Author’s response to reviews

Title: Relationship between students’ perceptions of the adequacy of M1 and M2 curricula and their performance on USMLE Step 1 examination

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Author’s response to reviews:

Dear editor,

Thank you very much for the constructive feedback that we received from the reviewers. We’ve addressed all reviews’ concerns and the changes we made are highlighted in red on the manuscript.

The followings are our responses to reviewers’ comments:

Reviewer reports:
Scott Border (Reviewer 1): This article will be of interest to the readership of the journal. Curriculum revalidations and alignment of assessment are key topics in medical education and as such this work aims to use student perception feedback to inform improvements in these areas. The results are not particularly surprising and so it does not add a great deal of new knowledge to the field. There are a few important considerations for the authors:

* The title is a little clumsy - consider revising. Is this a statement or a question?

We made correction to the title as statement.
* The manuscript would benefit from a brief history of curriculum enhancement in the US (trends including some reference to causality e.g. social and political contexts)

A short history of curriculum enhancement has been added to paragraph 2 of the Background.

* I am a little confused by the nature of the 'association between attitudes and performance' How was the criteria devised to determine under performance and why was this method chosen? It is not a statistical association as such but that is what readers will be expecting. I feel that that the aspect of aligning attitudes to performance has been somewhat mis-sold in the article. It states in the abstract that student perceptions are compared to their performance, but this is not really true. The reader only has a vague appreciation of performance based on the data provided.

We identified the disciplines and organ systems in our curriculum that students felt were inadequately discussed and covered. We also identified the least performing disciplines and systems on Step 1 Score Plot reports. Thereafter, we observed that there was association between curriculum deficit and students’ performance. It was not our intention to perform statistical correlation, because the data were collected anonymously and won’t allow for this type of analysis. However, we based our findings on the observational data that showed this association. With that said, the title of the manuscript and the methods section of the abstract have been modified to better describe the data provided and analysis performed.

* Although the authors describe the limitations of how obtaining timely feedback is useful, yet difficult to gather, the limitations of their own study are not included.

We added the limitations of the study in the last paragraph of the discussion.

* The authors should consider including literature on the benefits of working with students as partners in curriculum development and enhancement and this should be imbedded within the current literature as a means to implement change

The faculty student partnership has been added to paragraph 5 of the discussion.

* The conclusions are reasonable and I agree that it is useful to use student attitudes to drive reform, but it should also be explained that others reasons can account for performance. What variability can be expected in the M1 and M2 over time and what is the process by which the assessments are compiled (?), is there a national syllabus in any of these core driplines or in pre-clinical medicine more broadly?
There is no national syllabus for preclinical years, although there are efforts to write learning objectives for disciplines by certain associations. Medical schools write their own program objectives following LCME guidelines and recommendations. We agree there are many reasons that contribute to students’ performance, including faculty effectiveness, learning environments and medical school curricula. However, the study focused on using students’ assessment of the curriculum as a supplemental tool for making changes to improve overall students’ performance on Step 1 examination. Of course, the change to address students’ concerns will also be supported by additional data. With that said, discussion of factors influencing student performance is in the second paragraph of the discussion and an additional statement addressing student performance has been added to the limitations paragraph since we did not specifically assess factors influencing student perceptions of the curriculum. Factors influencing students’ perceptions would be a nice follow-up to the original survey.

Edward Krupat (Reviewer 2): Manuscript MEED-D-19-00033 deals with a topic of great interest, student perceptions of their curriculum and performance on the USMLE Step 1 Exam. I felt, however, that this manuscript had many flaws, most of them remediable, that make the current draft less than satisfying. Let me note some of these below:

* Ideally the first paragraph of a paper gets the reader right into the primary focus of the research, yet this first paragraph is broad and general and does not tell us where this paper is going. I would almost begin with the second paragraph and get right into things. Rather than wander around the Kern model and other methods of evaluating curriculum that don't provide much relevant background for this particular paper, the authors might get directly into issues about student involvement and the extent to which educators do--or should--rely on students' assessments of the curriculum. (Lurking in the background, never really acknowledged in this paper, is whether the primary focus of a pre-clinical curriculum should be getting high scores on Step 1, but that's another matter). After an Intro that could be shortened and sharpened, however, the authors do a good job at putting the two related research questions before us.

The first paragraph of the paper has been modified to reflect the main focus of the research.

* The level of analysis here, the group as a whole, is a bit disappointing. I had hoped and expected that each individuals' scores would be correlated with each individual's perceptions. Analyzing the data at the level of the group as a whole leaves much more room for error. Can I assume that the authors' data set would not allow for this individual-level type of analysis.
Yes, we agree it would be better to correlate individual performance with their perceptions. However, we were limited to use only this data due to research protocol since the survey was approved by IRB as anonymous.

* We need more information on the process of dealing with the qualitative data. For instance, we need to have more information on how the themes emerged.

The qualitative data analysis included students’ response to the open-ended question ”identify the specific content areas that you feel were not sufficiently covered by M1 and M2 curricula?” that is, what we’re trying to find here are students’ perspectives on the deficiency in the curriculum without leading their answers with specific choices.

* The qualitative data are treated very quantitatively. Most researchers prefer that qualitative data are presented and discussed without getting into percentages of attempts at quantitative precision.

We used the deductive approach in analyzing the data, searching for meaningful word repetition (e.g., pharmacology) across all answers. The listed percentages are to indicate the frequency of these repetitions.

* I’m not sure exactly what the qualitative data add in terms of insights. What we see are lists of complaints about many aspects of the curriculum. This looks to be a cohort of students that feel as if they are not taught physiology or pharmacology (and many other subjects) adequately. At my institution and many others I know, these are not unusual student concerns. What makes these findings a bit distressing is that apparently the students are correct: students feel as if they are not getting good preparation and, yes, their scores in these areas suggest that their perceptions are valid.

The qualitative data add to the validation of the results when the results from both quantitative and qualitative analyses were triangulated. For example, we’ve observed that Biochemistry teaching in our school was the no. 1 issue for our students when we analyzed closed and open-ended questions, which corresponds with the low performance in Step 1 examination.

* The Discussion (as the Introduction, noted earlier) doesn’t seem to want to get to the point. Typically the Discussion starts with a brief summary of key findings which are then interpreted by the authors in light of the literature. Here, I believe that the authors need to sharpen and shorten once again.
We modified the first paragraph of the discussion to address the major findings of the study.

* Although in some cases the students' assessments were inconsistent with their Step 1 results, for the most part they were. I would have expected that the authors might have concluded something about the need for a model of student-faculty partnership whereby the perceptions of the students are discussed in an ongoing way so as to incorporate student feedback from year to year, if not from module to module or from week to week. There are examples of this sort of partnership models here and there in the literature, and the authors might have sought out some of these for discussion.

Student faculty partnership is added to fifth paragraph of the discussion.

* We know that at just about all medical schools, students seek out all sorts of materials and courses, sometimes online, sometimes through local or national for-profit organizations such as Kaplan. What is interesting is that apparently at this school outside preparation was not very able to overcome the deficiencies in preparation of the actual medical school instruction.

Interesting thoughts, but we do not have the data to reach this conclusion.

* Whenever one encounters a single-school report, the question is whether this would best be a local report to the dean and faculty leadership or whether there is some form of "generalizable knowledge" generated from this data collection. While the authors do attempt to frame their paper within some of the broader issues, I would urge them at the very least to note their one-school data as a limitation, but more importantly, to attempt to derive some conclusions that might serve as lessons learned for all readers, regardless of their institution.

We added the limitations of the study in the last paragraph of the discussion prior to conclusions.