Reviewer's report

Title: Preventable maternal mortality: regional disparity and associated factors from the population-based maternal mortality surveillance system in China

Version: 2 Date: 24 September 2010

Reviewer: Mahbub E Chowdhury

Reviewer's report:

Major comments

Abstract

The abstract needs to be re-written. In the background section of the abstract it has been written “We analyzed the geographic and rural-urban differences, trend and major features of the preventable maternal mortality in China between 1996 and 2005, and explored the major factors associated with maternal death.” The terms “major features of the preventable maternal mortality” and “major factors associated with maternal death” are ambiguous. The above sentence should be written in a simplified way so that terms “major features” and 'major factors” are clearly understood. The last sentence of background section of the abstract “We try to find effective interventions to prevent maternal death in China, which may benefit other developing countries as well.” The term ‘try’ is again ambiguous. If it is the objective of the study to find out effective intervention then it should be stated with due emphasis.

Methods section of the abstracts mainly describes the data analysis techniques. Information should be provided on study design, settings, sampling techniques, data collection procedures as well in the abstract. Description of results is very general. Authors should report major numerical findings as well while describing the results.

Main paper

Methods

It is not clear from the paper how the nationwide maternal mortality surveillance system operates i.e. how the deaths are identified? Through verbal autopsies by household visits or review of hospital records? This needs to be clearly stated. Is a function death registration system is in place in China? What is the possibility of missing some of the maternal death cases though the existing system? Is abortion legal in China? Is there any possibility of missing abortion related mortality? These need to be stated in the background or in the discussion section as appropriate.

Under the sub-section “Investigation and review of maternal deaths” of Methods section, it has been written “Each case of maternal death must be reviewed with the WHO-recommended method by the review committees at county/district, provincial, and state levels.” The readers will be interested to know what role was
the review committee in ensuring completeness and accuracy of information on maternal deaths.

It has been written “The review committee identified three areas that different actions might have prevented the deaths: individual/family, health institutions, and the social departments. Each of these areas involved four factors: knowledge/skills, attitude, resources, and management.” Authors should check completeness of the relevant information provided in Table 4. What management information was collected related to individual/family?

I understand Cochran-Mantel-Haenszel (CMH) method was used to estimate relative risk (RR) and 95% confidence interval. I am not sure what Woof test was used? Chi square test can be used only for crude relationship. For identification of factors associated with maternal deaths, necessary adjustment for potential confounders is needed.

To interpret Table 1, it has been written “Compared with the years 1996-2000, …… the relative risks (RR) of preventable maternal deaths in rural areas over urban areas in the three regions decreased during 2001-2005” My question is - can the authors really compare the RR of different regions estimated at two different periods? This comparison is not valid as the reference groups for estimations of the RRs are not the same. Alternatively, interaction between time periods and regions (or urban/rural) could be explored.

Similarly, for interpretations of Tables 2 & 3, comparison among odds ratios estimated using different reference categories are not valid.

Discussion:

The available literature on quality of maternal health care services in various regions China should be cited and discussed in light of the findings of the study.

The paper lacks elaborate discussion and recommendation to avert unnecessary maternal deaths in inland and remote areas.

There should be some clear direction on what should be done for improvement of quality of care as well as increasing knowledge and skills of the providers at township and province levels where a large proportion of unnecessary deaths are taking place.

Minor comments

In the background section of the main paper, while reporting the global estimate of total number of maternal deaths, the latest papers should be cited.

The 31 provinces selected in this study out of how many? It would be interesting if the authors could plot the 176 sampling units in a map of China. What is the total population coverage of these 176 sampling units? What is the facility delivery rate in China? How common is the home delivery and who are the birth attendants at home? The paper would be more interesting if this information is provided in the background.
Numbers (n) should be provided in Tables 3 & 4.
Repetition of results should be avoided in the discussion section.
Limitation and strengthens of the study should be discusses

**Level of interest:** An article of importance in its field

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

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

No to all the above questions