Author's response to reviews

Title: Self-assessment versus work-place assessments of competence: four cohorts of medical graduates and perceptions of 'old' versus 'new' curriculum.

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Author's response to reviews: see over
Dear Mr Aldcroft,

Reference MS: 1703389129101108

Thank you for providing us with the constructive and valuable feedback from the two Referees. We have now addressed each of the points raised by the Referees, in both the manuscript below. In keeping with addressing the feedback, we have also amended the title of the manuscript:

**How was the intern year? Self and clinical assessment of four cohorts, from two medical curricula**

We thank the Referee for asking us to strengthen the manuscript regarding the methodological triangulation involved data collection allowing a comparative analysis between curricula cohorts, self-assessment and work-place clinical assessment.

We look forward to hearing from you regarding our revisions.

Yours sincerely,

Gillian

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**Reviewer's report**

**Title:** Self-assessment versus work-place assessments of competence: four cohorts of medical graduates and perceptions of 'old' versus 'new' curriculum.

**Version:** 1

**Date:** 1 January 2014

The authors wish to thank the reviewers for their kind and considered feedback on the manuscript. We have responded to each point and believe that the manuscript has benefitted from the feedback and amendments.

**Reviewer 1:** 4473680261174698 Ahmed Yaqinuddin

Major Concern:

1. My major concern is with the way data was analyzed. I think if exploratory factor analysis is performed on this data more useful information can be derived.

Response:

The present study explores the comparable data for 124 graduates using 13 practitioner; three resilience and 13 clinical skills variables. A general rule of thumb is to have a least 300 cases for factor analysis (Tabachnick & Fidell, 2007) or to have a sample that is at least five times the number of variables (Bryant and Yarnold, 1995). For these reasons, chi-square tests were undertaken with Bonferroni method used to adjust for the number of comparisons made.

2. The authors at one point in the analysis section say that multiple statistical tests were completed. I don't know which tests were performed

Response:
Descriptive statistics (frequencies) were completed for all items by curriculum type. Differences between the curriculum types were examined using separate chi-square tests. In order to account for multiple testing we adjusted for the number of comparisons made (Bonferroni method) to reduce the issue of multiplicity (ie increased rate of type I error). Results presented for each chi-squared test are the adjusted $p$-values.

To clarify where Bonferroni method was used (indicated by column heading $p$-value adjusted) the authors have added the following note to the bottom of Tables 2-4 'post hoc comparisons with Bonferroni correction significant at the *$P<0.05$, **$P<0.001$'.

Discretionary Revisions:

3. I cannot understand what was the need for this curriculum change? The authors themselves concluded that curriculum change from TLB to PBL has done no harm to their graduates. I wonder why this change was needed in first place?

Response:
Writing to word count is the challenge for all authors. Detail not included relating to the 'old curriculum' has now been included:

The subjects were not integrated in any way with each other, so that a student could be studying the anatomy of the brain, the pharmacology of heart failure, the characteristics of Staphylococcus, and the history of public health all at the same time. P 3-4

4. I think the old curriculum described in this study is a "Disciplined based curriculum" rather than "Traditional Lecture Based" or it may be "Organ-system based curriculum". I think curriculum should be described based on core educational Philosophy rather than Teaching & Learning methods.

Response:
The authors agree to some extent regarding the clarification of educational philosophy and have provided additional detail (bold and underlined) to the background p3:

In 2000, the University of Adelaide Medical School adopted a new curriculum. This curriculum switch from traditional discipline lecture-based 'old' (TLB) to problem-based learning 'new' (PBL) as part of a worldwide trend and represented our most significant……

And

At the University of Adelaide, years 1-3 in the TLB curriculum were didactic in style, with the program organised into many separate subjects delivered by individual disciplines, primarily in a lecture mode. P 3

However, the debate between lecture and problem based learning and teaching methods continues and this paper is written to contribute to this debate.

5. I don't know if a standardized test like licencing examination could be employed to assess the knowledge and skill components of the students from two curricula.

