

Enhancing Implementation Capacity Through Individual- and Intervention-Level Strategies

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Acknowledgments

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- Cara Lewis (*Kaiser Permanente Washington Health Research Institute*)
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Acknowledgments

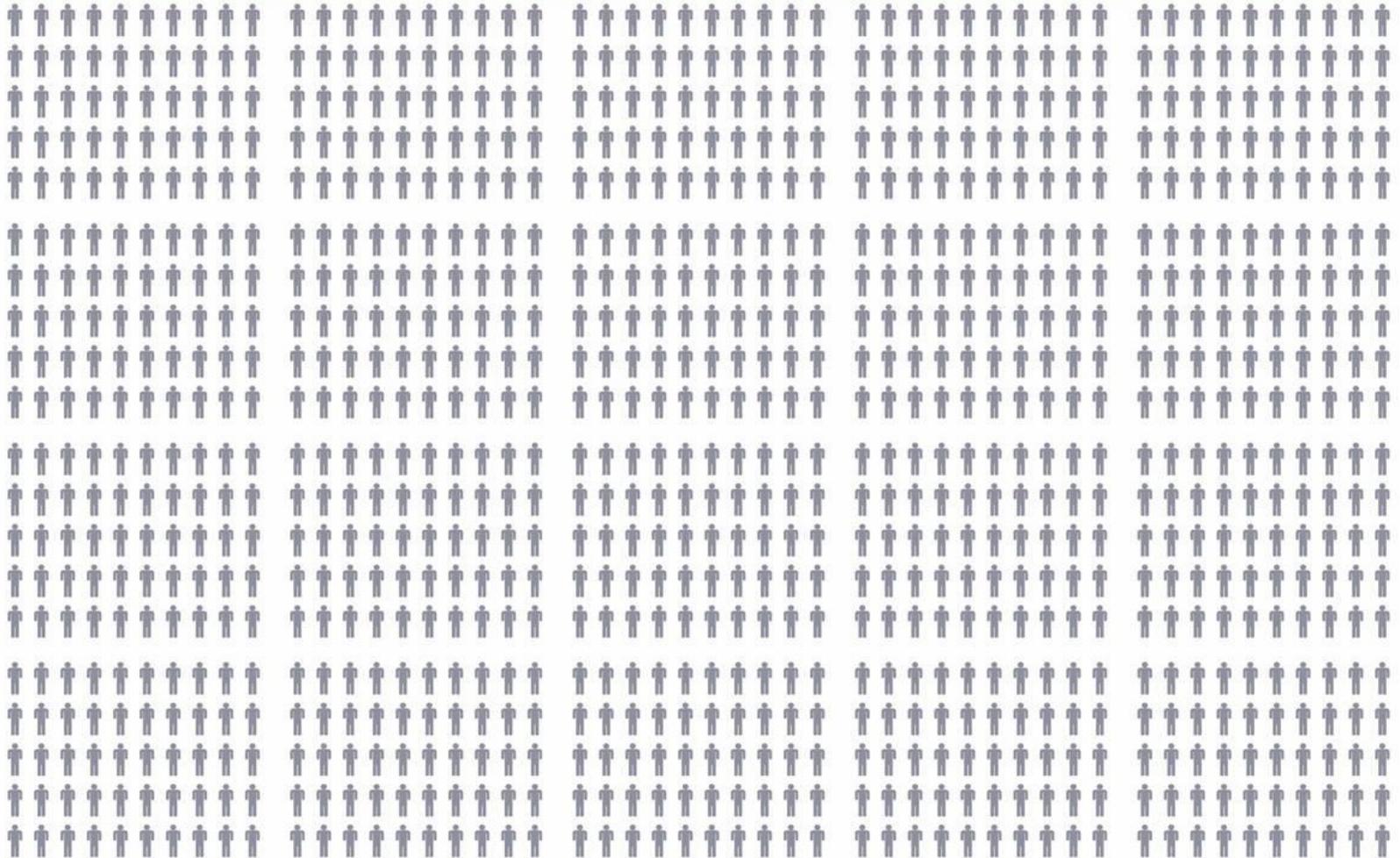
Funding Sources:



Mental Health Burden of Disease

- MH & substance use disorders cause 23% of disability worldwide
 - #1 cause of disability and greatest impact on overall health of any health condition (BCBS, 2017; Whiteford et al., 2013)

Of all people with MH problems...

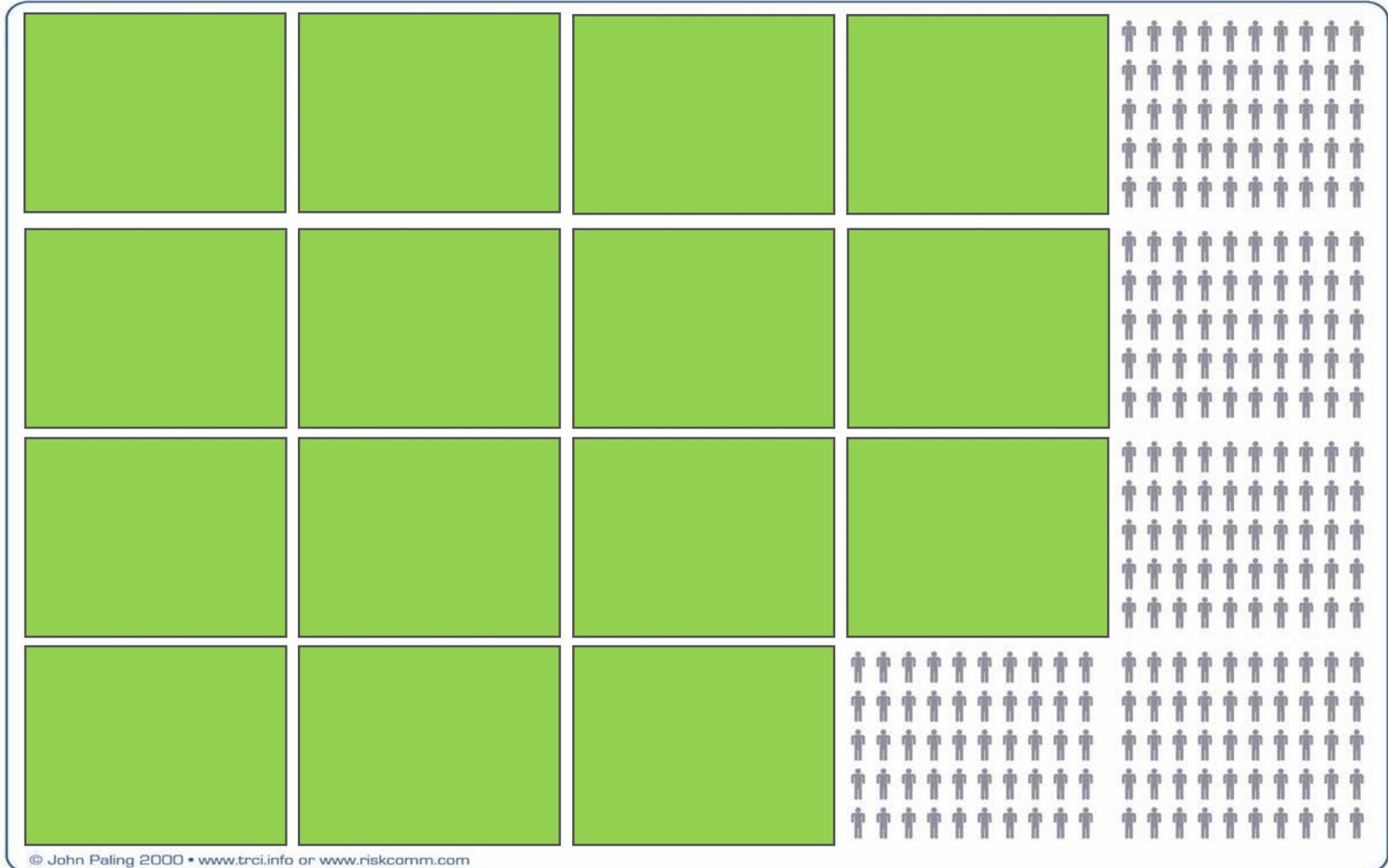


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50% develop them by age 14...



74% develop them by age 24...



