Reviewer’s report

Title: The cost of diagnostic uncertainty: A prospective economic analysis of febrile children attending an NHS Emergency Department

Version: 1 Date: 07 Dec 2018

Reviewer: Christopher J. Stille

Reviewer's report:

This resubmission is much clearer and more understandable to the reader, and in general the points I raised have been well addressed. The authors should be applauded for their fast turnaround time. I do have a few additional suggestions that I believe are important.

1. Abstract, line 113. I would suggest revising "the precautionary use of antibiotics increases costs considerably" to "the precautionary use of antibiotics is strongly associated with increased costs", or something similar, because it is the cost of additional observation rather than the use of antibiotics themselves that drives increased costs.

2. Background. In the response to reviewers, the authors cite several studies that describe the prevalence of occult bacterial infection in children with fever (generally around 1%). This is important, but not mentioned in the revised manuscript. It would be very helpful to describe these data briefly (one sentence should be fine) somewhere in the background section to illustrate how difficult the clinician's job is to detect the "needle in the haystack" of occult bacteremia.

3. Background, line 163. Reference citations are needed at the end of this paragraph.

4. Results, line 325. Here would be a good place to point out that clinical characteristics of excluded patients, as measured by age, MTS categories, temperature and antibiotic use, were not different from those included in the study. (response to my comment #6 in original critique, answered well by the authors in their response) I don't think any more than one extra sentence is needed.

5. Discussion, lines 504-506 more or less. This might be a good opportunity, if the authors feel it would help, to cite studies of clinical observational scales that are used in infants in the US to detect infants at higher risk of bacterial infection, namely the Yale and Philadelphia Observation Scales. They can be a helpful adjunct, especially for trainees, in deciding which febrile infants need further laboratory investigation.

6. Conclusions, line 562. The authors have lined out "predominantly because of increases in inpatient admissions" in their revision. I would suggest keeping it for reasons of clarity, to match the Abstract.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Not applicable

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?
5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

I declare that I have no competing interests.

**Statement on potential review bias**

Please complete a statement on potential review bias, considering the following questions:

1. Did you co-author any publication with an author of this manuscript in the last 5 years?

2. Are you currently or recently affiliated at the same institution as an author of this manuscript?

If you can answer no to all of the above, write 'I declare that I did not publish with these authors in the last 5 years and also meet the affiliation criteria". If your reply is yes to any, please give details below.

I declare that I did not publish with these authors in the last 5 years and also meet the affiliation criteria.

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license ([http://creativecommons.org/licenses/by/4.0/](http://creativecommons.org/licenses/by/4.0/)). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal.