Author’s response to reviews

Title: Can cost-effectiveness results be combined into a coherent league table? Case study from one high-income country

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Response to Reviewers to POHM-D-17-00144 “Can cost-effectiveness results be combined into a coherent league table? Case study from one developed country”. Nick Wilson; Anna Davies; Naomi Brewer; Nhung Nghiem; Linda Cobiac; Tony Blakely. Population Health Metrics

Reviewer #1:

The topic of this manuscript combining cost-effectiveness results into a coherent league table could provide useful information.

However, it would need to be strengthened from its current state.

Major/general comments

Revise the manuscript to create a clearer key message with a succinct storyline by reducing information in tables and describing the methods and results in more detail. Restructure tables

Table 1 consider incorporating as text, column 1 contains different units
Our Response: Thank you Professor Abe for taking the time to review this manuscript and for your helpful comments. We have reviewed our manuscript in terms of succinct messaging and have made some changes to the text along with moving two tables to the Additional file 1, along with simplifying one table (see details below).

In terms of Table 1, we decided that all of the data in this Table is still optimally displayed in table format (given all the numbers and the three columns). Nevertheless, if the Journal Editor wishes to constrain the table content in the manuscript further, we can move this Table 1 to the Additional file 1.

Table 2 is not referred to in text and can therefore probably be moved to supplement

Our Response: Table 2 was in fact referred to in the text (the text just before Table 1) in our original manuscript. Nevertheless, we agree that it is not critical to have in the main manuscript and have now moved it to the Additional file 1.

Table 3 reduce to key information, put the rest in a comprehensive supplement table

Our Response: This has been done, thank you for this suggestion.

Table 3 rename current relevance column. Currently this assessment seems very subjective, please elaborate on the methodology of this assessment. Easier for the reader to understand if the information in this column is presented in simple 3-4 word categories with details in the supplement

Our Response: This column has now been removed.

Table 4 is % average?

Our Response: This has now been made clearer in the relevant heading of this table, it is “% of all 21 studies”. (Note that this is now Table 3).

Table 5 consider moving to supplement and add quantifiable restyle where applicable

Tables must be stand alone and complete, please add NZ and years where applicable to Tables 2, 4 and 5

Our Response: Table 5 has now been moved to the Additional file 1 (becoming Table A3).
2. Please elaborate more on the methods, particularly the analysis. This section should include details on the databases searched, language restrictions, independent screening; more clearly present inclusion and exclusion criteria. Describe the literature search on page 3 in text format rather than bullets.

Our Response: The Methods has been revised accordingly, including an expanded justification for not including BODE3 studies:

“(iv) The study was not an output of the BODE3 Programme, since results from this programme all use a standard methodology and are detailed in an online interactive league table [14] (with a journal article about this league table pending).”

The databases that were searched are all detailed in Table 1 and the English language restriction has been added.

3. Please check for consistency and typos e.g.
   a. Search date in abstract (page 2 line 10)

   Our Response: Now fixed

   b. Some numbers 1,000s are missing a comma $9,290 (page 3 line 1)

   Our Response: Actually our approach (of no commas for 4 digit numbers) is consistent with journal style.

   c. Decimals e.g. 3% or 3.5% discount rate (page 5 line 28)

   Our Response: Now standardised.

   d. Start sentences with "However" rather than "but" (page 15 line 25)

   Our Response: Now fixed.

   e. Check journal formatting style for abbreviations such as e.g.

   Our Response: We have changed these abbreviations to journal style.

4. Be sure to clearly define all concepts 5. Strengths and limitations
   a. Outcomes are also diverse. Are current methods most applicable? (page 16 line 3)

   Our Response: We have added the following sentence to the limitations part of the Discussion section.
“There was also still variation in the outcome measures (i.e., QALY/DALY/LY) and of course the size of these varies with the different discount rates used (hence differentially impacting the ICER results).”

b. Last bullet refers to "simple approach". The authors could rework the analysis to attempt a more complex approach using a valid tool if possible (page 16 line 25), then report whether this is applicable

Our Response: We now make the case for our approach clearer in the Discussion section:

“Fourthly, more sophisticated critiques of the identified studies are possible (e.g., applying the CHEERS checklist [1] or detailed comparisons with state-of-the-art guidelines for CEAs [2]). However, this was not justified given the results in Table 3 that already show substantive deviation from established guidelines for many of the studies (e.g., in the discount rate).”

c. Describe the strengths and limitations in text format rather than bullets 6. In the conclusion the authors refer to individual studies using standardized methods. The authors of this paper could also apply standardized methods for evaluating. This point links with the limitations section.

Our Response: We have revised the limitations section and it is also now in text format. As discussed in the response above, more sophisticated approaches to critiquing the individual studies was not justified since Table 3 already showed their substantive deviation from established guidelines.

Minor comments/questions

1. Consider replacing "one developed country" with "New Zealand" in title and text (e.g. page 15 line 24, page 16 lines 3-4)

Our Response: We think it is reasonable to treat this is a case study of a developed country (though we now actually prefer the more internationally accepted wording of “high-income country”). This approach also might mean that this work is less likely to be ignored by some readers who could be inclined to dismiss New Zealand as an outlier country (i.e., a small geographically isolated country) whereas it shares many substantive social and economic features with other high-income nations.

2. Add database to abstract (page 2 line 9)

Our Response: Since multiple databases were used, we feel that including this level of detail would unbalance the Abstract – and we would rather save the word count for the Results component of the Abstract.
3. Why did you start the search with 2010? (page 3 line 20)

Our Response: Our best judgement was that the more recent studies are likely to have been of higher methodological quality than pre-2010 studies. Also for this novel area of exploration we felt that it was reasonable to have a more manageable number of studies to consider (along with constraints on our Research Group’s limited resources).

4. "Previous New Zealand (NZ) work" rephrase (page 2 line 58)

Our Response: This sentence has now been revised, thank you.

5. Why was only Tufts Medical Center Registry searched not other specific databases? (page 3 line 51)

Our Response: The full list of databases searched were PubMed, Tufts Registry and the CRD Database. This combined with a wide range of search terms (for PubMed) and examination of bibliographies of identified studies, should have given us a reasonable sensitivity for identifying relevant New Zealand studies in the defined time period. Furthermore, for the purposes of this study around league table compilation feasibility – an extremely high level of sensitivity for identifying studies was not necessary.

6. Why was CRD only searched until 2015? (page 3 line 58)

Our Response: The CRD database was in fact searched for the whole time period – it is just that no New Zealand studies were identified after 2015. However, the wording has now been changed to remove this potential source of confusion for readers.

5. What do you mean by "may not be particularly material" (page 15 lines 23-30)

Our Response: The wording has been changed to:

“…may not be particularly critical to informed prioritisation of intervention (given the many other considerations needed in policy-making).”

Reviewer #2:

The manuscript is of interest to the readers but requires more background for those not familiar with the New Zealand policy context and what the implications are of the new league table for decision makers.
Our Response: Thank you Dr Hutubessy for taking the time to review this manuscript and provide these helpful comments. For this study we focused on whether or not it was possible to produce a reasonably coherent league table for the ICER values from different studies in this case study high-income country. We did conclude that it was possible to do this but with this caveat:

‘However, given the methods differences such a league table is probably only useful as a general guide in terms of broad categorisations of “likely cost-saving”, “likely to be cost-effective”, and “unlikely to be cost-effective”.’

However, we now better contextualise the implications of the results for policy-makers by adding a new paragraph these words (in the first paragraph of the Discussion section):

“…given the many other considerations needed in policy-making such as the size of the health gain, the size of the costs/cost-savings, impact on health inequalities, and intervention feasibility”

Please see also text of relevance to policy-makers in the third paragraph of the Discussion.

While the New Zealand context is of relatively lower relevance to the international audience for this case study, we have now added paragraph three to the Introduction, so that the context for the need for prioritisation in this particular country is clearer.

It is not clear why interventions from the previous BODE exercise were not included - this needs to be clarified.

Our Response: The following text has been expanded (in the Methods section):

“(iv) The study was not an output of the BODE3 Programme, since results from this programme all use a standard methodology and are detailed in an online interactive league table [14] (with a journal article about this league table pending).”

Major limitation is indeed the methodological differences of the studies. In order to standardize the authors could explore how CER would have changes up or downward in the ranking via scenario analysis in order to demonstrate uncertainty around the position of study interventions in the league table.

Our Response: This is a good point – but to do this properly by running these interventions through a standardised modelling framework (e.g., as we have developed in the BODE3 Programme) would be a huge amount of work. As we have previously mentioned, we don’t have much confidence in any specific ordering of these 21 interventions, other than the broad groupings of: “likely cost-saving”, “likely to be cost-effective”, and “unlikely to be cost-effective”.
Final comments: We thank the Journal Editor and the two Reviewers for their helpful comments which have helped to significantly improve our manuscript.

References
