# PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (**http://bmjopen.bmj.com/site/about/resources/checklist.pdf**) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

## ARTICLE DETAILS

| TITLE (PROVISIONAL) | Potential solutions for screening, triage, and severity scoring of suspected COVID-19 positive patients in low-resource settings: A scoping review |
|---|---|
| AUTHORS | Hirner, Sarah; Pigoga, Jennifer; Naidoo, Antoinette; Calvello Hynes, Emilie; Omer, Yasein; Wallis, Lee; Bills, Corey |

## VERSION 1 – REVIEW

| REVIEWER | Hong, Young-Rock<br>University of Florida, Health Services Research, Management and Policy |
|---|---|
| REVIEW RETURNED | 13-Nov-2020 |

| GENERAL COMMENTS | This scoping review focuses on screening, triage, and management tools for COVID-19 patients available across the world. I commend the authors of this paper for conducting this extensive work, summarizing available tools with their effectiveness and feasibility for use in low resource settings. I have a few comments:<br><br>Considering the time-sensitive issue, one of the main concerns I have is the search period. While the authors conclude that no screening tools available for health systems in low resource settings, the search period between December 2019-September 2020 may still miss many studies published recently. For example, the authors identified 3044 studies using PubMed search. However, as of November 8, 2020, it looks like more than 5100 results appeared using the same search strategy in PubMed. This is likely the case for other databases as well and likely to miss many recent studies, which may also affect the overall study findings. I would suggest conducting another search to be up-to-date on and evaluate them to make sure the findings consistent.<br><br>This reviewer still remain wondered what factored in the feasibility determination. Given that the feasibility assessment is the primary goal of this study, it needs more clarification of its process (e.g., scoring).<br><br>Although the grey literature search process is well-described, I feel the authors still need to discuss the impact of those findings in comparison with those from peer-reviewed studies. |
|---|---|

| REVIEWER | Jahan, Yasmin<br>Hiroshima University |
|---|---|
| REVIEW RETURNED | 26-Nov-2020 |

| GENERAL COMMENTS | Major comment:<br>In my opinion, the items in the checklist are not consistent within the manuscript. Need more point by point clarification. |
| --- | --- |

| REVIEWER | Waitt, Peter<br>Infectious Disease Institute, Infectious Disease Institute |
| --- | --- |
| REVIEW RETURNED | 02-Mar-2021 |

| GENERAL COMMENTS | Good subject, which is relevant and needs addressing in LMICs (and others).<br>Authors have summaries COVID19 papers well -however, I am unsure at the inclusion of preprint papers (which make up 10.8% of papers included). But have chosen not to assess other triage / screening tools developed for LMIC prior to COVID19, which in a disease which the authors acknowledge is new, with a broad range of clinical symptoms, would appear to be an omission. If these triage tools are not going to be included, it is even more important to discuss them, and how they may be relevant in the light of the limited data presented. - For example, CURB-65 is a reasonable sepsis mortality predictor, despite this not being, what it was original designed for. By not discussing other scores used clinically which have been designed as broad screening tools it misses an opportunity to do what it's title suggests, and look at potential solutions in a low resource setting which may already be there. They do highlight an important change - the use of PaO2 monitoring. This development opens up the potential to consider tools not previously used regularly within this setting due to a lack of availability of equipment.<br>Reference 11 may have been linked in the wrong place. |
| --- | --- |

## VERSION 1 – AUTHOR RESPONSE

Reviewer: 1
Considering the time-sensitive issue, one of the main concerns I have is the search period. While the authors conclude that no screening tools available for health systems in low resource settings, the search period between December 2019-September 2020 may still miss many studies published recently.
• We have updated the search period to include manuscripts listed in each of the relevant databases. The total search period is now December 2019 through April 1, 2021.
• In sum this resulted in a significant number of new articles (N=31), as opposed to initial N=93 The total number of new manuscripts is N=124 . As a result, significant changes to the abstract, methods, results, tables, and discussion have all been changed to reflect this new data. The number of changes are too extensive to provide individual line items here.
• Additionally, because of the exponential growth in the literature during the time period of initial submission and final review and request for re-submission we had to refine our search criteria to include emergency terms. Not doing so would have led to the initial review of over 30,000 articles, something that given the re-submission time period would have been impossible. Additional text has been added to the manuscript:
o "A secondary search was completed after reviewer comments with the inclusion of emergency specific search terms to help refine the search given the overwhelming growth in the published literature on Covid-19 related topics. Targeted…"
This reviewer still remain wondered what factored in the feasibility determination. Given that the feasibility assessment is the primary goal of this study, it needs more clarification of its process (e.g., scoring).

