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Fidelity and adaptation: The role of core components TIDIRH, 2015

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What are the ‘core components’ of the intervention being implemented?

- “Core components” = functions / principles / activities necessary to achieve outcomes; features that define an effective program.
- **So ... what are** a given intervention’s core components?
- Which are **essential** (changing them could compromise integrity)?
- Which are **adaptable** (can be changed to meet local needs without compromising effectiveness)?

Allen JD: Fidelity and its relationship to implementation effectiveness, adaptation, dissemination. In *Dissemination and Implementation Research in Health*. Eds: Brownson, Colditz, Proctor. New York: Oxford University Press; 2012.

Blase K, Fixsen D. US DHHS Research Brief. **Core Intervention Components: Identifying and Operationalizing What Makes Programs Work**. February 2013.

Damschroder LJ, Hagedorn HJ. *Psychol Addict Behav* 2011, 25:194-205.



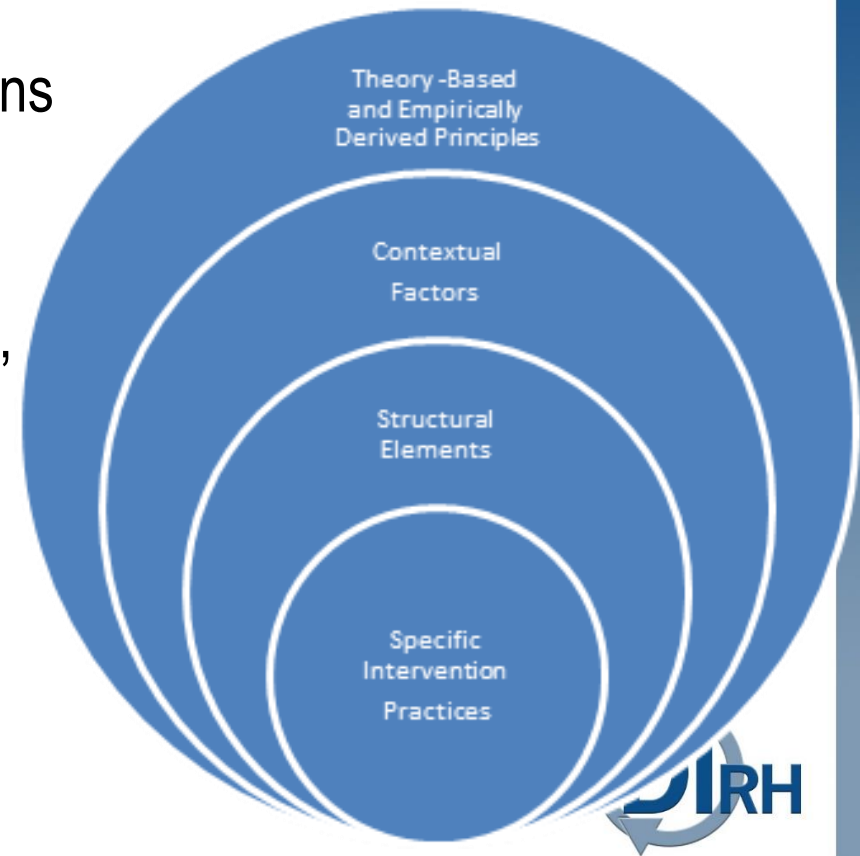
This identification is essential so that ...

- The core components of an ITV can be taught / implemented across settings; and,
- If outcomes not achieved, we can assess whether core components were implemented correctly:
 - Was a failed program itself ineffective in the new setting? Or was it poorly implemented (low fidelity to core components)?



What may be core components? Consider ...

- *Contextual aspects* (e.g., interventions occur in schools or communities, parent involvement)
- *Structural elements* (e.g., required #, sequence of sessions)
- *Specific intervention practices* (e.g., teaching problem-solving and communication skills, reinforcing appropriate behavior)
- What else??



Why don't we know more?

- Few D&I papers identify ITV core components, or fidelity to those components as implemented (length limitations don't help).
- Thus, do not confuse the mention (or failure to mention) certain components with their actual function in producing outcomes.
- No commonly accepted definitions, criteria for verifying core components via RCTs - so the literature focuses on the quality / quantity of the “evidence” of impacts.
- This is important to build confidence about outcomes, but we also must understand the components that make the “what” work.



Methods for identifying core components

- Research showing correlation between fidelity to components and better outcomes increases confidence in core components ... but *causality cannot be inferred* from such research.
- Causal designs (e.g., RCTs, quasi-experimental) needed to test the degree to which core components impact outcomes, compared to results in the absence of these core components ... but these are *rarely simple and can take much time*.
- Few studies clearly detail the core components of a given ITV (i.e., dosage, strength, adherence needed to produce outcomes).



Methods:

When designing ITV studies, be sure to ...

- Clearly describe / articulate:
 - Context for the program.
 - Philosophical principles, values undergirding the program.
 - Population for whom the program is intended.
 - 'Active ingredients' expected to, per theory / conceptual model, operationally define the core components.
- Assess fidelity of how *all* of these are implemented.



Methods: Consider *usability testing*

- A method for gaining information needed to better operationalize a program and its core components.
- Developed by computer scientists – software development.
- **How it works:**
 - A few participants in 1st trial; assess results immediately; make corrections based on results; plan, execute the next (hopefully improved) version of core component / associated active ingredients.
 - Cyclical process repeated until program yields credible proximal / short-term outcomes related to tested core components, 'active ingredients'.
- May be needed each time an ITV implemented in new settings.



Methods: Consider *usability testing*

- An example of the Plan, Do, Study, Act (PDSA) cycle; benefits verified in diverse, highly interactive environments.
- A “trial and learning” approach; allows program developers, implementers to ID core components, improve / discard non-essential components ... prior to broader scale implementation.
- Not a research project unto itself; rather a ‘testing’ event that can be managed efficiently and effectively.
- Concerns related to the **cost and feasibility** of usability testing.



The core components *may not necessarily be an obvious part of the ITV itself ...*

- E.g., what were the *implementation strategies* used?
 - Such as selection, training, and coaching strategies
- May be impossible to replicate an ITV's effectiveness outside of controlled research contexts, or across settings, without similar supports / strategies.
- There may be core components of both the *ITV and* the mechanisms through which it is introduced to future implementers.



An example: Adapting Kaiser Permanente's DM care "A.L.L. Initiative"

	KP	CHCs
Context	Large integrated care delivery system; insured patients	Community health centers; many uninsured / publicly insured
Core principles (specific ITV practices)	<ul style="list-style-type: none"> • Make it easy to IDENTIFY patients with DM who are indicated for Ace/ARBs, statins • Make it easy to PRESCRIBE these meds 	
Structural elements / ITV components	Internally created HIT tools identify DM 'care gaps'	Use the CHCs' existing HIT resources, adapt tools to these structures
Implementation strategies	Uptake supported by HIT tools, incentives	Uptake supported by practice facilitators

- These principles are core components and can not be adapted.



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- The structural element "HIT tools" is not necessarily a core component. Some CHCs have implemented the ITV using paper charts.
- In CHCs that have HIT, the specific tool was adaptable.



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- The specific implementation practices were not a core component – and were adaptable – but having some system for encouraging uptake was a core component.



This example illustrates that

- Behavioral ITVs in the clinical setting are complex – not all aspects of what makes an ITV work are strictly ITV components
- The core components often measured for fidelity do not necessarily tell the whole story about what is required for effective use of an ITV in typical service settings.
- **Consider not just ITV fidelity but also *implementation fidelity***



Questions?

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