Author’s response to reviews

Title: The Trend and Features of Physician Workforce Supply in China: After National Medical Licensing System Reform

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Author’s response to reviews:

Dear Professor Mario Roberto Dal Poz:

Thank you very much for the chance to revise our manuscript. This opportunity is valuable for us to improve our manuscript. The reviewers’ letters help us crystallize all the key issues as well as helping us gain a deeper insight based on the guidance.

As you will now see in our resubmission, we have really listened carefully to advice and suggestions from reviewers to craft a better paper that the readership of the Journal will find interesting, important and provide some insights that we hope will make a modest contribution to advancing the field of human resources for health studies. We have responded the comments and suggestions from reviewing team in details after *** in this response letter.

In addition, the abstract of our manuscript has been accepted by a conference named “The Lancet–Chinese Academy of Medical Sciences Health Summit 2017” (Refer to: http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(17)30130-7.pdf). The Lancet will publish those accepted abstracts online and in a conference booklet. Could you please let us
know whether it brings about any ethical considerations related to full paper publication? Please let us know if you need any further information.

Best regards,

Chengxiang Tang & Daisheng Tang

Reviewer reports:

Reviewer #1

This seems to be the first paper written about the medical licensing system in China. It provides a brief and interesting look into a healthcare system in transition. The findings are that the percentage of women is growing in medicine in China and that there are many different educational standards for being a physician. However the information gained is not terribly new and the methods are not innovative outside of China. Women are increasing in the physician workforce around the world, although possibly not as fast as in China. The broad range of educational levels is more surprising to me, and indicates the need for some standardization, which is described in the paper.

***Thank you so much for your encouragement and careful reading of our work. High quality reviews are hard to come by and we have been very impressed with all reviews we have received for our submission including yours! You will notice in our revised manuscript that we have listened carefully to your practical wisdom and through this we are confident the quality of our work has come a long way in making a clearer contribution to the field.

You mentioned that “the broad range of educational level is more surprising,” actually this topic is the next study for me and my co-author. To collect comments and responses, I have just presented our new study "The Multi-tiered Medical Education System in China and Its Influence on the Health Care Market" in the Belt and Road Initiative Global Health International Congress
It is interesting that so many older physicians are licensing. I wonder if they are what we call 'grandfathered' in. What is very interesting in this paper is the look into a healthcare system that has many unique characteristics. I would find it very interesting to know if the quality of care is better in areas where physicians are better educated. Quality could be measured by patient satisfaction, an increase in longevity, a decrease in hospital readmissions, etc.

***Thank you for this insightful and timely observation. This is an excellent observation and suggestion. It is indeed a very interesting issue to investigate the quality variation among providers with different educational background. Sylvia and Shi et al (2015) is such a study, in which they used “incognito standardized patients”, a golden rule in examining quality of healthcare, to look into quality care in China’s rural clinics. They found the quality of care is low as measured by adherence to clinical checklists and the rates of correct diagnoses and treatments. In addition, the factors most strongly correlated with the quality of care were the educational attainment and medical qualification.


The authors are not fluent English speakers/writers and should be lauded for writing the paper. Unfortunately they often mix up tenses and forgets to use determiners (a, the). In addition, there are many more words than needed in this paper, it can be much more concise and to the point. Some of the language is flowery and out of date. All the charts and tables are not needed as there is repetition. I can provide my notes as a PDF if desired.
*** Thank you for this meaningful advice. We have followed your suggestion to skip the Figure 1 and replace it by the Table 1. Additionally, we improved and added percentage (%) sign to the current Table 2 to clarify the meaning of numbers in the table.

After several rounds of internal revisions and several friendly reviews, we have given our work to a professional English Editor. We hope our revised manuscript reads better and is English grammar proper.

One weakness you can mention is that just because a doctor is licensed does not mean s/he is practicing.

***Thank you so much for your thoughtful and carefully crafted review of our work. We have revised the sub-section of “Strengths and limitations” based on your suggestion as follow:

‘Using simple headcount statistics is another limitation of the study, because being a licensed doctor does not mean he or she has been practising medicine. Moreover, the full-time equivalent of working hours is still a standard method of measuring productivity of health care and thus to describe the supply of health manpower and accurately project the physician workforce supply in China.’

Reviewer #2

1) The introduction is not focused enough. Please include more related work and article in the introduction section.

2) THE CENTRAL POINT of the introduction is not clear.

***Thank you so much for your careful reading of our work. Your comments and feedback really help push our thinking to a higher level and for this we are indeed most grateful. We have
followed your suggestions to first divide the first part into two parts: the Introduction and the Background. Further, we revised the introduction part as below:

‘A potentially less difficult way to the above monitoring of supply approach is to investigate the annual number of newly licensed physicians, which is formulated by the medical occupational regulation [4]. Through the lens, we can precisely observe the inflow of first-time licensed physicians into the health workforce over a certain time period. Many countries have developed a similar way to monitor the supply, attrition and retention of the physician workforce [5-7]. However, there has been no such study charting of the physician workforce supply in terms of newly licensed physicians over time since the launch of the medical licensing system in China in 2001.

This study aims to address this gap in the literature. To explore the trend and features of physicians, we first reviewed a short history of medical licensing system reform in China since the 1990s. Our study further analyses a unique census data set that provides the headcount of newly licensed physicians from 2005 to 2015 in China. Specifically, this study aims to provide an aggregate description of the trend and current situation in the field of the physician workforce supply in China. This paper offers a useful snapshot of the recent supply of the physician workforce flow, suggesting trends over time that may benefit many different stakeholders in China.’

3) The aim of the study was to study the trends of newly licensed physician, but in the line 146 the author mentioned the dentists data?

*** Thanks for noting this issue, which is very important to justifying the robustness of the quantitative part of our research. We added a footnote to clarify the classification of licensing doctors in China as below:

‘Licensing doctors includes four categories: clinical physicians, dentists, public health physicians and Traditional Chinese Medicine (TCM) doctors. This study did not include TCM
physicians as they were categorized under CAM (Complementary and Alternative Medicine). Please refer to http://www.gov.cn/banshi/2005-08/02/content_19310.htm’

4) The method section and analysis is weak.

*** Thank you for this meaningful advice on our work. As illustrated in the method section, this study is rather a descriptive or exploratory study, than an explanatory study that intends to confirm some hypotheses. Therefore, a reliable source of data that can address the scope and objectives of this study is quite important. Our study utilizes a unique repository maintained by the National Medical Examination Centre of China to provide information of physicians supply trend after licensing reform. We consider and justify in manuscript that it is a robust way to monitoring changes in newly licensing doctors in China.

5) Please use table to present the results of percentage changes.

*** Thank you very much for this excellent observations and advices. We have followed your suggestion to skip the Figure 1 and replace it by the Table 1. Additionally, we improved and added percentage (%) sign to the current Table 2 to clarify the meaning of numbers in the table.

6) The discussion section is not proper and comparison of results with other related researches is weak.

*** Thanks for making these comments on the discussion part, which is very important to help us for improving this study. In the discussion part, we first reviewed the results found in this study, and then we extended our discussion to four sub-sections, including “Medical educational
issue of newly licensed physicians”, “Feminisation of physician workforce supply”, “Next steps of reform” and “Strengths and limitations” of the study. We especially pay attention to studies related to results found in this manuscript, for example, the first sub-section discussed implications of the heterogeneity of medical education of entering physicians and mentioned a series of studies. In the second sub-section, we further considered and compared our study to other related researches that investigated feminization of physician workforce in other countries.

7) The conclusion part must be rewrite.

*** We are very grateful for noting this issue. After revising the full manuscript, we have followed your advice to rewrite the conclusion part as below:

‘This article provides a summary, analysis and discussion of the most recent physician licensing data. The establishment of a medical licensing system is probably an appropriate approach to control for the number of people allowed to enter the physician workforce with a minimum standard of education quality. Our investigation may inform policymakers of human resources for health in at least two aspects: first, policymakers need to pay more attention to the heterogeneity of the medical education of entering physicians; the other policy implication, however, is that the feminization of the physician supply in China has become increasingly apparent and its impact still requires more rigorous examination. This study contributes an interesting observation of the physician workforce in China while being helpful in improving future policies on medical occupational regulation in terms of both quantity and structure.’