2

• Thank you for this point. We have clarified the methodology related to the feasibility determination, including the process of scoring specific variables for application in low resource settings and have included the following,
o "Feasibility of inputs for use in LRS was determined based on investigation of key literature, including The World Bank's Disease Control Priorities, Third Edition, and the African Federation for Emergency Medicine's 2013 consensus statement describing facility level specific, expected capacities for emergency care delivery on the continent (18, 19). As with any other setting, LRS have hospitals of varying capacities. In this review, feasibility was targeted towards district level hospitals, as it is these facilities that the majority of LRS populations are likely to initially present to. (18) Additionally, as fully resourced health facilities have struggled with COVID-19 surge, these feasibility inputs may also apply when excess patient volume consumes critical resources or makes imaging difficult."

• Although the grey literature search process is well-described, I feel the authors still need to discuss the impact of those findings in comparison with those from peer-reviewed studies.
o Given this interest we have provided several additional lines in the results that reflect on the differences between the grey and peer-reviewed published literature…
♣ Three articles from the grey literature were also included in the review, reporting on three tools. Tools were similar in their lack of feasibility in LRS. Articles originated from 27 countries; with the majority published or conducted in China (n=41, 33·1%), followed by the United States (n=23, 18·5%) and Italy (n=10, 8·1%).

Reviewer: 2
In my opinion, the items in the checklist are not consistent within the manuscript. Need more point by point clarification.
• Unfortunately, we are a little unclear what checklist the reviewer is referring to. The only time the term checklist is used is in reference to "Preferred Reporting Items for Systematic Reviews and Meta-Analyses – Extension for Scoping Reviews checklist" which is a standard reporting process for scoping and systematic reviews. We have provided the reference for more details
• If by checklist you are referring to the feasibility assessment, comments were also raised by reviewer 1 and hopefully are addressed by the clarifications around the feasibility analysis addressed above.

Reviewer: 3
Authors have summaries COVID19 papers well -however, I am unsure at the inclusion of preprint papers (which make up 10.8% of papers included)… But have chosen not to assess other triage / screening tools developed for LMIC prior to COVID19, which in a disease which the authors acknowledge is new, with a broad range of clinical symptoms, would appear to be an omission… By not discussing other scores used clinically which have been designed as broad screening tools it misses an opportunity to do what it's title suggests, and look at potential solutions in a low resource setting.
• The decision to include preprint papers was made at the time of initial submission given the lack of published material and the large amount of submitted, though as yet to be peer-reviewed material. The issue of how to interpret preprint material is not new, but clearly the literature on Covid has exacerbated this question—given the novelty of this infection, and the rapidity at which new information is being put in the public domain. We have removed some preprint material as it has since been peer-reviewed and published and is now included in our expanded search period
• We agree that triage/screening tools developed for LMIC prior to COVID19 are important as potential solutions to the pandemic, but our methodology was to focus on screening, triage, and severity tools for COVID-19 that have been applied and studied in known literature. To that point several papers actually do make use of pre-existing, or adapt previously validated tools, including CURB-65, as the reviewer suggests. We have attempted to highlight these in the results and

3

discussion as well as within a Supplementary Table devoted specifically to the subject.
o "Several studies used pre-existing severity tools to stratify suspected-positive COVID-19 patients:
11 for triage and 19 for severity scoring (Supplementary Table 6). The most common tools for severity
scoring were the qSOFA and CURB-65 scores, were used in five and four studies, respectively."

Reference 11 may have been linked in the wrong place.
• This has been corrected.

**VERSION 2 – REVIEW**

| REVIEWER | Hong, Young-Rock<br>University of Florida, Health Services Research, Management and Policy |
|---|---|
| REVIEW RETURNED | 22-May-2021 |

| GENERAL COMMENTS | This reviewer was asked to re-review this paper to see if the reviewer comments have been adequately addressed. The authors were very thorough and thoughtful in their response to reviewer queries and requests.<br>This could be minor, but the authorship changes (especially the first author; which is very unusual at this stage of the revision process) were not mentioned, which made this reviewer curious (and somewhat concerned). The authors should explain why these changes were made and justify the exact contributions of all authors. |