Author’s response to reviews

Title: Global health education in United States anesthesiology residency programs: a survey of resident opportunities and Program Director attitudes.

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Author’s response to reviews:

Rutledge Carter Clement, MD, MBA (Reviewer 1): I would like to congratulate the authors on a well-planned and executed study. The statistical analysis is thoughtful and thorough with a very nice bias assessment, and the paper is extremely well written. The study's only limitation is its modest overall importance. That said, it is important enough to merit publication, and I believe it would be a good fit for BMC Medical Education. I recommend publication with very minor suggested revisions.

- Thank you for your kind words and thorough review of our manuscript. Point by point responses to your recommendations are below.

Methods:

Regarding the "technique derived by Bethlehem" mentioned on line 14 of page 5, I would like to see a brief explanation of this technique. I suspect this could be a single sentence following the citation of the Bethlehem paper.

- As recommended, brief description of Bethlehem equation added in paragraph 2 of the statistical analysis section.

A minor stylistic change: the wording beginning at the semicolon on line 17 of page 5 is unclear. It sounds like the authors are presenting results rather than describing methods. Changing to a
conditional tense would avoid this: for example, "thus, the absence of a significant difference between early and late responses would suggest…"

- Page 5 line 17 after the semi-colon has been changed to the following: thus, the absence of a significant difference between early and late responses suggests a low nonresponse bias.

Results:

Another minor stylistic change: would try to avoid quantifying results. As a specific example, on line 23 of page 6, I would not say "only." Just present the results (especially because 18% of programs does not strike me as a small number to have a research component).

- Thank you for the point on quantifying results. This was removed from the results section.

While not necessary for publication, I would like to see the number of times each destination country was cited by respondents. This information could be nicely presented in a figure using a map and legend, but text or a table would suffice. I think this would be valuable for programs developing or expanding global health electives or residents seeking opportunities on their own.

- Appendix added with the requested information on countries and frequencies.

While also not necessary, I would like to see a more comprehensive presentation of survey results. The paper would be stronger if the results of each question included in the survey were reported in the manuscript, even if only briefly listed in a table or even appendix. (I didn't check each item in the survey, but I noticed #17 does not seem to be included in the Results section or tables.)

- Appendix added with all survey results.

Discussion:

When presenting the estimated maximum bias on line 5 of page 9, I recommend including a short subsequent sentence to explain that this is low and supports your results as being generalizable. I suspect this will not be clear to the average reader. I realize it is stated in the limitations section, but the reader will likely be wondering about this metric after the first paragraph of the Discussion section. So, it would be better not to make them wait until the limitations paragraph.
- As recommended, sentence added early in the discussion section to explain that the low maximum bias supports the generalizability of our conclusions.

Regarding the sentence about bidirectional influence on lines 14-16 of page 9, it seems to me there is a much more likely explanation than the existence of global health electives influencing program director attitudes: like most employees, program directors probably self-select to (and are selected by) employment situations that share their values and interests. Thus, program directors open to global health electives probably end up at like-minded programs because it was a cultural fit (rather than ending up somewhere and then changing their beliefs after being exposed to an existing global health elective). This is a minor point, but I think it would portray a better reflection of reality.

- Thank you for this addition. A third explanation about PDs selecting employment situations that culturally match their own has been added.

On line 2 of page 10, please qualify how large 60,000 or 80,000 DALY's is in relative terms. Is this top 10%? Or top 50%? Regarding the 2nd paragraph of the Discussion section beginning "Interestingly, the top five…", this paragraph is OK, but I'd recommend rewriting it as I don't think it currently lives up to the high quality of the rest of the paper. I would not expect the geographical destinations chosen by traveling anesthesia residents to directly correlate with DALY's, yet the authors seem surprised at this finding. You don't need to visit the country with the most DALY's to have the best global health experience, you just need some modest threshold above the developed world. Beyond that, travelers and residency programs probably value other characteristics such as safety and well-established medical institutions (with relatively functional O.R.’s) to visit. These characteristics would not be expected in the countries with the highest DALY’s. Rethinking this paragraph could make it more meaningful.

- After careful consideration, the paragraph regarding global health participation as compared to the locations of highest burden of disease (DALY values) has been removed.

I would recommend excluding the term "medical tourism" as a reference to traveling providers. This term typically refers to patients traveling to seek medical care. While it has been used in a derogatory sense about traveling physicians in the past, including in the cited paper, I think using it in this sense is unnecessarily inaccurate. However, this is a stylistic recommendation, so I would leave it to the preference of the authors; it would not change my recommendation to publish the paper.

- Thank you for your guidance. The term “medical tourism” has been removed.
Another limitation of the study that should be stated is that psychometric properties of the survey are not known. While it is likely adequate for the purposes of this study, surveys that are not validated, reliable, etc. can generate misleading results.

- A note has been added in the Limitations Section about prior research and validation of the survey.

Marielle Jambroes (Reviewer 2): This manuscript describes the outcomes of a survey on global health education opportunities for anesthesiology residents in the US and program director attitudes.

- Thank you for your thorough review of our manuscript. We appreciate your comments and have made the following adjustments based on your recommendations.

Although the main topic of the paper is global health education, a description or definition of what the authors consider as global health is missing. As an explanation of what is considered as global health education is missing as well, it remains unclear what is exactly measured in this study.

- We appreciate you identifying that a definition of global health was not included. This has been corrected and has been added in the beginning of the introduction of the article. In terms of the term global health education, we have not defined this because that is not specifically what this study was intended to investigate. The study was rather intended to detail current global health opportunities (e.g. electives abroad, teaching abroad) as currently available in anesthesiology residency programs. Minor adjustments in language have been made to more clearly delineate the goal of this study. The aspirational goal of developing or researching global health education is described as a future direction that other investigators may want to take, given that it is outside the scope of this current article.

Although the study demonstrated whether global health education was available, it is unclear what the practical relevance of this information is, as there is no information about the quality or effectiveness of the programs; do residents become competent in global health after participating in the programs?

- As you pointed out, there is no information on the quality or effectiveness of these programs. This study was designed purely to assess the number of available global health opportunities in anesthesiology – such specific data have been published in nearly every other clinical
field, but no such data exist for the field of anesthesiology. This paper is the first and only presentation of quantifiable data on the availability of anesthesiology residency program global health opportunities. As you mention, studying the impact of these programs is vital, but the authors believe that this is beyond the scope of this first, baseline study. Having noted that, the discussion of the paper documents the potential benefits of global health electives [excerpt from page 3, referencing data from other fields of medicine]: Benefits include improved medical knowledge and diagnostic skills, increased awareness of social determinants of health, enhanced cultural understanding, exposure to a broad spectrum of illnesses, and greater appreciation of resource utilization [3]. However, without appropriate education and preparation, medical work in the developing world may disrupt existing healthcare infrastructure, inappropriately utilize scarce resources, and compromise patient care due to substandard provision of care by trainees [4].

Discussion line 10: ...residents agree that global health training is important... FOR WHAT?.... and exposure to international healthcare efforts in underserved regions is valuable...WHY/FOR WHAT?

- Residents were asked to describe if these activities were of value, without being limited to any particular descriptive framework. The analysis of the question simply reflects that they believed that these activities were of inherent value.

Discussion line 18: training does not occur in countries with the highest burden of disease - Why is that of interest? Global health is not equal to highest burden of disease. Global health is about the scale of problems.

- After careful consideration, the paragraph regarding global health participation as compared to the locations of highest burden of disease (DALY values) has been removed.