Author's response to reviews

Title: Implementation strategies: Recommendations for specifying and reporting

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Author's response to reviews:

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Implementation strategies: Measurement challenges and opportunities
Response to Reviewer Comments

Editor:
Comment: Response: Page #
1) One issue I would appreciate your attention on is to keep the focus as clearly
as possible on the implications for implementation research, and less on the
implications for implementation itself. While this is important, this is not within the
scope of Implementation Science. Where the issues overlap, pointing out the
similarities between needs is fine. We have attempted to maintain the research
focus and have pointed out practice relevance only as it coincides with the
importance of specifying strategies for research purposes. N/A

2) Given the length of the manuscript, I would appreciate your ensuring that the
revision is not longer than the original submission, preferably keeping it under
5000 words. We have edited the manuscript so that it is now 4472 words. N/A

Note to editor and reviewers Given the encouragement of reviewers to more
sharply focus the paper on recommendations for specifying and reporting
implementation strategies in published research, and consistent with some
extensive cutting of content to achieve the recommended length (the
measurement types and data sources), we also changed the name of the paper
to: Implementation strategies: Recommendations for specifying and reporting.
We will be happy to be in communication with the editor should there be
suggestions to retain the content we cut and restore the original title. See also
our response to comment 2 from Dr. Hysong. Face page

Reviewer 1 (Amy Kilbourne):
Comment: Response: Page #
1) 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. Thank you for this comment. We have built upon it and the revised paper now characterizes implementation research as one type of intervention research.

We also note that manuals for implementation strategies can be considered akin to those for psychotherapy components. pp. 2-3, 7

2) 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. We have provided a number of additional examples, many of which were prompted by reviewer comments (such as your own to add information about REP, GTO, and the characteristics of “actors”). In many cases, there does not seem to be an abundance of examples to choose from, which is really the motivation for us to write this paper. We do hope that the addition of several examples to the text, as well as to Table 1 will be illustrative. Changes throughout

3) 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. We agree that the characteristics of good implementers need to be identified and reported. Given the editor’s request that we shorten the paper considerably, we have concluded that expansion of these (excellent) points is beyond the scope of our revised paper. However, this paper does address the importance of specifying details about the “actor” or implementer. N/A

4) 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. We have edited this section and now reference the Curran definition for “implementation interventions” (though we point out our preference for the use of “strategy” rather than “intervention.” p. 4

5) 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. We have edited this section in response to Comment 3 from Laura Damschroder’s. Please see that response for more detail.

We have added both the REP and GTO frameworks and use REP to illustrate how some formalized/branded implementation strategies include a number of component (or discrete) strategies.

We did not list examples of studies in Table 2, largely because it is difficult to identify any studies that follow each recommendation that we make in this paper.

We appreciate this suggestion and have added this emphasis along with a citation to a realist review of empirical studies involving “lean thinking” in healthcare. N/A

p. 5

6) Pages 7-8 and table 2- more specific examples of measures might be helpful. Please see response to Comment 2. N/A

7) Page 8- second paragraph- the proposed implementation theory by Carl May might be a good reference to cite as well. We have added this citation. Thank you for the suggestion. p. 7

8) 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. See our explanation above of our decision to not add this important content to the paper, given recommendations of the editor. N/A

9) 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) We regret if our initial version of the manuscript suggested that we were prescribing cutpoints. Rather we suggest these as hypothetical examples, not prescriptive statements about what should be. Much
as we look forward to future evidence informing strategy cutpoints, we have not included these to adhere to the Editor’s request that we keep this paper focused on research reporting and not on practice implications. N/A

10) Page 14- it might be good to place the temporal examples within the context of GTO and REP which are also stepped implementation strategies Thank you. We have added the Getting to Outcomes and Replicating Effective Practice frameworks as examples of the importance of temporality when considering implementation strategies. p. 14

11) Page 16 - more discussion on the problems in defining feasibility and acceptability and a need for better measures would be helpful. We refer the reviewer to our work on implementation outcomes (Proctor et al., 2009; Proctor and Brownson, 2012; Proctor, Powell, and Feely, in press), where we offer this elaboration. We also point readers to the emerging measurement repositories through the GEM Initiative and the Seattle Implementation Research Collaborative. Given our need to cut words in this revised paper, we have focused our revisions directly on strategies rather than related topics such as outcomes measurement. p. 16

12) 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). Thank you. We have added the REP and Getting to Outcomes frameworks as examples. p. 5

13) Page 18 and table 3 provide a good summary but more discussion on what makes a good implementer and how to rate them would be helpful. We believe the issue you raise is one of the most important empirical questions in implementation science. Our paper cannot bring new evidence to bear on this question, and we chose to follow the Editor’s request that we minimize content on implementation practice. N/A

14) Page 23- is the assertion to have our own standard for reporting implementation strategies? If so I would probably argue for this more strongly. We now mention the extension of reporting guidelines earlier in the paper, and have attempted to make a strong case for researchers to consider specifying strategies along the dimensions we discuss. Changes throughout

15) On page 5 it would be helpful to re-define “EBI” We have interspersed abbreviations and full names Changes throughout

Referee 2 (Sylvia Hysong):

Comment: Response: Page #

1) This is a much needed paper. No reporting standards of any kind exist for implementation interventions, nor for reporting the implementation of evidence-based clinical interventions. Thank you N/A

2) Paper objective. The paper objective, “to address the challenges of ...” (p. 5) is somewhat vague. Especially when the point of the paper is to advocate for clear description and definition, the objective of the paper needs to be more specific (e.g., see précis above; it’s not quite as specific as it could be, but it’s more so than what’s in the paper) This section has been changed to read:
“The purpose of this article is to provide guidance to researchers who are designing, conducting, and reporting studies by proposing specific standards for characterizing implementation strategies in sufficient detail. We begin by providing a brief introduction to implementation strategies, including how the broad term has been defined as well as some examples of implementation strategies. Thereafter we suggest an extension of existing reporting guidelines that provides direction to researchers with regard to naming, clearly describing, and operationalizing implementation strategies.” pp. 3-4

3) Table 1 (and p. 8) - discussion of challenges. Table 1 talks about measurement challenges of implementation strategies. But in reality, name it, define it, and specify it aren’t measurement challenges, they’re prerequisites to good measurement – in any field, not just implementation. The implementation strategy challenges, as discussed on p 8 lie in properly measuring, testing, and effectively employing the strategies. Naming, defining, and specifying are what you do to overcome the challenge of measurement. This may sound like a subtle point, but it’s not. Especially, if what the authors are trying to do is encourage researchers to measure better, framing naming, defining and specifying as tasks in the ordinary course of measurement make them feel more manageable and doable than if they are framed as “challenges”. We appreciate this suggestion, and we now refer to naming, defining, and specifying strategies as “prerequisites to strategy measurement” rather than “challenges.” p. 7

4) Implementation strategies can also be evidence-based interventions. This is probably the note that comes closest to a major compulsory revision. In the introduction, I think it’s imperative to acknowledge that part of the challenge with implementation strategies comes from the fact that many of these strategies are interventions in and of themselves. Therefore, there needs to be a discussion somewhere in the paper of how to tease apart your intervention from your implementation strategies so that you can measure, test, and employ them properly. Audit and feedback is a perfect example: one can employ audit and feedback to help implement a clinical intervention, such as a new screening tool to better identify people who need colonoscopies so you can improve colonoscopy rates – you would provide audit and feedback about how well/effectively/often/consistently people are using the tool, in which case audit and feedback is an implementation strategy. Alternatively, you could simply provide audit and feedback about rates of colonoscopy orders and rates of colonoscopies performed, with the expectation that this information (when designed and delivered effectively, of course) is sufficient to change provider behavior and improve colonoscopy rates. In this case audit and feedback is an intervention in its own right, not a strategy to help implement another intervention. We appreciate you pointing out this complexity, and have addressed this issue immediately after defining and describing implementation strategies. p. 6

5) Strategy fidelity (p. 19). Along similar lines, the issue of strategy fidelity is a sticky point. In evidence-based interventions, fidelity is a measure of the quality of implementation. So if one measures the fidelity of an implementation strategy, (in my example, above, how faithfully and close to protocol the implementers
delivered audit and feedback about the use of the screening tool) what is that a measure of? The authors need to make very clear what this information actually buys you. Though we have eliminated the sections that originally contained this discussion, we have added the following sentences to clarify the need for tests of fidelity:

“As with clinical interventions, assessing the fidelity of implementation strategy delivery enables a clear test of effectiveness by showing whether or not the strategy was delivered as intended. Without such assessments, it is difficult to determine whether the effectiveness (or lack thereof) of a given strategy can be attributed to the strategy itself or to other contextual factors.” p. 10

6) P. 11 – definition of “actor”. I think, based on the second paragraph on p. 11, that the actor of an implementation strategy is the person who does the implementing, i.e., “who enacted the strategy.” Correct? But I cannot say that with 100% confidence, because there’s a lot more discussed in that paragraph that confuses things. Make it easy for the reader – provide a clear, easy to find, obvious definition of “actor” at the very beginning of that section, and then proceed with the discussion. We have added “Who delivers the strategy?” in the initial description of the seven dimensions.

We also define “actor” at the beginning of the paragraph as suggested: “We define ‘actor’ as a stakeholder who actually delivers the implementation strategy.” p. 11

7) Discussion and Summary labels. This is a very minor point, and if the authors are bound by journal section heading requirements, then this is moot. But it seems to me that what the authors call “Discussion”, that is, the presentation of their taxonomy, should have a different label. Maybe simply titling it something like “strategies for measuring implementation strategies” or the like. But it’s not really the discussion section, it’s the meat of the matter. The section currently labeled “Summary” seems to be a better target for the label “Discussion”. We have changed the headings used throughout the paper. Changes throughout

8) P. 10 – The Hysong 2009 paper (citation 43) was a meta-analysis, rather than a systematic review. Thank you! We made this change. p. 10

9) The introduction could be stronger if one makes the comparison to traditional clinical trials. For example, on p. 5: the authors say of implantation strategies, “Their descriptions must be precise enough to enable measurement and reproducibility.” Adding something like “as with traditional interventions and even basic science drug trials...” to the beginning of that sentence makes the reader more likely to think “of course, this is just another aspect of good science.” Thank you. We have made this change. p. 3

10) P. 9 – the authors discuss defining the strategies conceptually. It may help to say at this point that the operationalization piece of the definition is separate, and is coming up in a later section (just to calm down the knee jerk reaction of “how are you supposed to measure something if you don’t operationalize it?”). We have added a sentence noting that this is distinct from operationalization, which is discussed in the next section. p. 9
11) Functional Job Analysis in particular (Fine & Cronshaw, 1995, Functional Job Analysis: a Foundation for Human Resources Management. Mahwah, New Jersey: Lawrence Erlbaum Associates.) defines the details of a task statement very similarly; any given task must include the following information: (a) who? (b) performs what actions? (c) drawing on what knowledge? (d) relying on what skills? (e) Using what materials or tools? (f) in order to achieve what outcome? These six elements make it so that tasks are all at a common level of granularity, rateable across multiple dimensions, and readily comparable, thus making the activities mentioned earlier (selection, training, performance evaluation) a much simpler matter. Similarly, the 7 dimensions of specification serve comparable purposes – they make implementation strategies readily comparable and evaluable, and makes deciding whether to choose strategy A or B a much simpler matter. My point and primary suggestion (after all that long-winded detail) is to perhaps reference work analysis as another example of where being sticklers for specification comes in handy, and use it as a precedent for the authors’ proposed 7 dimensions. Thank you for this excellent lead. We have inserted this as an example to highlight the utility of describing strategies along specific dimensions. p. 10

12) P.11, bottom paragraph. In the discussion of “the actor”, the authors, could cite source credibility as a reason why specifying the actor matters (right now why we should care about specifying the actor feels a little thin) – for example, whether an implementation strategy is carried out by a peer or an authority figure can make a big difference in its success depending on whether the actor is perceived as credible. We note that the effect of “the actor” is ultimately an empirical question; however, we do cite the credibility of the actor as an important factor and mention the theoretical and empirical literature on opinion leaders as an example of this. p. 11

13) P. 16 – This is the first time Table 2 is mentioned. Consider mentioning table 2 at the beginning of the specification section, so that the reader can follow along as they read the text of the section. We have introduced this Table earlier (before introducing each dimension separately). p. 11

14) P. 21 -- The authors talk about disseminators or purveyors of EBIs. Can they give an example of one? We no longer include the section that discusses purveyors, as we have streamlined the focus of the paper. N/A

Reviewer 3 (Laura Damschroder):
Comment: Response: Page #

1) This is a nicely written paper that makes a compelling call for more attention being paid to implementation strategies. The authors highlight a number of issues and challenges and offer guidance about how to name, define, specify, and measure implementation strategies. They also point out reporting guidelines with a few suggested extensions. Thanks! N/A

2) Consider reformatting your paper. I do not believe your content is well served by the Background...Discussion, Summary format. See, for example, May, C. (2013). Towards a general theory of implementation. Implement Sci, 8(1), 18.
doi: 10.1186/1748-5908-8-18 for an example of a paper that has an outline that walks the reader more explicitly through the proposed theory; you can do the same for your paper (labeling your sections with the appropriate topic; e.g., definitions of implementation strategies, Name it) We have changed section headers throughout the paper. Thank you.

