Author’s response to reviews

Title: A snapshot of Pneumonia research activity and collaboration patterns (2001–2015): a global bibliometric analysis

Authors:
José Manuel Ramos-Rincón (jramosrincon@yahoo.es)
Héctor Pinargote-Celorio (hectorpinargote@gmail.com)
Isabel Belinchón-Romero (belinchon_isa@gva.es)
Gregorio González-Alcaide (gregorio.gonzalez@uv.es)

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Author’s response to reviews:

15-7-19

Dear Editor,

Please find attached the revised version of our manuscript (BMRM-D-19-00157), entitled “A snapshot of Pneumonia research activity and collaboration patterns (2001–2015): a global bibliometric analysis” for your renewed consideration to be published in BMC Medical Research Methodology

We have revised the manuscript according to the reviewers’ helpful comments, and below we include a point-by-point inventory of the changes made. Moreover, our manuscript is marked with track changes in order to clearly show the modifications.

Thank you once again for your consideration, and we look forward to receiving your editorial decision.

Cordially,
José M. Ramos

Department of Internal Medicine. Alicante General University Hospital, ISABIAL, and Miguel Hernández University of Elche, Alicante, Spain

Editor Comments:

Your manuscript is interesting and salient. However it needs cleaning. The discussion should be cut and limited to your findings. The discussions go far beyond what the findings of the research are and delve into the findings of the articles that were included in the review. Moreover, you appear to have included too many visual presentations. Please present your findings in a way that is clear and related to your own research.

Following the editor’s recommendations, we have extensively revised the Discussion.

Reviewer reports:

Carol Pierannunzi (Reviewer 1): The manuscript entitled "A snapshot of Pneumonia research activity and collaboration patterns (2001-2015): a global bibliographic analysis" presents findings from a search of WoS publications related to an important infectious disease over a period of 15 years. The authors provide a description of their methods for inclusion of research articles using MESH terms and provide a number of trends across countries. The findings are interesting, and there is a great deal of discussion of the impact of the findings in the manuscript. I have a few minor corrections and some more substantive comments on the content of the manuscript. Of particular interest is the degree to which the authors track international collaboration on research.

Of minor note:

1) The authors use two different systems of citation. The introduction uses the author name and date, while subsequent sections make references to numbered citations.

We have revised the citation system according to journal requirements.
2) There is a sentence fragment on line 40 of p 1. 
We have re-written this sentence.

3) Line 34 of p 1 has a sentence which is difficult to read. I suggest rewording. 
We have re-written as:

The aim of the present study is to assess the scientific literature on pneumonia research indexed in Web of Science (WoS). Specifically, we will analyze: (1) the evolution of scientific production; (2) its distribution by countries and regions; (3) the impact of the research papers; (4) the degree of international collaboration; and (3) details on the subject area focus of different publications according to the Medical Subject Headings (MeSH).

4) The limitation of the review to end in 2015 makes the manuscript almost outdated prior to its publication. If there is some way to include newer publications the authors should attempt to do so.

The searches took place on March 20, 2018. The study period was limited to 2015 because delays associated with assigning MeSH descriptors to documents mean that information on the most recent articles on pneumonia is not updated. The inclusion of more recent years would entail changing all of the results of the manuscript, and we considered that including one or two more years would not change the overall conclusions of the study, which analyzes the evolution of research in the area for the first 15 years of the 21st century.

5) It seems to be logical to not include letters and reviews of books, etc. However proceedings often include original research. The authors should provide some information on why proceedings were excluded from the analysis.

The WoS citable items are limited to articles, reviews and proceedings. As WoS excludes letters, editorials, news and other document types, we have not included them in our manuscript. Moreover, we identified only 17 documents that were proceedings during the study period, so these were also excluded. We have added a limitation regarding this document type, as the methodology, based on MEDLINE searches, could have reduced the number of documents of this type which we identified.
The new limitations read as follows:

The main limitation of this present study is its analysis of only the documents included in the WoS databases and MEDLINE (80% of the documents). Thus, a number of papers were excluded from the study, particularly those written in languages other than English, as well as the proceedings included in WoS, as our searches were based on the journals included in MEDLINE. On the other hand, our approach also allowed us to precisely characterize collaboration in the area, as only recently has MEDLINE begun to include all the institutional affiliations of the authors. We were also able to analyze the citations of the publications, with a focus on the journals with the highest impact and dissemination at an international level.

On a more substantive note:

1) There is much to be derived from the analyses, but the authors seem to have mixed results and discussion too much. The long discussion, complete with citations of new references, reads almost like a new literature review. If these items are important, perhaps they should be moved. I would recommend cutting the current "Discussion" section into two subsections: "Results" and "Discussion." Much of what is currently there is not a result of this study, but the authors' long discussion of potential impact of more/less research by certain countries is interspersed with findings.

We have re-written the discussion, cutting and limiting it to the results of the study, following the suggestion of the editor and both reviewers.

2) There is perhaps too much use of figures and mapping. It is not helpful to see a heat map of the counties production of research as this is already presented in more detail in the tables. The 6 world maps, the path figures and the trend line graph are all unnecessary. The use of all this obscures the findings rather than clarifies them.

We have eliminated the 5 figures of world maps, including them in the annexes of the paper.
3) The discussion section goes far beyond the results of the research. If the authors wish to make some of these statements on the impact perhaps the focus of the article should be changed.

In addition to limiting the discussion to the results of the study, we deleted the analysis of the impact of the documents to maintain coherence and perform a macro-level study of countries and geographical regions. We also eliminated the following paragraph, Fig. 5, and the discussion of all of these aspects:

Table 5 shows the 15 most-cited pneumonia articles, that is, the publications that have sparked the most documented interest in the field to date. Four review articles stand out: two guidelines on managing community-acquired pneumonia, one on bacterial biofilms, and another on ventilator-associated pneumonia, plus 11 original articles. ....

In consonance with an observation made by the second reviewer, we included an analysis of the impact of the research, identifying the scientific production by country, degree of collaboration, and impact of publications indexed in the most prestigious journals (defined as journals ranking in the top 10% in terms of impact in their respective subject categories).

Andreas Halgreen Eiset (Reviewer 2): I thank the editors for the opportunity to review this highly interesting manuscript. I think it is a relevant addition in the summarising of the academic literature on pneumonia.

I have a few concerns and general comments that I think could be of value to the manuscript.

1. While the topic is very interesting the manuscript fails to focus on the most important aspect of the researchers' findings and instead resorts to reporting the data as an excessive list of RxC tables. This results in very long sections (results, discussion, and conclusions) and leads to a cumbersome manuscript that leaves the reader bewildered to what the manuscript actually wants to communicate. Instead the manuscript should focus on the most important/interesting aspect of the research and leave the many other angles to appendices.
We have moved 5 figures to online supplementary material and we have simplified the discussion, focusing the manuscript on the most relevant results obtained.

2. It would be interesting with a measure of some of the many biases in academic publication. While publication bias is not possible in this case it may be possible to look at difference in publication in prestigious journals (defined in some way) e.g. according to geographical location/collaboration vs non-collaboration or in number of citations e.g. by prestige of journal. I realise this may actually already be included in the manuscript, however, after reading through the manuscript a number of times, I do still not have an overview of what is and what is not reported.

As a complement to our analysis of the global scientific production on pneumonia, we have performed an analysis of the publications in the most prestigious journals, understood as the papers published in the journals ranking in the top 10% in terms of impact in their respective subject categories (table 8). We added the following paragraphs after performing this analysis:

In Methodology:

In order to assess the differences in the distributions of the publications according to the prestige of the journals, we performed a specific analysis of a sub-sample of publications in journals occupying the top 10% in the impact factor ranking in their respective subject categories in the Journal Citation Reports (2015 edition). We analyzed participation in these “prestigious journals” according to geographical location (regions and countries), collaboration level and number of citations.

In Results:

The analysis of the 4100 documents published in the top 10% of prestigious journals shows a higher participation from the USA (27.66%, compared to 38.49% in the overall body of documents) and from some other European countries like the UK or Spain. In contrast, the weight of Asian countries, particularly Japan and China, is much lower (table 8).
Table 8. Distribution of participation by countries in the most prestigious 10% of journals

<table>
<thead>
<tr>
<th>Country</th>
<th>N of docs</th>
<th>%</th>
<th>rank</th>
<th>N docs International collaboration</th>
<th>%</th>
<th>N cites</th>
<th>Citation Rate</th>
<th>rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>1954</td>
<td>47.66</td>
<td>1</td>
<td>627</td>
<td>32.09</td>
<td>139247</td>
<td>71.26</td>
<td>1</td>
</tr>
<tr>
<td>UK</td>
<td>473</td>
<td>11.54</td>
<td>2</td>
<td>263</td>
<td>55.6</td>
<td>34471</td>
<td>72.88</td>
<td>2</td>
</tr>
<tr>
<td>Japan</td>
<td>132</td>
<td>3.22</td>
<td>11</td>
<td>55</td>
<td>41.67</td>
<td>6782</td>
<td>51.38</td>
<td>11</td>
</tr>
<tr>
<td>Germany</td>
<td>285</td>
<td>6.95</td>
<td>5</td>
<td>177</td>
<td>62.1</td>
<td>16636</td>
<td>58.37</td>
<td>7</td>
</tr>
<tr>
<td>France</td>
<td>401</td>
<td>9.78</td>
<td>3</td>
<td>152</td>
<td>37.9</td>
<td>26174</td>
<td>65.27</td>
<td>3</td>
</tr>
<tr>
<td>Spain</td>
<td>373</td>
<td>9.1</td>
<td>4</td>
<td>173</td>
<td>46.38</td>
<td>25387</td>
<td>68.06</td>
<td>4</td>
</tr>
<tr>
<td>China</td>
<td>105</td>
<td>2.56</td>
<td>12</td>
<td>51</td>
<td>48.57</td>
<td>4926</td>
<td>46.91</td>
<td>14</td>
</tr>
<tr>
<td>Canada</td>
<td>271</td>
<td>6.61</td>
<td>6</td>
<td>141</td>
<td>52.03</td>
<td>19291</td>
<td>71.18</td>
<td>5</td>
</tr>
<tr>
<td>Netherlands</td>
<td>256</td>
<td>6.24</td>
<td>7</td>
<td>118</td>
<td>46.09</td>
<td>16820</td>
<td>65.7</td>
<td>6</td>
</tr>
<tr>
<td>Italy</td>
<td>174</td>
<td>4.24</td>
<td>8</td>
<td>111</td>
<td>63.79</td>
<td>11626</td>
<td>66.82</td>
<td>9</td>
</tr>
<tr>
<td>Australia</td>
<td>161</td>
<td>3.93</td>
<td>9</td>
<td>89</td>
<td>55.28</td>
<td>9688</td>
<td>60.17</td>
<td>10</td>
</tr>
<tr>
<td>Brazil</td>
<td>78</td>
<td>1.9</td>
<td>14</td>
<td>49</td>
<td>62.82</td>
<td>2629</td>
<td>33.7</td>
<td>22</td>
</tr>
<tr>
<td>Switzerland</td>
<td>154</td>
<td>3.76</td>
<td>10</td>
<td>113</td>
<td>73.38</td>
<td>13206</td>
<td>85.75</td>
<td>8</td>
</tr>
<tr>
<td>South</td>
<td>50</td>
<td>1.22</td>
<td>19</td>
<td>19</td>
<td>38</td>
<td>2226</td>
<td>44.52</td>
<td>23</td>
</tr>
<tr>
<td>Korea</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taiwan</td>
<td>41</td>
<td>1</td>
<td>22</td>
<td>15</td>
<td>36.58</td>
<td>1568</td>
<td>38.24</td>
<td>30</td>
</tr>
</tbody>
</table>

Overall, international collaboration in these journals (N = 1065, 25.98%) was sensibly higher than in the overall body of documents (18.8%), and the greater degree of collaboration was much more pronounced for countries like Brazil, Japan, China, and even European countries like Italy and Germany (table 8). The high degree of collaboration was also confirmed between regions in the publications appearing in these journals.

Table 9. Distribution of participation by countries in the most prestigious 10% of journals

<table>
<thead>
<tr>
<th>Geographic area</th>
<th>N of docs</th>
<th>%</th>
<th>N docs International collaboration</th>
<th>%</th>
<th>N cites</th>
<th>Citation Rate</th>
<th>Citation Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>2138</td>
<td>52.15</td>
<td>630</td>
<td>29.47</td>
<td>149290</td>
<td>69.83</td>
<td>69.83</td>
</tr>
<tr>
<td>Europe &amp; Central Asia</td>
<td>1978</td>
<td>48.24</td>
<td>600</td>
<td>30.33</td>
<td>125727</td>
<td>63.56</td>
<td>63.56</td>
</tr>
<tr>
<td>East Asia &amp; Pacific</td>
<td>543</td>
<td>13.24</td>
<td>241</td>
<td>44.38</td>
<td>28248</td>
<td>52.02</td>
<td>52.02</td>
</tr>
<tr>
<td>Latin America &amp; Caribbean</td>
<td>152</td>
<td>3.71</td>
<td>109</td>
<td>71.71</td>
<td>8246</td>
<td>54.25</td>
<td>54.25</td>
</tr>
<tr>
<td>Middle East &amp; North Africa</td>
<td>75</td>
<td>1.83</td>
<td>45</td>
<td>60</td>
<td>6383</td>
<td>85.11</td>
<td>85.11</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>105</td>
<td>2.56</td>
<td>93</td>
<td>88.57</td>
<td>8568</td>
<td>81.6</td>
<td>81.6</td>
</tr>
<tr>
<td>South Asia</td>
<td>70</td>
<td>1.71</td>
<td>51</td>
<td>72.86</td>
<td>3855</td>
<td>55.07</td>
<td>55.07</td>
</tr>
</tbody>
</table>
With regard to the degree of citation, we observed notable increases in the citation rate of the USA and the European countries; these were even more significant for countries in the Middle East & North Africa, and for Sub-Saharan Africa when they participated in these journals (table 9).

In the Discussion:

In general, the most prestigious journals show a greater concentration of research from the USA and Europe, with greater collaboration and impact when countries from other geographical regions also participate.


3. The relative change measure does not seem to have any advantage in this study over an easier interpretable absolute change or ratio between the two? Alternatively the relative change could be given in percentage to allow more intuitive interpretation.

We have replaced “Increase percentage” with “Percentage point difference from 2001-2015 to 2011-15”. We have provided the relative change in percentage in the test, table 1 and in supplementary tables.

4. It may be of interest in the discussion that major actors in LMIC research such as Bill & Melinda gates foundation are known to be biased toward research done by researchers from HIC (doing research in LMIC) see e.g. McCoy D, et al., The Lancet, 2009.

We have included this point in the Discussion, including the bibliographic reference mentioned by the reviewer.