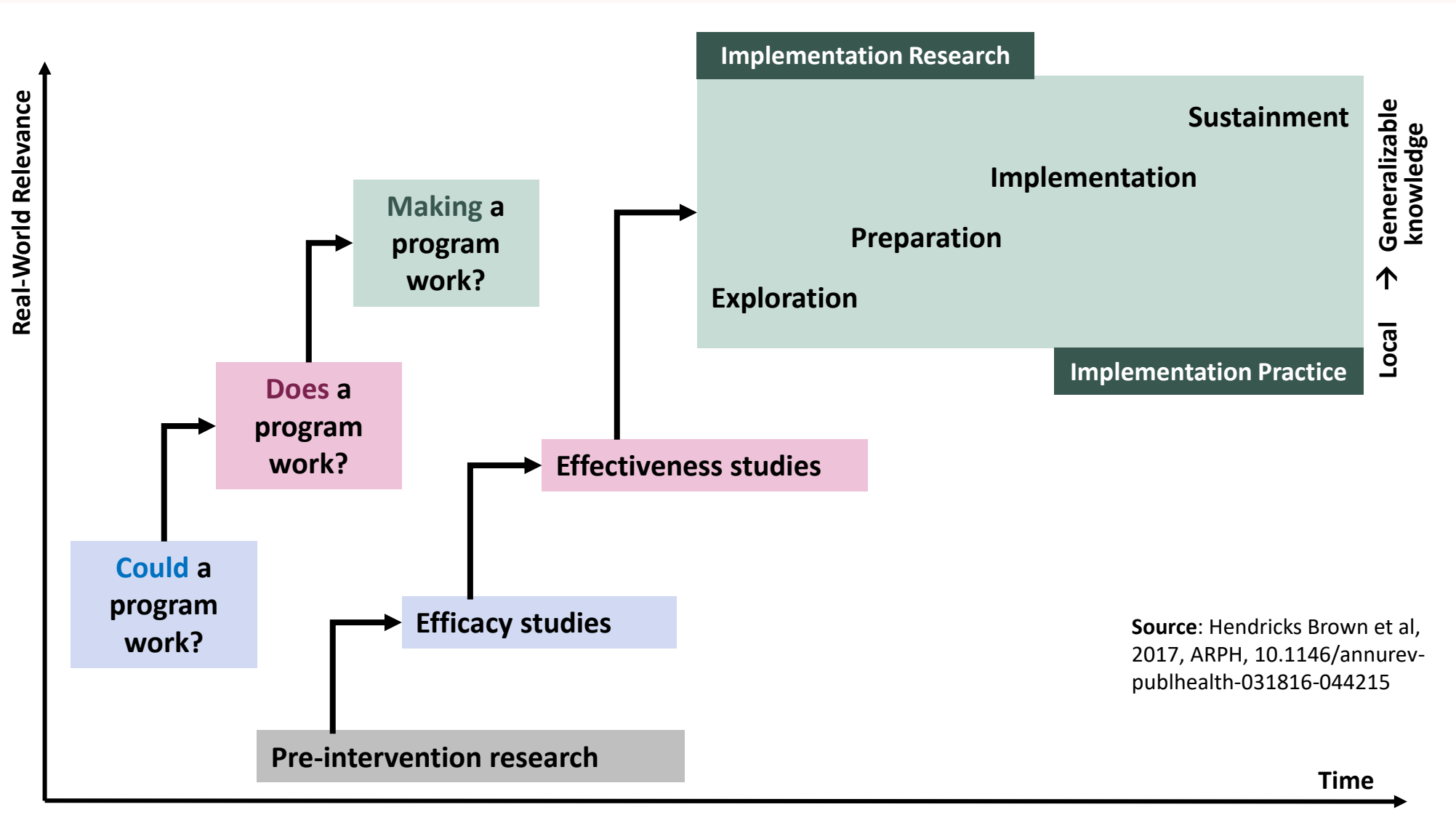
Brownson et al. 2022: Factors and strategies that lead to successful integration of EBIs within a particular setting. How to embed EBI in the real world and diverse settings.

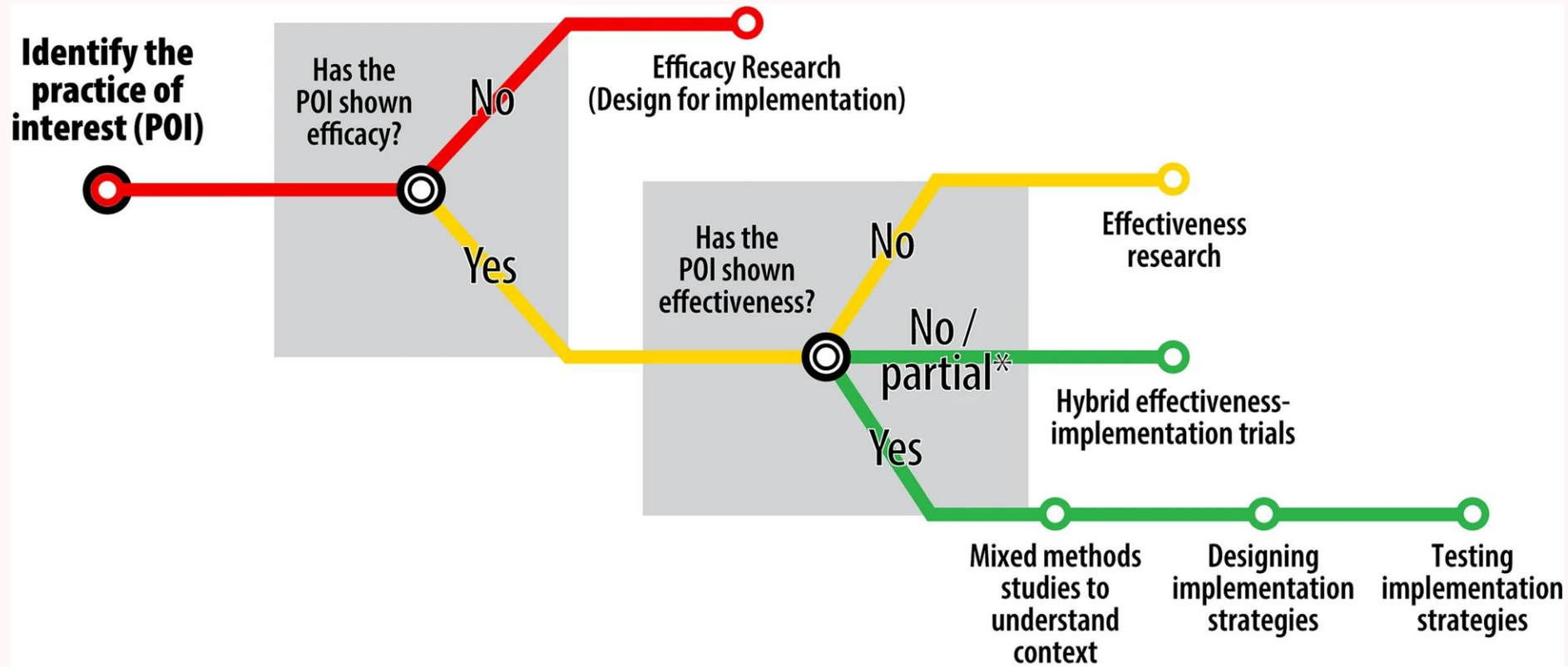
DISSEMINATION RESEARCH

NIH PAR 22-105: Study of targeted distribution of information and intervention materials to a specific public health, clinical practice, or policy audience. The intent is to understand how best to communicate and integrate knowledge and the associated evidence-based interventions (EBI).

Brownson et al. 2022: Focus on processes and factors that lead to uptake, use, adoption of EBI.

Translational Pipeline





Graphic has been tested with colorblindness filters to ensure readability.

* In some cases it may be appropriate to move forward with a hybrid Type 1 trial in the absence of effectiveness evidence (e.g., very strong efficacy, indirect evidence supportive of potential effectiveness in context of interest, and/or strong momentum supporting implementation in a health care context).

Lane-Fall, M.B., Curran, G.M. & Beidas, R.S. *BMC Med Res Methodol* **19**, 133 (2019). <https://doi.org/10.1186/s12874-019-0783-z>

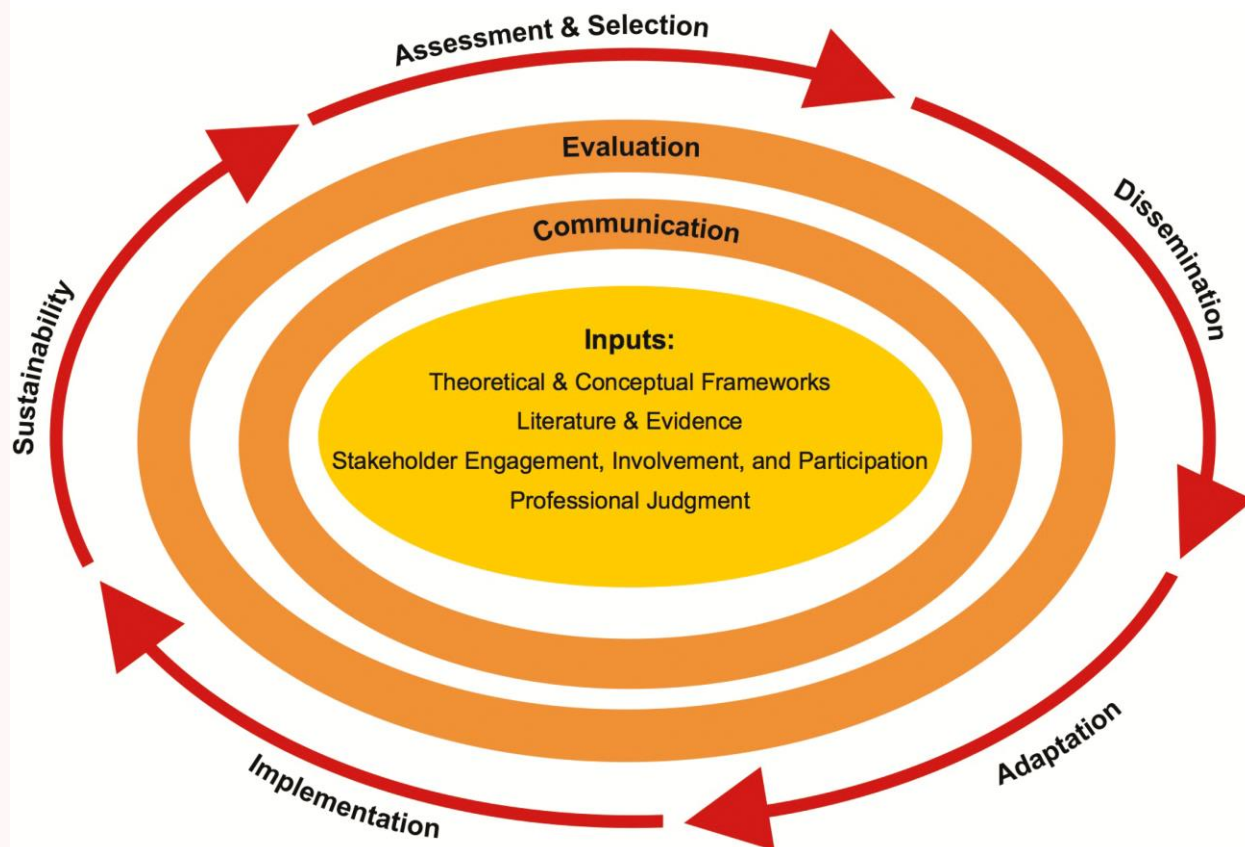
**Health Intervention,
Program, or Tx**



**Health, Population
Outcomes**

Conduction D&I Science

Key Domains and Processes



Koh et al. 2020. Transl Behav Med, Volume 10, Issue 1, February 2020, Pages 179–185,
<https://doi.org/10.1093/tbm/iby095>

Common Themes

1. Multiple translation **phase** (see EPIS Framework)
 - Decision to change, to (de-)adopt EBI
 - Preparation to start up implementation
 - Supporting implementation
 - Planning for sustainment
2. Attention to **adaptation** and tension with fidelity
3. **Multilevel** action and measurement
4. **Cross-disciplinary** and –sector
5. Development, **design**; ideally, co-creation
6. Need to think in **systems**: organization, process, actors

Expanding evidence production & use

Characteristic	Type One	Type Two	Type Three
Typical data/relationship	Size and strength of preventable risk—disease relationship (measures of burden, etiologic research)	Relative effectiveness of public health intervention (inc. cost effectiveness)	Information on the adaptation and translation of an effective intervention
Common setting	Clinic or controlled community setting	Socially intact groups or community wide	Socially intact groups or community wide
Example	Smoking causes lung cancer	Price increases with a targeted media campaign reduce smoking rates	Understanding the political challenges of price increases or targeting media messages to particular audience segments
Quantity	More	Less	Less
Action	Something should be done	This particular intervention should be implemented	How an intervention should be implemented

Brownson et al. 2009, [10.1146/annurev.publhealth.031308.100134](https://doi.org/10.1146/annurev.publhealth.031308.100134)
 Concepts revisited: Brownson et al. 2022, [10.1186/s13012-022-01201-y](https://doi.org/10.1186/s13012-022-01201-y)

How to do D&I Science: Theoretical Frameworks/Models

Types of frameworks/models: adapted from Nilsen et al. 2015, [10.1186/s13012-015-0242-0](https://doi.org/10.1186/s13012-015-0242-0)

Process models: Specify steps, phases in the process of doing something, e.g.,

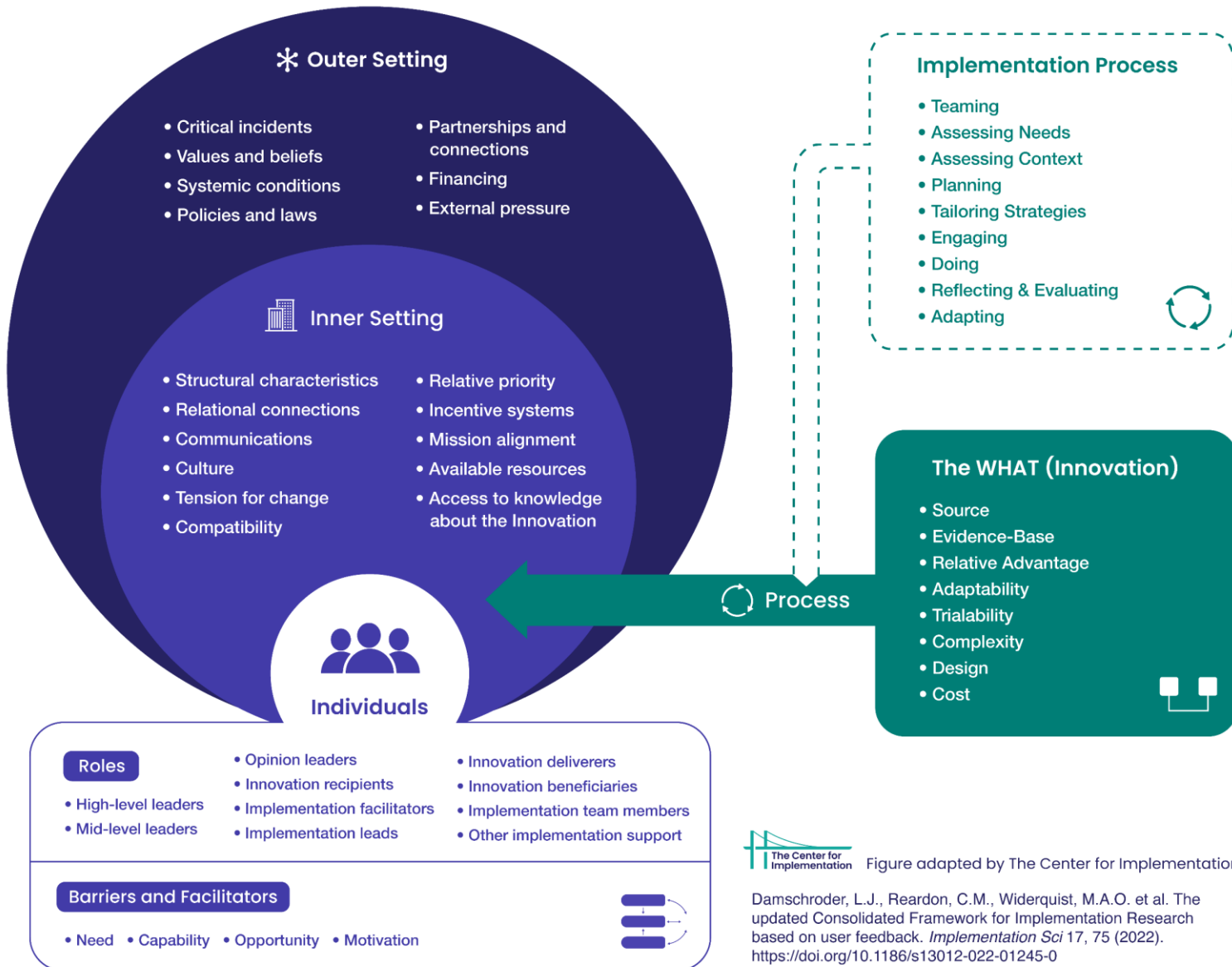
- Research process, inc. partnering with practitioners, community
(e.g., [Nápoles & Stewart 2018, 10.1186/s12913-018-3521-z](https://doi.org/10.1186/s12913-018-3521-z))
- Implementation process
- Intervention design process

Determinant or analytic models: Specify types of determinants that influence outcomes and the relationships between them

Evaluation: Specify aspects of a process that should be evaluated to determine success

D&I Models in Health website: <https://dissemination-implementation.org>

Consolidated Framework for Implementation Research (CFIR) 2.0



The Center for Implementation Figure adapted by The Center for Implementation

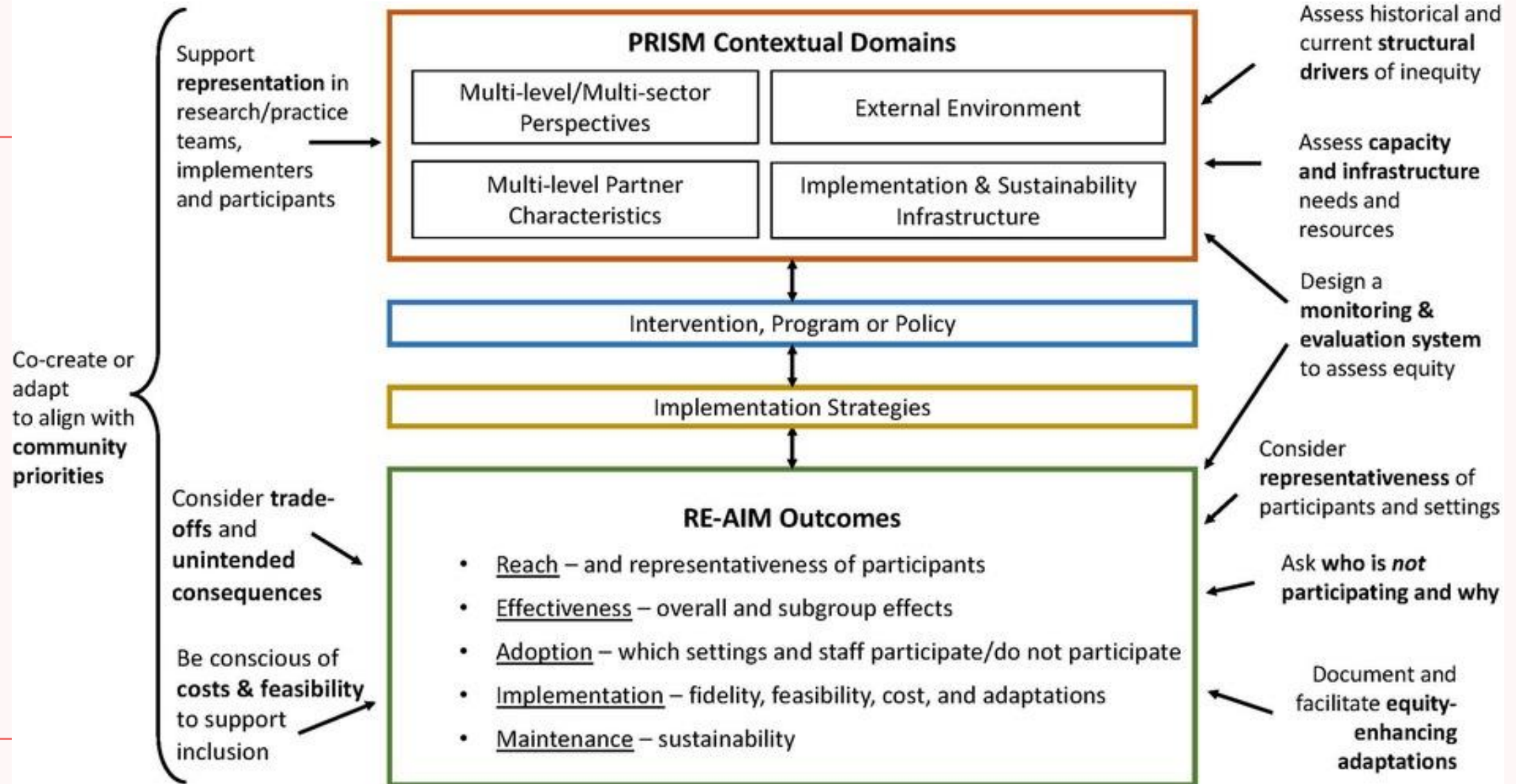
Damschroder, L.J., Reardon, C.M., Widerquist, M.A.O. et al. The updated Consolidated Framework for Implementation Research based on user feedback. *Implementation Sci* 17, 75 (2022). <https://doi.org/10.1186/s13012-022-01245-0>

Determinants

The Consolidated Framework for Implementation Research (CFIR) 2.0. (2022). Adapted from "The updated Consolidated Framework for Implementation Research based on user feedback," by Damschroder, L.J., Reardon, C.M., Widerquist, M.A.O. et al., 2022, *Implementation Sci* 17, 75. Copyright by The Center for Implementation.

<https://thecenterforimplementation.com/toolbox/cfir>

And Outcomes: RE-AIM and PRISM with equity lens



Implementation Strategies

(a.k.a. implementation interventions)

Category of strategies	Example
Engage consumers	Use mass media; prepare consumers to be active participants
Use evaluative and iterative strategies	Audit and feedback; develop a formal implementation blueprint
Change infrastructure	Create or change credentialing and/or licensure standards; change physical structure/equipment
Adapt and tailor to the context	Promote adaptability; tailor strategies
Develop stakeholder interrelationships	Identify and prepare champions; build a coalition
Use financial strategies	Develop disincentives; use new payment schemes
Support practitioners	Remind practitioners; revise professional roles
Provide interactive assistance	Provide local technical assistance; provide supervision
Train and educate stakeholders	Use train-the-trainer strategies; develop educational materials

Use systematic **development, tailoring** process, e.g.,:

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

Source: Powell et al (2017).
J Behav Health Serv Res. 2017;44(2):177-194.

Clarity in **specifying and reporting**:

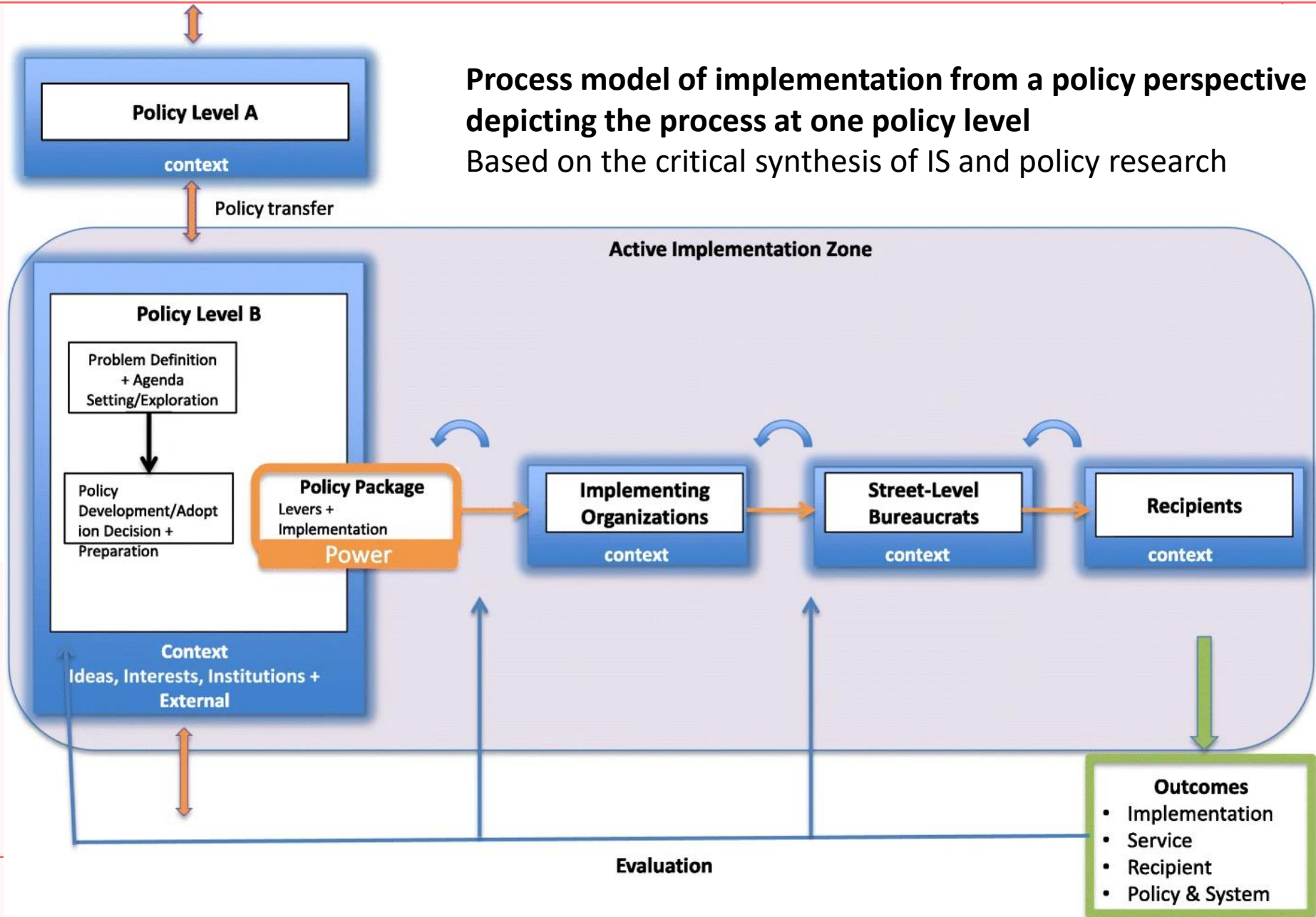
1. Name and define
2. Specify:
 - Actor
 - Action
 - Action target
 - Temporality
 - Dose
 - Implementation outcome
 - Justification

Source: Proctor, et al. 2013
Imp Sci 8, 139. <https://doi.org/10.1186/1748-5908-8-139>

Swindle et al. 2019, <https://doi.org/10.1016/j.jneb.2019.03.001>;
adapted from Powell et al and, Waltz et al of the Expert
Recommendations for Implementing Change project.

Concluding Thoughts & Gaps

- Large amount of frameworks, measures, and methodological tools exist
 - See resources on study designs, e.g., <https://vimeo.com/246994831>
- Need more dissemination science
- More integration with research on-healthcare settings:
 - Policy D&I
 - Community settings
- Call to the field to do better on health equity



Process model of implementation from a policy perspective depicting the process at one policy level

