

## 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

<b>TITLE (PROVISIONAL)</b>	A Global and Regional Overview of the Inclusion of Pediatric Surgery in the National Health Plans of 124 countries: An Ecological Study
<b>AUTHORS</b>	Landrum, Kelsey; Cotache-Condor, Cesia; Liu, Yingling; Truche, Paul; Robinson, Julia; Thompson, Nealey; Granzin, Ryann; Ameh, Emmanuel; Bickler, Steve; Samad, Lubna; Meara, John; Rice, Henry; Smith, Emily

### VERSION 1 – REVIEW

<b>REVIEWER</b>	Spencer Beasley University of Otago, Christchurch, New Zealand
<b>REVIEW RETURNED</b>	23-Nov-2020

<b>GENERAL COMMENTS</b>	A worthy publication highlighting the lack of priority given to pediatric surgery worldwide. Will prove to be a useful benchmark by which we can monitor progress in this area. [It may be worthwhile to re-read your manuscript as some of the syntax could be improved to make it easier for the reader.]
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<b>REVIEWER</b>	Josh Bleicher University of Utah, USA
<b>REVIEW RETURNED</b>	24-Nov-2020

<b>GENERAL COMMENTS</b>	<p>Thank you for the opportunity to review this manuscript. The authors examine the language of NHPSPs and NSOAPs to determine the current priority of pediatric surgery in national healthcare plans. They find that language explicitly identifying pediatric surgery is uncommon in NHPSPs and conclude that pediatric surgery is not a high healthcare priority for many nations. It is an interesting study and sheds light on an area that needs greater attention; however, there are several issues with the manuscript addressed below.</p> <p>Major:</p> <ul style="list-style-type: none"><li>• The writing in the introduction is somewhat disjointed and somewhat beyond the scope of this project. I believe it needs to be heavily revised. The first paragraph explains why pediatric surgery should be a priority, but then goes into a discussion of NHPSPs and how these are necessary to UHC. The argument between why pediatric surgery is needed to achieve UHC isn't explained and discussing the connection seems unnecessary. Additionally, I think there needs to be some explanation of why terminology used in NHPSPs is a good surrogate for determining national healthcare priorities. Finally, the last paragraph discussing GICS and OReCS belongs in the discussion. This</li></ul>
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	<p>project does not engage with GICS or OReCS, only NHPSPs. In general, the introduction needs much more focus and clearer writing.</p> <ul style="list-style-type: none"> <li>• The methods would be improved by using a more robust approach to qualitative coding, rather than looking for select words in isolation. For this study and the selected terms, context matters. Using word counts only, this context is not taken into account. If using the current methodology, the authors need to clarify in greater detail why the search terms were chosen. I understand that it will always be somewhat arbitrary, but I am not convinced of the rationale for the terms chosen, particularly the child-specific terms. The connection between stunting, immunizations, wasting, and malnutrition to pediatric surgery is unclear. The importance of including even child*, if not in the context of surgery, is also unclear. The rationale for selecting a few procedural terms could also be explained better. In particular, “open fracture fixation” is a rather specific term that may have been written differently in different NHPSPs. Did you search for fracture alone? Same for inguinal hernia vs hernia?</li> <li>• The study would benefit from improved analysis of which NHPSPs are more likely to mention surgery and pediatric surgery. I think it would be helpful to look at surgery-specific terms by income classification and region combined, as opposed to looking at both variables separately. Are there any regional trends? Also, date of publication of NHPSPs should be included in analysis. Are the NHPSPs that mention surgery only those that were written in the last 5 or 10 years? This study would also benefit by performing some basic statistical analysis to determine whether there are any statistical differences in prioritization by any of the selected variables: region, income category, publication date.</li> <li>• The variable used throughout, percentage of total terms, is not that helpful for understanding prioritization or regional/income-level based trends. The terms selected are arbitrary, so comparing the number of times surgery is mentioned to the number of times any search term is mentioned is difficult to interpret. Rather than comparing how many times surgery was mentioned to how many times child was said, the percentage of countries that mention surgery or pediatric surgery, by region, income, and date, seems more valuable in demonstrating the authors conclusions. Also, the figures comparing percentage of search terms are difficult to interpret. There are far more NHPSPs included from Africa than SE Asia, so what does the difference shown in the figures really mean? Average mentions of each term per country per region (or income group) would be better. The discussion mentions that Europe had the lowest mention of surgical terms and Africa the highest. Is this simply a reflection of the number of countries from each region examined? You have the data to answer this and it would provide much richer analysis.</li> <li>• The conclusions should be far more modest, in both the abstract and main text. The second sentence of the discussion mentions that this study provides evidence about the financing of surgical care for children and the penetration of UHC policies for pediatric surgery in health plans. The final conclusion is that including pediatric surgery in NHPSPs is essential to reducing surgical disease morbidity. The only conclusion that can be drawn from this evidence is that pediatric surgery is not mentioned much in NHPSPs and NSOAPs. The connection between NHPSPs, actual national healthcare priorities, and actual pediatric surgical capacity is unclear and cannot be answered by this data alone.</li> </ul>
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	<p>This is interesting data, but the conclusions in the manuscript need to reflect only what is in this study.</p> <p>Minor:</p> <ul style="list-style-type: none"> <li>• Your description of NHPSPs included in the study belongs in the results section. The methods should contain only the description of your inclusion and exclusion criteria.</li> <li>• Overall, the language throughout the manuscript needs to be improved. There are multiple sections throughout the paper that are written in a way that make it difficult to understand the key concept the authors are trying to get across. I would advise close attention to the text throughout the manuscript but note some specific locations below. <ul style="list-style-type: none"> <li>o In figure 1, the list of "Countries excluded" based on language is not a list of countries.</li> <li>o Abstract, Participants and setting: "We reviewed the World Health Organization's (WHO) Country Planning Cycle Database for NHPSPs existing for 146 countries."</li> <li>o Abstract, Results: "However, in both stratifications, pediatric surgery only equated to less than 1% when compared to other terms." Less than 1% of what?</li> <li>o Results PP 1: ""immuniz*"was 8 times more likely to mentioned than "pediatric surgery". Be mentioned?</li> <li>o The reference should go before the punctuation mark [1,2].</li> <li>o Etc.</li> </ul> </li> </ul>
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### VERSION 1 – AUTHOR RESPONSE

