Reviewer's report

Title: Impact of the Family Health Program on the quality of vital information and reduction of unattended deaths in Brazil: an ecological longitudinal study

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Reviewer: Elisabeth França

Reviewer's report:

The authors present a manuscript of a study aimed at measuring the impact of the Family Health Program (PSF-acronym in Portuguese) on the quality of vital statistics (VS) and reduction of unattended deaths for children in Brazil. As an article of impact evaluation for such an important large-scale program as PSF and of such an important public health issue like the quality of VS it will certainly be useful to decision-makers not only in Brazil but also in other developing countries. The objectives of the study are well-defined and the analyses considered the control of confounding factors to verify if the program has had an effect above and beyond them. It is particularly important to be confident that the observed changes were in fact due to the program.

I have only a few comments to make. The most important being the use of mortality rates as indicators of impact for all Brazilian municipalities without exclusion criteria for completeness of death registration. Although considered as the main limitation of the study by the authors, this question was mentioned only briefly in the discussion section and needs to be extended.

Minor Essential Revisions

1. In the last paragraph of page 4, it is mentioned that “...almost 80% of the Brazilian population lives in areas with satisfactory levels of death information”. Is it known how many municipalities are represented? As the municipality is the unit of analysis of the study this could otherwise affect the quality of the data.

2. I am a little confused by the meaning of the variable “unattended deaths”. In the Abstract section and other parts of the text (e.g. page 5, last paragraph), it is considered a component part of the total ill-defined causes, as an indicator of the quality of information on the causes of death. In the title and other parts of the text (e.g. page 10, 1rst paragraph) it is considered as a variable important in itself, maybe also representing other important dimensions like the access to medical care.

3. The under-five mortality rates reported for Brazil by Ripsa decreased from 32.0 in 2000 to 24.8 per 1000 live births in 2006 (Available at: www.datasus.gov.br/idb). These values were on average 30% higher than those reported in the first paragraph of the Results on page 8. Could you clarify these differences?
4. As mentioned above, consider being more specific about the option of not taking into account the under-registration of the VS. I understand that this was probably the only way to assess the impact of PSF on ill-defined causes of death as completeness and proportion of ill-defined causes are related variables. As it is expected that the proportion of ill-defined diseases usually decreases when the death registration coverage increases (Paes NA. Quality of death statistics by unknown causes in Brazilian states. Rev. Saude Publica; 41(3):436-45), please consider the possible implications of this and different assumptions over the interpretation of the observed results.

5. In the Methods, page 7, 1st paragraph, please check the correctness of SIAB as a source of VS, which is not consistent with the information in the third paragraph on page 6.

6. In 2005 an important program by the Ministry of Health was implemented in the North and Northeast regions aimed at reducing the proportion of ill-defined causes of death (Brazilian Ministry of Health. Reorganization and qualification of health information systems. Brasília, MH, 2006. pp 43-47). Could you add some information in the discussion section about whether this program was implemented as a priority by the family health team and how this might affect the results?

7. Also in the discussion section, you mention that the greater effect of PSF on reducing the unattended deaths in the municipalities with a higher human development index was due to the lower effectiveness of the PSF actions in less developed municipalities and also promotion of death registration. I feel this question needs to be elaborated more as the PSF in general has had an important effect on reducing health inequalities.

Discretionary Revisions

1. Maybe the title could be more specific by the introduction of the word “for children” or “for under-five-year-olds”.

2. What are the criteria for the exclusion of some municipalities on tables 1 and 2?

3. The title of table 1 might be improved.

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

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**
'I declare that I have no competing interests'