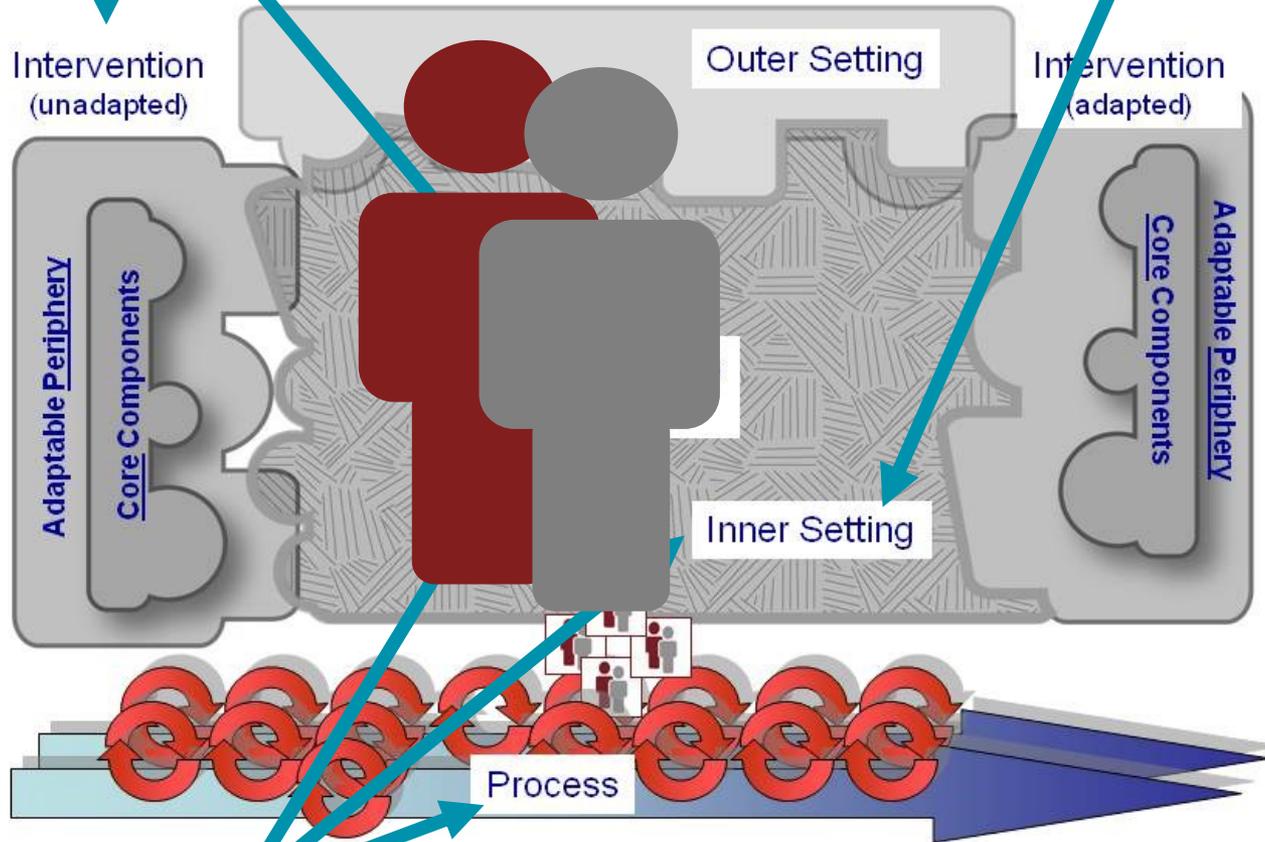
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School Mental Health (SMH) Services

- ...account for 50-80% of all youth MH services in the US (Farmer et al., 2003; Merikangas et al., 2011)
 - ~20% access SMH annually (Foster et al. 2005)
 - Improve service access for diverse youth (Kataoka et al., 2007; Lyon et al., 2013)
- ...are unlikely to be evidence-based (Evans & Weist, 2004; Owens et al., 2014)

1. Contextually appropriate intervention development

2. Organizational influences on implementation & service quality



3. Developing & testing EBP implementation strategies

CFIR – Damschroder et al. (2009)

Building Individual Capacity



- Implementation depends on both system and individual factors (Aarons et al., 2011; Beidas & Kendall, 2010)
 - Implementation requires individual behavior change, even with org. factors in place (Michie et al., 2011)
- In SMH, implementation is frequently top-down (e.g., mandates) w/o attention to individual factors

Individual implementation barriers



- Individual-level variation occurs regardless of org functioning & supports (Kincaid et al., 2007; Sanford DeRousie & Bierman, 2012).
- Practitioners may (1) not see the value in EBP implementation, (2) actively resist EBP, or (3) simply fail to put in the effort to implement with fidelity (Dusenbury et al., 2005; Stirman et al., 2013)

Example Individual Implementation Strategies (Powell et al., 2015)

- Active training
- Follow-up consultation/supervision supports
- Individual educational outreach visits
- Facilitate relay of clinical data to providers
- Identify early adopters
- Remind clinicians
- Shadow other experts

Building Individual Capacity

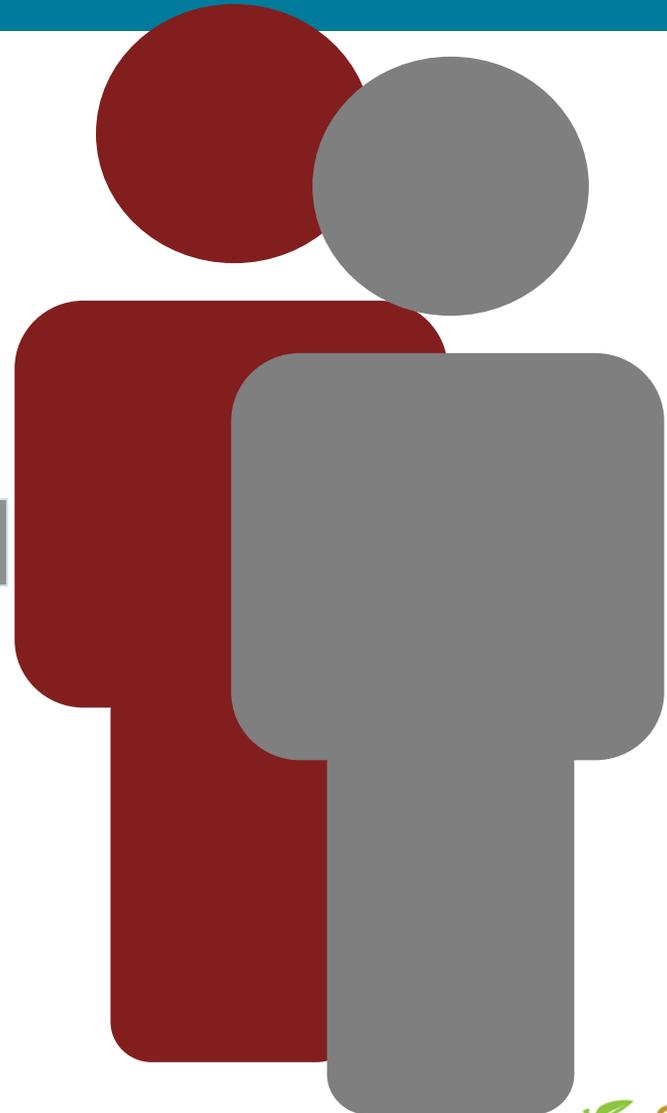
Engage



Design



Support



Engage

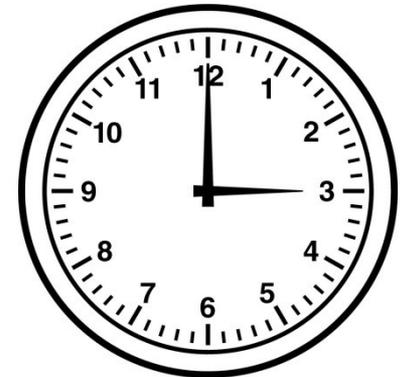


Individual Motivation is Critical

“If it’s worth my time, I’ll make the time”

- SMH clinician

- “Time” is the most commonly identified implementation barrier (Cook et al., 2009)
 - **Reality + Perception**



Beliefs and Attitudes for Successful Implementation in Schools (BASIS)

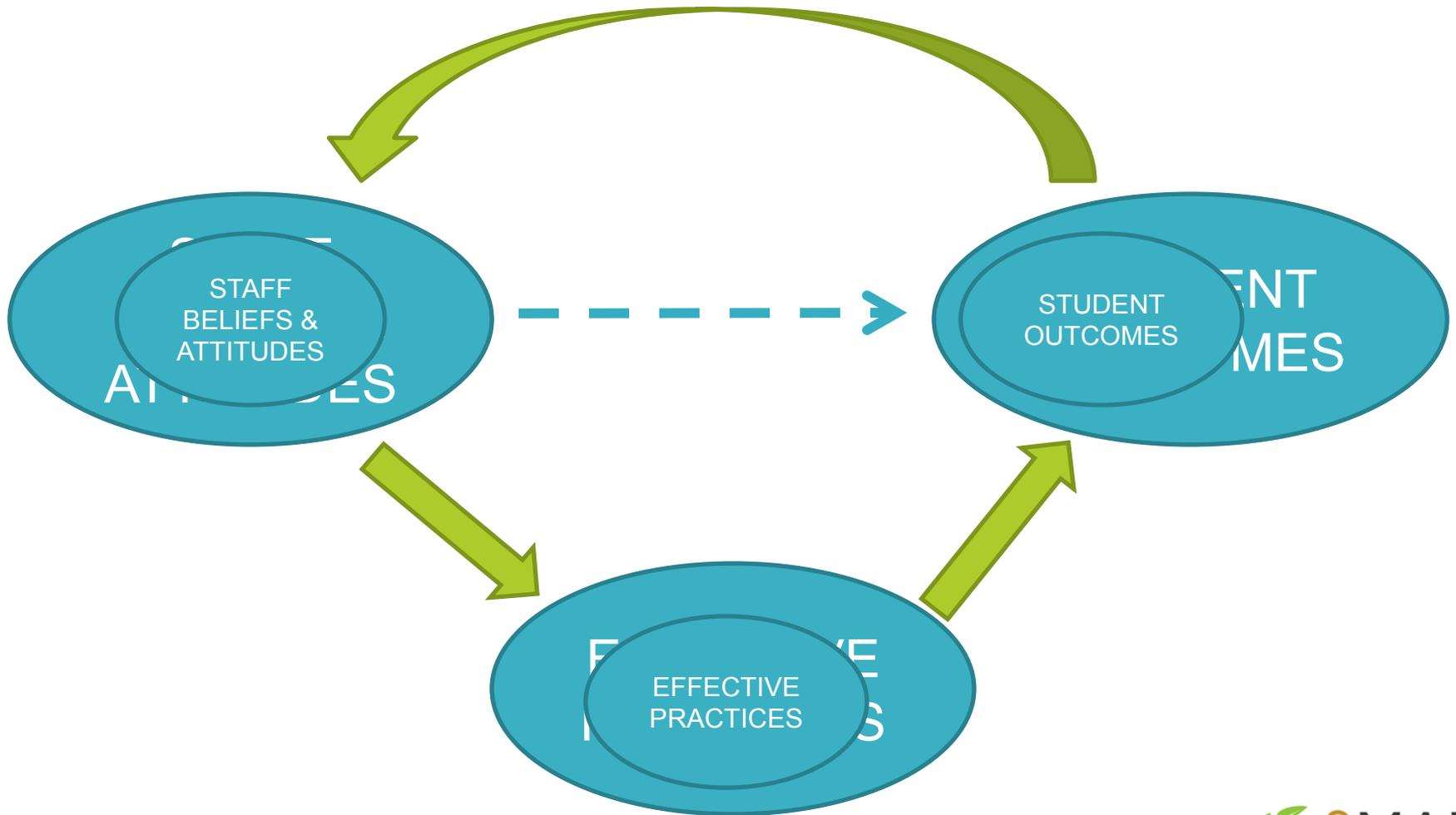
*National Institute of Mental Health (R21MH108714)
Lyon & Cook, PIs*

*Institute of Education Sciences (R305A170292)
Cook, Lyon, & Duong, PIs*

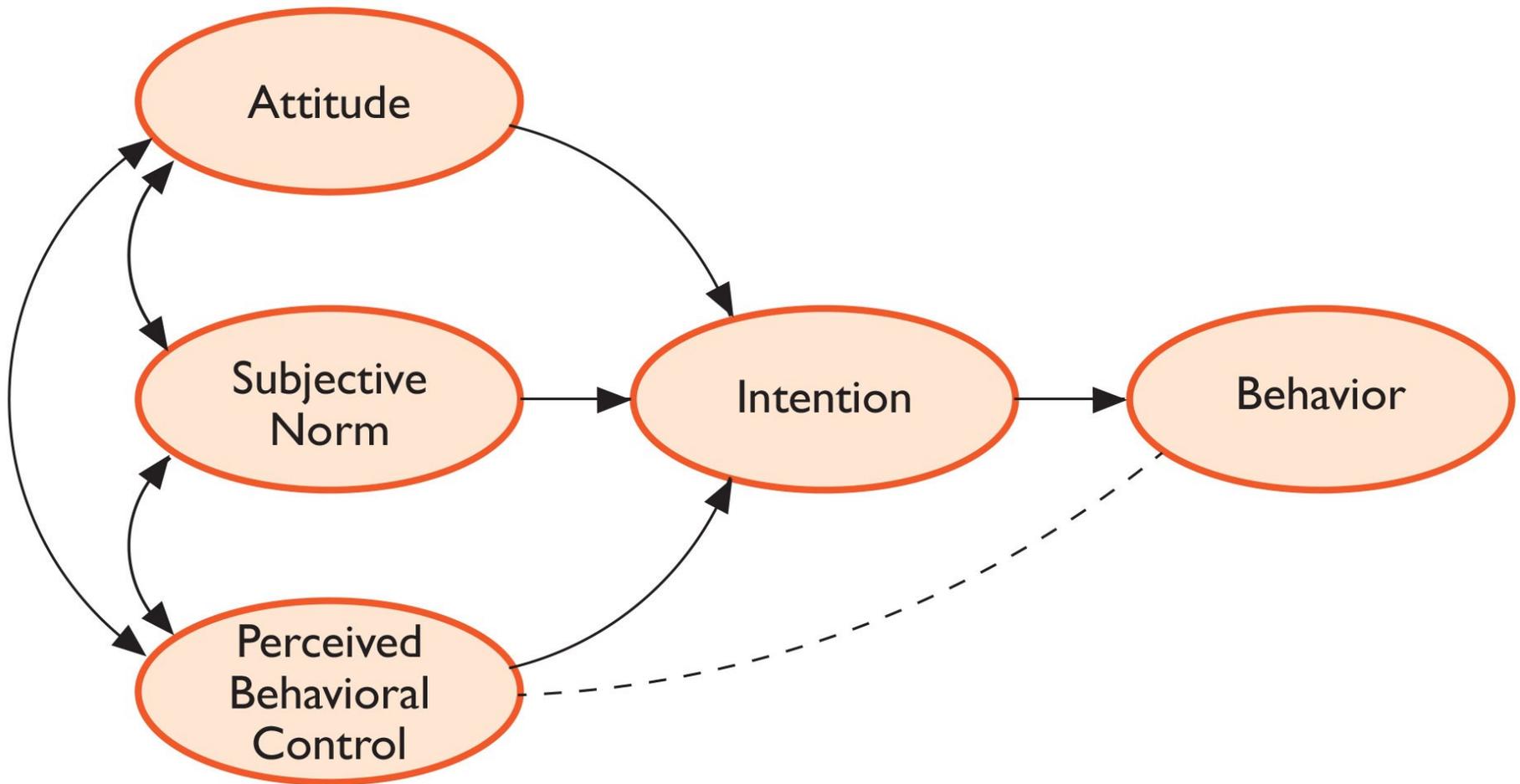
BASIS Overview

- **BASIS is a *developing* pre-implementation, group-based motivation enhancement intervention**
- **Purpose:** Increase intentions/motivation to implement EBP, particularly once high quality professional development has been delivered (i.e., training & consultation)
- **Intended outcomes:** Increase EBP adoption, fidelity, and sustainment

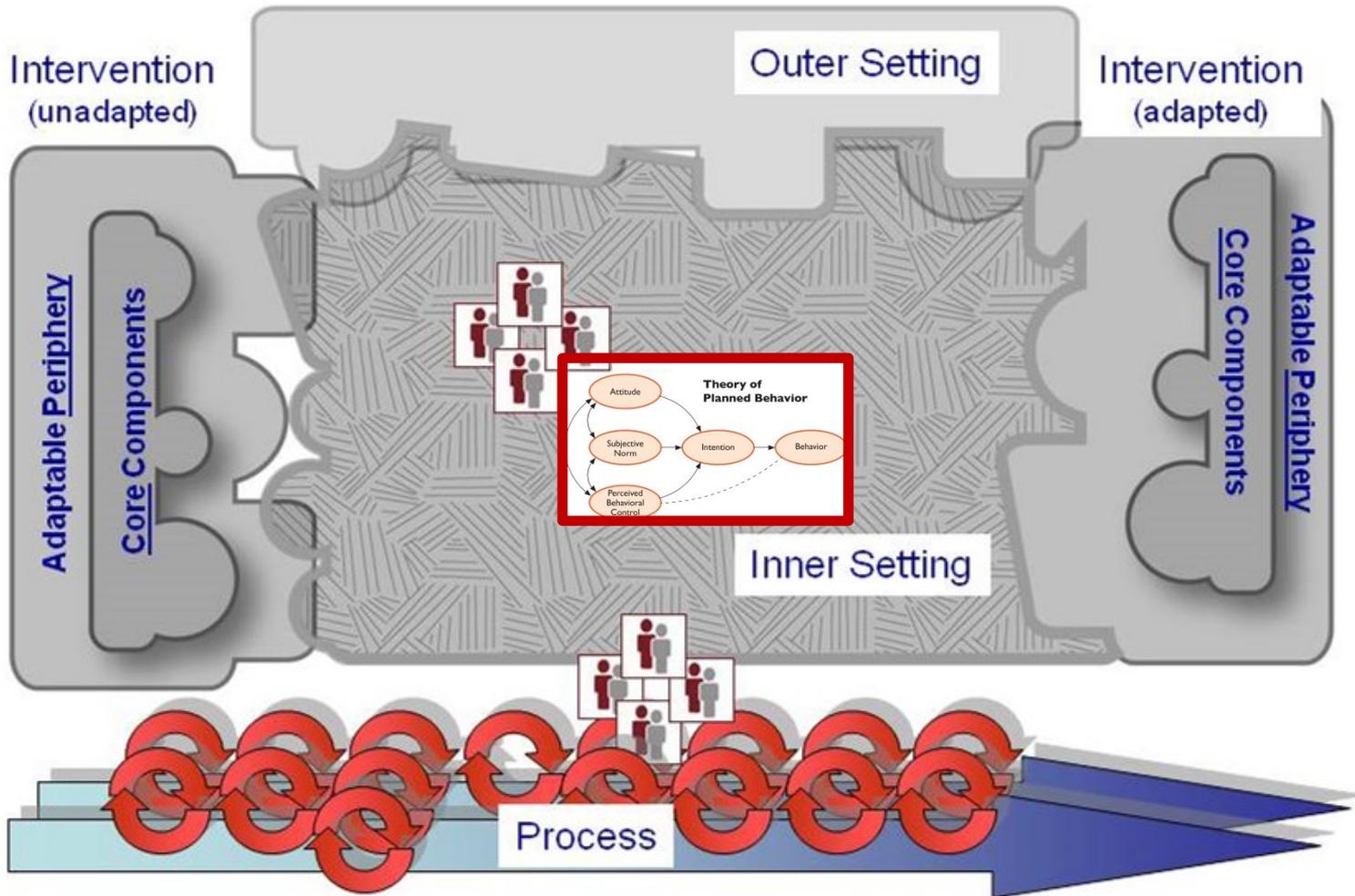
BASIS is rooted in the Triadic Model of Student Outcomes (Cook et al.)



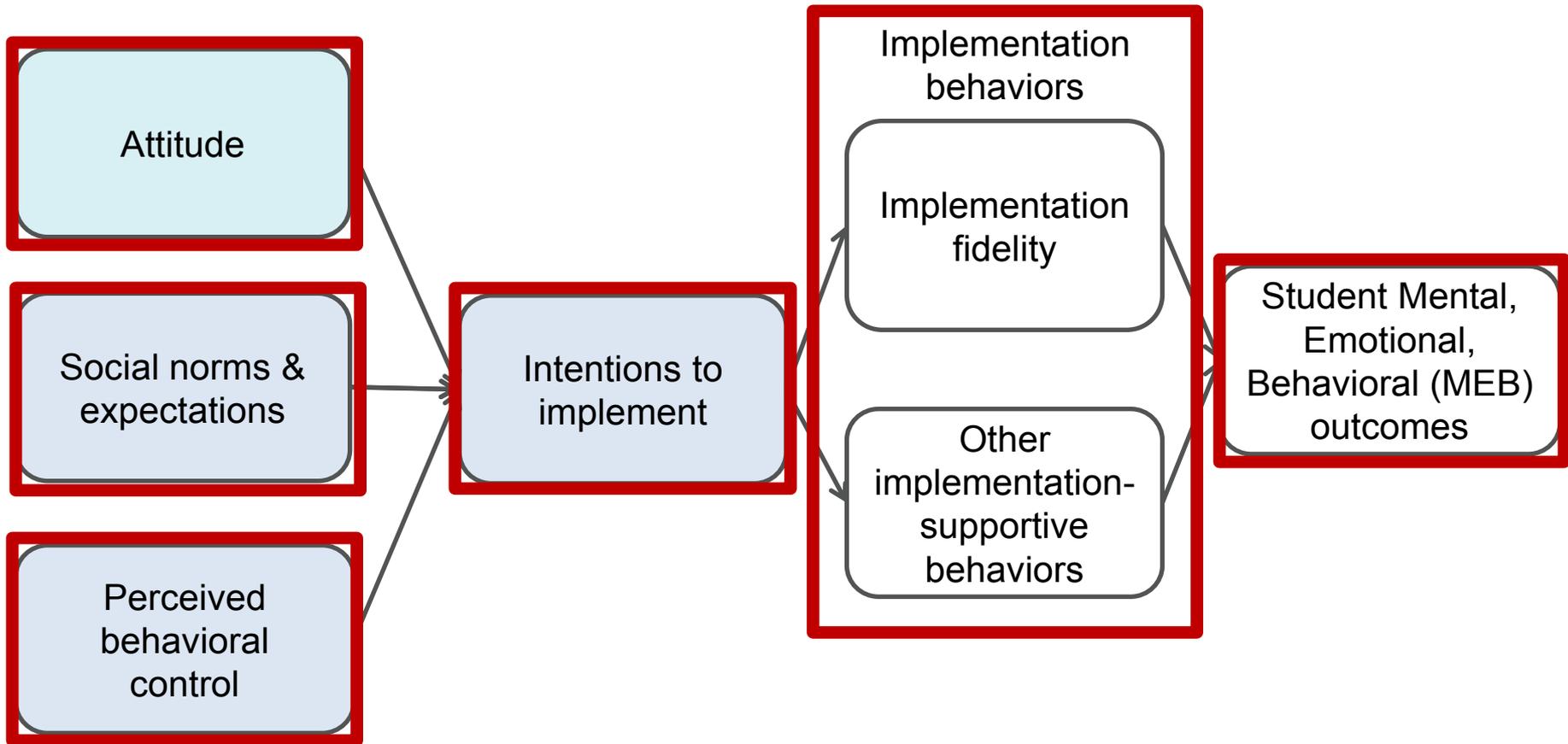
Theory of Planned Behavior (Ajzen, 1991)



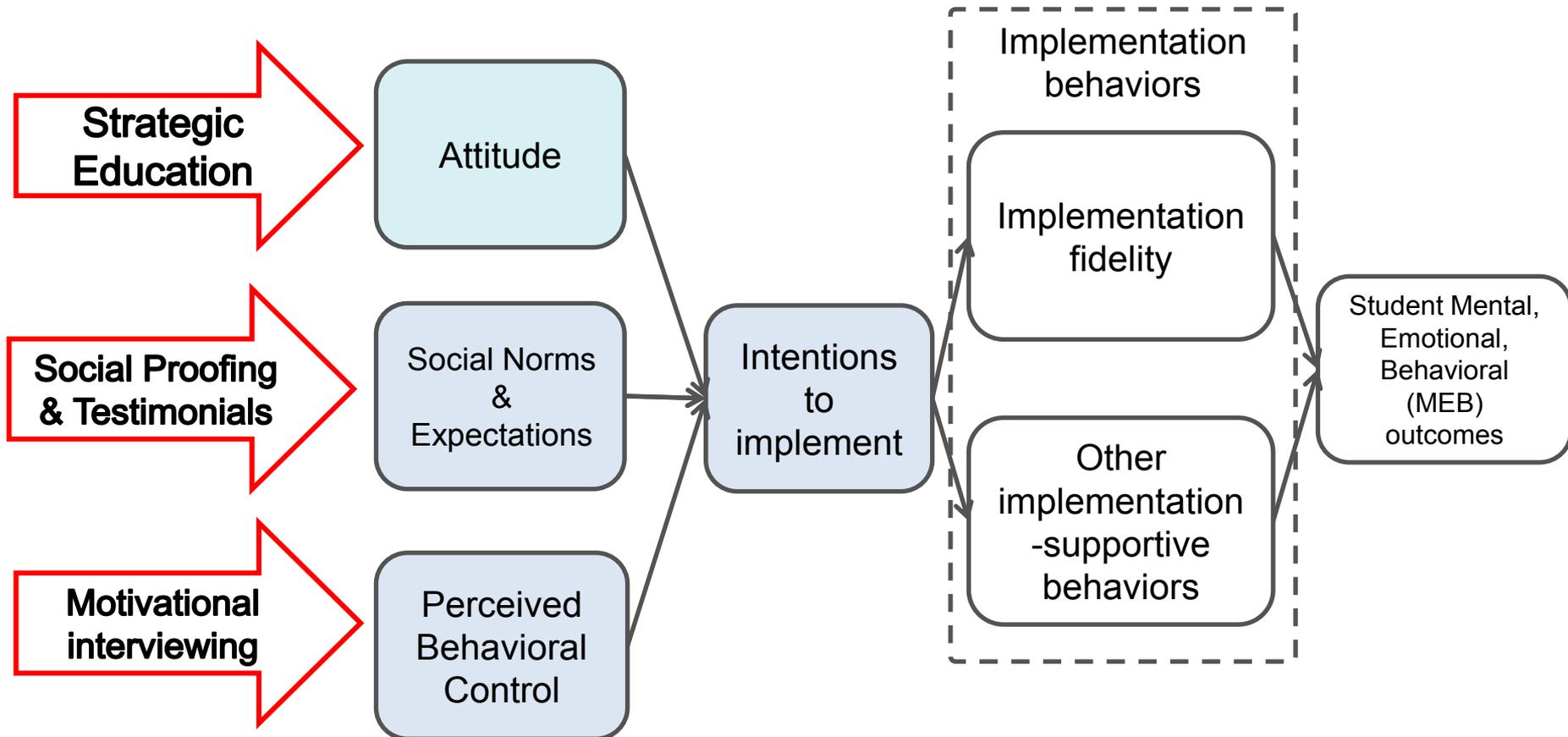
Theory of Planned Behavior (Ajzen, 1991)



BASIS Theory of Change



BASIS Intervention Components



Inducing Cognitive Dissonance to Promote Change

1. Non-confrontational, non-judgmental

- When people feel singled out, forced to defend a position, or confronted, they are unlikely to shift their beliefs

2. Reflective thinking

- Group-based reflections to create context for social influence and activate supportive beliefs and positive EBP attitudes

3. Develop discrepancy

- Awareness that current behaviors contradict positively held beliefs OR currently held beliefs are inaccurate/inconsistent with effective practices

4. Internal locus of control

- Recognition that client needs/problems can be addressed via behaviors under one's own control

Impact of BASIS on Proximal Outcomes

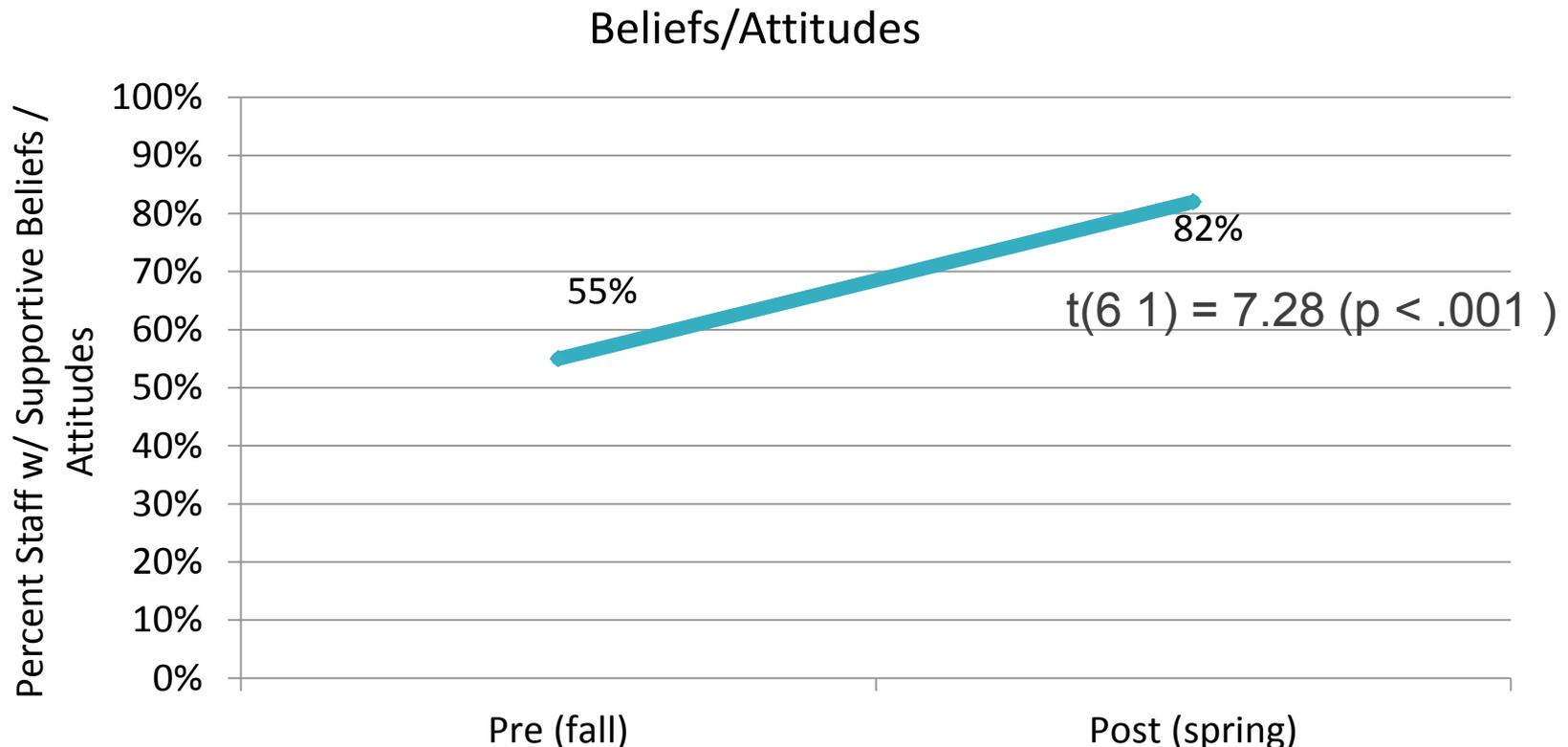
(Cook, Lyon et al., 2015)

- Method
 - Pre-post evaluation of an initial version of BASIS impact on educator delivery of **universal, evidence-based behavioral supports** (Cook et al., 2010)
 - Participants from 62 elementary schools
 - $n = 1,181$ educators (94 admin, 1,071 teachers, 16 coaches)
 - Train-the-trainer approach used across sites
 - Observational fidelity assessments
 - Multi-Tiered System of Support for Behavior Evaluation Rubric (Cook & Browning Wright, 2012)
 - School-Wide Evaluation Tool (SET) (Sugai et al, 2000)

Impact of BASIS on Proximal Outcomes

(Cook, Lyon et al., 2015)

- To what extent do educator beliefs and attitudes shift as the result of BASIS activities?



Impact of BASIS on Proximal Outcomes

(Cook, Lyon et al., 2015)

- Beliefs & attitudes associated with both measures of intervention fidelity ($d = .51$ and $d = .67$)
 - Schools that changed the most on beliefs/attitudes were associated with higher-quality implementation across both global (MTSS-BER) and specific (SET) measures

BASIS: Conclusions

1. BASIS techniques appear to shift EBP beliefs and attitudes
2. Belief and attitude changes impact EBP fidelity
3. Research on BASIS is ongoing with SMH clinicians (*R21MH108714*) and teachers (*R305A170292*)
 - Evaluating impact on individual implementation behaviors (fidelity & citizenship) in controlled trials
4. Future research will evaluate mediating role of implementation behaviors on student outcomes

Design



What is Design?

The process of creating
or shaping tools for
direct human use

What is Design?

“The alternative to good design is bad design, not no design at all.”

- Martin (1990)

Individual Users are Critical to Good Design

“The user is not like me”

- Product developers tend to underestimate user diversity in their design processes
 - Base designs on people similar to themselves (Cooper, 1999; Kujala & Matyla, 2000)
 - Identification of representative users / user needs can correct this bias (Kujala & Kauppinen, 2004)

Problematic Design is EVERYWHERE

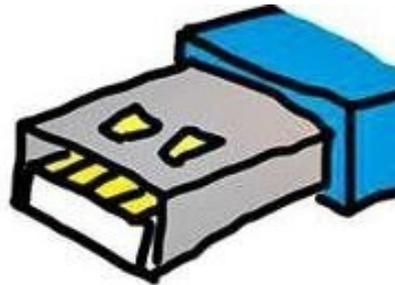


Problematic Design is EVERYWHERE

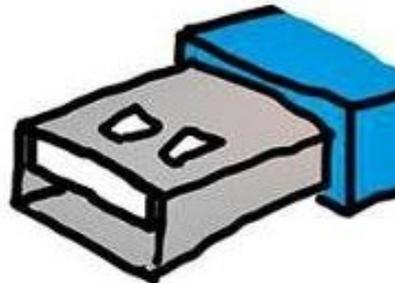


Problematic Design is EVERYWHERE

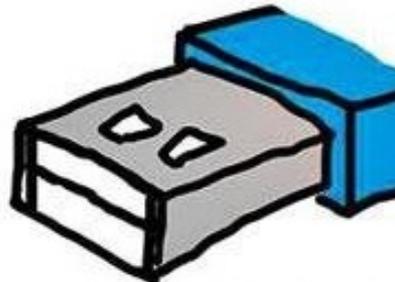
Up position



Down position



Superposition

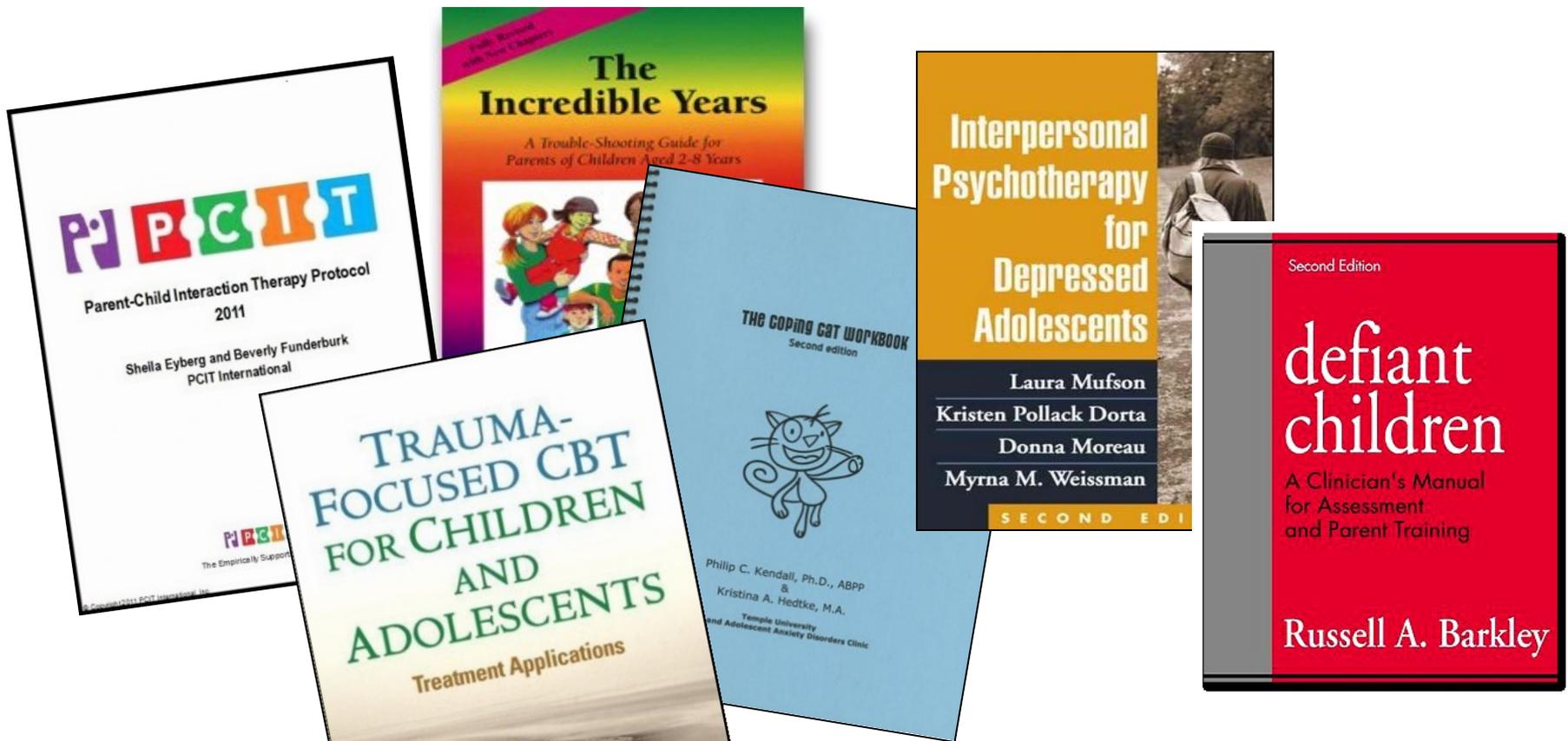


It is a well known fact that you must spin a USB three times before it will fit. From this, we can gather that a USB has three states.

Until the USB is observed it will stay in the superposition. Therefore it will not fit until observed - except for in cases of USB tunnelling.

Manuals Dominate the D&I Landscape in MH

- Most MH research exists at the level of individual evidence-based practice (EBP) intervention manuals (Chorpita et al., 2007; Garland et al., 2008)



MH EBPs are Well Engineered

- Emphasize technical “correctness”
 - Delivery with fidelity



MH EBPs are TERRIBLY Designed

- Long (e.g., 12-16+ sessions), often with diminishing returns
- Generally inflexible (or perceived to be)
- Complicated / difficult to learn
 - Even harder to learn well (e.g., w/ fidelity)
 - Unclear what parts are important (unpacking studies)



Lyon & Koerner
(2016)

MH EBPs are TERRIBLY Designed



FEATURE CREEP

The misguided notion that somehow more is always better.

Design Goals for EBPs (Lyon & Koerner, 2016)

Principle	Description
(1) Learnability	Well-designed EBP should provide users opportunities to <u>rapidly build understanding</u> of, or facility in, their use.
(2) Efficiency	<u>Minimize the time, effort, and cost</u> of using the EBP to resolve identified problems.
(3) Memorability	Users can <u>remember and successfully apply</u> important elements of the EBP protocol without many added supports.
(4) Error Reduction	Prevent or allow <u>rapid recovery</u> from errors or misapplications of EBP content.

Design Goals for EBPs (continued...)

(Lyon & Koerner, 2016)

Principle	Description
(5) Satisfaction / Reputation	Be viewed as <u>acceptable and valuable</u> , especially compared to alternative products available within the larger mental health marketplace.
(6) Low cognitive load	Simplify task structure or the number of steps required in order to <u>minimize the amount of thinking required</u> to complete a task.
(7) Exploit natural constraints	Successful designs should incorporate or <u>explicitly address the static properties of an intended destination context</u> that limit the ways a product can be used.

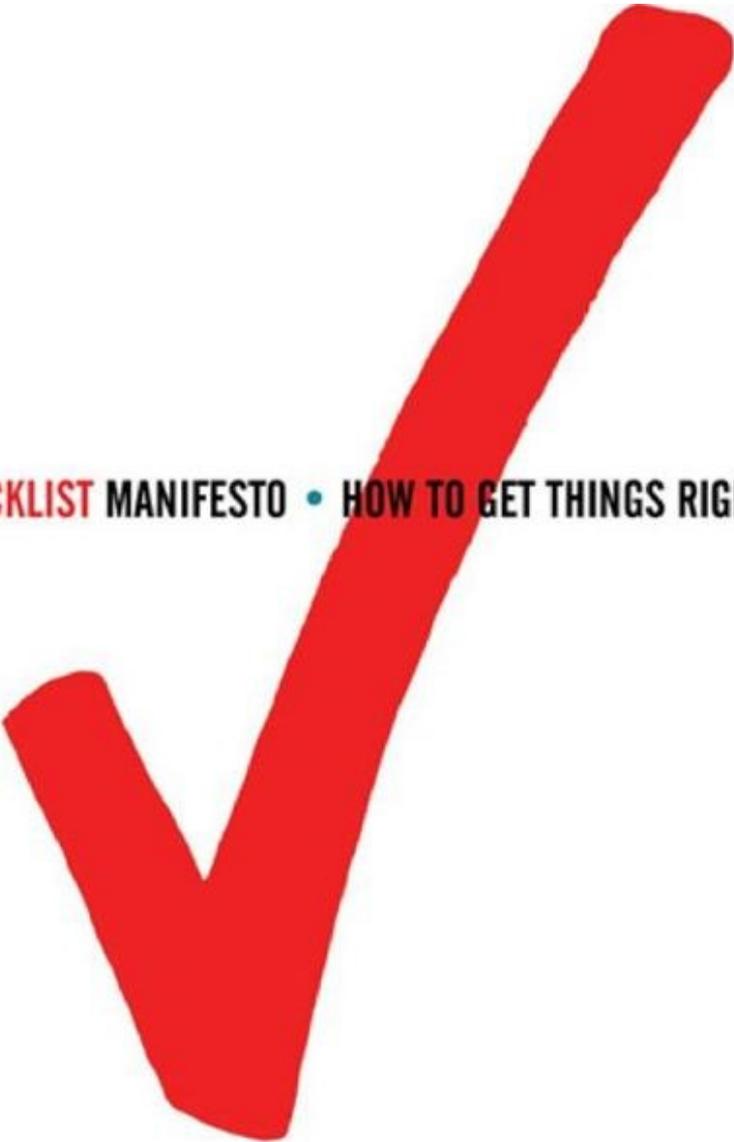
Enhancing EBP Learnability & Decreasing Cognitive Load

“Within an existing network, the less change required, the more implementation may occur.”

- Arons & Chaffin (2013)

- Disseminate / Implement key competencies, principles, or practices instead of full Tx packages (Beidas et al., 2011; Embry & Biglan, 2008; Jones & Bouffard, 2012; Rotheram-borus et al., 2012)

Simplified EBP Design → Enhanced Learnability



THE **CHECKLIST** MANIFESTO • HOW TO GET THINGS RIGHT

*Emphasize low-cost,
high-yield practice
changes and methods
to support them*

ATUL GAWANDE

BESTSELLING AUTHOR OF
BETTER AND COMPLICATIONS

Measurement-Based Care (MBC)

- MBC is the use of systematic data collection to monitor client/patient progress and directly inform care decisions (Scott & Lewis, 2015)
- In mental/behavioral health, MBC boasts benefits to:
 - Client/patient
 - Provider
 - Organization

MBC Design Advantages

- Relatively simple process → **LEARNABILITY**
- Can be incorporated into practice with little added session time → **EFFICIENCY**
- Evidence for good acceptability among clinicians & clients (Duong et al., 2016; Lyon et al., 2016) → **SATISFACTION/REPUTATION**
- Aligned with emphases in schools on “response to intervention” → **EXPLOIT NATURAL CONSTRAINTS**
- **STILL:** Fewer than 20% of MH providers use MBC regularly

Support



Post-Training Support is Critical

A Summary of a Meta-analysis of the Effects of Training and Coaching on Teachers' Implementation in the Classroom (Joyce & Showers, 2002)

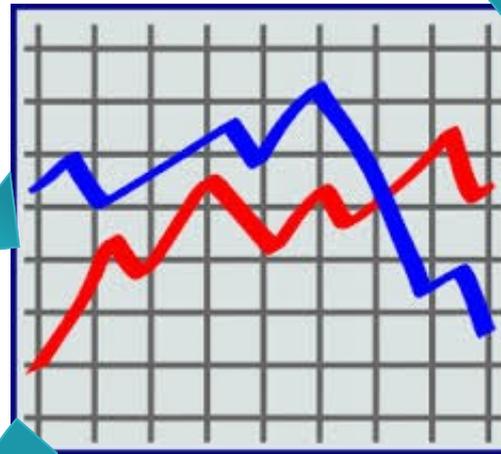
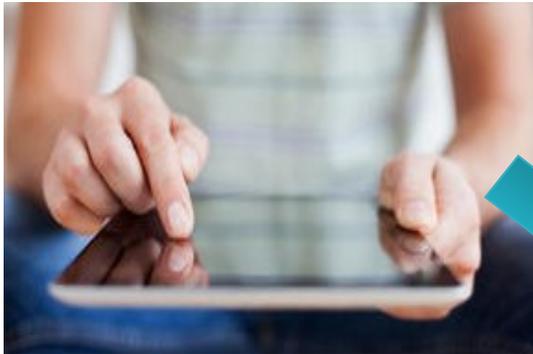
TRAINING COMPONENTS	OUTCOMES		
	(% of participants who demonstrate knowledge, demonstrate new skills in a training setting, and use new skills in the classroom)		
	Knowledge	Skill Demonstration	Use in the Classroom
Theory and Discussion	10%	5%	0%
+ Demonstration in Training	30%	20%	0%
+ Practice & Feedback in Training	60%	60%	5%
+ Coaching in Classroom	95%	95%	95%

Table from Fixsen et al. (2005)

Development and Implementation of a Measurement Feedback System to Support SMH Clinicians

