Reviewer's report

Title: Ecological analysis of health care utilisation for China's rural population: association with a rural county’s socioeconomic characteristics

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Reviewer: Jane Zhu

Reviewer's report:

This study focuses on the relevant and timely issue of rural population health in China, using the National Health Services Survey from 2003 to analyze health care utilization at the rural county level. The author found associations between health services utilization and worsening health status, as well as with private insurance coverage. The study also showed an association between per capita annual income and per capita medical expenditures.

The paper is written clearly and uses a large dataset to explore a topic that has significant implications for healthcare policy and planning in China. However, there are several factors that detract from the study, including the fact that the dataset is outdated. Despite inclusion of 67 counties, data from 2003 is nearly a decade old and does not enhance our understanding of healthcare access and utilization in China subsequent to the 2002 re-establishment of the New Rural Cooperative Medical System. China has moved rapidly to expand its rural health insurance system since 2004, and the fourth NHSS was conducted in 2008. As a result, the 2003 NHSS do not reflect the situation China faces currently. If the authors do believe that this data is useful to current policy, the reasons need to be more clearly emphasized.

Major Compulsory Revisions

1. Several details regarding the methodology are unclear. How were the 67 rural counties and 28 cities chosen in the NHSS survey? Furthermore, how were the questionnaires administered (e.g. self-administered, interviews, etc.)? This information should be explained as the education level and especially health literacy among the rural Chinese population tends to be low and could affect the validity of the data.

2. Access to health insurance in China is highly dependent on occupation and region; among rural populations agricultural workers often have community health insurance schemes that drive their ability to pay for healthcare and therefore utilization of services. Moreover, because local governments have significant control over insurance design, availability and characteristics of health insurance schemes in China vary significantly from one county to another. How would you explain the potential impact of these potential confounding factors on your results?

3. Ecological analyses based on aggregated data at county level fails to reveal
access and utilization which are more specific to individual households; the author acknowledges this in the discussion. Despite the author’s concern on potential confounding, no effort was mentioned to account for confounding (interaction) with available data.

4. Although the discussion of the paper is generally relevant, it is not specific to this study and results of these analyses do not add anything new to the discussion.

Discretionary Revisions

Though mentioned later in the paper, the impact of China’s recent reforms should be discussed in the introduction to establish a framework in which to discuss this particular study. It would be helpful to summarize the findings of the studies cited in the introduction, to clarify how this study adds to the existing literature. A brief literature search on PubMed reveals several additional studies that could provide more direction for this research (for instance, Brown and Theoharides 2009, Zhou et al 2009, both from Health Econ)

Level of interest: An article of limited interest

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

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests.