Implementation Science:
An Emerging Field

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ROADMAP

- Why Implementation Science?

- What is Implementation Science?

- How do you do Implementation Science?

Why Implementation Science?

Why the GAP?

WHAT IS IMPLEMENTATION SCIENCE?

US National Institutes of Health

scientific study of methods to promote the integration of research findings and evidence-based interventions into healthcare practice and policy.
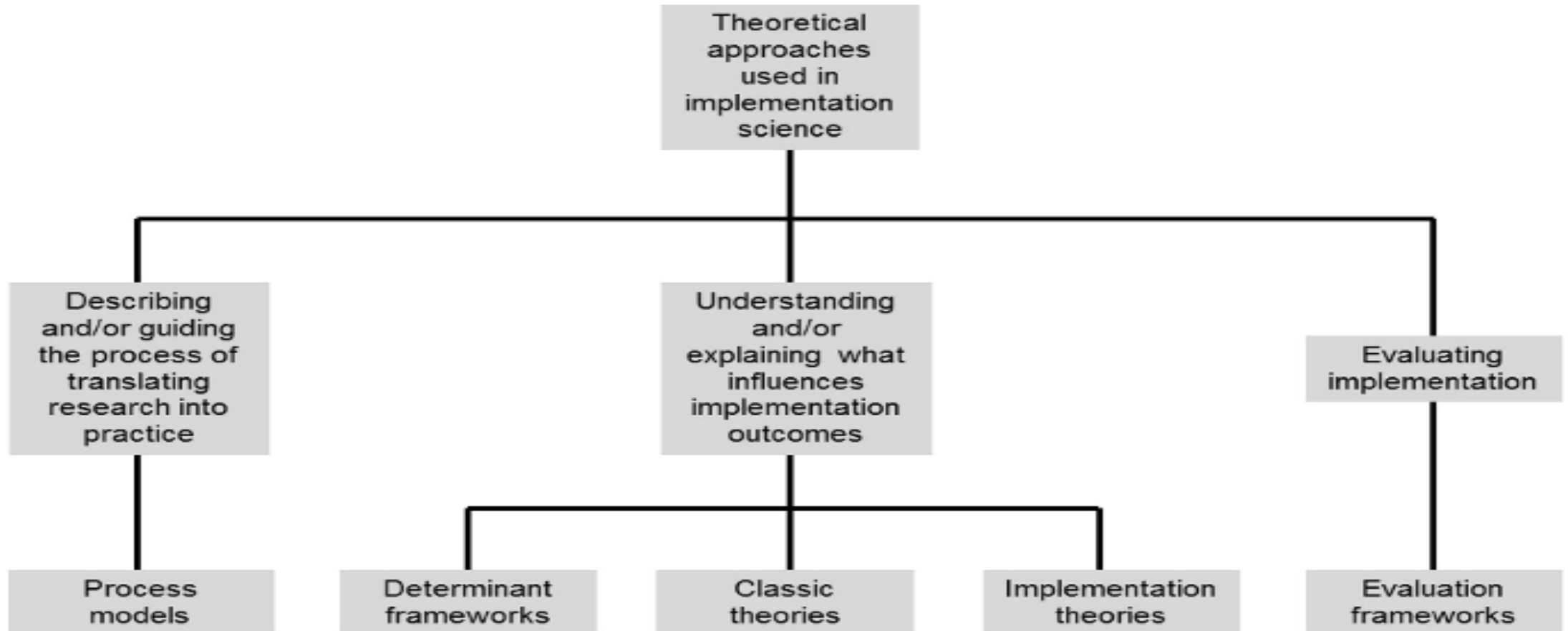
Presidents Emergency Plan for AIDS Relief (PEPFAR) study of methods to improve the uptake, implementation, and translation of research findings into routine and common practices.

Proliferation of Frameworks

"Frameworks are like toothbrushes. Everyone has one and nobody wants to use anybody else's."
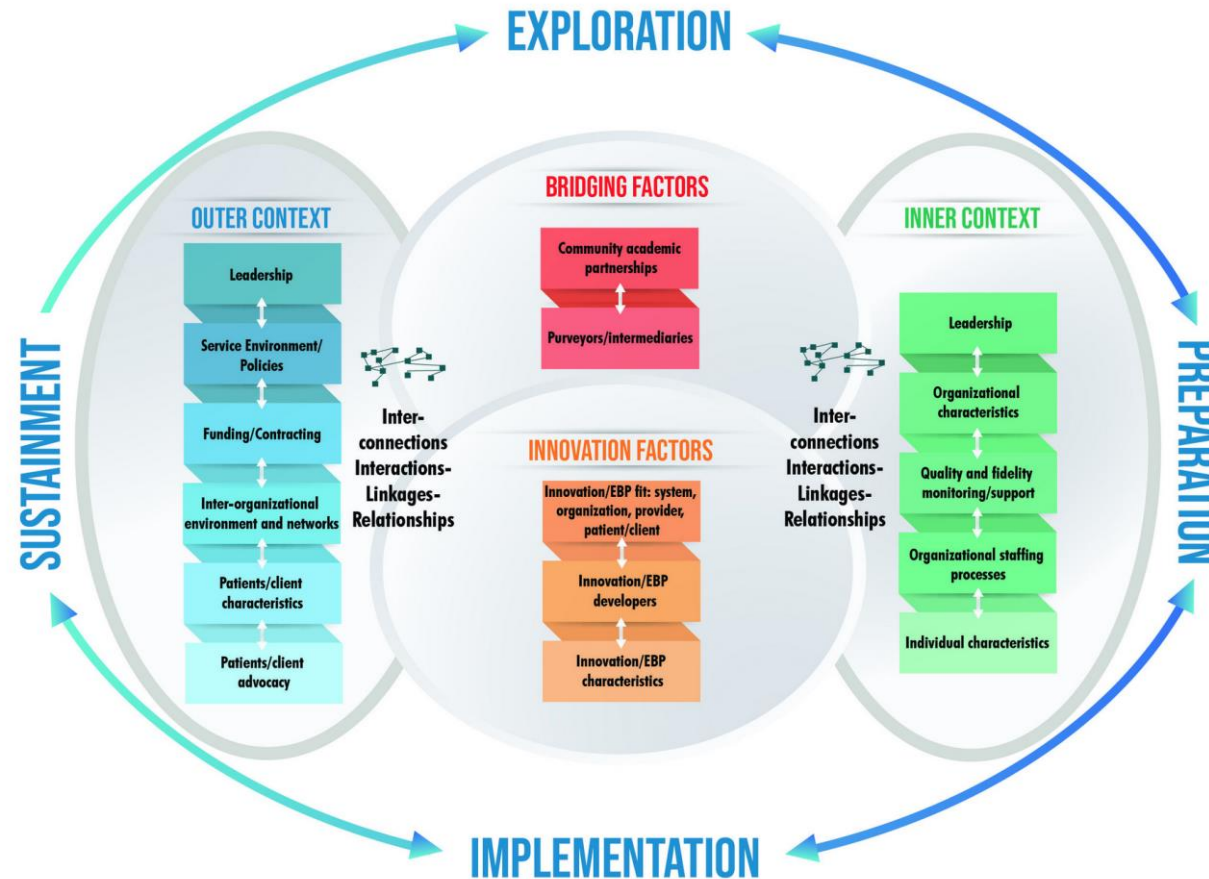
A classification theme for frameworks

Evaluation Framework – RE-AIM

Glasgow, R. E., Vogt, T. M., & Boles, S. M. (1999). Evaluating the public health impact of health promotion interventions: the RE-AIM framework. *American Journal of Public Health*, *89*(9), 1322-1327

EPIS FRAMEWORK
Exploration, Preparation, Implementation, Sustainment

https://episframework.com/

Integrating Adolescent Mental Health into HIV Prevention and Treatment Programs: Can Implementation Science Pave the Path Forward?

Judith Boshe[1,2] · Veronica Brtek[3] · Kristin Beima-Sofie[4] · Paula Braitstein[5,6] · Merrian Brooks[7] · Julie Denison[8] · Geri Donenberg[9] · Elizabeth Kemigisha[10] · Peter Memiah[11] · Irene Njuguna[4,12] · Ohemaa Poku[13] · Sarah T. Roberts[14] · Aisa M. Shayo[1,2] · Dorothy E. Dow[3,15]
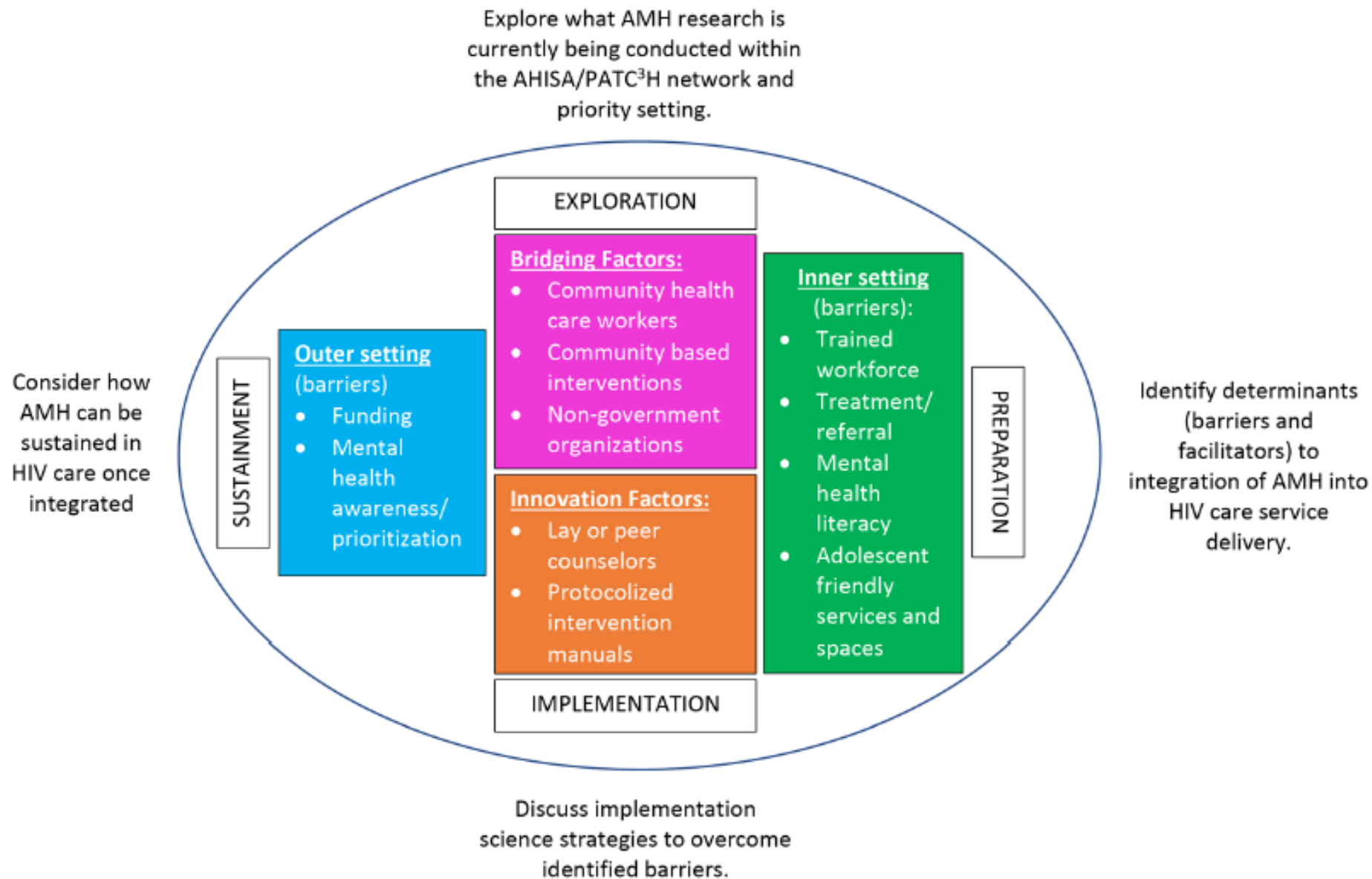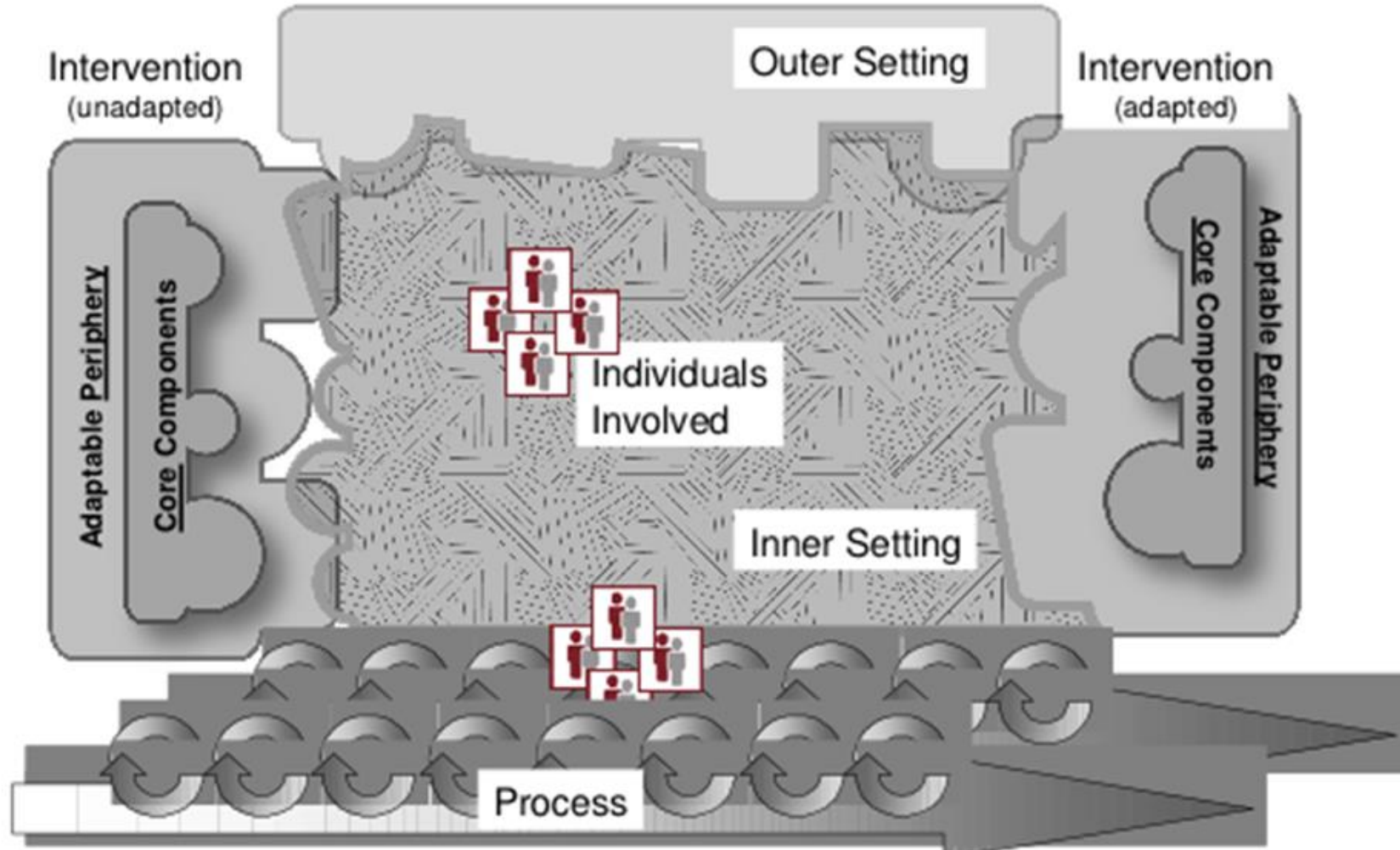
Fig. 2 Study aims (Exploration and Preparation), findings (inner colored boxes), and discussion points (implementation and sustainment) mapped onto the EPIS framework

CFIR Model

CFIR Domains and Constructs

Implementation				
Characteristics of the invervention	**Inner Setting**	**Outer Setting**	**Individuals involved**	**Implementation Process**
- Intervention source - Evidence strength and quality - Relative advantage - Adaptability - Trialabiliy - Complexity - Design quality - Cost	- Structural characteristics - Networks and communications - Culture - Implementation climate	- Patient needs and resources - Cosmopolitanism - Peer pressure - External policies and incentives	- Knowledge and beliefs about the intervention - Self-efficacy - Individual stage of change - Individual identification with organisation - Other personal attributes	- Planning - Engaging - Executing - Reflecting and evaluating

What are Implementation Outcomes?

Implementation Outcomes	Service Outcomes*	Client Outcomes
Acceptability	Efficiency	Satisfaction
Adoption	Safety	Function
Appropriateness	Effectiveness	Symptomatology
Costs	Equity	
Feasibility	Patient-	
Fidelity	centeredness	
Penetration	Timeliness	
Sustainability		
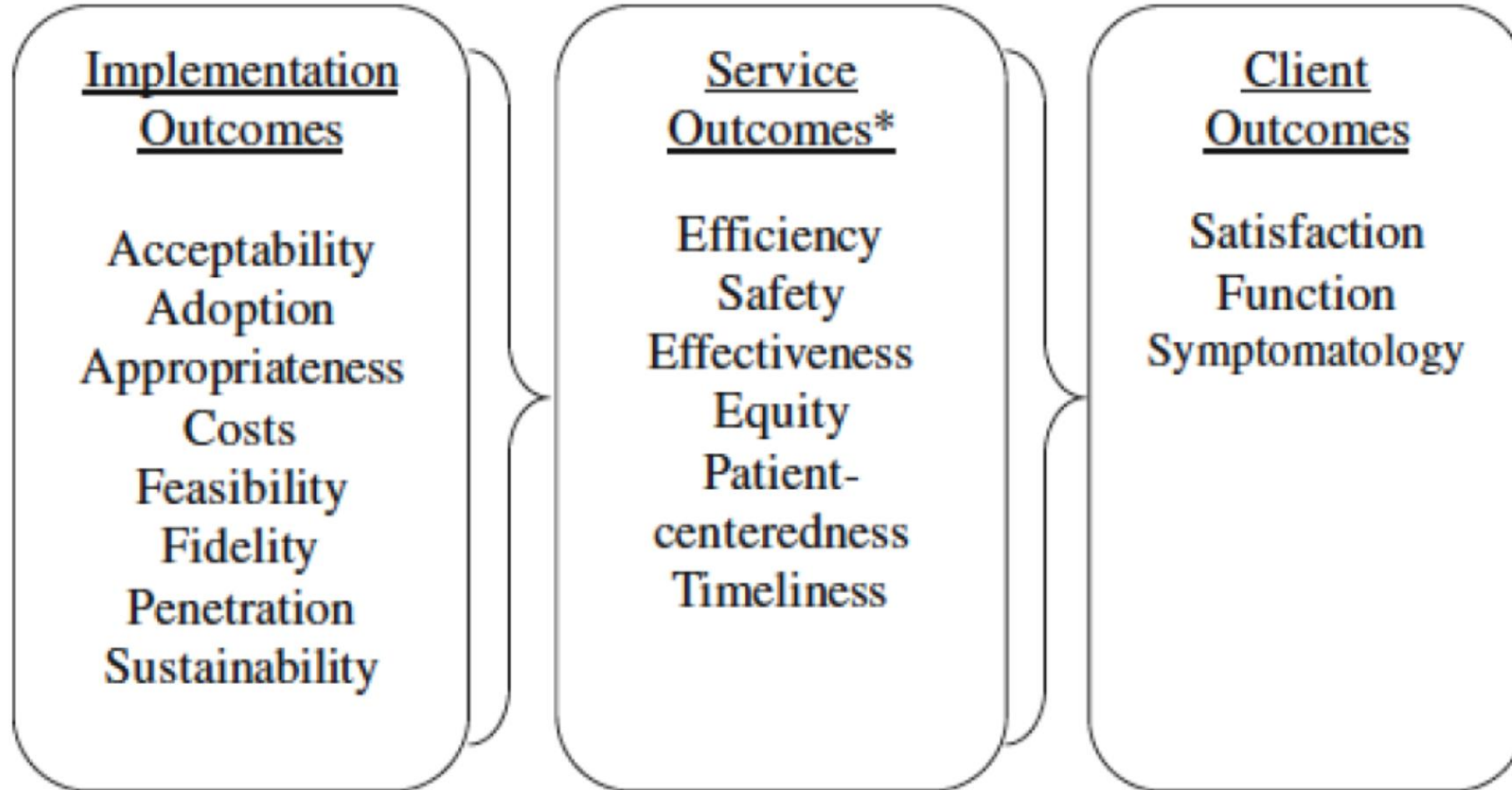
*IOM Standards of Care

Proctor et al., 2011

Implementation Outcomes

- **Acceptability:** Perception among implementation stakeholders that a given evidence-based practice is agreeable or satisfactory

- **Appropriateness:** Perceived fit, relevance, or compatibility of the evidence-based practice for a given practice setting, provider, or consumer; perceived fit to address the problem

- **Adoption:** Intention, initial decision, or action to try to employ an evidence-based practice
- **Costs:** Cost impact of an implementation effort.

- **Feasibility:** Extent to which a new evidence-based practice can be successfully used or carried out within a given agency or setting

- **Fidelity:** Degree to which an evidence-based practice was implemented as it was prescribed in the original protocol or intended by the practice developers

- **Penetration:** Integration of a practice within a service setting and its sub-systems.

- **Sustainability:** Extent to which a newly implemented evidence-based practice is maintained or institutionalized within a service setting's ongoing, stable operations (outside the context of a research study)

Table 4: CFIR Guided Implementation Determinants and Outcomes

CFIR Domains	Key stakeholder	Implementation Outcomes	Measurement tool and Timeframe
Characteristics of the intervention		Adaptations	**FRAME**[a,104] system to track cultural adaptations
		Cost	**Costing tool**[105] for cost effectiveness analyses (considers direct and indirect costs obtained by direct observation, interviews, budgets, patient file)
		Fidelity	**Fidelity checklists**[b] to ensure core components were delivered per the manualized protocol
Outer Setting	MOH, PEPFAR, EGPAF	Acceptability, feasibility, sustainability	**In-depth interviews** to understand barriers and facilitators to sustaining the SYV intervention; **Questionnaire** using AIM[c], IAM[d], FIM[e] **(pre- and post-RCT with five key informants)**
Inner setting	Head of clinic (at all sites)	Acceptability, feasibility, sustainability	**In-depth interview** to understand interest and support in sustaining intervention; ability to provide dedicated space and integrate within ongoing activities; **Questionnaire** using AIM[c], IAM[d], FIM[e] **(pre- and post-RCT with one key informant at four trial sites)**
Individuals involved	Supervisor	Acceptability, feasibility, fidelity, learning environment	**Meeting notes**[b], weekly research meeting notes; monthly all site supervisor calls; session notes; ability to refer challenging cases within the standard of care
			In-depth interview with each of the four study supervisors to understand barriers and facilitators to integrating and sustaining the SYV intervention in the adolescent HIV clinic
	Group leader	Acceptability, Feasibility, Learning Environment	**Recruitment and attendance**[b] to practice, supervision, and intervention sessions; competence in delivery (measured by **supervisor notes**[b])
			Supervision notes[b], feedback during supervision regarding job satisfaction and leadership training; youth leader turnover
			Focus discussion group (group leaders at each trial site post-RCT)
		Personal attributes	Based on self-reflection; supervisor comments
	Participant	Acceptability, Feasibility	**Ability to recruit**[b]; **enroll**[b]; session attendance[b]; retention for study visits[b]; final exit interview after completing intervention[b]
			Focus discussion group (8 participants at each trial site post-RCT)
	Youth CAB	Acceptability, Feasibility	Ability to engage with members of youth CAB (attendance to site and teleconference meetings)
			Focus discussion group (participants of the SYV pilot study at each site about perceptions of the intervention (post-pilot)
Process		Fidelity	**Adherence to timeline and recruitment**[b], **enrollment**[b], **and randomization procedures**[b]. Site training; weekly (site) and monthly (all sites) supervision meetings

Abbreviations include: MOH: Ministry of Health; PEPFAR: President's Emergency Plan for AIDS Relief; EGPAF: Elizabeth Glaser Pediatric AIDS Foundation. [a]The framework for reporting adaptations and modifications expanded (FRAME); [b]As done during the original pilot study; [c]Acceptability of Intervention Measure (AIM), [d]Intervention Appropriateness Measure (IAM), [e]Feasibility of Intervention Measure (FIM). Measurement tools that are shaded include in-depth interviews or focus discussion groups as represented in **Table 2**; Unshaded measurement tools occur throughout the intervention.

Implementation Science Requirements for Success

Effective Interventions × **Effective Implementation Methods** × **Enabling Contexts** = **Socially Significant Outcomes**

WHAT   HOW   WHO + WHERE