Reviewer’s report

Title: Governance of health research funding agencies: an integrated conceptual framework and actionable functions of governance

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Reviewer: Mark Dobrow

Reviewer's report:

Thanks for the opportunity to review this paper - "Governance of health research funding agencies: an integrated conceptual framework and actionable functions of government". The authors address an important topic that needs more attention. Below, I provide some general views on the paper, followed by specific comments ordered by section of the paper.

GENERAL COMMENTS:

Overall, this is a very important topic and the authors should be lauded for their intentions. That said, the paper is not easy to follow, with methodological gaps and unexplained interpretations that render the final results less strong than they might otherwise be. The paper needs to be tightened up with attention to consistent use of terms and concepts throughout in order to be a useful contribution.

The paper describes two somewhat distinct pieces of work that are somewhat clumsily combined. First piece is development of a Framework for the Governance of Health Research (FGHR) based on a brief review. Second piece is positioned as a case study of governance agencies. It is not clear if the second builds on the first or if the first and second parts contribute to a grander understanding. There is also a confusing structure that outlines governance, management and transversal functions, but then the main focus narrows to only the governance functions. Overall, the 14 functions outlined in the paper are the main deliverable. However, they are not clearly or consistently articulated, there is only unpacking of the 5 governance functions, and there is quite a bit of overlap. This may reflect the messiness of this governance area, or the intent to reduce the length of the paper, but it makes understanding the FGHR more challenging. To be useful, the descriptions of the functions need to be tighter and more consistent, and the overlap of the functions should be reduced or more clearly explained.

Methodologically, the review for part one was only of Google and Google Scholar with very limited explanation of how it was conducted and why other databases were not considered. The case study only relied on a targeted review of 7 (or 8 agencies - also not clear) agencies' documents - it is unclear why other data sources (such as key informant interviews) were not included. This would have been particularly useful given the lack of data derived from public reports for some of the agencies included in the study.

Overall, my impression of this paper is that the intentions were great, but the execution was loose which negatively impacts on the interpretability and value of the resultant findings.
SPECIFIC COMMENTS:

SECTIONS 1/2 (background)

- The authors indicate that they will focus only on national health research funding agencies, but do not clearly address the implications of this decision. For example, in Canada, provincial research funders (represented by NAPHRO) play an important role in health research funding and have an important relationship with CIHR - but this is not directly acknowledged.

- Authors indicate that an objective is to identify main functions of governance for such agencies and actionable governance functions. It is not really clear what is meant by actionable governance functions in this context, and this is something that persists throughout the paper.

SECTION 3 (methods)

- The methods were quite challenging to follow. My understanding is that the study was split into two parts with the first part a review for governance frameworks for health research funding agencies (HRFAs) and the development of an integrated framework which they label as the Framework on Governance of Health Research (FGHR); and the second part was a review of existing HRFAs governance arrangements, but it was not clear if the FGHR was intended to be used to 'test' the existing HRFA governance arrangements. This was not clearly explained or maintained in the paper.

- Also not clear why broader review of HRFA governance arrangements did not contribute to the FGHR

- perhaps a revised/refined version of the FGHR - which would provide stronger validation of the first iteration based only on the brief review conducted.

- The search for part 1 was not comprehensively described. The authors indicate that they intended to search for grey literature and only searched Google and Google Scholar but did not explain this methodological decision nor did they explain why other databases were not considered (especially considering that two journal articles were included in their articles assessed (and more may have been found through search of traditional databases).

- More specifically re the search:

  o The authors only considered the first 100 hits. It wasn't made clear if for Google that meant the first 100 for each of the search terms specified or whether the multiple search terms were combined into a single search and only 100 hits were considered in total. If this is so, the authors should note that there are limitations to Google searches when combining multiple strings of search terms that don't provide results aligned with standard Boolean operators.

  o The authors noted that they excluded results that were for only one theme (e.g., genomic), one level, one population, but did not explain the rationale for why these would not provide any insight for the study? No other information was provided on how the 100 hits for each Google database were screened. How did the authors get from 100 hits to the final included frameworks?

  o The authors identify 8 frameworks in Table 4 but refer to 7 frameworks at many places in the paper. This needs to be clarified. It was also not clear if the 7 (or 8) documents were all found through the
Google/Google Scholar searches or were they result of some targeted searching (e.g., did the authors do any targeted searches of funding agencies during this part of the study?)

o Why were the final results only reviewed by one author? The implications of this should be discussed.

SECTION 3.2

- Rationale for selection of countries could be clarified. It currently is confusing as the authors note selection of countries based on "acknowledged leadership in English-speaking health research production, and a mix of American, European and Asian countries". This doesn't quite align with the 8 countries selected. Only four of which are English-speaking (five if you include Singapore) which doesn't leave any other (North) American countries. Were there any other criteria used to select countries (e.g., level of research funding; type of health system). Overall, the paragraph on p.10 needs some revision for clarity.

- Rationale for selection of funding agencies - criteria defined by the 'research team' - not clear who is on the research team but the suggestion is that it goes beyond the two co-authors. If so, the broader team should be acknowledged to help reader assess the nature of their input. Also, do all of the funding agencies have similar scope of health research funding (from biomedical to clinical to health services to public health)?

- It appears that a document review was conducted, but it is not presented this way. The authors note that reports (annual report, strategic plan) were collected - are these examples or targeted documents for all 8 agencies? The appendix of data includes 'web site' for the agencies but not specific URLs searched - they should be.

- Data extraction was done by only one author. The limitations and implications of this should be considered in the discussion/limitations section.

- Line 146 refers to sending the data for review to 7 institutions. Why not all 8?

- Line 150-154 would likely be better positioned in the discussion as a limitation.

SECTION 4 (results)

- Section 4.1. The purpose of the first paragraph is unclear. It seems to present a normative understanding of what a national framework for HRG is rather than what the heading suggests as a 'brief summary of existing frameworks'. Examples of phrasing such as 'It should give clear direction...' or 'Such frameworks eventually include people...' contribute to this confusion.

- Line 189 - how are you distinguishing 'overarching' from 'broad'? Are you referring to breadth and depth?
- Section 4.2

o On p.9 you refer to know-how as principles. On p.21 you refer to know-how as transversal encompassing functions. Reference to transversal functions is not consistent or clear in the paper.

o It's not clear how much of the FGHR model reflects the 7 frameworks assessed vs. the authors' own views on the framework. The functions in the FGHR model don't always align and some cases contrast with what was found in the other 7 frameworks. It's also not clear why some functions are positioned as transversal functions and others not. For example, might not funding/financing be transversal? More explanation/rationale for this would strengthen the utility of the FGHR model.

o The explanation of the exclusion of the Saskatchewan Health Research Foundation on p.25 seems mispositioned (should be earlier when noting eligibility criteria for document review. But more directly, its exclusion raises questions about the criteria for inclusion and what else might have been excluded. Although the SHRF might host research projects, it also is a funder of research, so considering some of the other frameworks considered, this particular rationale is somewhat peculiar.

- Section 4.3. The paper is somewhat clumsy in reframing each section somewhat differently. You shouldn't need to reiterate why you are doing the study in each subsection. This should be set out clearly in the beginning of the paper and then addressed in the discussion.

- Table 5. It would be helpful if the yearly budget would be put in both the agencies' home country currency as well as converted to a standard currency.

- Section 4.3.2

o Each sub section reiterates the definition of the function focused on pp.23-25. This is inefficient use of space. Some restructuring to avoid this unnecessary duplication would be helpful.

o The 'resourcing and instrumentation' function, as described on p.10 is essentially a financing and funding function. Yet this doesn't come out clearly at all in the FGHR diagram, where financing and funding are positioned as management functions.

o P. 38 line 453. The authors note that CIHR organized a pilot project with parliamentarians and repeats it 3 times per year since 2012, but the cited source only seems to indicate that CIHR produces a newsletter directed to parliamentarians three times per year. This should be clarified.

o P. 43 line 490. The authors conclude a long presentation of functions with one sentence note that they have 'extracted a few specific operational dimensions salient to governance of health research by funding agencies' and list them in Table 11. It is not clear how this list was determined - this should be clarified.

Were there specific criteria to extract salient dimensions? Are these, as noted in the conclusions (p. 46 line 537-539 the operational dimensions that make the framework more actionable? if so, this needs to be explained.

- Tables 6/7/8/9/10. Are the tables mis-titled? They refer to country cases, but they really are specific to an organization and do not capture broader considerations that would be needed to encompass the country. It's also not clear how the data in these tables were obtained and whether it represents random
highlights or systematically derived information. As the information is presented in a vertical column and not compared across countries/agencies, it is very difficult to consider any of this information comparative, but rather to consider it as isolated highlights for each agency. If the desire is to have more comparative value, the authors should look to provide some basic categorization of the actions noted in the table to allow comparison across the agencies/countries.

SECTIONS 5/6 (discussion/conclusions)

- P. 46 line 534 - there is a conflict throughout the paper that 8 agencies are identified but only 7 are compared. This discrepancy is not explained.

- The distinction between the discussion and conclusion sections is unclear. There are paragraphs in the conclusion that are seemingly more appropriate for a discussion section (e.g., line 543 - 'We would like to discuss the validity…'). The authors should either combine the two sections, or restructure the conclusions to be a much briefer summary of the findings of the paper.

- P. 47 line 552. How was this work more inductive than deductive? A lot of weight is given to the document review, but were any individuals spoken to? This seems to be a significant methodological limitation of this study. It is difficult to actually see this as a case study in that sense, as it does not rely on multiple data sources.

- P. 48 lines 573-575. Why aren't these figures (comparative currency values and per capita breakdown) provided in the earlier table in the paper?

- P. 48. The notes about accumulation of experience is somewhat misleading. The authors suggest that NIH has 90 years of experience while NIHR was established in 2006. But like many of these agencies, they represent evolutions of previous agencies (NIHR evolved from MRC in UK as did CIHR from MRC in Canada). Do the authors view this previous experience as being lost?

OTHER COMMENTS:

- P.5 I don't understand the first sentence of the last paragraph on page 5. The purpose or relevance for why these four regions were identified is unclear.

- P. 7. The last paragraph of Section 2 needs some refinement. Especially the last three sentences.

- P.10 line 118. "This paper is based on…". Consider changing to "We sought research funding agencies from a diversity of countries."

- P.10 line 120. Add 'North' American.

- In several places in Section 3.2, the authors refer to 'the paper' when they really should be referring to 'the study' or 'the analysis'. See line 118, line 124, 129, line 136.

- P.13 line 178. Should HMRC be replaced with NHMRC?

- Referencing of tables is out of order - Tables 6-10 referred to before table 4 for example.
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