And

6. I think assessment at R1 level from residency program directors could be very useful also.

Response:
The reviewer makes an interesting suggestion here. However, as post-graduate assessment is currently external to the Universities in Australia this type of evaluation is beyond the scope of the present study.

Reviewer 2: 8808974712320176 Simon Watmough

Minor essential revisions:

1. I am not sure the title is easy to follow and could be modified.

Response:
The authors agree on reflection that the title is a little clunky and have amended it to read:

*How was the intern year? Self and clinical assessment of four cohorts, from two medical curricula*

2. I would like to know more about the differences between the curricula - I think 2 diagrams would help with this or references where we could find that information out. There is nothing for example about how students from either course learn clinical or communication skills.

Response:
The authors thank the reviewer for the suggestion to include this detail as a figure (see following page).

**Figure 1 Curriculum differences Discipline lecture-based (TBL) and Problem-based Learning (PBL)**

- **TBL: Discipline specific**
  - subjects/topics
  - modes of teaching predominantly lectures
  - examinations and styles
  - little small group learning
  - no integrations across Disciplines
  - low emphasis clinical reasoning
  - rote-learning
  - some overlap/ over teaching
  - mapping of curriculum content limited
  - communication skills lectures
  - over-assessment
  - calendar based subjects

- **PBL: Integrated Curriculum**
  - centrally planned/organised
  - integration of content
  - small group sessions
  - self-directed learning
  - contextualisation within clinical sessions
  - links between clinical skills and key disciplines
  - case study based learning
  - students encouraged to understand relationships and memorise key facts
  - increased emphasis on communication skills with role play
  - assessment centrally organised/integrated
  - increased reliability of assessment
  - calendar theme based: Scientific Basis of Medicine; Medical Personal and Professional Development, and Clinical Practice

3. I'd prefer the title "Introduction" at the start, but that is personal choice. At the end of the introduction/background before starting on methods there should be a clear aim about what the research question the paper is going to address and how.

Response:
The authors have ensured that the manuscript conforms to the journal style
http://www.biomedcentral.com/info/ifora/medicine_journals as per author instructions, the first heading is
Background.

The aim of Stages I and II have now been added as the last paragraph of the Background p 5

The aim of stages I and II of the Medical Graduates Outcomes Program was to follow and compare long-term outcomes of graduates from the two types of curricula: lecture-based (graduates 2003, 2004) and problem-based graduates (2005, 2006) curricula. To assess how well prepared these graduates felt for their internship and compare this self-assessment with the clinical supervisor-assessment results of their intern year.

4. In the methods it is not entirely clear about the period of contact and follow up.
   Response:
   The graduates were first contacted between December 2006 and May 2007 for Stage I and consent for the longitudinal components of the study. The following paragraph from page 6 has been amended to clarify the questionnaire sent at this time.

   Between December 2006 and May 2007 graduates were sent an information pack containing an introduction to the project, a consent form, the Preparedness for Hospital Practice questionnaire and a contact details form to allow data collection for the next two stages of the study. The six month period of contact and follow-up ensured that all graduates had completed their intern year. Graduates who completed their intern year outside of Australia were excluded from this analysis. The audit of intern reports was carried out in June and July 2009.

5. I think there should be more about the intern form, I know it is covered in the background to some extent, but it should be made clear if it is "high stakes", and the process when the interns are graded by senior clinicians.
   Response:
   The intern end of rotation assessment is ‘high stakes’, however we do not use the concept of pass/fail, rather if there has been satisfactory, borderline or unsatisfactory progress in acquiring intern competencies. If a term has not been satisfactory we put in remedial measures and see if there has been improvements. A single unsatisfactory term will not necessarily need to be repeated if good progress is made during the rest of the year but we certainly have had interns needing to repeat terms and even the whole year if progress has not been made.