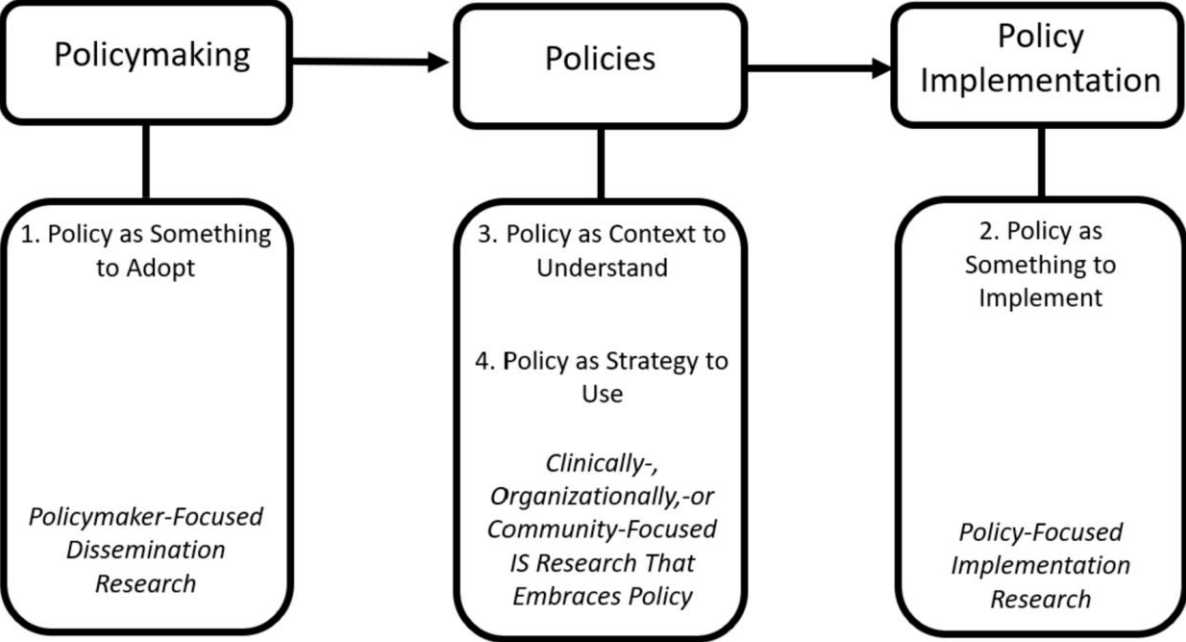
Based on the critical synthesis of IS and policy research

Bullock, H.L., Lavis, J.N., Wilson, M.G. *et al.* *Implementation Sci* **16**, 18 (2021).

<https://doi.org/10.1186/s13012-021-01082-7>

Policy Focused D&I Research

Policy in Implementation Science



Purtle, J., Moucheraud, C., Yang, L.H. *et al.* Four very basic ways to think about policy in implementation science. *Implement Sci Commun* 4, 111 (2023). <https://doi.org/10.1186/s43058-023-00497-1>

Type of Study	Objective	Purpose
Formative audience research	Characterize a target audience’s awareness about, adoption of, and attitudes towards an intervention, and preferences for receiving information about it, as well as other individual attributes that may influence practice behavior and perceptions of context (e.g., self-efficacy, injunctive social norms).	Provide an empirical foundation to inform the design and distribution of dissemination materials.
Audience segmentation research	Identify discrete and meaningful sub-groups within an audience that vary in terms of their awareness about, attitudes towards, adoption of, and preferences for receiving information about an intervention.	Inform the adaptation of dissemination materials and modes of delivery for different audience segments.
Dissemination effectiveness research	Test dissemination strategies to determine which are most effective at changing an audience’s awareness about, attitudes towards, and adoption of an intervention.	Determine which dissemination strategies should be scaled-up

Purtle, et al (2020). Toward the data-driven dissemination of findings from psychological science. *American Psychologist*, 75(8), 1052.

Thank you!

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Implementation of Nutrition Incentive and Produce Prescription Programs in Brick and Mortar Retail Settings: A Narrative Review

Bailey Houghtaling, PhD, MSc, RDN
NOPREN Healthy Food Retail Work Group
November 28, 2023

About Us



LEADING



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- ✦ Founded in 1973, the Gretchen Swanson Center for Nutrition (GSCN) is a national nonprofit research institute providing expertise in measurement and evaluation to help develop, enhance and expand programs focused on healthy eating and active living, improving food security and healthy food access, promoting local food systems and applying a health equity lens across all initiatives. The Gretchen Swanson Center works nationally and internationally, partnering with other nonprofits, academia, government and private foundations to conduct research, evaluation and scientific strategic planning.



Overview

- ✦ Nutrition Incentive (NI) and Produce Prescription (PPR) programs
- ✦ Objective
- ✦ Methods
- ✦ Results following 5 EPIS *Inner Context* Constructs
- ✦ Implications

Our Team



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Nutrition Incentive (NI) Programs

- ✦ Financial incentive for fresh, frozen, or canned fruits and vegetables (FVs) to participants of the Supplemental Nutrition Assistance Program (SNAP)
- ✦ Aim to improve food security and FV intake
- ✦ Example: 1:1 match (spend \$5, receive \$5)



Produce Prescription (PPR) Programs

- ✦ Food is Medicine approach - engaged with the healthcare sector
- ✦ Eligible persons with low income and risk for diet-related chronic disease are screened for food insecurity and receive a prescription for fresh FVs
- ✦ Aim to increase FV intake and food security and reduce healthcare usage and associated costs



NI and PPR Programs in Brick-and-Mortar (B&M) Settings

- ✦ NI and PPR expansion in B&M retail settings is needed to increase reach
 - ✦ ~95% of SNAP benefits were used at B&M retailers compared to less than 1% at farm direct sites (2021)
 - ✦ Shoppers at B&M retail settings tend to be more diverse compared to farm direct sites

Fiscal Year 2021 Year End Summary. <https://fns-prod.azureedge.us/sites/default/files/resource-files/2021-snap-retailer-management-year-end-summary.pdf>

Vargo L, Ciesielski TH, Embaye M, Bird A, Freedman DA. Understanding SNAP Recipient Characteristics to Guide Equitable Expansion of Nutrition Incentive Programs in Diverse Food Retail Settings. *Int J Environ Res Public Health*. 2022; 20;19(9):4977.

Parks CA, Mitchell E, Byker Shanks C, Nugent NB, Fricke HE, Yaroch AL. Descriptive Characteristics of Nutrition Incentive Projects Across the U.S.: A Comparison Between Farm Direct and Brick and Mortar Settings. *Inquiry*. 2021;58:469580211064131.



Methods

Narrative Review

- ✦ Co-author expertise in healthy food retail research and practice, implementation science, and NI and PPR
- ✦ Source identification:
 - ✦ 3 ongoing scoping reviews
 - ✦ Resource repository for NI and PPR practitioners
 - ✦ Internet and reference list searches, listservs, professional networks

Grant MJ, Booth A. A typology of reviews: an analysis of 14 review types and associated methodologies. *Health Info Libr J.* 2009;26(2):91-108. doi:10.1111/j.1471-1842.2009.00848.x

Greenhalgh T, Thorne S, Malterud K. Time to challenge the spurious hierarchy of systematic over narrative reviews?. *Eur J Clin Invest.* 2018;48(6):e12931. doi:10.1111/eci.12931.

EPIS for healthy food retail

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Using the Exploration, Preparation, Implementation, and Sustainment (EPIS) Framework to Advance the Science and Practice of Healthy Food Retail

Bailey Houghtaling, PhD, RDN   • Sarah Misyak, PhD, MPH • Elena Serrano, PhD • ...

Denise Holston, PhD, RDN • Chelsea R. Singleton, PhD, MPH • Samantha M. Harden, PhD • [Show all authors](#)

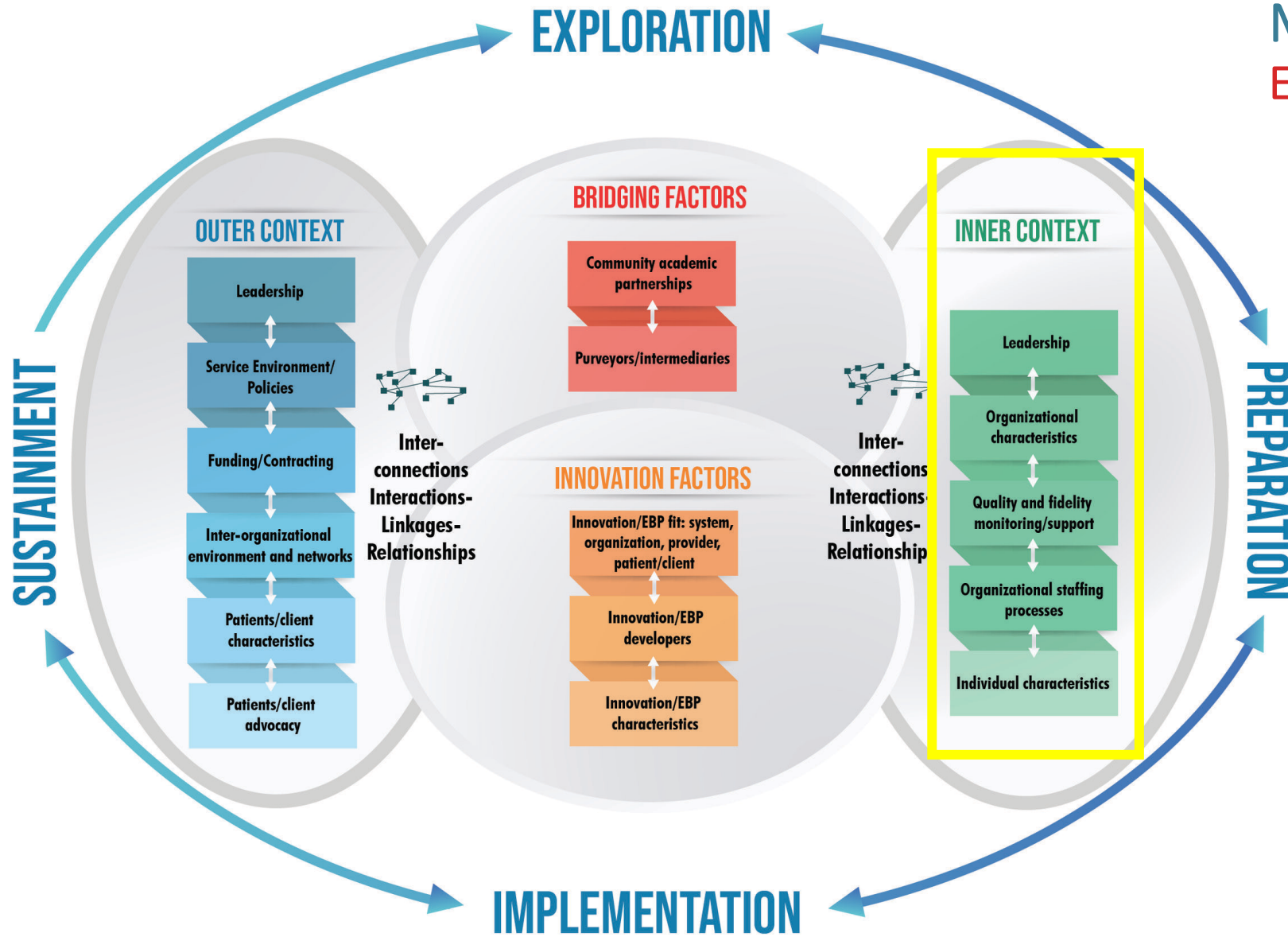
[Open Access](#) • Published: January 13, 2023 • DOI: <https://doi.org/10.1016/j.jneb.2022.10.002> •

 Check for updates



Methods

EPIS Framework



- ★ 4 processes that align well with health promotion research and practice
- ★ 16 determinants across 4 constructs

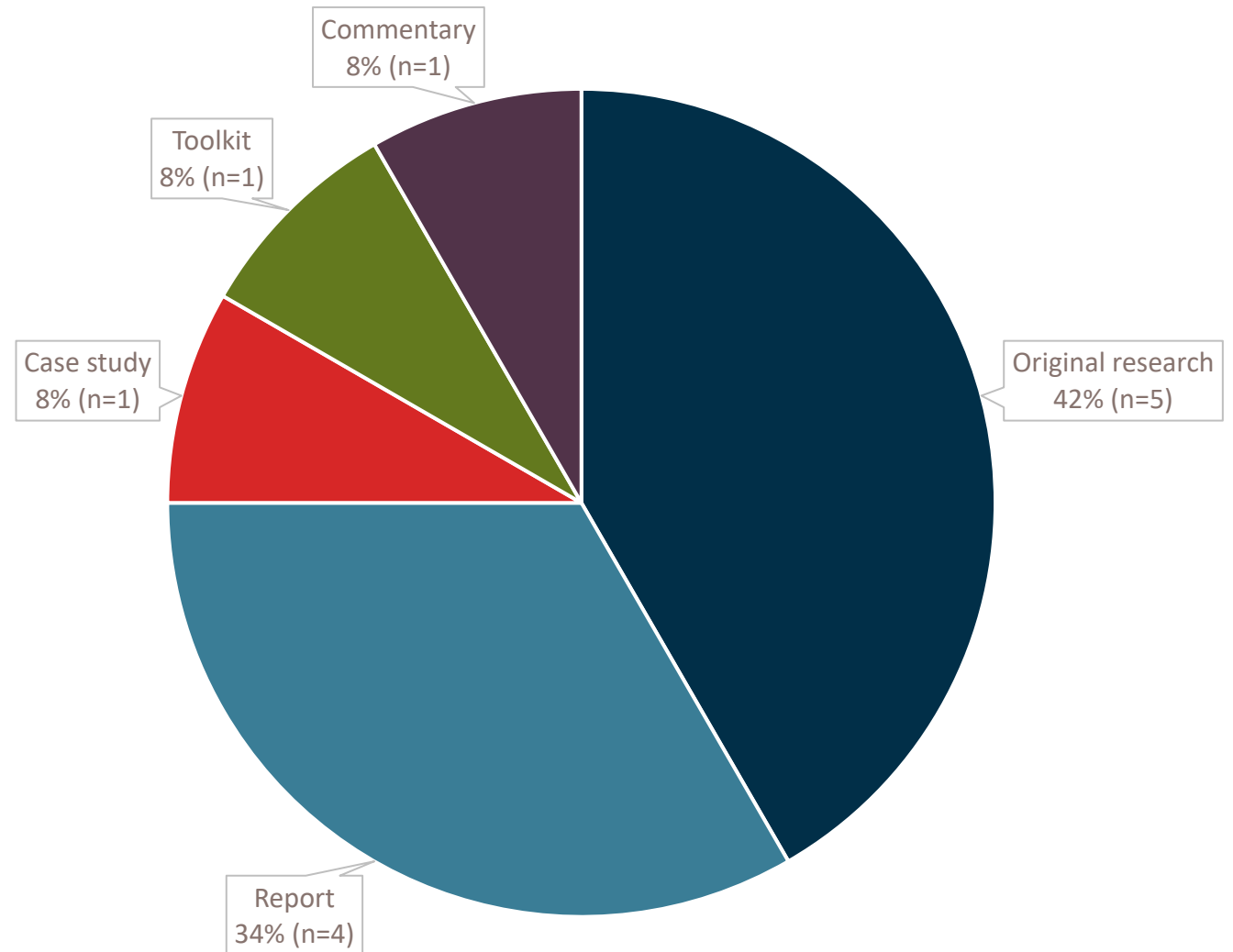
EPIS Inner Context Definitions Pertaining to Brick-and-Mortar (B&M) Retail Settings

Leadership	Characteristics or behaviors of B&M leaders with store oversight and/or NI or PPR program implementation responsibilities that may determine NI or PPR program adoption, implementation, and sustainment.
Organizational Characteristics	B&M retailer business models, structures/ processes, and/or inter-organizational networks that may determine NI or PPR program adoption, implementation, and sustainment.
Quality and Fidelity Monitoring and Support	Processes or procedures (e.g., implementation strategies) used to monitor and support the active delivery of NI or PPR program implementation in B&M retail settings.
Organizational Staffing Processes	B&M retail staff roles and procedures, in general or regarding NI or PPR implementation, that may determine adoption, implementation, and sustainment (e.g., staff training, turnover).
Individual Characteristics	B&M retail staff characteristics (e.g., social and demographic) and their attitudes, beliefs, and perceptions that may determine NI or PPR program adoption, implementation, and sustainment.

Results

Source Characteristics

12 sources included that described barriers and facilitators to NI or PPR programs in the B&M retail setting

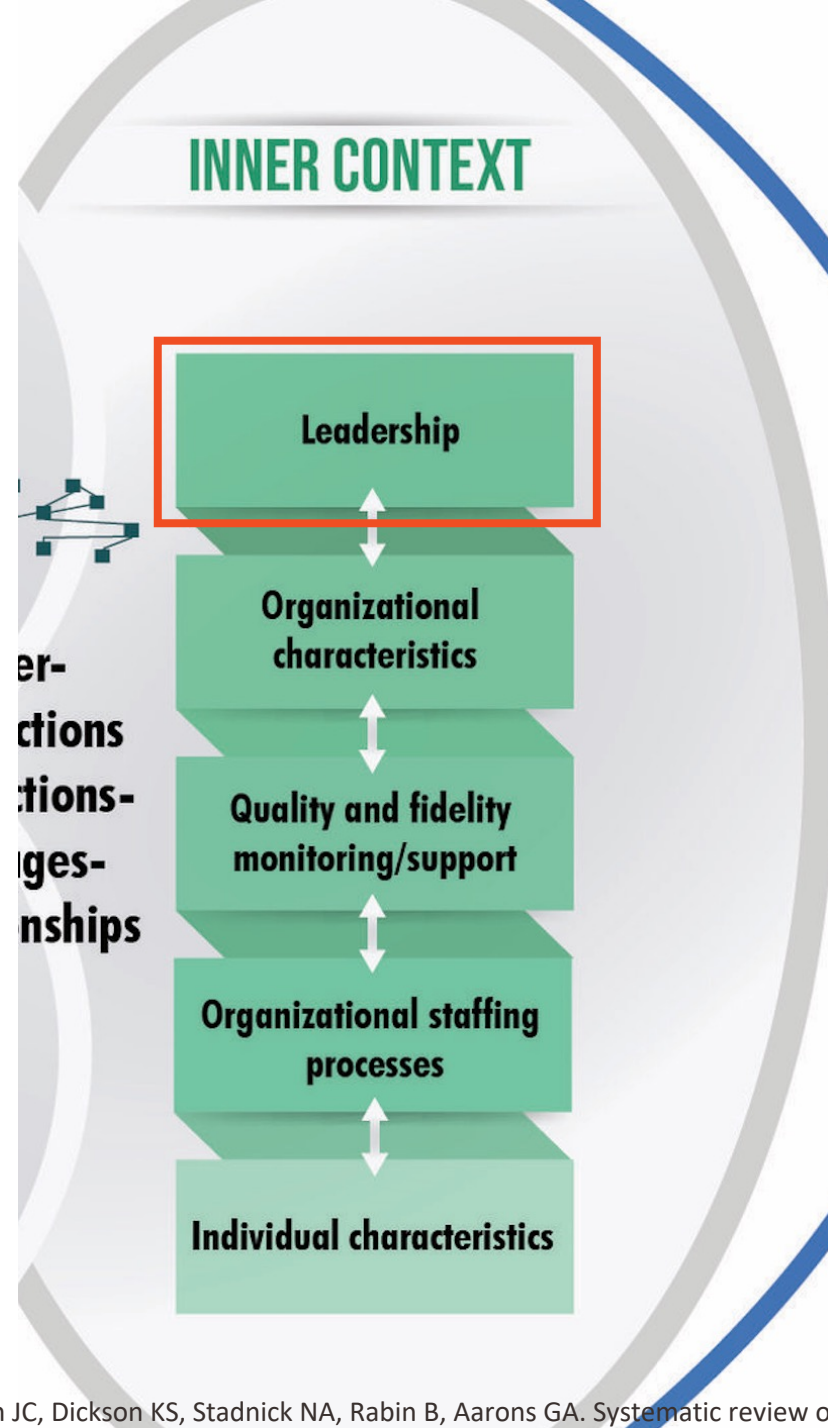




Results

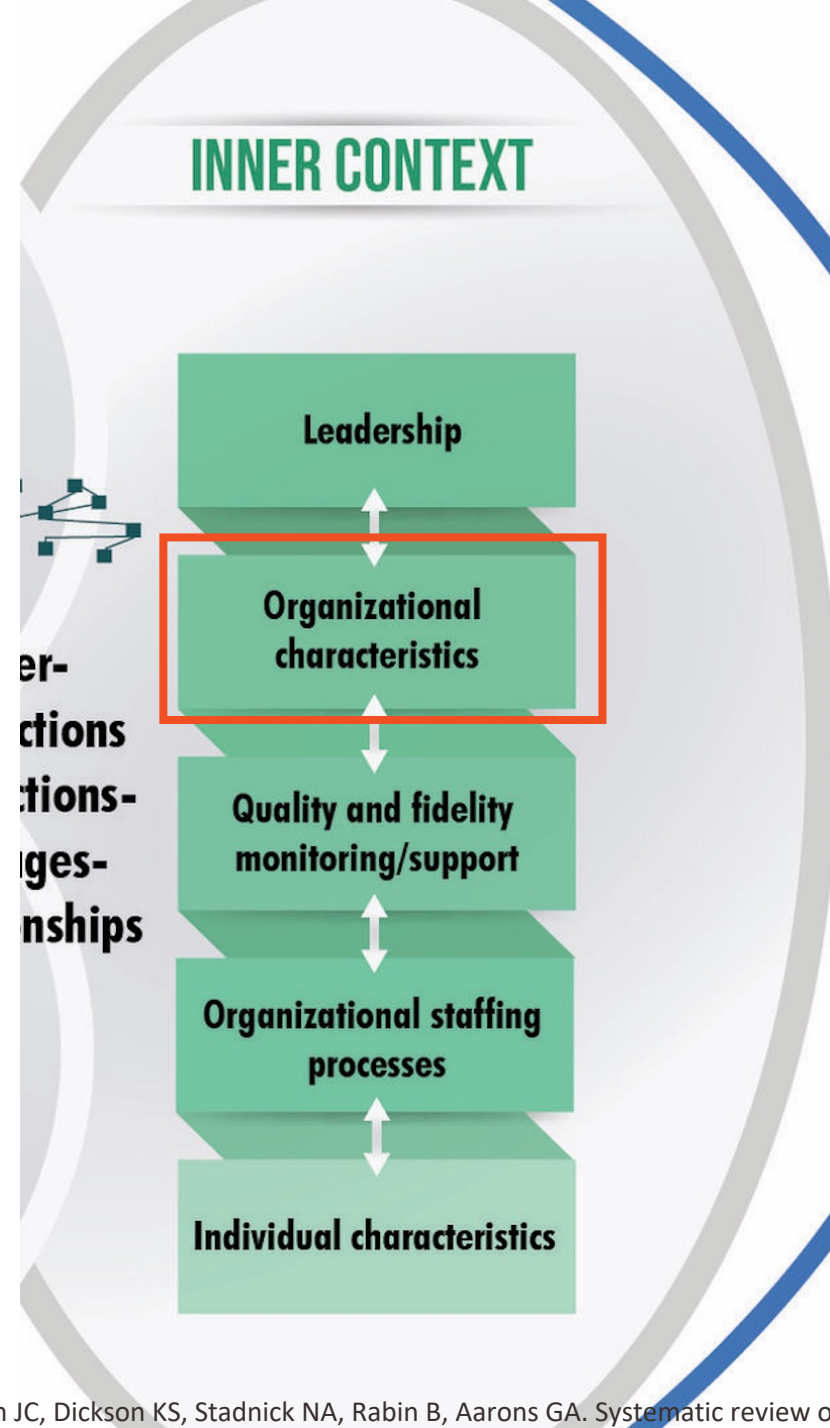
Types of B&M retailers

- ✦ Grocery store chain
- ✦ Convenience store chain
- ✦ Independently owned grocery store
- ✦ Corner store/bodega/mom and pop
- ✦ Discount superstore
- ✦ Corporate retail pharmacy
- ✦ Trading post



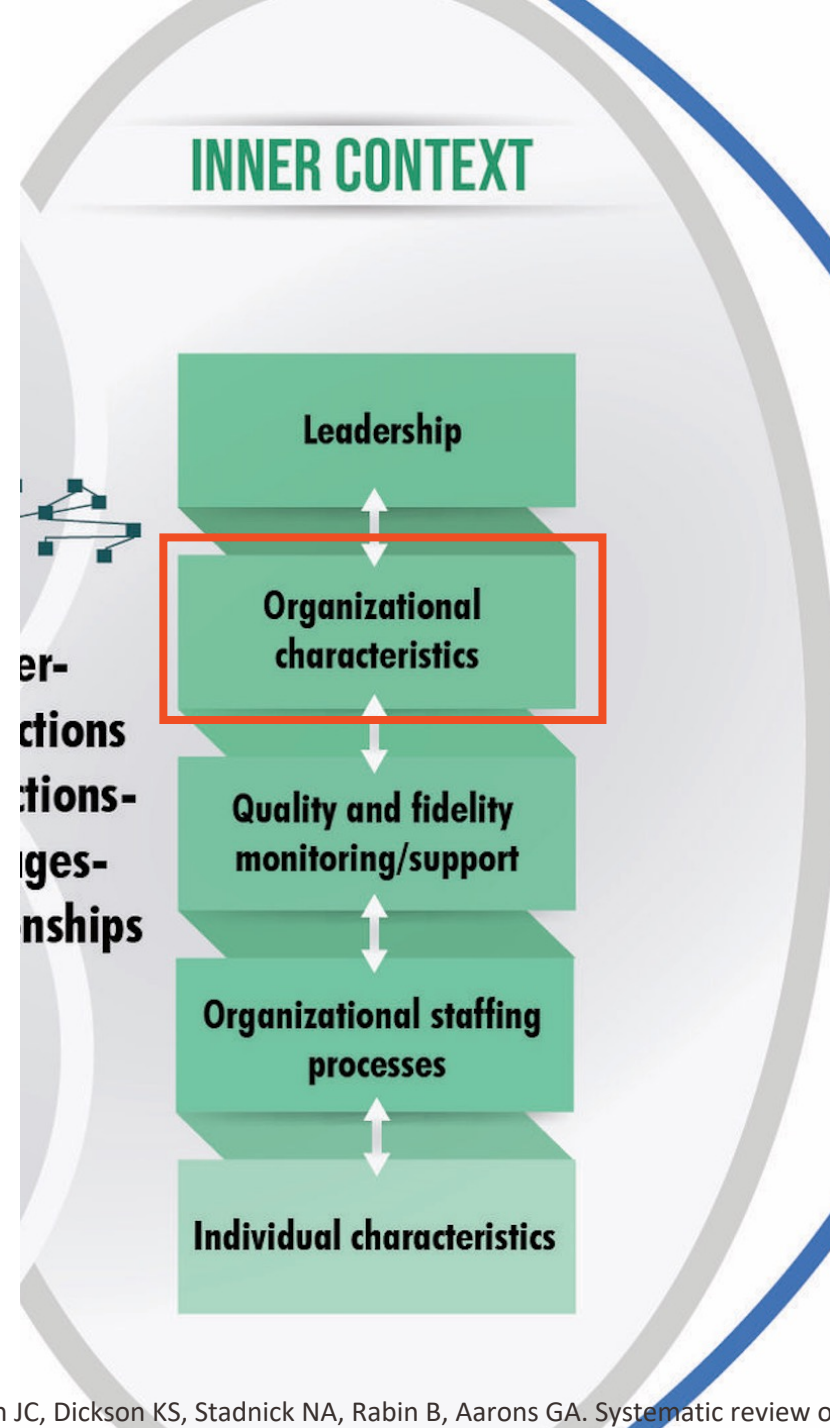
Results: Leadership

- ✦ Low buy-in among leadership described as a barrier for PPR programs (n=1 source)
- ✦ Supportive leadership described as a facilitator for NI programs (n=3 sources)



Results:
Organizational Characteristics – Barriers
n=7 sources

- ✦ Capacity to stock FVs
- ✦ Manager concern about NI program logistics and eligible food procurement
- ✦ Varied depending on type of B&M setting (e.g., size, business model)