*National Institute of Mental Health (K08MH095939)
Lyon, PI*

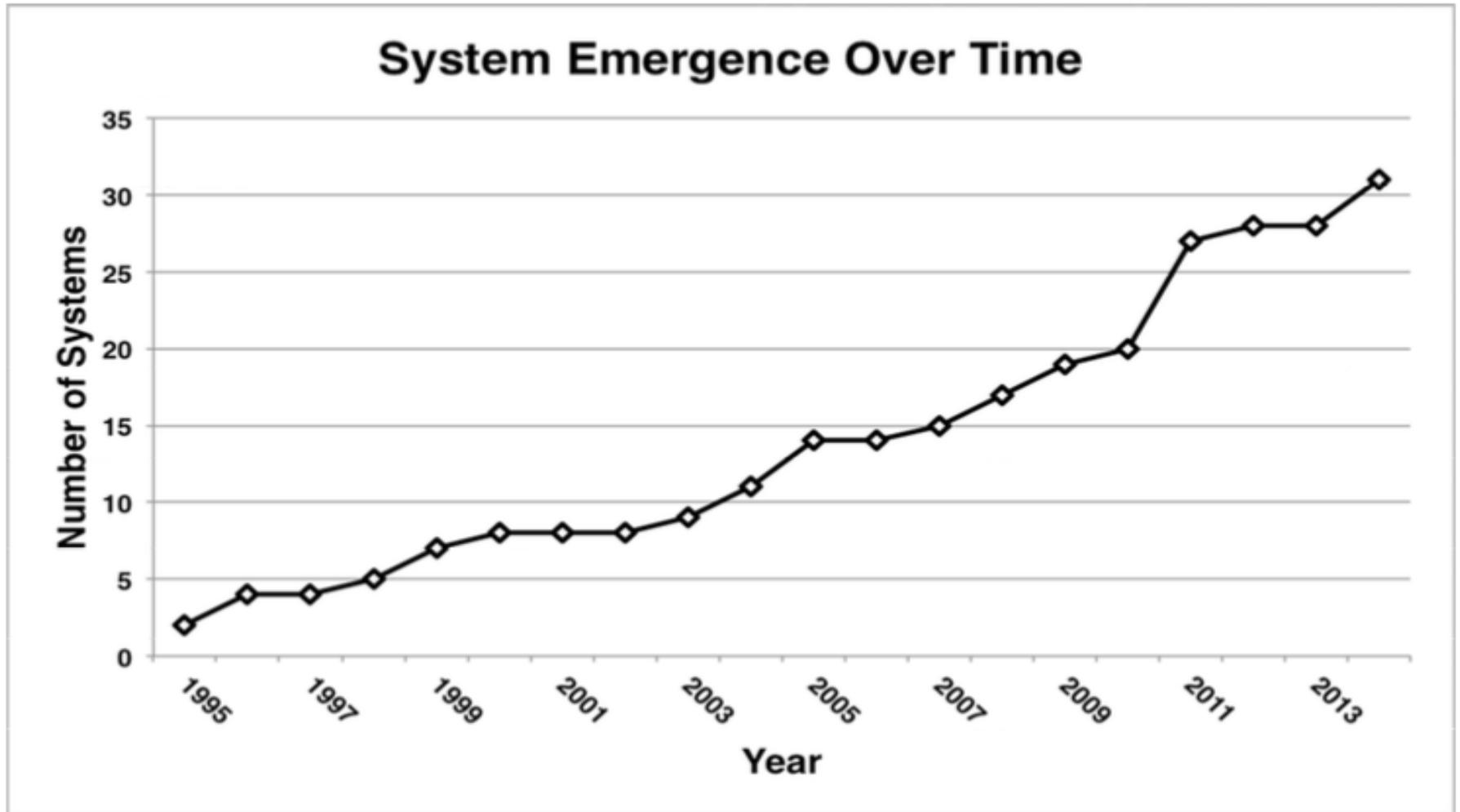
Facilitating MBC through Measurement Feedback Systems (MFS)



MFS technologies have rapidly proliferated and are now being widely implemented in healthcare systems worldwide



Over 50 MFS Exist, 30+ Are Reflected in the Scientific Literature (Lyon et al., 2016)



MFS Support MBC Memorability and Reduce Cognitive Load

ACTIVE PATIENTS

Report for :

Report Created on : Tuesday, April 21, 2015, 3:17PM

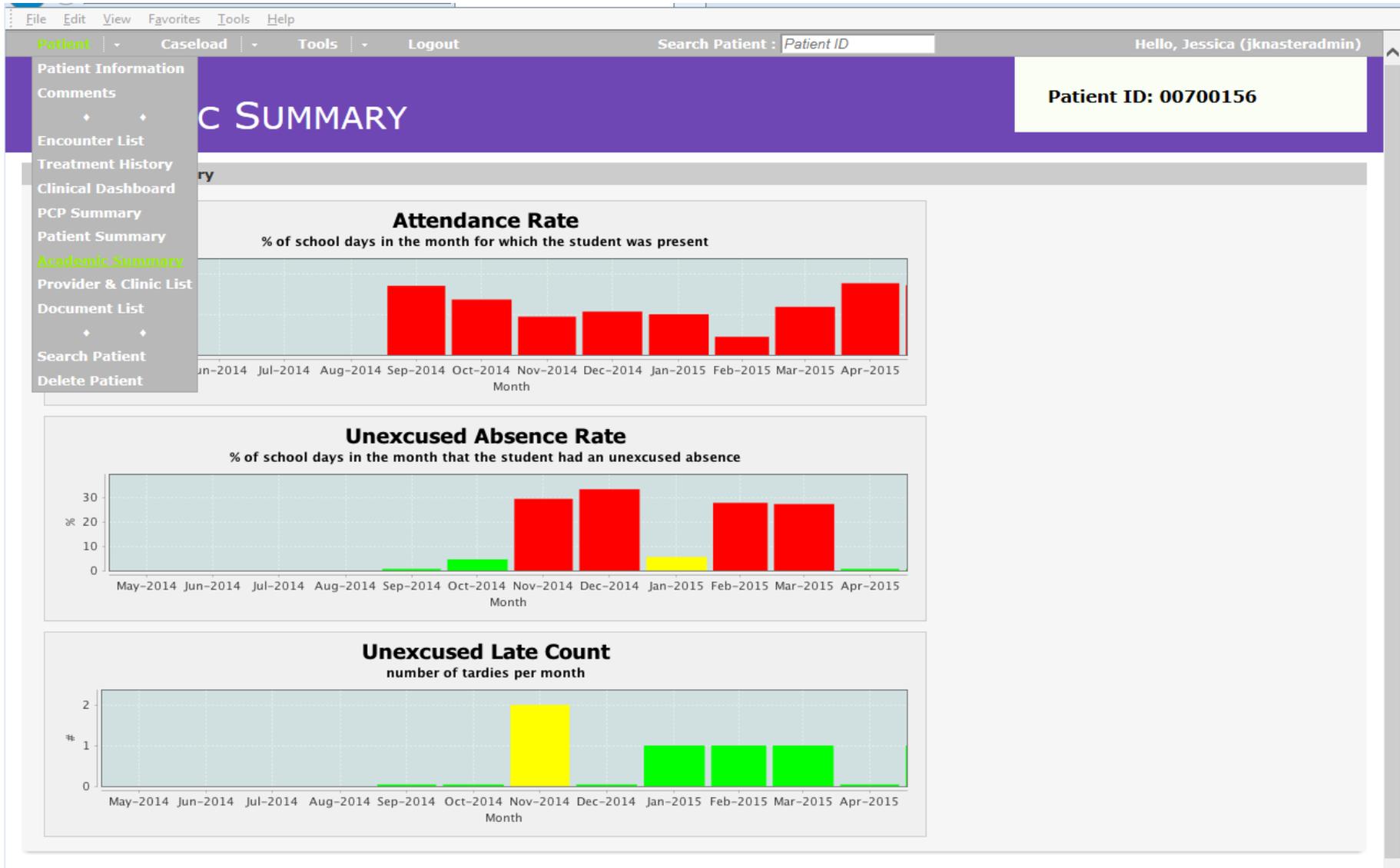
FLAGS	PATIENT ID	STA-TUS	PHQ-9		GAD-7		ABSENCES	CONTACTS					
			FIRST	LAST	FIRST	LAST		T/A	F/U	P/N	CCP	# SESS	NEXT APPT
999	00400005	CCP	10	6*	2	1*		1/18/13	3/24/15		6/5/14	62	
999	00600082	T	8	19*	2	3*		2/23/15	1/28/14			53	
999	00600097	T	12	12*	14	10*		2/12/15				34	
999	00600508	T						2/12/15				2	
999	00700002	CCP						11/12/13			11/12/13	2	
999	00700036	T	20	12*	14	10*		9/15/13	3/5/15			22	
999	00700059	T	16	7*	18	8*		9/8/14	3/17/15			34	
999	00700070	T	15	15*	7	7*	9	2/11/15	3/10/15	2/12/15		5	
999	00700118	T	0	0*	0	0*		10/3/13	3/18/15			24	
999	00700130	T						2/6/14	3/25/15			28	
999	00700156	T	19	14*	11	14*	23	9/26/14	3/11/15			18	
999	00700221	T	19	2*	6	1*		2/26/14	9/8/14			18	
999	00700231	T						2/11/15	2/27/15			2	
999	00800001	T	14	1*	16	1*		1/10/13	3/11/15	2/3/15		30	
999	00800004	T	16	16*	19	19*		1/11/13	5/16/13			3	
999	00800008	T	9	12*	2	2*		1/11/13	3/21/13			7	
999	00800011	T	6	5*	10	10*		1/14/13	3/30/15			41	
999	00800013	T						12/12/13	12/18/13			2	
999	00800018	T	23	14*	7	7*		1/14/13	1/13/14			16	
999	00800021	T	2	2*	2	2*		1/14/13	5/28/13			9	
999	00800032	CCP	17	2	12	9*		1/16/13	3/30/15		6/14/13	27	
999	00800036	T						1/9/14	2/13/15	3/3/15		7	
999	00800038	T	7	7*	8	8*		1/18/13	12/16/14			8	
999	00800042	CCP	5	7*	7	7*		1/18/13	4/1/15		11/3/14	46	
999	00800047	T	9	9*	9	9*		1/22/13	3/19/13			3	
999	00800049	T	22	7*	15	5*		1/19/13	2/18/15			27	
999	00800050	T	24	24*	16	16*		11/1/13				1	
999	00800051	CCP	3	9*	3	3*		1/23/13	11/12/14		6/14/13	17	
999	00800052	T	9	13*				1/23/13	3/23/15			50	
999	00800056	T	9	9*	11	11*		1/25/13	1/13/14			6	

Absences

Cumulative excused + unexcused absences in current semester.

red = 5+ /15
 yellow = 3 - 4.9
 green = 0 - 2.9

...and can Exploit Natural Constraints

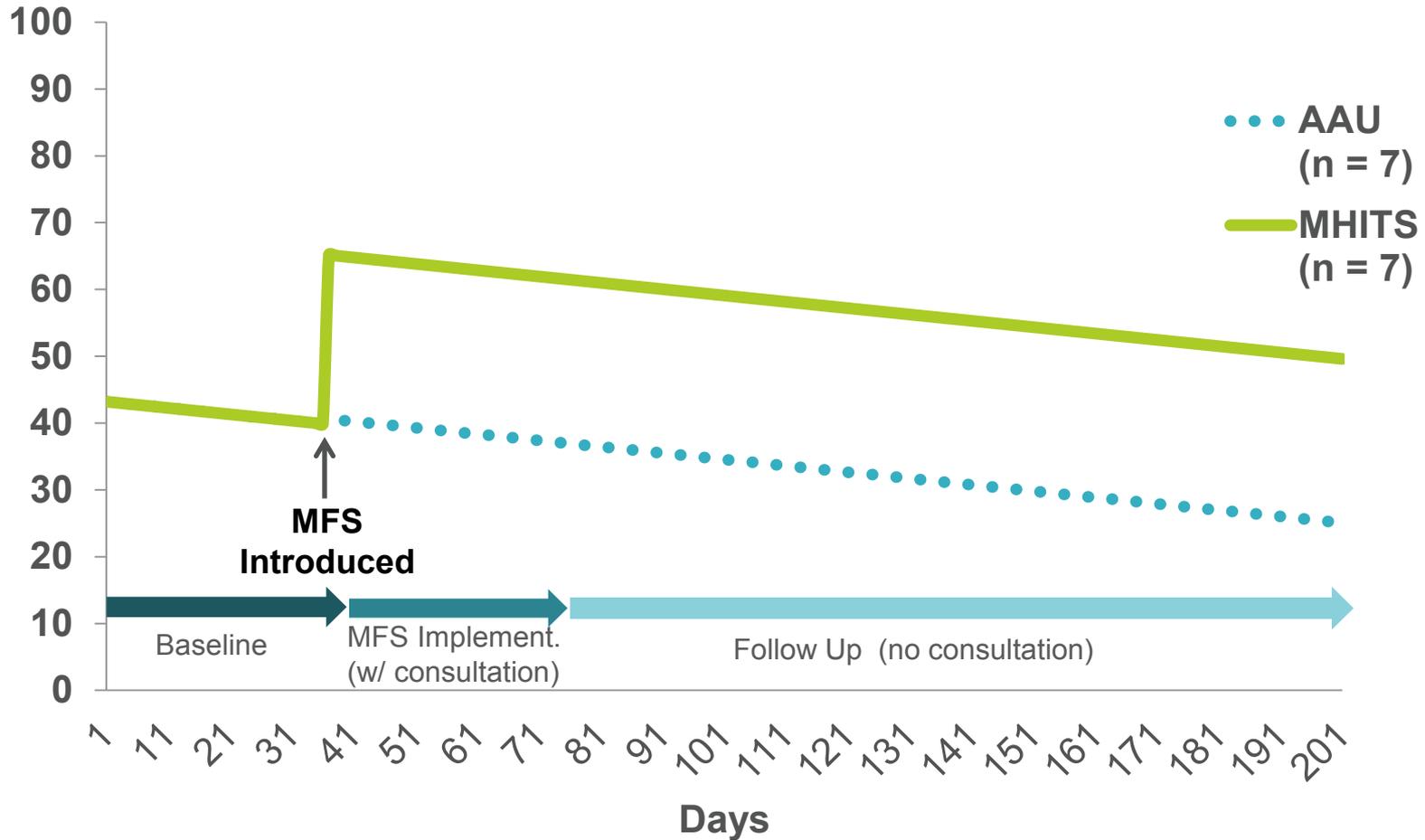


Testing MFS Impact on MBC Implementation & Sustainment

- ***n* = 14** mental health clinicians working in school-based health centers
- All providers received training in assessment & progress monitoring (*standardized & idiographic* assessments)
 - A subset (*n* = 14) randomized to MFS or assessment as usual (AAU)
 - MFS providers attended **3 technical & clinical consultation calls**
- Primary Measure:
 - **Daily Reports of Assessment Use** (Dec to June)
 1. Students seen for 20min+
 2. Students ***administered assessments***
 3. Students receiving ***data-driven feedback***

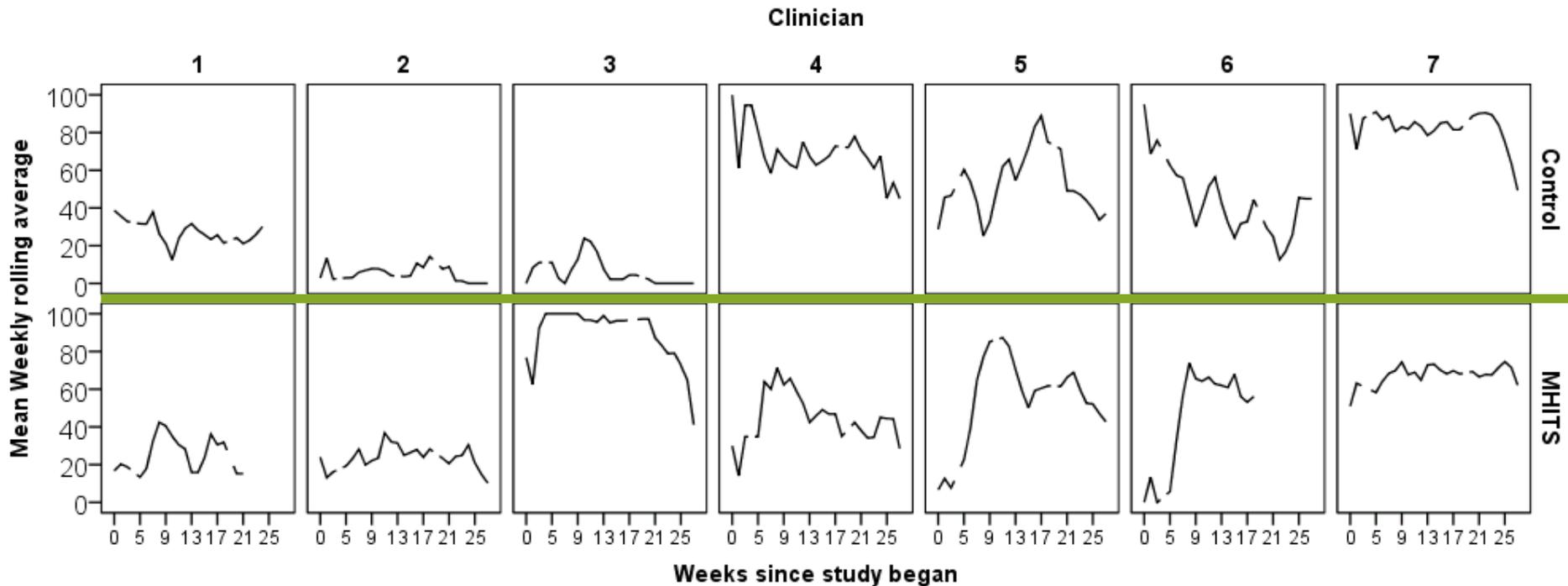
Results: MFS supports initial adoption & sustained use of MBC by SMH clinicians

Percent of Caseload Administered Assessments



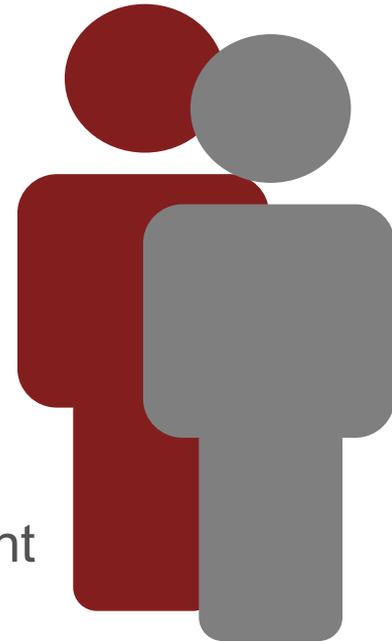
Results: Individual clinicians vary in their growth trajectories

Three week rolling averages of percent of clients administered a measure
(MFS introduced at Week 5)



Overall Conclusions

1. Consider individual strategies as part of a multi-level implementation effort
2. Individual strategies can improve implementation outcomes (e.g. fidelity)
 - BASIS is just one example
3. EBPs should be better **DESIGNED** for individual users (e.g., via simplification)
 - This alone is likely not enough to ensure sustainment
4. Digital support strategies can improve implementation outcomes for some (but not all) clinicians
 - Need to track individual-level variability



Questions?



The Society for Implementation Research Collaboration (SIRC)



Aaron R. Lyon, PhD
SIRC Communications Officer

SIRC Initiatives

1. Biennial Conference (Sept 2017)
2. Instrument Review Project
3. Implementation Development Workshop
4. SIRC Training Institute for Collaborative Science (STICS)
5. SIRC Journal
6. Mentorship Program

SIRC Conferences

- SIRC Conferences held in 2011, 2013, 2015
 - 2011: “Key Issues in Evidence Based Psychosocial Intervention Implementation Methods and Research”
 - 2013: “Solving Implementation Research Dilemmas”
 - 2015: “Efficient Implementation Methodologies: Good, Cheap, and Fast?”
 - Pre-conference workshops, etc.
- 2015 conference proceedings published in *Implementation Science*

Lewis, C. C., Darnell, D., Kerns, S., Monroe-Divita, M., Landes, S. J., Lyon, A. R., ... & Comtois, K. A. (2016). Proceedings of the 3rd Biennial conference of the Society for Implementation Research Collaboration (SIRC) 2015: advancing efficient methodologies through community partnerships and team science. *Implementation Science*, 11(Suppl 1): 85.



SIRC Conferences

- Next Conference:
 - 7 Sept – 9 Sept, 2017
 - Theme: *Implementation Mechanisms: Opening Pandora's Box*
 - Seattle, Washington USA





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