Reviewer's report

Title: Performance evaluation of inpatient service in Beijing: a horizontal comparison with risk adjustment based on Diagnosis Related Groups

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Reviewer: Qingyue Meng

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A 'Major compulsory revisions' is suggested from following consideration.

1. The PKU-DRG needs to be elaborated in the article, especially its functions in adjusting risks of diseases. While it is diagnosis based, if other factors including age and severity of diseases are considered?

2. Two problems in use of case-mix index (CMI). CMI in this article was measured using medical expenditures in DRGs. However, medical expenditure to some extent cannot reflect the severity of diseases when charging behavior is different across the selected hospitals. For given type of diseases, some hospitals may charge higher (lower) medical fees than others under a fee-for-service payment system and market-dominated financing system. In addition, CMI is usually used for adjusting efficiency and quality indicators when comparative performance of hospitals was evaluated. This was not seen from the article the CMI was use for those purposes.

3. The authors used charging efficiency index (CEI) and time efficiency index (TEI) for measuring efficiency of resources use. However, those indictors were not adjusted by CMI that may lead to inaccurate estimation of efficiency performance of selected hospitals. DRGs could to some extent adjust the severity of diseases if composition of DRGs was analyzed. From the article, it is not clear if the composition (proportion of number of DRGs in each hospital) has been used in the computation.

4. Inpatient mortality for low risk groups was used for measuring quality of care. Is the inpatient mortality sensible enough for measuring quality for hospitals? While this indicator leave measurement of outpatient care outside the performance evaluation, it can also lead to incomplete evaluation of quality due to its low prevalence and ignorance of other indicators, for example, the consistence of diagnosis and quality of nursing care. Justifications are also needed to indicate the comparability of mortality between hospitals when this is based on DRGs. Again, is it DRGs enough to adjust the severity of diseases?

5. The findings were not fully explained and interpreted. Distributions of CMI, CEI, TEI, and IMLRG may have a number of implications behind those indices. How those can be adequately explained linking with hospital basic information need to be considered.

6. The authors stated that this evaluation system is to be used for correcting information asymmetry between providers and consumers. From the findings,
this is not convincing. It would be difficult for general public to understand the indices used for evaluating performance of hospitals. In addition, lack of synthesis of indices for comparative performance of a hospital reduced the value of this system in informing both health policy makers and health care users.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**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.