PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Training non-physician anaesthetists in sub-Saharan Africa: a qualitative investigation of providers' perspectives
AUTHORS	Edgcombe, Hilary; Baxter, Linden; Kudsk-Iversen, Soren; Thwaites, Victoria; Bulamba, Fred

VERSION 1 – REVIEW

REVIEWER	Lena E. Dohlman MD MPH Department of Anesthesia, Critical Care and Pain Medicine, Massachusetts General Hospital, Harvard medical School Boston, MA. USA
REVIEW RETURNED	18-Sep-2018

GENERAL COMMENTS	This qualitative investigation on the training of non-physician anaesthetists in Sub-Saharan Africa contained was in general well written and thought out. Despite the low number of subjects, the interviews were in depth and gave consistent responses that will be important to others who are working on capacity building through education in low resource countries. The findings of this investigation are a reminder that education needs to be pertinent to the practice environment and mentoring attitudes (even when not done mindfully) is very important. I recommend that the authors clean up the subjects verbatim comments by taking out repetitious statements and "ums and ers" without changing the actual words. Also please check on the internationally accepted abbreviation of physician anaesthetist and non-physician anaesthetist if there are any. I suspect it is different in the USA vs UK. Should both be included for international clarity?

REVIEWER	Peter MJ Rosseel University Hospital Brussels UZB, Belgium
REVIEW RETURNED	23-Sep-2018

GENERAL COMMENTS	The article is rather atypical for a medical article, so take into account I am not familiar with reviewing such articles. Having said this I would ask you to consider the following. 1. For a physician anaesthetist with experience in anaesthesia in Sub Sahara Africa, in particular if they (having been) involved in a training program this article is an “open door” and offers nothing new. For general reading it is a (too) narrative account missing focus and omitting important aspects that although addressed in the interviews have not been discussed further on, e.g. the lack of drugs, disposables and equipment (according WHO standards!), lack of recognition of NPA’s by PA,

	adequate remuneration, Evident to conoisseurs, I assume not mentioning these aspects would be a flagrant omission for the vast majority of readers of BJA open. E.g. from this article it appears there is a pretty good relationship between PA and NPA's which in my experience is far from always the case (actually there may be fierce competition between PA and NPA's, certainly in other countries than the 3 examined here. The main author righteously mentions in the limitations that this may be related to the fact that she - as the interviewer - is a PA. 2. Personally I find the article too narrative, too qualitative, missing a more systematic approach; looking at the questionnaire I think it should be possible for analysing the material more in a quantitative way. Now the leap taken from quotes (of very divergent origins (three countries, three different professions, 2 area's (urban/rural) to the conclusions is an important one and leaves the perception to me of being hazardous, although I would agree this this will not impact the conclusions (taking into account remark 1). This is linked as well to the very low proportion of interviewed NPA's; Out of 701 NPA's less than 25 (<3,6%) have been interviewed (taking into account that surgeons and PA's were interviewed as well). In context with this, the assumption made by the authors that probably data saturation has been achieved (P.19 lines 21-29) seems therefore a bit easy to me. I suggest considering a more structured approach of the data analysis leading to more aspects than the 3 (see remark 1). At least it seems to me that these aspects deserve more in depth discussion. I refer as well to your own guidelines/standards for reporting qualitative research. 3. I miss discussion of the literature in relationship to the findings of the authors. This needs to be addressed in my opinion. 4. In the limitations section, it is worth mentioning the absence of interviews of NPA's who have quit practice; demotivation is a big issue with Nap's the Africa and very much related to the aspects addressed here by the authors. Actually this could have been addressed by asking practicing NPA's if they knew of any NPA's having quit and why. 5. I suggest moving tables 3 and maybe 4 from the supplementary material to the body of the article and to discuss this in the light of the above. 6. Further I refer to my minor comments as appended within the accompanying PDF document "_system_appendPDF_proof_hi kopie_Review Peter Rosseel". I realise that the article can be published only with minor revisions and without tackling these major comments but I believe it would bring the article to a higher more relevant level beyond what I now consider worth saying but without much new added value. I would be happy to leave the final decision for major or minor revision or to further appraisal by editors and other reviewers

REVIEWER	Dr Wayne Morriss Department of Anaesthesia, Christchurch Hospital, University of Otago, Christchurch, New Zealand. Director of Programmes, World Federation of Societies of Anaesthesiologists.
REVIEW RETURNED	24-Sep-2018

GENERAL COMMENTS	Thank you for this very interesting paper looking at an important topic. It is a qualitative exploratory descriptive study that identifies some key themes related to non-physician anaesthesia provider (NPAP) training in three African countries. It is well written and the results are clearly presented. The following comments/questions are relatively minor and are intended to be constructive. • A limitation of the study is the relatively small of interviewees, spread across 3 countries. This is not mentioned in the Limitations section. • Page 5/line 15: PA abbreviation – is this defined earlier? My preference would be PAP but this is a very minor point. • Page 5/line 30: I am a little confused by the term “assistant providers”. Is this a new cadre of NPAPs alongside NAs in Sierra Leone? • Page 6/line 14: Does 4 semesters equate with 2 years? • Page 7/line 12: Was informed consent obtained for Somaliland? – should probably be mentioned even if it wasn’t possible. • Page 9/line 30: How does the NVivo software work? I think it would be useful to put a sentence in to explain this. Results • Page 9/line 7: I think that you need a very brief summary of the interviewees here, not just a reference to the online supplementary material. It would be helpful to know, at this point in the paper, the countries, professions etc of the interviewees (i.e. the last line of Table 3). • Page 13/line 39 and following: I'm not sure why some of the phrases have been presented in bold. • Could the 3 theme subheadings all be presented in a similar way to the 3rd one? i.e. a statement of the major theme that you found. For example, the first theme could be “urban training does not necessarily prepare providers for rural practice”. I am not sure about the wording of the 2nd theme – I just wonder whether it could be worded slightly differently. For example, “learning and clinical responsibility are seen as important extra curricular areas”. Again, not a major issue but I think that readability would be improved. Discussion • Could you be more explicit in stating how these findings could be applied to new or existing training programmes? For example, should programs contain modules on learning/lifelong learning techniques and teamwork?

REVIEWER	Mark Newton Vanderbilt University Medical Center Nashville, TN USA
REVIEW RETURNED	05-Oct-2018

GENERAL COMMENTS	Excellent qualitative study which reviews an important area of anesthesia capacity building, education. The common themes were highlighted appropriately and clearly for the reader. The study size is small and in the future could be expanded to more NPAP's and even physician anesthesia program graduates.

VERSION 1 – AUTHOR RESPONSE

Reviewer 1:

- Cleaning up verbatim comments: we have removed ‘uh’, ‘er’ etc. to improve readability. Other verbal content has been preserved as spoken to represent the interviewees as closely as possible.

- Abbreviations for providers: this is indeed an area of variation and mild controversy. We have added a clarification within the introduction and amended the abbreviation for physician anaesthesia providers to ‘PAP’ for internal consistency.

Reviewer 2:

- We apologise that we are currently unable to address the minor comments referred to (point 6) as we cannot open them in the pdf document. We will be very glad to see these if they can be resent in a format we can view.

- With regard to the comments in Dr Rosseel’s accompanying letter, we agree with him that some are beyond the scope of ‘amendment’ and would require a differently designed study to fully address. However we make the following notes in response:

  1.) and 2.) We appreciate that many of the findings in the article are not new to anaesthetists with experience in SSA (as indeed they are very familiar to the authors). Aside from the authors’ (and reviewers’) own experience, there is an increasing body of quantitative literature which clearly documents specific challenges, such as equipment and drug shortages. This work is of huge value.

  However, those studies rely on the prior identification of key areas for investigation which are amenable to quantitative methodology. We feel that there are important aspects of training to be considered which at this stage are better answered using a qualitative approach. Our concern in this study has been to reflect the views of NPAPs themselves as broadly as possible, with as little preconception as possible about what they may find problematic or advantageous in training. Thus some issues received greater attention by interviewees than others, which we aimed to reflect in identifying the common themes emerging from our data. Not all issues which are familiar to many of us were emphasised by interviewees (for example, relatively few of them spoke about resource scarcity outside the urban-rural comparison context), whereas other issues which we, the physician authors might not have prioritised, did appear to be important in the interviewees’ views, such as relationship development in training. We also focused on themes common to all countries, so some issues which are notable in some settings (such as NPA-PA conflict in Uganda) but not in others were not highlighted. Dr Rosseel raises the important question of whether it might therefore be perceived that important areas are omitted for the general reader, and we agree that this would be concerning. We feel that in framing the study explicitly as ‘exploratory’ and in referencing relevant literature which has taken a more quantitative approach to some of those areas, this should not be too misleading. We have amended some language to try to make

this clearer; however we would be happy to make this more explicit if the Editors deem it useful.

Dr Rosseel has concerns about the qualitative design and analytic approach and would have preferred a quantitative analysis of the data and a larger number of interviews. In our view, this would be a different study and require a considerably more well-developed theoretical framework than currently exists. As far as we are aware, we have adhered to the guidelines for reporting qualitative research (SRQR checklist attached) but will be happy to hear if there are aspects we should address. We perceive that much of Dr Rosseel's concern is related to the choice of qualitative over quantitative methodologies and we agree that these are philosophically quite different approaches. It is our hope nonetheless that this and other studies like it can contribute to the discourse by highlighting areas for development and investigation which might previously have been overlooked.

3.) We are happy to put more literature discussion into the conclusions but have been mindful of the length of the article and BMJ Open guidelines; we have not added at this stage in view of the fact that the other three reviewers have not requested it, but if the Editor thinks it would be beneficial please let us know.

4) Agreed. We have added a comment about this in the limitations section.

5) As per Dr Morriss's comments we have incorporated some of the information from the supplementary material into the main text.

Reviewer 3:

- Small number of interviews: we have commented on this in the Limitations section.
- Abbreviations for physician providers: addressed (see notes under Reviewer 1)
- Sierra Leonean 'assistant providers' (previously 5/30). This was a phrase generated by the authors, and we have rephrased for clarity
- Queried whether 4 semesters = 2 years (previously 6/14): Yes. Clarified in text
- Informed consent was obtained from all participants, stated in the first paragraph of "Methods" section.
- Can NVivo be explained: parenthetical explanation added within "Data analysis" section.
- Can we provide more information about interviewee characteristics in the main text: added in first para of "Results" section.
- Bold print in quotes: this has been removed
- Theme subheadings have been reworded although we agree that it is difficult to do so elegantly with theme 2 and bow to the editor's view on whether it should revert to the original submitted.
- Should discussion include how findings can be applied to training programmes? The authors agree that this is the next step. However the data from this study do not go this far, rather the paper highlights the importance of areas which need to be acknowledged and developed. A subsequent study might well usefully investigate how programmes can most effectively implement changes to improve the issues highlighted. We have added a sentence to this effect in the Conclusion.

Reviewer 4:

- no revisions were suggested

VERSION 2 – REVIEW

REVIEWER	Peter MJ Rosseel Department of Anaesthesia, Flemisch Free University Hospital Brussels
REVIEW RETURNED	25-Nov-2018

GENERAL COMMENTS	Considerable improved, previous issues have been dealt with adequately. I enjoyed reading the article; the observations match my own experience in the field. Worthy contribution on the subject. COMMENTS: 1)It would be worthwhile to examine NPAP's who left practice and why; this might be a useful addition at the end for future research 2) althout the authors suggested the use of NPAP and PAP they were not consistently following up with their proper suggestion, please see comments in attached review. - The reviewer also provided a marked copy with additional comments. Please contact the publisher for full details.

VERSION 2 – AUTHOR RESPONSE

Thank you very much for these helpful comments and encouragement from Dr Rosseel. In response:

1. We agree and have expanded the sentence addressing this topic in the discussion section to include examination of the reasons for NPAPs leaving practice.

2. We have amended the text as suggested in the pdf comments. Thank you for highlighting the unclear areas.