Reviewer’s report

Title: Implementation strategies: Measurement challenges and opportunities

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Reviewer: Amy Kilbourne

Reviewer’s report:

This is an important and much-needed summary of the current state of documenting and specifying implementation strategies, as well as a summary of recommendations for describing them to inform future implementation intervention research. This well-written paper will help answer the question often posed by practitioners: what are the best implementation strategies to use to facilitate the update of effective programs?

Major comments:

In general throughout the paper I wondered to what extent is defining implementation strategies similar to manualizing and specifying psychotherapy components (e.g. implementation involves provider activation much in the same way as patient activation), as well as qualifications of the actors/implementers/therapists. Some literature comparing this process to the development of psychotherapies might be helpful to include.

In addition, it would be helpful to provide more specific examples of definitions and measures used in current or recently published implementation studies to better anchor the reader in understanding what is needed- see comments.

Further, the paper could be further strengthened by defining the core components of a good implementer/implementationist- I understand this might be tricky, but there is a need for implementationists in the field and right now some of us can only quote Potter Stewart on how to define them (e.g., "I know it when I see it"). Some additional information on defining a qualified implementationist might be helpful- e.g., training, background, type of interpersonal skills, experience, etc.

Major compulsory revisions:

1. The beginning of the last paragraph on page 5 seemed hard to follow. It might be helpful to refer to the hybrid design paper by Curran and colleagues as an example of an early attempt in defining implementation strategies

2. The paragraph on page 6 on implementation complexity (and reference to Powell’s work) is important and merits its own paragraph. It would also be helpful to place the distinction between simple and more complex implementation intervention strategies within the context of currently used strategies such as Getting to Outcomes (Chinman) or REP vs. audit and feedback. While a more comprehensive review of implementation strategies might warrant a separate
paper, it would be helpful to list some examples of current studies in table 2. Also, PDSA was mentioned but many practitioners are reading about lean management as an implementation process- it might be worth mentioning this literature as well.

3. Pages 7-8 and table 2- more specific examples of measures might be helpful
4. Page 8- second paragraph- the proposed implementation theory by Carl May might be a good reference to cite as well
5. Page 11- more discussion on the types and qualifications of different actors and when they should exert their influence would be helpful. What are the core competencies of an actor, i.e., "implementationist"? The manual on internal/external facilitation by Dr. JoAnn Kirchner at University of Arkansas/VA Little Rock might be a good resource for identifying different types of implementation roles/actors and their qualifications.
6. Page 12 Table 2- the cutpoints for defining these differences especially in # meetings, etc. seem arbitrary; it might be better to contrast a local implementation vs. regional implementation strategy (e.g., see Kirchner manual on internal/external facilitation)
7. Page 14- it might be good to place the temporal examples within the context of GTO and REP which are also stepped implementation strategies
8. Page 16 - more discussion on the problems in defining feasibility and acceptability and a need for better measures would be helpful
9. Page 16- the authors use the term package a lot- might want to place in context of RTP/REP (e.g., Kegeles, AIDS educ prev 2000).
10. Page 18 and table 3 provide a good summary but more discussion on what make a good implementer and how to rate them would be helpful.
11. Page 23- is the assertion to have our own standard for reporting implementation strategies? If so I would probably argue for this more strongly.

Minor revisions:
On page 5 it would be helpful to re-define “EBI”

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**
No competing interests to disclose