**Reviewer #1:**

**Dr. Spencer Beasley**

**University of Otago**

**1. A worthy publication highlighting the lack of priority given to pediatric surgery worldwide. Will prove to be a useful benchmark by which we can monitor progress in this area. [It may be worthwhile to re-read your manuscript as some of the syntax could be improved to make it easier for the reader.]**

**RESPONSE:**

We thank the reviewer's comments regarding our study. We also thank the reviewer's suggestion to improve the quality of the writing. We have revised the manuscript to improve the syntax.

In the text: Several sentences were updated throughout the manuscript in order to improve the syntax and quality of writing.

**Reviewer #2:**

**Dr. Josh Bleicher**

**University of Utah Health**

**1. Thank you for the opportunity to review this manuscript. The authors examine the language of NHPSPs and NSOAPs to determine the current priority of pediatric surgery in national healthcare plans. They find that language explicitly identifying pediatric surgery is uncommon in NHPSPs and conclude that pediatric surgery is not a high healthcare priority for many nations. It is an interesting study and sheds light on an area that needs greater attention; however, there are several issues with the manuscript addressed below.**

**RESPONSE:**

We thank the reviewer's comments regarding our study. We want to clarify that only NHPSPs (and not NSOAPs) were used in this study to assess the current priority of pediatric surgery.

**2. The writing in the introduction is somewhat disjointed and somewhat beyond the scope of this project. I**

**believe it needs to be heavily revised. The first paragraph explains why pediatric surgery should be a**

**priority, but then goes into a discussion of NHPSPs and how these are necessary to UHC. The argument**

**between why pediatric surgery is needed to achieve UHC isn't explained and discussing the connection**

**seems unnecessary. Additionally, I think there needs to be some explanation of why terminology used in**

**NHPSPs is a good surrogate for determining national healthcare priorities. Finally, the last paragraph**

**discussing GICS and OReCS belongs in the discussion. This project does not engage with GICS or**

**OReCS, only NHPSPs. In general, the introduction needs much more focus and clearer writing.**

**RESPONSE:**

We agree with the reviewer's suggestion about revising the introduction. We have updated this section by cleaning the disjointed sentences regarding UHC and GICS. We also provided a clearer focus regarding the importance of NHPSPs as a proxy measure in our study.

In the text: We updated the **INTRODUCTION** section to reflect the reviewer's suggestions.

**3. The methods would be improved by using a more robust approach to qualitative coding, rather than looking for select words in isolation. For this study and the selected terms, context matters. Using word counts only, this context is not taken into account. If using the current methodology, the authors need to clarify in greater detail why the search terms were chosen. I understand that it will always be somewhat arbitrary, but I am not convinced of the rationale for the terms chosen, particularly the child-specific terms. The connection between stunting, immunizations, wasting, and malnutrition to pediatric surgery is unclear. The importance of including even child\*, if not in the context of surgery, is also unclear. The rationale for selecting a few procedural terms could also be explained better. In particular, "open fracture fixation" is a rather specific term that may have been written differently in different NHPSPs. Did you search for fracture alone? Same for inguinal hernia vs hernia?**

#### **RESPONSE:**

We agree with the reviewer's wise comment regarding the methods section. We considered the contextual meaning of every term before counting them. For example, we found the term "operation" had different meanings according to the context, and not all cases were related to surgery. We carefully read the context and only counted the terms that were relevant to our study. Therefore, we believe we did a thorough search. We updated the methods section to make this clear.

The included terms were chosen and grouped into child-specific and surgery-specific terms to evaluate the priority of pediatric surgery compared to other well-known priorities in child health and general surgery. On this rationale, the child-specific terms included big priorities for this population as immunization and nutrition. On the other hand, the surgery-specific terms included the most representative procedures in terms of cost-effectiveness and incidence. We updated the methods section to reflect this rationale.

We searched the terms in different variations. For example, open fracture fixation was assessed by searching also "fracture" alone. We updated the methods section and supplementary material 2 to reflect this rationale.

In the text: We updated the **METHODS** section and **Supplementary material 2** to reflect the rationale of the search according to the reviewer's comments.

**4. The study would benefit from improved analysis of which NHPSPs are more likely to mention surgery and pediatric surgery. I think it would be helpful to look at surgery-specific terms by income classification and region combined, as opposed to looking at both variables**

separately. Are there any regional trends? Also, date of publication of NHPSPs should be included in analysis. Are the NHPSPs that mention surgery only those that were written in the last 5 or 10 years? This study would also benefit by performing some basic statistical analysis to determine whether there are any statistical differences in prioritization by any of the selected variables: region, income category, publication date.

**RESPONSE:**

We thank with the reviewer's astute comments about our analysis. We did not include a single analysis for regional and income level variables because this combination did not seem to be a good fit for our data. Also, we did not retrieve the dates of publication during our original search. We did an online assessment of all NHPSPs from the WHO database and therefore, retrieving the dates at this stage might include errors if these documents were changed since 2019.

However, we followed the reviewer's wise suggestion to perform a comparative analysis to determine any statistical differences by region and income.

In the text: We added a **Table 2** and updated the **RESULTS** section.

**5. The variable used throughout, percentage of total terms, is not that helpful for understanding prioritization or regional/income-level based trends. The terms selected are arbitrary, so comparing the number of times surgery is mentioned to the number of times any search term is mentioned is difficult to interpret. Rather than comparing how many times surgery was mentioned to how many times child was said, the percentage of countries that mention surgery or pediatric surgery, by region, income, and date, seems more valuable in demonstrating the authors conclusions. Also, the figures comparing percentage of search terms are difficult to interpret. There are far more NHPSPs included from Africa than SE Asia, so what does the difference shown in the figures really mean? Average mentions of each term per country per region (or income group) would be better. The discussion mentions that Europe had the lowest mention of surgical terms and Africa the highest. Is this simply a reflection of the number of countries from each region examined? You have the data to answer this and it would provide much richer analysis.**

**RESPONSE:**

We agree with the reviewer's wise suggestion. We created two new figures to depict better the differential percentage of countries that mention the terms by region and income. These figures are better for interpretation because they account for the number of countries in each category. Furthermore, these new figures support and complement our previous results.

In the text: We added new graphics for **Figure 2 & Figure 3**. The old figures 2 & 3 were labeled as **Supplementary materials 3 & 5**. The **METHODS, RESULTS, and DISCUSSION** sections were updated to reflect these changes.

7. The conclusions should be far more modest, in both the abstract and main text. The second sentence of the discussion mentions that this study provides evidence about the financing of surgical care for children and the penetration of UHC policies for pediatric surgery in health plans. The final conclusion is that including pediatric surgery in NHPSPs is essential to reducing surgical disease morbidity. The only conclusion that can be drawn from this evidence is that pediatric surgery is not mentioned much in NHPSPs and NSOAPs. The connection between NHPSPs, actual national healthcare priorities, and actual pediatric surgical capacity is unclear and cannot be answered by this data alone. This is interesting data, but the conclusions in the manuscript need to reflect only what is in this study.

We agree with the reviewer's astute suggestion. We have revised the wording of our conclusion to reflect better our data and results.

In the text: The conclusions from the **ABSTRACT** and **DISCUSSION** sections.

7. Your description of NHPSPs included in the study belongs in the results section. The methods should

contain only the description of your inclusion and exclusion criteria.

**RESPONSE:**

We agree with the reviewer's suggestion. We have placed the mentioned sentences in the results section.

In the text: We have updated the **METHODS & RESULTS** sections to reflect this change.

8. Overall, the language throughout the manuscript needs to be improved. There are multiple sections

throughout the paper that are written in a way that make it difficult to understand the key concept the

authors are trying to get across. I would advise close attention to the text throughout the manuscript but

note some specific locations below.

o In figure 1, the list of "Countries excluded" based on language is not a list of countries.

o Abstract, Participants and setting: "We reviewed the World Health Organization's (WHO) Country

**Planning Cycle Database for NHPSPs existing for 146 countries.”**

o **Abstract, Results:** “However, in both stratifications, pediatric surgery only equated to less than 1%

when compared to other terms.” Less than 1% of what?

o **Results PP 1:** ““immuniz\*”was 8 times more likely to mentioned than "pediatric surgery". Be mentioned?

o **The reference should go before the punctuation mark [1,2].**

o **Etc.**

**RESPONSE:**

We thank the reviewer's smart suggestions. Except for the first suggestion, we have addressed all the reviewer's recommendations. For the first suggestion, we believe that listing the reasons (in this case languages) for which those countries were excluded is appropriate and consistent with the general practice for elaborating flow charts. Furthermore, we did not describe that section as a list of countries. Therefore, we believe that the list of reasons provided is appropriate.

In the text: We made changes throughout the manuscript to reflect these changes.

**VERSION 2 – REVIEW**

<b>REVIEWER</b>	Bleicher, Josh University of Utah Health, General Surgery
<b>REVIEW RETURNED</b>	24-Mar-2021
<b>GENERAL COMMENTS</b>	Excellent responses. The authors have improved the manuscript substantially. I particularly appreciate your new figures. Thank you and congratulations.