N/A

3) Implementation strategy is defined as “a systematic intervention process to adopt and integrate...into usual care” – what is the difference between this and implementation, which, for example, May recognizes as “...a deliberately initiated process...”? Stetler and colleagues, among others, define “implementation strategy” as “an integrated set, bundle or package of interventions” which is a more useful definition. (Stetler, C., Mittman, B. S., & Francis, J. (2008). Overview of the VA Quality Enhancement Research Initiative (QUERI) and QUERI theme articles: QUERI Series. Implement Sci, 3(1), 8.)

a. The dictionary definition of strategy is more broad (“a plan, method, or *series of maneuvers or stratagems* for obtaining a specific goal or result”; asterisks added)
b. You go on to equate your definition of implementation strategies with “implementation interventions” (plural) which does imply a “bundle”.c. And on page 7 say that “strategies are in fact a type of intervention”... which further muddles terminology. We have reorganized this section, and have abandoned the discrete, multifaceted, and blended distinction (as outlined in the Powell et al., 2012 paper). Instead, we provide the following definition of implementation strategy that draws upon Curran et al.’s (2012) definition of an “implementation intervention.” We now simply define an implementation strategy as, “methods or techniques used to enhance the adoption, implementation, and sustainability of a clinical program or practice.” We discuss multifaceted strategies, and note that some multifaceted strategies have been “branded,” but we do not use the term “blended” anymore to avoid confusion. pp. 4-7

4) What is the difference between “multifaceted strategy” and “blended strategy?” Is a blended strategy simply a more formalized bundling of a multifaceted strategy? Why is the “ARC” a blended strategy and not a multifaceted strategy? a. You refer to “blended models” (is this just an oversight or intentional?) in this section. See response to Comment 3. You are correct in that a “blended” strategy was simply a more formalized bundling of a multifaceted strategy; however, we have removed the term to reduce complexity and increase clarity. N/A

5) Bottom line: better differentiation is needed between these terms: implementation, implementation strategy, implementation interventions or techniques and then the types of strategies We hope the reorganization of the text has accomplished this. N/A

6) The first paragraph under Strategy Identification is not clear without more fully explicating and explaining; as is, it doesn’t fit with the rest of the paper. The 2nd paragraph refers
to Powell et al’s earlier paper which offers a menu of strategies that are clearly identified and this is more helpful.

a. How does e.g., Susan Michie’s taxonomy of techniques fit into your paradigm? These techniques could be bundled into strategies? If the bundle of techniques were clearly identified using this level of detail, would that fit your call to more clearly ID strategies? We have removed the information about strategy measurement and identification in order to focus more fully on the description of implementation strategies in published research.

We do discuss Susan Michie’s taxonomy and its potential uses for increasing the clarity of reporting implementation strategies. p. 5

7) The Strategy identification and Measurement Challenges and Directions sections seem unnecessary. Can these sections be integrated into Name It and Specify and/or Measure It sections? We have eliminated these sections and integrated components of them where necessary/helpful. Changes throughout.

8) A sentence that introduces the next four (1-4) sections is needed. We have added an introductory sentence to these sections pp. 7-8

9) A specific worked example (concrete, not abstract) would be very helpful to step the user through the 1-4 sections. You could use one from Table 2) We have chosen to forego a worked example in the text, but refer to Table 2 much earlier in the text (as suggested by Sylvia Hysong in Comment 13) so that readers can refer to those two examples throughout. N/A

10) The Action Target section is very abstract, referring to grand theories and frameworks. Does Action Target refer to entire organizations? Are you implying that assessment is needed to understand the “target” by for example, understanding receptivity?

a. The paragraph at the bottom of page 13 is more concrete. Consider starting off with this paragraph We have attempted to make this more concrete by starting with examples (as suggested), and then mentioning theories and conceptual models that we consider to be sources of potential “targets.” pp. 12-14

11) Consider flipping the order of the paragraphs in the Temporality section too We have flipped the paragraphs in this section and have added more concrete examples of strategies that have explicitly integrated implementation phases (e.g., ARC, REP, GTO). pp. 14-15

12) The implementation outcome affected section would be strengthened by starting with the 5th sentence (“Proctor et al...”) Done. p. 15

13) Last sentence in The implementation outcome affected section is awkwardly worded. We have eliminated that sentence, but also maintained the point that other outcomes may be added to the Proctor et al. (2011) taxonomy. p. 15

14) The justification section: There are perhaps, two levels of justification: 1) identify needs based on pre-implementation (pragmatic) assessment or theory (e.g., lack of leadership
engagement); and 2) theory-based using intervention mapping...e.g., what are
the interventions that can be used to increase leadership engagement? We
appreciate this suggestion, and have edited the text to reflect the distinction. pp.
16-17
15) Summary should have a heading related to your call to use and extend
existing guidelines We have added this heading. p. 17