Reviewer's report

Title: Rural-urban differences in neonatal mortality in a least developed province of China

Version: 2 Date: 9 May 2011

Reviewer: Susan Hughes

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This manuscript has been greatly improved by extensive editing. The clear differences between rural and urban neonatal mortality in one province of China are very striking. A clearer explanation of why data was taken from a surveillance system rather than a death registry increases the reliability of the results. It is of interest that mortality rates declined in both rural and urban areas in the time period studied, yet rural rates stayed between 2 to 3 times worse than urban rates. Of interest, although rural NMR was always higher, rural neonatal deaths were more likely to be term, normal weight and not in the hospital. Causes of rural neonatal death did not appear to differ from urban causes. In addition, rural neonatal death as a percentage of deaths under five was lower than the urban percentage. There is clearly room for much improvement in this rural province. It would have added considerably to the interpretation of results if a multivariate analysis of this data had been done.

Major Compulsory Revisions
None

Discretionary revisions
1. Title – consider using poorly instead of least “Rural-urban difference of neonatal mortality in a poorly developed province of China.

2. Discussion next to last paragraph: This sentence is unclear: “Based on the finding that nearly half of neonatal deaths occurred during the first day of life, medical treatment can be effective.” Did you mean - It is possible that medical treatment may have been effective in saving some newborns?

3. Conclusion of paper should explicitly state that rural NMR was worse than urban NMR.

Minor issues not for publication – further edits for clarity
1. Abstract Methods section last sentence should read: “Chi-square tests were used to compare ....”

2. Abstract Results section third sentence reads better split into two: For both rural and urban newborn infants, the four leading causes of death were birth asphyxia, preterm or low birth weight, congenital malformation, and pneumonia. Each cause-specific death rate was higher .....”

3. Abstract Conclusions section second sentence reads better: “However,
profound disparities persisted between rural and urban populations.”

4. Abstract Conclusions section last sentence: “Strategies that address inequalities of accessibility and quality of health care are necessary to improve neonatal health in rural settings in China.”

5. Background first paragraph second sentence should be: “… disproportionally higher rates …”

6. Background first paragraph last sentence verb “claims” to “wants” (goals would not claim).

7. Background third paragraph fourth & fifth sentences: “Gansu province is located in north-west China ….” “It is one of the least developed provinces among the 27 …..”

8. Results first paragraph last sentence “… suggesting disproportionately higher mortality in rural births.”

9. Results second paragraph first sentence needs to be split into two: “The leading causes of …... and pneumonia. NMR for each cause was significantly higher …”

10. Results fourth paragraph first sentence: “…… compared with urban areas …”

11. Results fifth paragraph second sentence: “Among rural and urban deaths of children aged ….”

12. Discussion second paragraph first sentence: “… rural and urban population in the poorly developed province of Gansu, China.”

13. Discussion second paragraph second sentence: “We found that although there was a significant decline in NMR in rural areas during recent years that for all causes and leading causes of death, rural NMR was much higher than urban NMR.”

14. Discussion second paragraph next to last sentence: “… birth asphyxia accounted for more than one-third …”

15. Discussion third paragraph fourth sentence: “… with an urban to rural income ratio of 4.5 …”

16. Discussion third paragraph ninth sentence: “… birth asphyxia caused death among 55.6% …”

17. Discussion eighth paragraph second & third sentences: “One strategy could be increasing institutional delivery rates. It is reported that 30% of rural deliveries occurred out of hospital in Gansu province in 2008.”

18. Discussion ninth paragraph first sentence: “NMR in Chinese urban populations is relatively low ….”

19. Discussion ninth paragraph second sentence: “Thus overcoming inequities that exist between rural and urban …”

20. Conclusion: “Although NMR declined in urban and rural groups in Gansu province during 2004-09, profound disparities persisted between rural and urban populations.”
21. Authors’ contributions: “YW conceived the idea and designed the study …”
22. Table 1 is included on page 20 and 22.
23. Table 2 is included on page 21 and 23.
24. Table 3 Birth weight characteristic: Normal is still misspelled.

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

**Declaration of competing interests:**

I declare that I have no competing interests.