Results:
Organizational Characteristics –
Facilitators
n=6 sources

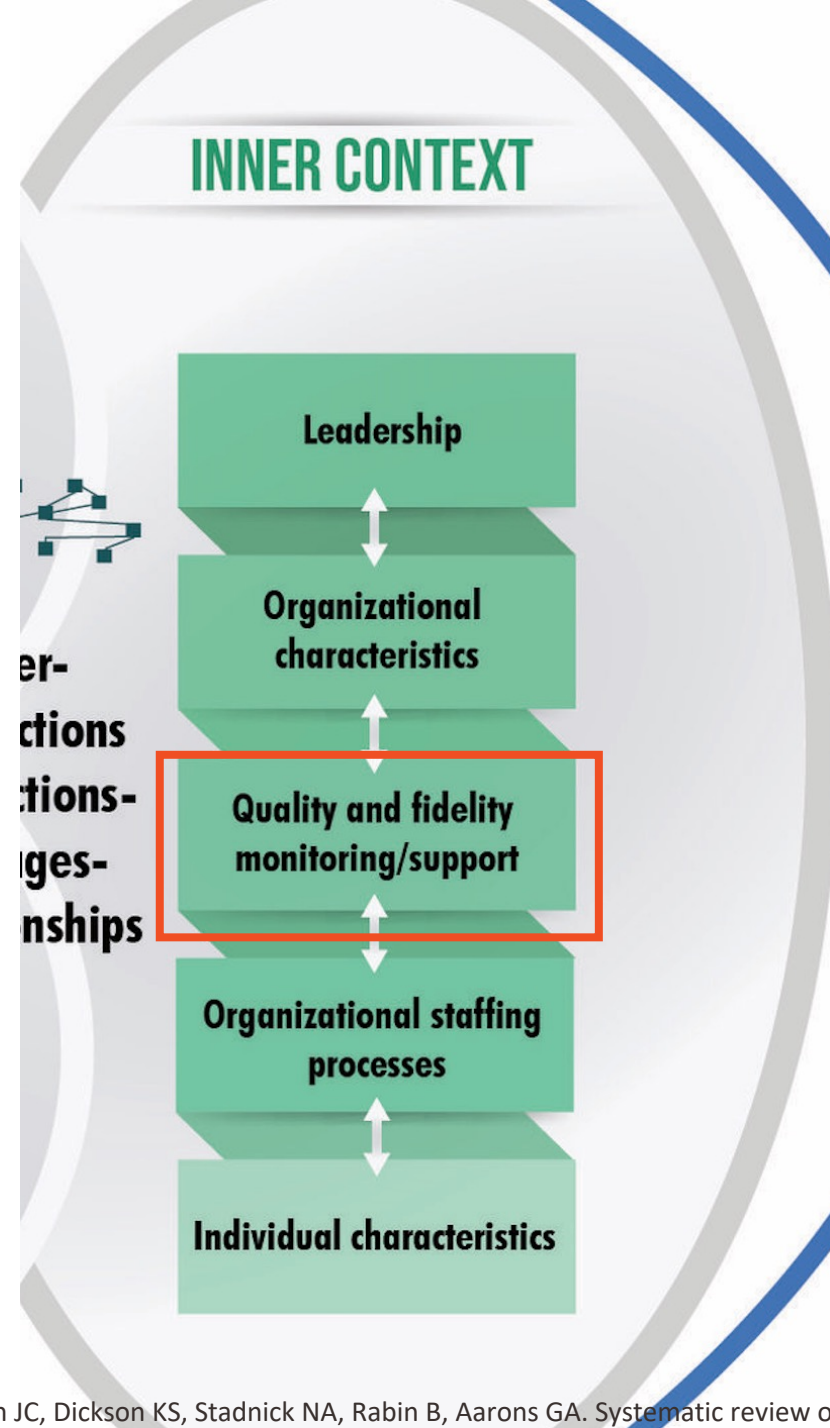
- ✦ Alignment with current practices and business values and NI/PPR program
- ✦ Provision of resources or assistance with community partnerships
- ✦ Small B&M retailers have beneficial consumer relationships



Results:
Quality and Fidelity Monitoring/Support
- Barriers
n=10 sources

✦ Technology

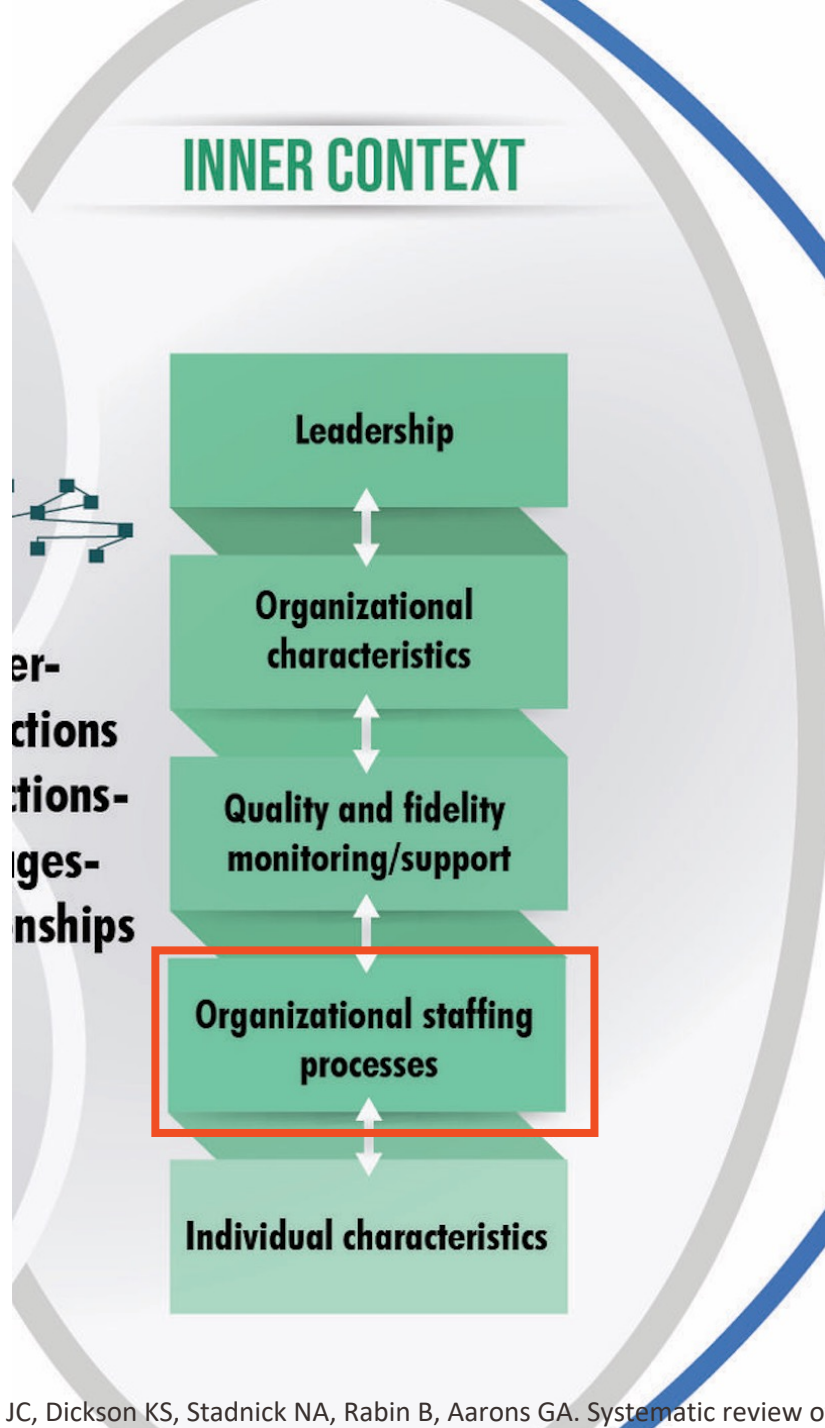
- ✦ Lack of technology systems (e.g., Point of Sale, Integrated Electronic Cash Registers) and high cost
- ✦ Technical interruptions/issues
- ✦ Differences in technology systems between implementing sites
- ✦ Lack of adequate partner support prevented retailer adoption



Results:

Quality and Fidelity Monitoring/Support
- Facilitators
n=5 sources

- ✦ Provision of instructions, resources, or tailored support
- ✦ Technology support could be helpful for PPR programs
- ✦ National standard for items eligible for NI program redemption potentially beneficial

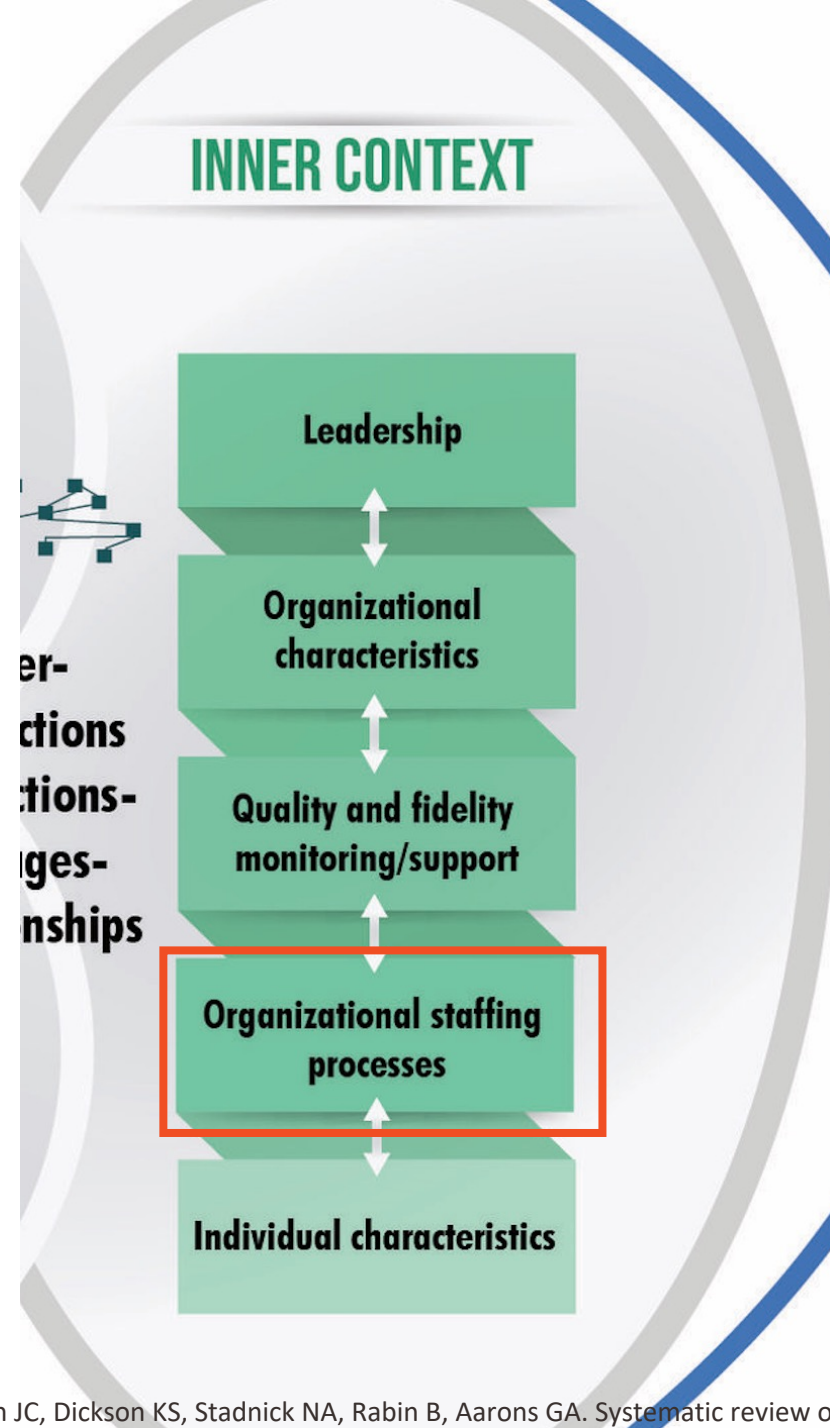


Results:

Organizational Staffing Processes - Barriers

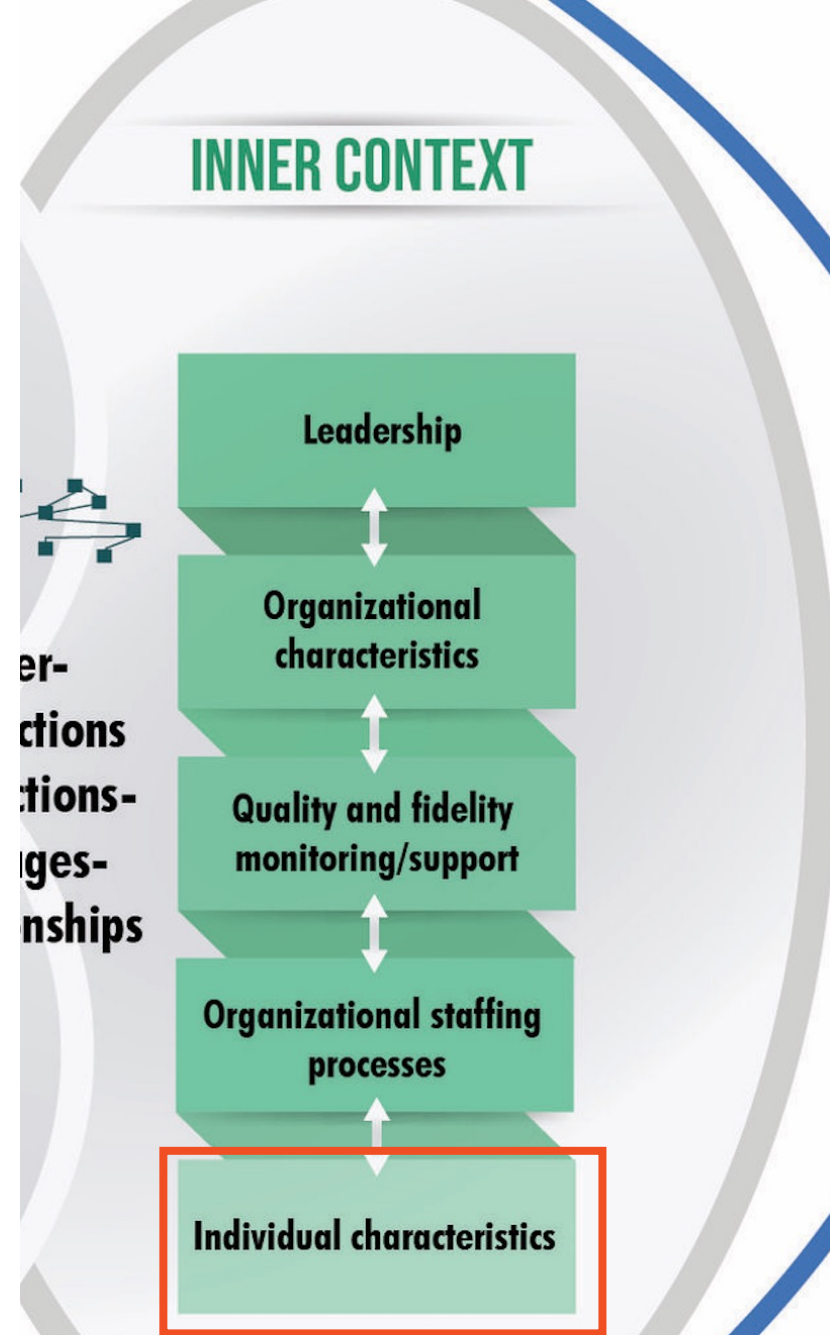
n=7 sources

- ✦ Training (or lack thereof) commonly noted need, burden, or potential problem
 - ✦ Cashier errors
 - ✦ Misunderstanding/difficulty explaining nuances
 - ✦ Slowing down of check-out processes
- ✦ Staffing issues and high turnover



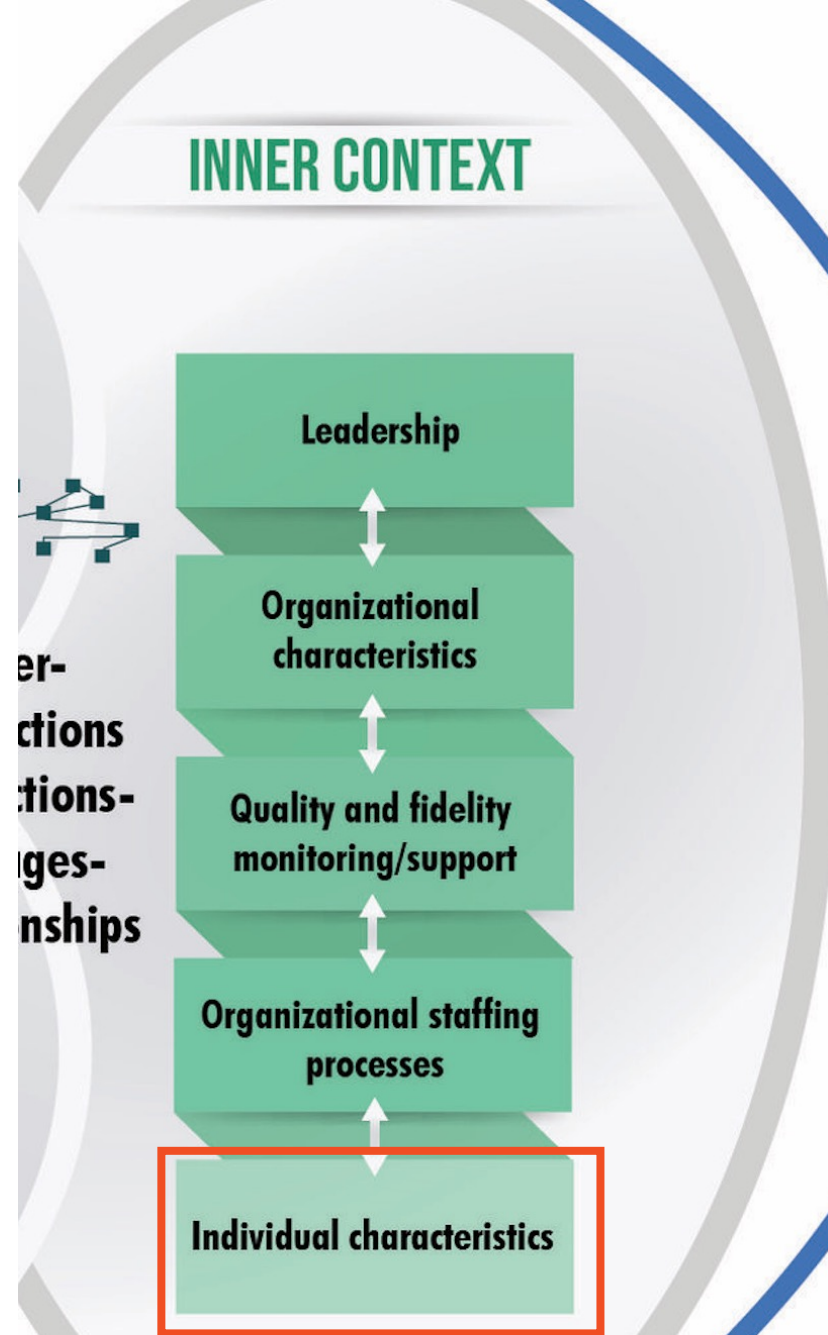
Results:
Organizational Staffing Processes -
Facilitators
n=5 sources

- ✦ Positive views of training
 - ✦ Increased NI program buy-in
 - ✦ Improved NI/PPR program understanding and implementation
 - ✦ Enhanced awareness of healthy foods stocked
- ✦ Partnership with smaller chain or corner stores
 - ✦ More agency for training decisions



Results: Individual Characteristics - Barriers n=5 sources

- ✦ Limited knowledge about how to partner with NI program
- ✦ Perceptions about difficulty or time requirements
- ✦ Negative perceptions about redemption models in relation to priority communities
- ✦ Scant evidence base for NI and PPR programs
- ✦ Lower NI redemption rates than expected
- ✦ Language differences between retailers and NI program customers



Results:
Individual Characteristics - Facilitators
n=7 sources

- ✦ Favorable views and interest in providing consumers with the positive benefits of NI/PPR programs
- ✦ Flexibility in the products eligible for redemption



Implications

★ Practice:

- ★ EPIS-informed readiness checklist to be used by NI and PPR program practitioners.

★ Research:

- ★ More research to understand the difference between small and large/corporate retail sites and their capacity and needs.
- ★ Implementation science theories, models, and frameworks can help standardize evidence.

★ Policy:

- ★ Program funding should include more resources to provide support to retailers – FV stocking, technology, implementation staff, training.

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