Reviewer’s report

Title: MULTI-CRITERIA ANALYSIS IN THE HEALTH AREA: SELECTION OF THE MOST APPROPRIATE TRIAGE SYSTEM FOR THE EMERGENCY CARE UNITS IN NATAL.

Version: 0 Date: 04 Oct 2019

Reviewer: Fiona Lecky

Reviewer's report:

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I found this paper difficult to understand despite familiarity with ED triage for 30 years nevertheless this appears to be an complex way of trying to identify a suitable triage tool for non hospital based urgent care centres in Brazil.

The optimal way to do this is to trial the triage tools on a large datasets from these units to see if the triage tool performs well in the identification of sick patients requiring transfer to hospital, more minor presentations that are"safe to wait”, and patients with intermediate severity. The authors have instead chosen rather complex decision modelling which to me appeared to based on inaccurate understanding of the purpose of triage and an approach to evaluation which suggests that the role of the "specialist" who does not conduct triage to being as important as that of the practitioners who use the tools every day. The specialist is continuously referred to as "he", are all specialists male in Brazil?

I tried to gain some understanding by looking at the tables and figures. Table 1 gives criteria and sub criteria for evaluation with points for the triage tools according to each, it is not clear what each criteria means. For example one criteria is "ease of use" with a sub criteria being "vital signs". Does that mean that triage tools not requiring vital signs were preferable? I assume so which is worrying in any system that seeks to identify sick patients. MTS does require such radical evaluations as pulse rate evaluation, and scores a zero in this criteria. The meaning of "Guidelines” is unclear - does this mean that the triage tools are cited in guidelines or have based their triage criteria on them? Table 1 incidentally is never referred to in the text, neither are figures 1 and 2. Some of the later figures refer to questions but in the text it is not clear what these questions are, neither in the labelling of the figures.

In short despite all the algebra to suggest a complex decision model the approach does not appear sufficiently rigorous to in any way add to the literature concerning urgent and emergency triage. It may be of interest to a Brazilian journal.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
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Unable to assess

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

No

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I recommend additional statistical review

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