Comparing the CFIR-ERIC matching tool recommendations to real-world strategy effectiveness data: a mixed-methods study in the Veterans Health Administration

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https://implementationscience.biomedcentral.com/articles/10.1186/s13012-023-01307-x

1

Outline

Implementation strategies
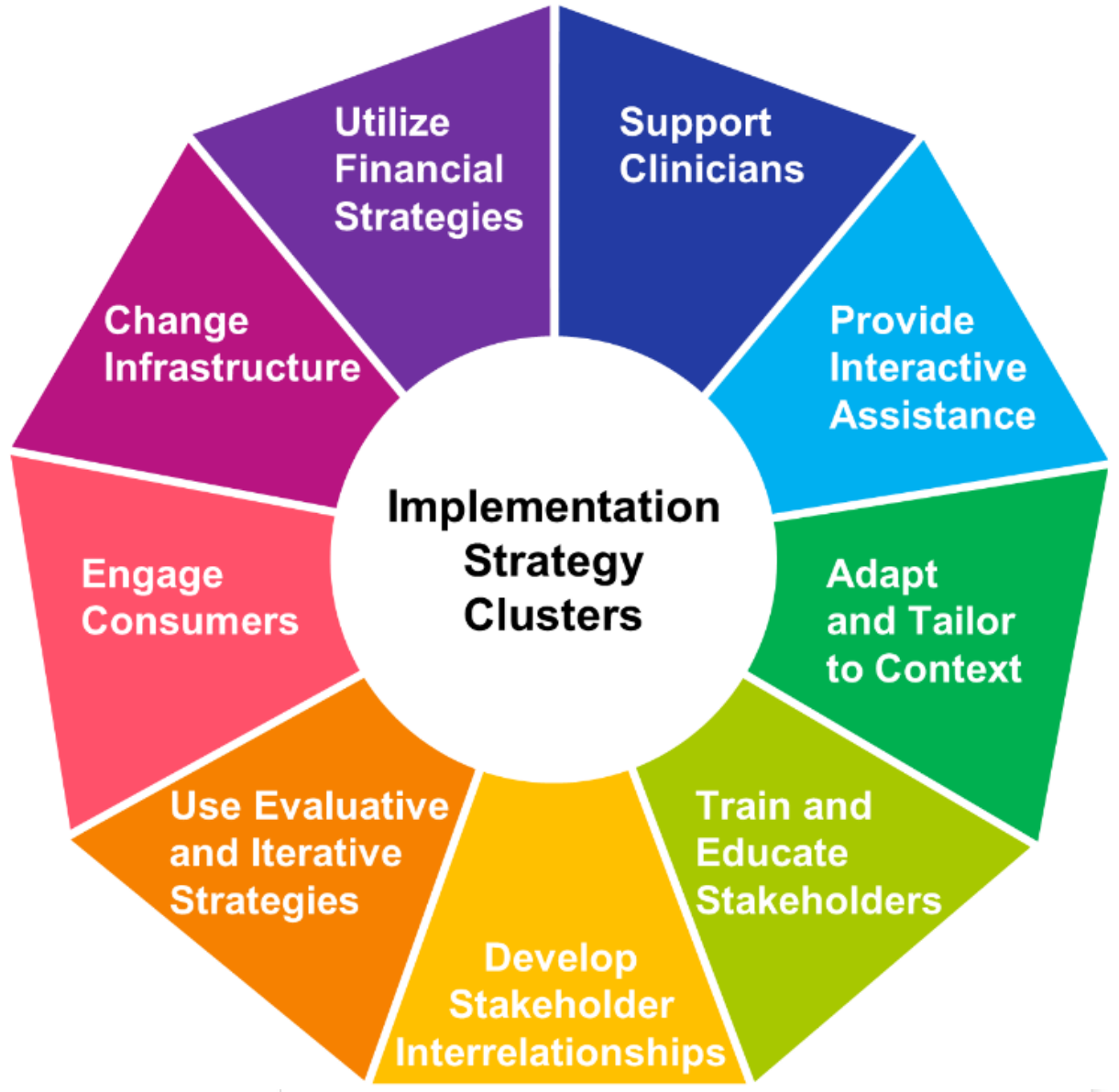
CFIR-ERIC matching tool

Assessing CFIR-ERIC matching tool in real world

Future directions

Strategy Taxonomy: Expert Recommendations for Implementing Change (ERIC)

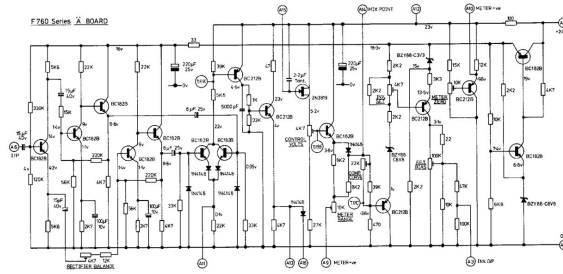Powell et al (2015) Imp Sci

We can track implementation strategy selection

Strategies in Order of Presentation on Survey

Rogal *et al.* (2017) *Implementation Science*
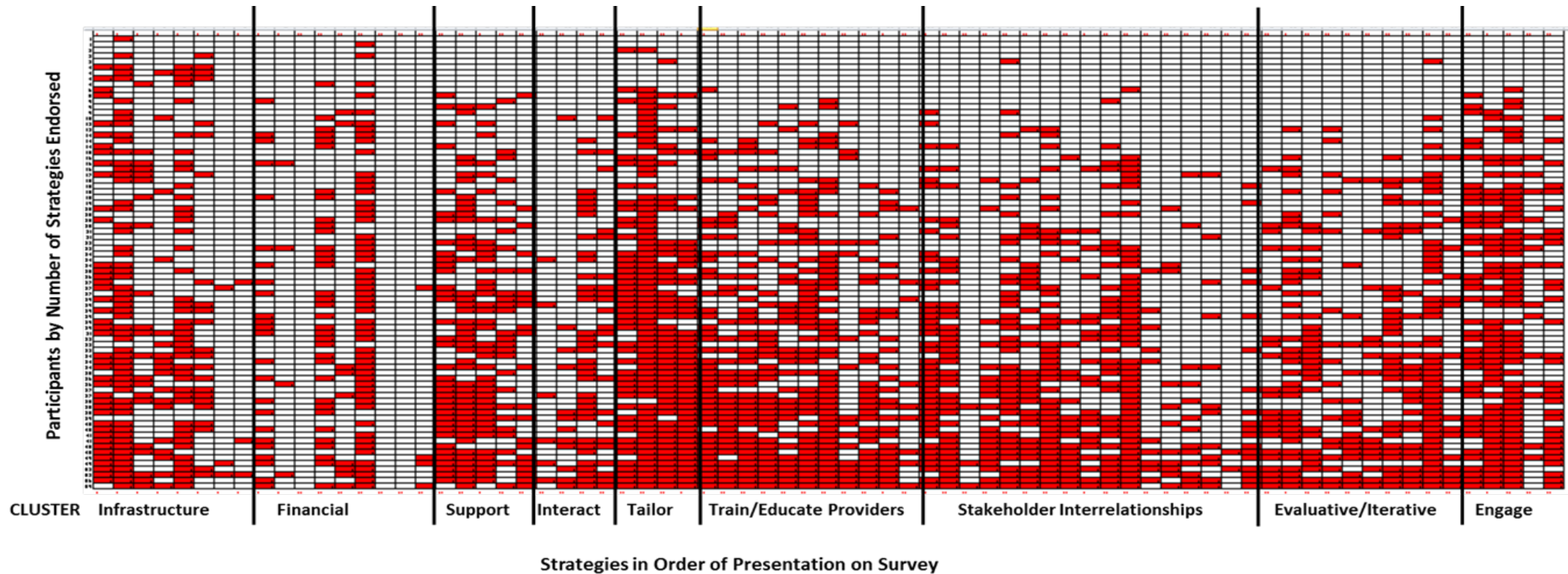
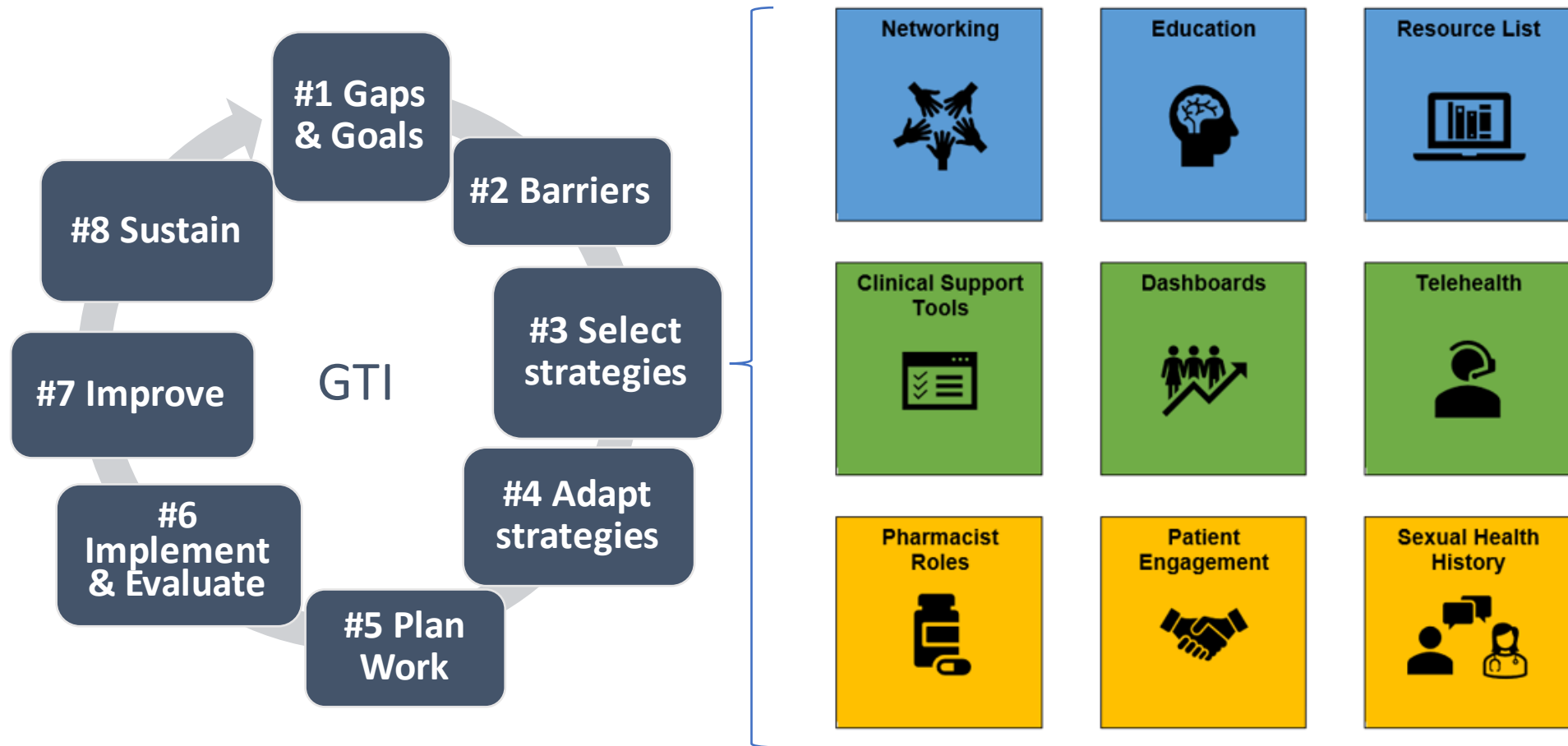# We can assess the success of strategies over time
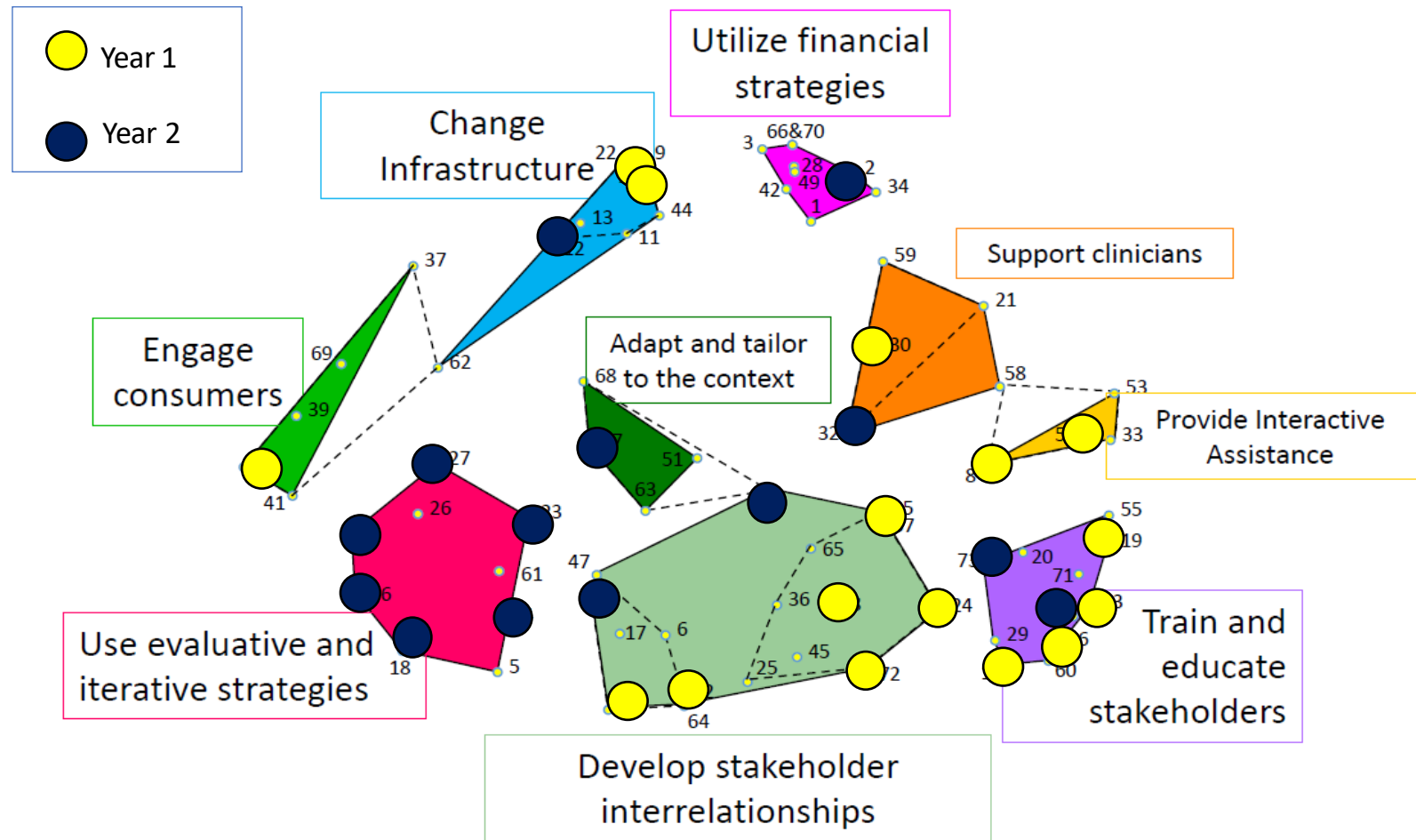
We can identify effective combinations

Solution Path	Strategy
1	S24: Have someone from inside the medical center (local technical assistance) tasked with assisting the medical center
2	S34: Facilitate the formation of groups of providers and foster a collaborative learning environment S45: Recruit, designate, and/or train leaders
3	S22: Develop resource sharing agreements S61: Develop a formal implementation blueprint
4	S56: Visit other sites outside your medical center to try to learn from their experiences S71: Intervene with patients to promote uptake and adherence to HCV treatment
5	S18: Create new clinical teams S47: Share the knowledge gained from quality improvement efforts with other sites outside your medical center S70: Engage in efforts to prepare patients to be active participants in HCV care

Yakovchenko et al. (2020) *Medical Care*

We can prescribe successful strategies

How do we do this quickly and efficiently?

CFIR
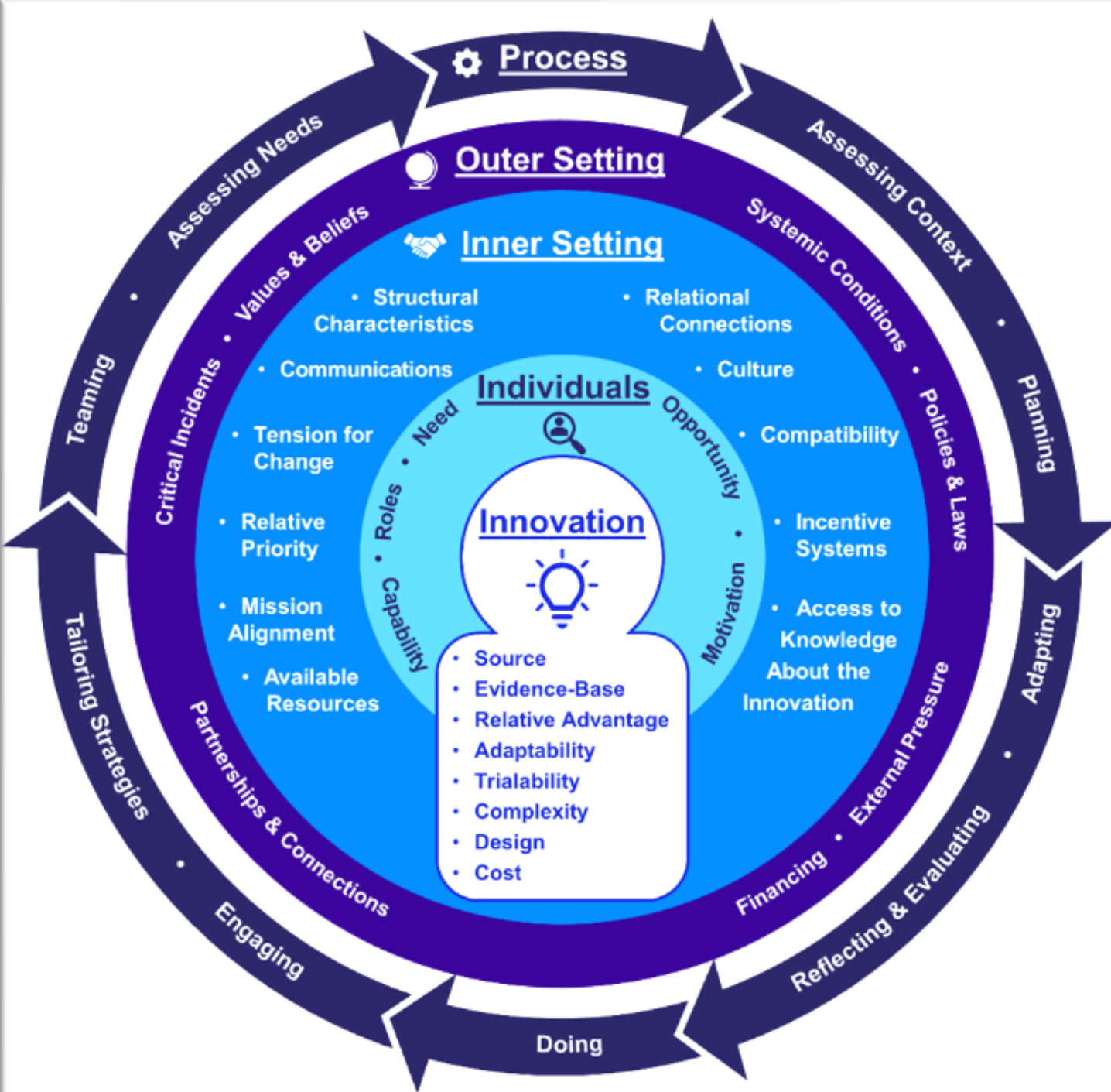
- Damschroder et al. (2009) Imp Sci
- Damschroder et al. (2022) Imp Sci

CFIR-ERIC Implementation Strategy Matching Tool

➢ Matches implementation barriers and facilitators, identified using the CFIR with expert-recommended implementation strategies from the ERIC.

➢ Serves as a preliminary aid to strategy consideration by providing a broad array of candidate strategies that best address barriers.

Waltz, T.J., Powell, B.J., Fernández, M.E. *et al.* Choosing implementation strategies to address contextual barriers: diversity in recommendations and future directions. *Implementation Sci* **14**, 42 (2019). https://doi.org/10.1186/s13012-019-0892-4

Research Question & Aims

- **How do actual implementation strategies compare with those recommended by an expert opinion-based tool?**

- Convergent parallel mixed-methods study to improve guideline-concordant cirrhosis care in the Veterans Health Administration (VHA) aimed to:
  - Identify pre-implementation CFIR barriers to liver cancer surveillance
  - Generate 20 recommended strategies using the CFIR-ERIC matching tool
  - Collect data over two consecutive years on actual use and effectiveness of 73 strategies
  - Compare actual vs. recommended strategy use
  - Compare actual vs. expected barriers by reverse application of the CFIR-ERIC matching tool
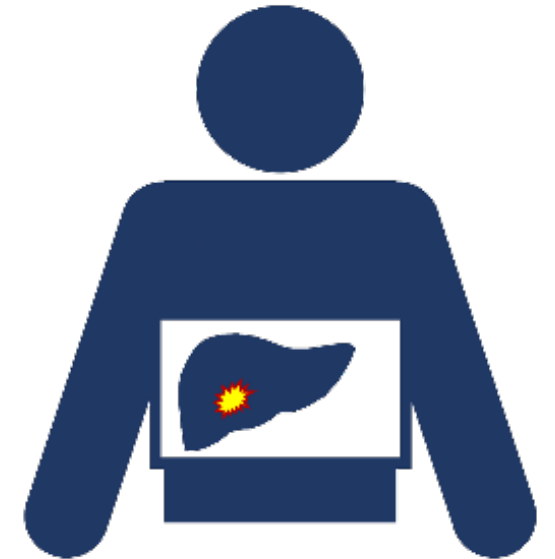
Study Design

Convergent parallel mixed-methods

Box: data collection; **Oval**: analysis, interpretation

12
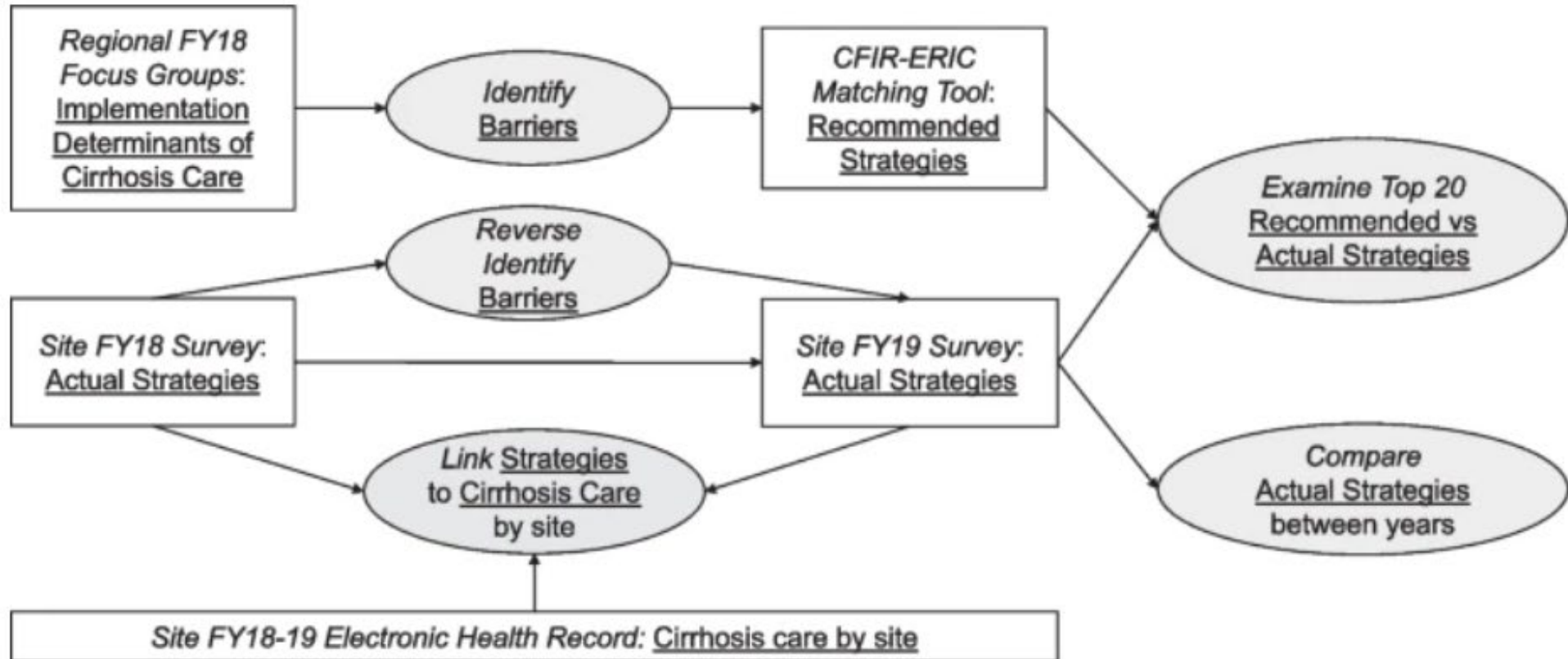
Methods: Data Collection
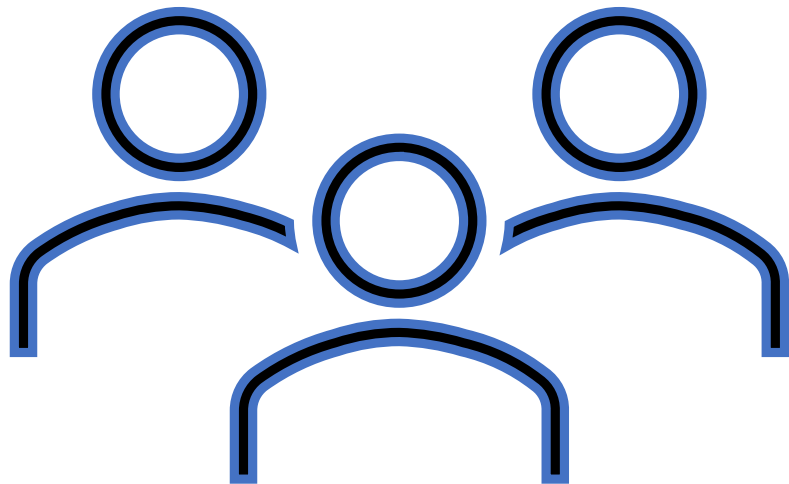
➢ **Focus Groups**: CFIR-based, semi-structured, n=18
  - Participants (n=197) represented 95 sites across all 18 VISNs
  - Gastroenterology/hepatology, infectious disease, pharmacy, and operations

➢ **Surveys**: Tailored ERIC survey across VHA in two consecutive years

Methods: Data Analysis

- **CFIR-ERIC Matching Tool**
  - Inputs = barriers defined by focus groups
  - Output= top 20 highest "recommended" strategies, based on cumulative percentage endorsement

- **Cirrhosis Care Indicator**
  - HCC surveillance data aggregated to the VA site level
  - Point-biserial tests assessed correlations

Results: Focus Group

Barriers	Facilitators

• **Intervention Characteristics**
   • Adaptability
   • Complexity
 	
 • **Outer Setting**
   • External policy
   • Patient needs and resources
 	
 • **Inner Setting**
   • Relative priority
   • Readiness
   • Leadership engagement
   • Available resources
   • Structural characteristics
   • Compatibility
	• **Implementation Process**
	   • Infrastructure and communication
	   • Data tools for reflecting and evaluating
	
	 • **Characteristics of Individuals**
	   • Self-efficacy due to prior success

Using the Excel matching tool, add 10 barrier inputs to get strategy recommendations.

	A	B	C
2	Select All	**INTERVENTION CHARACTERISTICS**	
3	0	Intervention Source	Stakeholders have a negative perception of the innovation because of the entity that developed it and/or where it was developed.
4	0	Evidence Strength & Quality	Stakeholders have a negative perception of the quality and validity of evidence supporting the intervention.
5	0	Relative advantage	Stakeholders do not see the advantage of implementing the innovation compared to an alternative solution or keeping things the same.
6	1	Adaptability	Stakeholders do not believe that the innovation can be sufficiently adapted, tailored, or re-invented to meet local needs.
7	0	Trialability	Stakeholders believe they cannot test the innovation on a smaller scale within the organization or undo implementation if needed.
8	1	Complexity	Stakeholders believe that the innovation is complex based on their perception of duration, scope, radicalness, disruptiveness, centrality, and/or intricacy and number of steps needed to implement.
9	0	Design Quality and Packaging	Stakeholders believe the innovation is poor quality based on the way it is bundled, presented, and/or assembled.
10	0	Cost	Stakeholders believe the innovation costs and/or the costs to implement (including investment, supply, and opportunity costs) are too high.
11		**OUTER SETTING**	
12	1	Patient Needs & Resources	Patient needs, including barriers and facilitators to meet those needs, are not accurately known and/or this information is not a high priority for the organization.
13	0	Cosmopolitanism	The organization is not well networked with external organizations.
14	0	Peer Pressure	There is little pressure to implement the innovation because other key peer or competing organizations have not already implemented the innovation nor is the organization doing this in a bid for a competitive edge.
	1	External Policy & Incentives	External policies, regulations (governmental or other central entity), mandates, recommendations or guidelines, pay-for-performance, collaborative, or public or benchmark reporting do not exist or they undermine efforts to implement the

Results: Top 20 Recommended Strategies

1. Assess for readiness and identify barriers and facilitators
2. Conduct local consensus discussions
3. Promote adaptability
4. Conduct local needs assessment
5. Identify and prepare champions
6. Build a coalition
7. Alter incentive/allowance structures
8. Capture and share local knowledge
9. Tailor strategies
10. Conduct cyclical small tests of change
11. Involve executive boards
12. Involve patients and family members
13. Facilitation
14. Develop a formal implementation blueprint
15. Create a learning collaborative
16. Obtain and use patients and family feedback
17. Access new funding
18. Inform local opinion leaders
19. Identify early adopters
20. Fund and contract for clinical innovation

Results: Comparing Recommended vs. Actual Strategies

Top 20 Recommended ERIC strategies	Actual strategy use			Strategy significance
	FY18	FY19	Top	
1. Assess for readiness and identify barriers and facilitators	25%	13%		19
2. Conduct local consensus discussions	38%	23%	18	19
3. Promote adaptability	43%	42%	Both	Both
4. Conduct local needs assessment	24%	20%		19
5. Identify and prepare champions	44%	36%	Both	19
6. Build a coalition	40%	20%	18	19
7. Alter incentive/allowance structures	3%	3%		
8. Capture and share local knowledge	41%	26%	18	18
9. Tailor strategies	44%	40%	Both	Both
10. Conduct cyclical small tests of change	17%	16%		Both
11. Involve executive boards	19%	3%		
12. Involve patients and family members	25%	28%	19	19
13. Facilitation	14%	18%		
14. Develop a formal implementation blueprint	19%	12%		
15. Create a learning collaborative	30%	21%		18
16. Obtain and use patients and family feedback	11%	5%		18
17. Access new funding	24%	17%		
18. Inform local opinion leaders	30%	21%		18
19. Identify early adopters	14%	8%		
20. Fund and contract for clinical innovation	21%	15%		18

"Top" column denotes in which fiscal year the strategy was most frequently used. "Strategy significance" column denotes in which year the strategy was significantly associated with HCC surveillance

Results: Recommended vs. Actual Strategy USE

Of the top 20 "recommended" strategies, 7 were a top strategy used in each or both years:

Other most USED strategies
- Data warehousing (dashboard)
- Change physical structure and equipment
- Change the record system
- Use data experts
- Network weaving
- facilitate the relay of data to clinicians
- Provide expert consultation
- Educational materials/meetings

FY18	FY19
Build a coalition	Involve patients and family members
Conduct local consensus discussions	
Capture and share local knowledge	
Promote adaptability	
Tailor strategies	
Identify and prepare champions	

Results: Recommended strategies associated with cancer screening

11 of the top 20 most recommended (70%)

were associated with cancer screening

(vs. 48% (35/73) of total strategies)

*=most used

**=most used BUT not in the year

Other most USED strategies
-Data warehousing (dashboard)*
-Change physical structure and equipment
-Change the record system*
-Use data experts*
-Network weaving*
-facilitate the relay of data to clinicians
-Provide expert consultation*
-Educational materials/meetings

FY18	FY19
Capture and share local knowledge*	Involve patients and family members*
Create a learning collaborative	Identify and prepare champions**
Obtain and use family and patient feedback	Conduct local consensus discussions**
Inform local opinion leaders	Build a coalition**
Fund and contract for the clinical innovation	Assess for readiness and identify barriers and facilitators
Promote adaptability*	
Tailor strategies*	
Conduct cyclical tests of change	

Timing

- 6 strategies were associated with HCC screening uniquely in FY19 (the year after barriers were assessed)

- 5 of the 6 were the highest "recommended" strategies based on barriers

- Barriers reported in FY18 were successfully addressed by recommended strategies in FY19

Results: Reverse Mapping Actual Strategies and Expected Barriers

- Entered 25 strategies most used strategies
  - 5 were unique to FY18, 6 to FY19, and 14 overlapped both years, totaling 25 strategies
- Reverse mapping found **15 barriers**
  - 7 (47%) had been previously reported by focus groups
  - Multiple strategies addressed the same expected barrier

Results: Reverse Mapping

Most used actual ERIC strategies (wording tailored to cirrhosis care)	Actual strategy use		Strategy significance	Expected CFIR barrier (per CFIR-ERIC Matching Tool)	Actual barrier
	FY18	FY19			
• Use data warehousing techniques	73%	75%	Both	Reflecting & evaluating	
• Change physical structure and equipment	67%	50%		Available resources	a
• Change the record systems	60%	53%	19	Reflecting & evaluating	
• Use data experts to manage cirrhosis data	51%	37%	18	Reflecting & evaluating	
• Build on existing high-quality working relationships and networks to promote information sharing and problem-solving related to implementing cirrhosis care	49%	-	Both	Networks & communications	
• Facilitate the relay of clinical data to providers	49%	40%		Reflecting & evaluating	
• Tailor strategies to deliver cirrhosis care to address specific barriers in your center	44%	40%	Both	Compatibility	a
• Identify and prepare champions	44%	36%	19	Champions	
• Identify the ways cirrhosis care can be tailored to meet local needs and while still maintaining the core components of evidence-based care	43%	42%	Both	Adaptability	a
• Provide ongoing consultation with one or more cirrhosis treatment experts	43%	32%	Both	Self-efficacy	
• Distribute educational materials	43%	35%	18	Access to knowledge & information	
• Intentionally examine the efforts to promote cirrhosis care	43%	38%	18	Executing	
• Share the knowledge gained from quality improvement efforts with other sites outside your medical center	41%	-	18	Adaptability	a
• Conduct educational meetings	41%	44%		Access to knowledge & information	
• Build a local coalition/team to address challenges	40%	-	19	Cosmopolitanism	
• Develop reminder systems for clinicians	40%	36%	19	Leadership engagement	a
• Conduct local consensus discussions	38%	-	19	Relative priority	a
• Provide ongoing training in cirrhosis care	38%	33%	18	Self-efficacy	
• Provide clinical supervision around evidence-based cirrhosis care	37%	34%	18	Access to knowledge & information	
• Intervene with patients to promote uptake of and adherence to cirrhosis care	33%	-	Both	Patient engagement	
• Revise professional roles	-	35%		Structural characteristics	a
• Have an expert in cirrhosis care meet with providers to educate them	-	32%		Evidence strength & quality	
• Engage in efforts to prepare patients to be active participants in cirrhosis care	-	29%	Both	Patient engagement	
• Involve patients and family members	-	28%	19	Patient needs & resources	a
• Create new clinical teams	-	28%		Networks & communications	

23

Barriers addressed by most popular strategies but not identified in focus groups

Access to knowledge and information	Champions	Cosmopolitanism
Evidence Strength & Quality	Executing	Networks and communication
Patient engagement	Reflecting and evaluating	Self-efficacy*

Discussion

➢ CFIR-ERIC Matching Tool identified strategies more likely to be associated with cancer screening

➢ Reverse application of matching tool based on actual strategies used demonstrated that:
  - Barriers shifted over time, reflecting context and local needs
  - Strategy selection spanning multiple years must attend to progression of context

➢ Future:
  - Further study of barrier combinations and relative intensity
  - Revision of the CFIR-ERIC Matching Tool using updated empirical data
  - How to leverage a single strategy to address multiple barriers (Waltz et al.)
  - How to prescribe combos, or bundles

Waltz, Thomas J., et al. "Choosing implementation strategies to address contextual barriers: diversity in recommendations and future directions." *Implementation science* 14 (2019): 1-15.

Thank you!

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