Reviewer's report

Title: Efficacious, Effective, and Embedded Interventions: Implementation Research in Infectious Disease Control

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Reviewer: Gunnar Aksel Bjune

Reviewer's report:

I find this paper to be very appropriate and thought provoking!

According to my poor memory, implementation research was introduced as a concept by TDR in the late 1980ies/early 90ies, but was never really defined nor operationalized. Thus the contribution of this paper is highly welcomed.

The main challenge for the authors is to generate real enthusiasm for implementation research. That is not easy as most statements made in the paper could be seen as “self-evident” by many readers. References to poverty and health, Millennium Development Goals etc are kind of “breathing exercise” in too many scientific papers these days. What made me enthusiastic was the authors emphasis on “embedding” and their attempt to give a theoretical framework for implementation research. My comments below are largely addressing these issues.

Major Compulsory Revisions:

I have no such comments as I see the paper as a discussion paper, and my own opinions should thus not “overrule” any of the authors' viewpoints.

Minor Essential Revisions:

If the authors agree with me in my points below, I think the illustrations could be revised/replaced. Figure 1 is OK, while figures 2 and 3 in many ways are sufficiently expressed in the text. However, the reference to the “product cycle” could be carried over to a figure where the different phases/types of research could be fitted into a cycle. This would also underline a point which is not expressed clearly in the text: that implementation research should feed back into basic and applied research by pointing out what products and strategies that we still lack to achieve the results we are struggling for.

Discretionary Revisions:

The authors mention the many overlapping terms that have been used to describe parts and bits of what they now define as implementation research. The list of such terms could have been made longer and a historical, chronological discussion could have been interesting.

The definition they end up with is good, but could be problematized and thus may be end up somewhat shorter. E.g. not all interventions need to be sustainable. It is enough to mention smallpox eradication. “Health gains” is another problematic
term in a definition. May be “process and outcomes” would be enough?
Comparing to pre-intervention is also challenging as it would be false to imply
that implementation research could take care of all externalities and make the
intervention responsible for all changes.

The paper contributes first of all to a theoretical discussion of implementation
research. It takes the value of it for granted and it does not try to operationalize
implementation research. Fair enough, but may be it should be stated. When it
ends up talking about TDR’s efforts in training people in implementation research
it seems as if operationalizing it is no big deal. But it is!!!!

**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:**

I declare that I have no competing interests.