   The following amendment has been made to the manuscript second paragraph p 5:
   At the completion of each rotation, the clinical supervisors provide a WPBA report that identifies strengths and weaknesses and gives an overall appraisal of intern performance. The intern end of rotation assessment is ‘high stakes’, however the concept of pass/fail is not used, the intern is assessed as having made satisfactory, borderline or unsatisfactory progress in acquiring intern competencies. If a rotation has not been satisfactory, remedial measures are implemented and progress recorded. A single unsatisfactory rotation will not necessarily need to be repeated if good progress is made during the rest of the year.

   The Audit form is now attached as an appendix to the manuscript.

6. In analysis, I think the Bonferroni method needs a reference.
   Response:

7. In the first paragraph of the discussion the paper talks about communication skills and yet we don't know how communication skills are taught in either curriculum.
   Response:
   In the traditional (TLB) curriculum, a lecture-based course on communication skills was delivered by staff from psychology, with very little opportunity for students to practise.
Curriculum 2000 (PBL) introduced a structured tutorial-based tuition on communication skills, with opportunities to practise using actors, with audio visual recordings for students to review their own performance.

We have now added a small amount of text to clarify how communication skills were taught in the TLB and PBL curricula.

P4 par 1: **Communication skills were delivered in lecture format by staff from psychology, with very little opportunity for students to practise**

P4 par 2: Tutors fulfilled primarily a facilitative role and group discussions occupied 6 - 20 hours per week. **There was an increase in emphasis on communication skills (allied health colleagues, patients, peers and supervisors) with opportunities to practise communication skills were introduced using actors, with audio visual recordings for students to review their own performance.**

8. On page 10, saying Jones et al found in a PBL course rather than a "new" course would be more helpful, not all new courses are PBL.

Response:
Agree, sentence amended:
*Jones et al similarly found in a PBL course graduates rated their ability in ‘Understanding disease processes’ less favourably than the TLB graduates.*

9. At the top of page 11 you say that Goldacre et al have shown preparedness has increased, but you need to say how your study ties in with this and I think overall you need to be more explicit about the impact your new curriculum has had.

Response:
The authors thank the reviewer and have amended the middle paragraph on page 11 to reflect the perceived difference in preparedness of our graduates:

*Our study did not find an association between self- and WPB assessment, supporting Bingham et al’s findings, where trainees assessed themselves more harshly, while their supervisors assessed of trainees as ‘at or above expected level’ for ‘every item in every term’ (43% vs 98.5%) (Bingham, 2011 #1391). Qualitative data from the Stage I Preparedness Questionnaire, found two key differences between the TBL and the PBL graduates. The PBL cohorts were much more positive in their responses to how well the program had developed their attitudes to skill development, whilst asking for a greater emphasis on learning basic sciences.*

10. For strengths and weaknesses the authors could stress more the triangulation aspect of the work which makes it different to many of these kinds of studies. The further research is good but could also suggest looking at the impact of perception of skills a few years after graduation which some studies have already done.

Response:
The authors thank the reviewer and have made two amendments to the manuscript:

Methods p 6 - **Methodological triangulation involved** data collection via a self-administered questionnaire at the completion of the intern year (one year after graduation), and an audit of intern WPBA reports from five South Australian public hospitals.

Strengths and Limitations p 14 - Although the findings reported here are for graduates from one institution’s medical program this may be considered a limitation, however a major strength of this study is the methodological triangulation of two types of data gathered – questionnaire and the audit of intern reports.

11. In the conclusion, it says very boldly "individuals who would succeed under either curriculum" Is this correct and can it be corroborated?

Response:
Thank you for the opportunity to clarify this point, the following text has been amended in the Conclusions:
Medical students and graduates, on the whole, are high achieving individuals, who ‘leading up to medical school are groomed and selected for success in a traditional curriculum’ and who would succeed under either curriculum (Albanese, 2000 #1369).

12. Figure one isn't very clear.
Response:
Figure 1 has now become Figure 2 with the response to dot point 2 above and a new caption has been added to Figure 2 for clarification: Graduates retrospective rating of the medical program at the completion of their intern year.