Author’s response to reviews

Title: Trend of disparity between coastland and inland in medical expenditure burden for rural inpatients with malignant tumor in southeast of China from 2007 to 2016

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Reviewer 2 (Reviewer 3):

GENERAL COMMENTS: The authors conducted additional analyses by adding tumor site and the levels of hospital in the analyses. Another important change is to create an outcome variable as ratio of out-of-pocket expenses to disposable income. These revisions help improve the analyses overall. However, there are still a few remaining issues to be resolved. One main one is that the disparities were not clearly defined. There are the disparities overall between coastline and inland, then stratified disparities between patients with/out surgeries between two regions. Also the time trend differences were compared. Given so many disparities to compare, the authors need to restructure the paper to make the readers easy to follow. Also the absolute difference may not be meaningful to compare. More revisions are needed.

REQUESTED REVISIONS:

1. A patient may be admitted to different hospitals across regions. Can the data trace the same patient across hospitals? If not, the authors need to list it as a major limitation.

Response 1: We thank the reviewer again for the advice and help. Because medical record management systems differed across different hospitals, a patient whom may be admitted to different hospitals across regions could not be traced.
We have addressed it as one of limitations should be considered in Discussion section, Page 15, Line 11-12 in the revised manuscript.

2. Absolute difference (A-B) is not very helpful. The authors may think about the relative difference, e.g. making coastline as the reference group.

Response 2: According to the reviewer’s suggestion, we have used relative differences between coastland and inland in medical expense indicators, inland as the reference group, to assess the disparity between two areas. For more details, please see Results section, Page 8-11, and corresponding Figures.

3. The authors need to define the disparities clearly, e.g. overall difference between two regions, difference between patients with/out surgeries in two regions, and the difference in trends between two regions (with/out surgeries?) The current version just mixed too many disparities, which is very confusing.

Response 3: The disparity between coastland and inland in medical expenditure burden was defined as the relative differences between two areas in medical expense indicators, inland as the reference group. We used generalized linear models to calculate the relative differences (95% confidence intervals) from 2007 to 2016. Over time, if the 95% confidence intervals of differences did not overlap, the change of disparity between coastland and inland was considered statistically significant.

The above analyses were repeated for patients without and with surgery separately to determine whether the changes of disparity differed across surgery or not.

We have revised the corresponding content in Method section, Page 7, Line 1-4 and Line 7-10 in the revised manuscript.

4. Using the average disposable income should be listed as the limitation.

Response 4: According to the reviewer’s suggestion, we have addressed it as one of limitations should be considered in Discussion section, Page 15, Line 9-11 in the revised manuscript.

5. Provide the rationale using the logarithm to calculate the different but not using the raw numbers to compare.

Response 5: Because medical expenses were positive-skewed distribution, the inferences on the absolute differences were for the logarithm in the previous manuscript. In the revised manuscript, we used raw number to calculate the relative differences between two areas using generalized linear models with logarithmic link function and gamma distribution for medical expense indicators.
6. Figure needs high resolution. The current version is hard to read.

Response 6: According to the reviewer’s suggestion, we revised the results. All figures in the revised manuscript have 1200dpi resolution.

7. The authors should acknowledge the limitations in discussion.

Response 7: We have added the limitations in the revised manuscript (Discussion section, Page 15, Line 9-12).

8. The writing needs to be significantly improved. For example, on page 11, the authors just listed the sentences, which is not a good practice.

Response 8: According to the reviewer’s advice, we have improved the revised manuscript.