Reviewer’s report

Title: Vertically integrated medical education and the readiness for practice of graduates

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Reviewer: matthias angstwurm

Reviewer’s report:

The authors have addressed an important question regarding the integration of basic science and clinical patient care in education to become medical professionals. According to the different approaches used in different medical schools it is very difficult to answer the question about different outcomes due to different educational strategies. The research question is a clear question: Do students of different curricula show differences in readiness for clinical practice? Did they have different competencies to cope with unfamiliar clinical situations?

To compare the knowledge of passing students the same international exam was used: USMLE Step 1 was more successfully passed in integrated curricula compared to non-integrated one whereas Step2 clinical skills and clinical knowledge were similar.

To overcome the problem they developed a specific assessment instrument called assessment was called “Utrecht Hamburg Trainee Responsibility for Unfamiliar Situation Test” (UHTRUST). This well balanced assessment test typical situations in clinical settings on a ward.

The raters were carefully scored and their results were comparable in standardized settings with video taped scenarios. Patients were standardized. The results are therefore as standardized as possible and the results can be compared between groups.

Comments:

Major revision
- The number of candidates was 60. It is not clear whether a previous power calculation was done to find significant differences.
- In addition students from two dutch universities took place Utrecht (n=23) and Groningen (n=7) as well as students from one university in Hamburg (n=29). Altogether one student is missing.
- Why are two different Dutch universities choose? Are the curricula completely identical?
- In addition please give more details about the characteristics of candidates. It is stated that candidates had nearly graduated from medical schools. What means nearly?
- It is stated that candidates participated voluntarily. The total assessment time is more than 6 hours. What was the impetus to participate a whole day? Did candidates get feedback, money for participation etc.? Do the authors have arguments to state that selected voluntary candidates are comparable to non participating students?

- which funding was used? Did the assessors e.g. medical physicians, nurses as well as standardized patients did receive payment in similar amounts in all three universities?

Some differences were found between vertically integrated and not integrated curricula:

- Table 1: Within the facets of competence by physicians active professional development. What is meant by this and what was the difference? It is surprising that standard deviation was greater in smaller means. Is this correct? Does this mean that there were two different populations?

- Table 2: facets of competence by nurses the categories "Knowing and maintaining own personal bounds and possibilities" and "Teamwork and collegiality" were different. Are these differences caused by different nursing practice and cultures in Holland and Germany? The nurses as assessors were not compared between countries.

- Table 3: EPAs "breaking bad news" as well as "solving a management problem" were different. Especially breaking bad news is a skill needed to be learning in clinical practice and in seminars. Is the curriculum in both countries / in all universities similar? Again the SD was smaller in German candidates despite higher scores. This means that a stargazed course in Hamburg might have been visited which is lacking in Durch students. Please comment. The second EPA is vice versa. Therefore a specific teaching unit might be present in Durch curricula but lacking in Hamburg.

- in limitations: The authors did not find huge differences between the curricula. Perhaps the differences in curricula are to small? How often and how many hours were Dutch students exposed to patients? Is the number of hours spent in teaching sessions similar between countries? How often are basic science teaching sessions during the clinical part of curricula?

Minor Revisions:

In Conclusion:

One conclusion might even be that the new assessment instrument is not able to detect differences in clinical skills at the end of studies. One might assume that early integration of patients might inspire students in clinical skills but not in better learning of basics. Other way round repeated basic science during clinical education might improve understanding and help to find pathophysiologically related solutions in problems. Both was not tested by the assessment instrument.

**Level of interest:** An article of outstanding merit and interest in its field
Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests.