Reviewer’s report

Title: Influenza vaccination coverage rates among adults before and after the 2009 influenza pandemic and the reasons for non-vaccination in Beijing, China: a cross-sectional study

Version: 8 Date: 19 February 2013

Reviewer: Catherine Wetmore

Reviewer’s report:

- Major Compulsory Revisions

1. Methods - Participants, 2nd paragraph: According to the new information provided in this revision, households were randomly-selected, rather than participants. Therefore, the last part of this paragraph should be revised for accuracy: “In the third stage, households were randomly selected. All households were numbered according to the address numbers, and 29 to 43 households per community were randomly selected for interviews. The interviewers visited…” Additionally, the authors should mention if/how they accounted for clustering of respondents within households in their analysis. They should also consider reporting the range and median/mean number of adults surveyed per randomly-selected household.

- Minor Essential Revisions

2. Statistical Analysis: Currently, the authors state that “The rate in season 2009/2010 was calculated by adding up the rates for both seasonal and pandemic influenza…”. Did the authors actually “add” reports of seasonal flu vaccination to reports of pandemic flu vaccination? If so, it would be very interesting to see the results after differentiating by the type of vaccination that was reported (e.g., seasonal only, pandemic only, both, or neither). If they did not differentiate by type of vaccination, they should simply state that the “The rate in season 2009/2010 included both seasonal and pandemic influenza vaccinations...”.

3. Statistical Analysis: This sentence can be deleted: “To calculate the total vaccination coverage rates and frequency, we partitioned the population and vaccinated people into 20 strata (5 age groups, rural and suburban areas, and both genders) using the Census of Beijing 2010 population.” And the next sentence should be revised as follows “Weighted analysis was conducted to calculate the age, sex, and residence-specific vaccination rates and frequencies, accounting for the age, sex and urban/suburban population distribution of the Beijing population, as reported on the 2010 Census of Beijing.”

4. Discussion, 6th paragraph: Should policy measures be undertaken to reduce the financial burden of vaccination for all age groups? Or do the authors favor targeting specific groups with subsidized immunization campaigns?

5. Discussion, 7th paragraph: Rather than listing the official date range for the
2012/2013 season (i.e., “15 October to 30 November”), the authors should list the official date range for the season in question (i.e., the 2010/2011 season).

6. Conclusions: Please be a little bit more specific about the “policy of free influenza vaccination” in Beijing. To whom did this policy apply? Were free immunizations provided universally in Beijing, or only for targeted groups?

- Discretionary Revisions

7. Background, 3rd paragraph: The newly-added sentence is a bit confusing. Can you please revise for clarity? For example: “However, a previous study undertaken in 7 urban and 2 rural areas of China estimated the uptake of seasonal influenza vaccine to be 7.5% and pandemic influenza to be 10.8% in 2009.”

8. Discussion, 3rd paragraph: The newly-added section of text should be revised for clarity. For example: “Our study showed that the elderly were more likely to be vaccinated than younger people, and the vaccination coverage rate for the elderly increased after the pandemic. The vaccination coverage rates for the elderly in Beijing increased substantially from 1.7% during 1999-2004 [24] to 43.1% in 2010/2011. However, current levels among the elderly in Beijing are significantly lower than recently-reported vaccination coverage rates among the elderly living in five European countries (43.1% [95% CI: 44.1-48%] in Beijing 2010/2011 vs. 60.4% [95% CI: 59.4-61.4%] in Europe 2007/2008 [13]), and more importantly, these estimates fall far short of the World Health Organization’s target level of 75% [12]. The vaccination coverage rate for younger adults in Beijing lags even further behind, increasing from 3.65% during 1999-2004 [24] to less than 15% in 2010/2011.”

9. Discussion, 4th paragraph: The newly-added section of text should be revised for clarity. For example: “In our study, illiterate respondents were less likely to indicate that they did not expect to catch influenza, compared to those reporting higher levels of education.” The last sentence of this paragraph can be deleted (“For the above reasons, illiterate people were more likely to insist on accepting vaccinations in these years.”).

10. Discussion, 7th paragraph: Consider reorganizing this paragraph so you can discuss the limitations associated with the interviewer-administered versions of the questionnaires immediately after you discuss the limitations associated with the self-administered questionnaires.

11. Discussion, 7th paragraph: Because it does not appear that you have undertaken any formal reliability studies, consider deleting the following two sentences: “Therefore, our results of the reasons for non-vaccination were reliable.” and “For this reason the vaccination coverage rates in season 2010/2011 reported in this study were reliable.”

- Minor Issues Not for Publication

12. Although the authors have made many editorial revisions to the text of this paper, the manuscript still suffers from typographical/grammatical/editorial errors that need to be addressed prior to publication, either by the authors or the editorial office. There are numerous sections of the text that are repetitive.
Overall, the prose could be tightened substantially to improve the read-ability of the paper.

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

**Quality of written English:** Not suitable for publication unless extensively edited

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