Reviewer's report

Title: Prioritisation Criteria for the selection of new Diagnostic Technologies for evaluation

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Reviewer: Corinna Sorenson

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The article by Pluddemann et al., Prioritisation Criteria for the Selection of New Diagnostic Technologies for Evaluation, addresses an important area of research. Recent technological developments have created new diagnostic technologies with the potential to improve disease detection and evaluate responses to treatment. However, compared to other health technologies, such as pharmaceuticals, diagnostics are less frequently selected for evaluation, and even where they are, existing prioritisation frameworks may not sufficiently capture the unique characteristics/issues specific to diagnostics (as opposed to drugs or devices, for example).

Overall, this piece of research is interesting and makes a contribution to the relevant field. Moreover, the writing is clear and the methods are appropriate and well described. However, there are a number of issues that should be addressed to help strengthen the article:

Major Revisions:

1. BACKGROUND: Overall, the background is not strongly written. Reads a bit superficially, with some gaps in the points made, and clarifications needed.
   a. End of 1st paragraph (last sentence): Not clear what is meant by the last point. Need to clarify. Why don't innovations necessarily translate to improved care for patients?
   b. 2nd paragraph: Sentence beginning with ‘Simply’ not clearly stated. Suggest changing to ‘Simply using efficacy data (alternative terminology: performance data) of a new diagnostic technology from clinical trials….’. Also, for many readers, it will not be a given that this is, as stated, “clearly inadequate”. Expound a bit as to what else needs to be considered.
   c. Last paragraph: Not clear what is meant by patient spectrum. Patient populations? Better explain or use different terminology.
   d. Last paragraph: Actually, the criteria put forth by Summerton were much more extensive than is conveyed by the three domains outlined by the authors. Summerton did indeed use these three overarching domains, but as presented, seems a bit of an oversimplification of his work. In relation, it needs to be more clearly stated how the authors’ research builds upon this (and other) previous work. Additional criteria used? Use of a systematic method to identify criteria and relative importance? Can see that this is somewhat addressed in the Methods
section, but need to clarify in the beginning what gaps the study is addressing/contributions.

2. METHODS:

a. 2nd paragraph: Readers not versed in HTA may not understand what is meant by 'membership of early awareness and alert networks'. Suggest giving an example or clarifying further.

b. Regarding the criteria not ranked as a 6 or 7 (in the first round of questionnaires), it would be interesting and potential meaningful to readers to know what criteria were consistently ranked on the very low end (i.e., 1 or 2) and on the verge of being deemed important (e.g., 5). This would only require a brief comment and, as noted, would likely be meaningful to know.

c. For those criteria where there was limited agreement (as a 6 or 7), where there any trends in terms of the respondent groups? For example, were health service professionals more likely to disagree that relevance to current national policies/priorities was of high importance? This could be interesting and add richness/context to the analysis.

3. DISCUSSION:

a. 2nd paragraph: Regarding Wilson’s results, it would add to the discussion if the authors indicated why the trusts could not use the scoring system.

b. 3rd paragraph: In the first few sentences, authors use a lot of different terms, but it’s not clear how they differ….‘early assessment’ vs. ‘early awareness’ vs. ‘alert programmes’. Also, authors definitively state the selection criteria differ between early awareness and alert programmes, but then leave it there. Need to discuss how and why they differ.

c. Authors did not address/discuss limitations to their study, methods used, etc. Also, it may enhance the discussion to discuss what some of the limitations or challenges might be to using/implementing the criteria framework.

d. Last sentence: Meaning is not quite clear here. Exactly what additional data are required to address the high priority criteria? Are the authors referring to how they currently use the ‘checklist’ – to identify where further evidence is needed or to ascertain relevant weights for the criteria…or both…

Minor Revisions:

1. METHODS (3rd paragraph): Change bracketed listing of [1], [2], etc. to (1), (2)…otherwise, can be confused with the references.

2. RESULTS (1st paragraph): This is more of a comment than a suggested revision, but would have been interesting if you could have obtained more than 10% government participants, as government staff/officials are frequently involved in prioritising various technologies for review.

3. RESULTS (2nd paragraph): Assuming the various tables are being inserted in the text, you could eliminate the ‘criteria 1,3,9,15,16’ in parentheses (which is a bit messy), leaving just (Table 2). Rather, in each of the three sections in the table, you could list the criteria in ascending order, which would coincide with the
text better and it would be clear upon glance which criteria received a high level of consensus.

4. RESULTS (3rd paragraph): same comment as above.

5. RESULTS (last paragraph of round 1 questionnaire section): need a space between ‘1’ and ‘questionnaire’.

6. RESULTS (last paragraph of round 2 questionnaire section): Do not need ‘In response to questionnaire 2 at the beginning of the paragraph. Would suggest saying: ‘Several experts also suggested moving…..’.

7. RESULTS (last paragraph of round 2 questionnaire section): Would say for enhanced clarity, ‘Based on the subsequent panel discussion…..’.

8. DISCUSSION (2nd paragraph, first sentence): add ‘for health technologies’ after ‘A wide range of prioritisation criteria…’.

9. DISCUSSION (2nd paragraph): Change bracketed listing of [1], [2], etc. to (1), (2)…otherwise, can be confused with the references.

10. DISCUSSION (2nd paragraph): change to ‘Institute of Medicine in the US, who….’. In the same sentence, ‘score’ should be plural (in both instances). This particular sentence as written is a bit convoluted – recommend that authors write this more clearly.

11. DISCUSSION (2nd paragraph): Add ‘In addition,’ before ‘a weighted benefit score’. In that same sentence, should read ‘coupled with’ not ‘coupled to’.

12. DISCUSSION (last paragraph): Should make ‘level’ plural, so ‘at national, regional or local levels.

13. CONCLUSIONS: May be helpful to provide a bit of context on what is the new evaluation programme for medical technologies.

14. TABLES: To coincide with the format of Table 2, add periods after each criteria listing.

Discretionary Revisions:

1. Title is appropriate, but only prioritisation should be capitalised (assume this will be addressed in the editorial process).

2. ABSTRACT (first sentence): add ‘the’ between ‘in’ and ‘identification’.

3. BACKGROUND (2nd paragraph): put hyphen between ‘evidence’ and ‘based’.

4. BACKGROUND (3rd paragraph): would suggest adding an e.g. in parentheses after ‘quantitative methods’ just for better explanation/clarification of what is meant here, especially for readers unversed in such approaches.

5. BACKGROUND (4th paragraph): replace ‘previous generic’ frameworks with ‘existing’ frameworks. Also, change ‘different settings and different populations due to differences…’ to ‘different settings and different populations due to variations in…’.

6. METHODS (first paragraph): need to add a comma between ‘anonymous’ and ‘in that other…..’.
7. METHODS (2nd paragraph): add an 'and' before (5).
8. METHODS (last paragraph): suggest changing 'above-mentioned' to aforementioned.

**Level of interest:** An article whose findings are important to those with closely related research interests

**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.