Reviewer’s report

Title: The 10 largest public and philanthropic funders of health research in the world: what they fund and how they decide

Version: 1 Date: 3 June 2015

Reviewer: Michael Head

Reviewer’s report:

I have recommended that major revisions be made before this paper can be accepted. It is an interesting piece of work, that has collated some novel hard-to-assemble data, and for that the authors should be congratulated. This is also an appropriate journal. However, I do not think the quality of writing is good enough to warrant publication at this stage, and the authors should be encouraged to rewrite the paper and resubmit it.

Major compulsory revisions

1. This piece of work has some clearly interesting and novel results, and has no doubt been complex to put together. However, my main issue overall is that the complexity of the work spills into the paper, which is hard to read. There is a skill in writing concisely and clearly, yet conveying sufficient information to allow the reader to understand what has happened, and in my view, the authors have not achieved this here.

The methods section is long, and frequently repeats pieces of information or presents work in two paragraphs that could easily be combined. Of particular importance is that the reader’s interest in the results section is diminished due to the presence of further blocks of text that should really be in the methods. There is very little of the actual results in the results section.

So, I would suggest for this point that the methods and results be completely rewritten, with a new concise methods section, and a results section containing more explanation surrounding some of the very interesting tables of data that are in this study. Make more and better use of the option to put extra detail in supplementary information document (and once these two sections are written, update the abstract to reflect this too; again there is little actual result presented there, the most interesting bit of the study, but instead methodology is in the abstract results section). Maybe make more use of flowcharts, images or tables to explain the processes involved in collecting data.

Minor Essential Revisions.

1. Methods, section entitled ‘Assessing health research expenditures’

I’d like clarity on the impact of the different type of institutional expenditure data e.g. expenditure including operational costs, data excluding operational costs, and total turnover in a fiscal year.
Presumably some institutions reported all of these numbers, so to what extent were the numbers in each category different?

If they were greatly different, then how confident are you that you can compare different funders using very different numbers? I think it’s important to clarify and report on this, perhaps by a small sensitivity analysis where you have the data available. It would increase confidence in the results, and increase transparency in an understandable limitation.

Discretionary Revisions.

1. References in abstract and through the paper about how this study set out to achieve a ‘simple target’. Would suggest removing, it does the authors a disservice and gives slightly the wrong impression, since this sort of work is anything but simple.

2. Methods, abstract. ‘A search strategy was developed for identifying the world’s key funding organizations of health, The annual health research expenditures of each organization that was identified were collected…’

Suggest clarifying the search strategy, e.g. ‘the published and grey literature and policy reports were searched to identify the world’s key funding organisations and ranked by their reported total health expenditure from one financial year…’ or something like that.

Also, in the methods/supplementary, this could be more clearly and systematically described.

3. Abstract, results. ‘37.1 billion US dollar, approximately 40%’. Specify the percentage rather than an approximation.

4. Throughout inc abstract. Mention US dollars as the currency used somewhere in methods, then use the dollar sign rather than ‘US dollars’ in words.

5. Abstract, results. Remove the last sentence, since this is limitations, not a result. Add in more detail of results, e.g. who was the top funder (or top two or three funders), which health areas received most funding etc. Lots of your interesting data you could highlight here!

6. Background, ‘These organizations play a central role in the development of new knowledge and products, particularly in areas that are not profitable[2] (as made clear, for example, by increased public sector involvement in the development of new antibiotics in recent years [3, 4]).’

Suggest i) revise to ‘areas that are considered not sufficiently profitable’ (as some areas of antibiotics have always been making money; ii) delete ‘as made clear’; iii) historically, public and philanthropic research funders have not been sufficiently addressing antimicrobial resistance or the development of new antibiotics (see e.g. Head et al, Journal of Antimicrobial Chemotherapy, doi:10.1093/jac/dkt349). So not quite sure the analogy of them plugging the gap in antibiotic development etc works!
7. Methods, ‘2) we reviewed the major national funders of health research in the G20 countries, in the 20 countries with the highest overall spending on health research, and in the 20 countries with the highest public spending on health research’

List these countries in supplementary information (I presume most of the countries e.g. with the highest public spending on health research, will be in the G20, but useful to clarify with a simple table somewhere)

8. Methods, ‘We limited the amount of public funders that we included per country to two, to limit the scope of our study. The second largest public funder for each country was only included if it funded research for more than 200 million USD annually, or if it was significant in size as compared to other funding organizations in the country or to our compiled list of the largest funders in the world.’

Re the top 2 per country. Presumably the US and maybe other countries might have thus had a potential top public/charity funder excluded. I think it’s fine to justify this with the desire to have wider geographical representation (although if it’s merely one US funder who would otherwise have been included, then why not simply include and not worry about a top-two rule?). Also, why a $200 million dollar limit.

Need to clarify, in methods/supplementary.

9. Methods, sub-heading ‘Identification of major philanthropic health research’

Merge this with preceding paragraph. Lots more of text repetition in the methods, think about where you can condense and cut down.

10. Methods, ‘Identification of major ODA-agencies that fund health research. ODA-agencies with major spending on health research were identified by: 1) The world’s top 5 donor countries of Development Assistance for Health (DAH) were identified.’

In the next paragraph, there is ‘1) First, the three largest donor countries of DAH were identified’

Why top 5 in one, and then top 3 in another?

11. Methods, ‘We excluded single disease funders’. ~

Were any single disease funders in the top ten? If so, then need to specify this and justify the exclusion accordingly. If any were in the top ten, then I would suggest they should be included, since they will have great sway on setting funding priorities and impact on what other funders do with their money.

12. Methods, generally. Need to add in mention that a) you looked at one financial year of each funder, b) link to table 1, c) explain why the expenditure years are different for each funder

13. Methods, ‘First, we did not include funding that was provided by ministries to funding agencies for distribution as expenditures by the ministries.’.
This sentence, plus the following sentences, is unclear and needs rewriting.


Useful to provide weblink here or add source in the list of references

15. Methods, ‘Assessing the funding patterns and mechanisms of the ten largest funders of health research

After the ten largest funding organizations of health research were identified, data were collected on their funding patterns and mechanisms…’

The first sentence after the sub-heading is essentially repeating the sub-heading itself. First sentence could say ‘data were collected on funding patterns and mechanisms…’

16. Methods, ‘For each organization, data were collected on four aspects of the funder’s funding patterns and mechanisms: 1) the funding scheme(s) used to distribute funding; 2) the amount of funding allocated to a list of health areas from the Global Burden of Disease study

But only two aspects listed?

17. Methods, ‘The manner in which funders reported on these funding schemes differed, so a generic framework was developed to report this in a comparable manner’

Assuming the framework exists as a document/template in some way, can it be made available in supplementary info?

18. Methods, ‘Fourth, based on funders’ expenditures via various schemes, we classified funders ‘main funding distribution mechanism’ in two ways. First, as:

• (Largely) intramural
• (Largely) extramural
• Mixed’

I think it’s fine to describe the classification like this, but was there a percentage or cut-off that you used to define an expenditure as largely intra/extramural (e.g. 80%)? If so, then state this. If not, then how did you decide?

19. Methods, ‘The diseases (and other causes of burden of disease) and subcategories of diseases that had the largest burden of disease within their category were chosen, under the assumption that if data were not available for the diseases with the largest burden, they would likely also not be available for diseases with smaller burdens’

Clumsy sentence, needs rewriting.

20. Results, ‘Data were collected from 4 November 2013 to 12 August 2014.’
Should be in methods, this is not a result (along with much of the paragraphs following it)

21. Results, funding patterns towards disease, ‘When data were available, it became clear that funding organizations’ funding patterns varied. For instance, while several non-communicable diseases constitute large focal areas for some funders, others spend more on infectious disease research. And while some spend significantly more on cancer research than on cardiovascular disease research, the opposite is the case for other funders.’

Doesn’t read very smoothly. Suggest something like ‘…funding patterns varied, with some funders showing clear preferences for investing in communicable over non-communicable diseases, or focusing on specific disease areas such as cardiovascular or oncology research’.

22. Discussion ‘Such debate is needed all the more because public sector health research funding decisions are not only made on the basis of what research is needed, but are regularly influenced by other factors, such as political interests, advocacy and lobbying.’

Agree, would also add an important point that there are very finite resources for investing in R&D, and thus the priorities need to be made in a pragmatic manner and using the best possible evidence.

23. Discussion, ‘Yet, this mapping shows that these data are often not available.’

Agree on a global scale, but individual countries are starting to get funding bodies together under one secretariat, such as the UKCDS in the UK.

24. Discussion, limitation paragraph. Suggest ending with a concluding paragraph rather than the limitations section. Also under limitations should be the lack of private sector data.

25. Discussion, limitations. ‘We view this study as a small first step towards achieving a more comprehensive mapping, in the form of a publicly accessible global dataset of all public and philanthropic funders and their health research expenditures. To help achieve this goal, we have established www.healthresearchfunders.org’

I’d argue that this website and resource deserves more prominence in the paper (top end of the discussion and maybe even consider including it in the abstract), rather than being buried towards the end of the limitations paragraph. Also, these two sentences aren’t really limitations.

26. Table 1. ‘Total for funders 11 to 55…’

If funders 42-55 did not provide data, then surely it’s total for funders 11-41? Similarly, the next row would therefore be ‘Total for all 41 funding organizations’ rather than all 55? (May be worth having a separate table or list somewhere of those that did not provide data and keep table 1 to just those that have numbers)

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