Author's response to reviews

Title: Can mothers rely on the Brazilian health system for their deliveries? An assessment of use of the public system and out-of-pocket expenditure in the 2004 Pelotas Birth Cohort Study, Brazil

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Author's response to reviews: see over
Response to reviewers

Response to the reviewers, point by point is provided below. We thank both reviewers for the careful and thorough assessment of the paper. It has certainly improved considerably, and we hope it is now fit for publication. Nonetheless we are available for further amendment or clarification.

Reviewer BO

1. Revise Table 2 and split into two.

   The table was revised and information on health plan coverage and characteristics kept in the table, while information on expenditure with the baby was included in a new table 3. Population totals were included in both tables 2 and 3. Layout was changed in order to improve clarity – I hope it worked!. Also, medians were deleted since most people will be interested in the means.

2. Discussion – compare results with other LA countries.

   The original discussion did not include comparisons with other LA countries for the same reason we are not able to do it now – there are no other works published with this kind of data. We updated our literature review and found several new papers on out-of-pocket expenditure, with emphasis on high or catastrophic expenditure, but all of them based on national or general datasets where individual OOP expenditure with delivery of private health insurance is not available. A few selected new studies relevant were included in the discussion.

3. Minor points

   1 & 3 – some punctual results are not shown in the tables. The text was revised to make it clearer.
   2 – the text was revised as suggested.
   4 – the text was revised to improve clarity.

Reviewer JB

As a general reaction to the comments, we’d like to stress that our main objectives are to explore the use of the Brazilian national health system for deliveries and related out-of-pocket expenditure in a way to assess whether the system is equitable and provides protection for high expenditure. We feel the title may mislead the reader and raise false expectations. We propose an alternative title: “Can mothers rely on the Brazilian health system for their deliveries? An assessment of use of the public system and out-of-pocket expenditure in the 2004 Pelotas Birth Cohort Study, Brazil”.

MAJOR REVISIONS
INTRODUCTION

1. You need to include a section describing the health financing system in Brazil. What is SUS, how does it work? What % of people have insurance cover (SUS; health plan) versus do not? Some indication of the scope of service coverage within these plans would also be helpful to help interpret the findings.

The first three paragraphs of the revised manuscript respond to the issues raised here. We included an overview of how the SUS works and the scale of its services – in a level of detail we considered enough for the understanding of the paper.

2. Are the health plans private or SUS? How does SUS interact with private sector?

Private health insurance is offered in Brazil by a variety of different providers and at varied costs and levels of coverage. This is explained in the end of paragraph 3.

3. The authors should make reference to the financing incidence literature as the study draws in part on these methods.

The literature review was updated and broadened. But our focus is on family out-of-pocket payments and protection against excessive expenditure. Thus we did not enter in details related to public spending or private payments towards health plans.

4. Have there been any other studies looking at financing of health care in Brazil? Incidence of under-the-table payments; affordability of care. If not, state this. If so, what did they find?

In terms of out-of-pocket payments, the only other study we found was already mentioned in the paper [1]. Four others, related to private or public financing of health care based on national surveys were included [2-5].

5. How generalisable are the study findings to the rest of Brazil, and other Latin American countries?

Results are not valid for Latin America in general, and we did not claim that. As for Brazil, apart regional variations on health services available, our results should give a fair idea of what happens in the country. In fact, similar results in terms of percentage of births paid by the SUS, health plans or out-of-pocket were found in national surveys [2, 6]. We added suitable comments in the discussion section.

6. To help understand the study context, the authors should show the use of maternal health services by wealth group in Brazil and Pelotas, what proportion have access to skilled attendance, deliveries in hospitals versus lower levels of care; public versus private sector?

Access to basic healthcare in Brazil is very high, over 95%, as shown repeatedly in surveys. Hospital delivery is the rule, except perhaps for small rural communities. According to a statistical tool developed for the Ministry of Health (IDB 2006, http://www.datasus.gov.br/idb), hospital delivery was 90%+ in all country regions. This info was included in the introduction.

METHODS

7. Would visits to the 5 maternity hospitals capture all deliveries? Do all deliveries take place at hospital?
Detailed information about context, methods, losses, refusals related to the study are available in a paper [7] available at http://dx.doi.org/10.1590/S0034-89102006000300007. A summary of study recruitment is reproduced below. We added a bit more info on hospital deliveries and enrollment at the start of methods section.


8. Was there any attempt to validate reported cost figures, by for example, reviewing patient records, hospital bills?

The study was subject to a very strict quality control system, but we did not conduct any validation study for reported expenditure.

RESULTS

9. How do the plans/SUS cater for maternity services? What % of the plans cover maternity care and which aspects of care? Are all services paid for? What about complications? What about care for baby? It would be very helpful to show exactly how these plans cover for maternal health services.

As we explained now in more detail in the introduction, SUS is a public free universal comprehensive health system. That is, it covers all aspects of maternity care, including antenatal care, delivery (vaginal or C-section), post-partum hospital care including complications (ward or intensive care) and post-partum revisions at PHC units. These units also carry pediatric assistance and well-baby clinics. As for
health plans, coverage is highly dependant on what is selected by the buyer. Usually coverage is organized in packages of clinical/ambulatory care, hospitalization, sophisticated procedures (e.g. magnetic resonance, transplants) and maternity care for women in fertile age. We, however, do not collected information on whether health plans specifically included maternity care, but only hospital treatment. These aspects were contemplated in the text included in the introduction.

10. Authors should show expenditure by place where care was sought (public versus private facility). Do more women have to pay for care of baby because care is sought directly at pharmacies rather than from health facilities?

Free medical care offered through the SUS is provided by either public or private facilities, transparently to the user. Only one of the hospitals offering maternity care in the city does not take SUS patients. Thus, the point is not where the patient received care, but how it was paid for. SUS patients should receive totally free care, including hospital costs, obstetrician, medicines, etc. And that was exactly what we observed in the study except for a few cases that we see basically as noise in a study of this size.

11. Generally presentation of results is quite confusing: need to restructure to show:
   a. Distribution of financing coverage (SUS, private; none) overall and across wealth groups;
      This information in shown in Table 4.
   b. If possible: show what % of insurance covers maternity care and which aspects of care;
      Table 2 shows health plan coverage of each service: consultations (ambulatory care), laboratory exams, hospitalizations. Unfortunately data specifically on maternity care was not collected.
   c. Mean expenditure on delivery overall and by wealth group, for delivery care (ideally: normal/c-section; public; private; and by type of insurance cover: private; SUS; none);
      The percentage of mothers who reported out-of-pocket with the delivery is reported in Table 4. Mean values were not reported in the tables by wealth groups because sample size was too small for the first two quintiles. As for the rest, no important difference was found. Thus the overall mean was reported in the text (1st paragraph of p. 9). Difference between vaginal/c-section is reported in the last paragraph if the results section.
   d. Mean expenditure on care for the baby (by place where care was sought; type of insurance cover; income group): is the different stat sig?
      Table 3 now includes % and mean expenditure by wealth group and type of insurance. It is not possible to classify by where care was sought given the period covers multiple events that might have happened in different settings.

DISCUSSION

12. How does coverage of deliveries by the SUS compare to other health services? Is it especially high? Why is this likely to be and what are the implications?

I don’t quite follow. There are no other health systems in Brazil.
13. How do you explain the findings of the Xu study in light of your study? Is it that catastrophic payments arise for non-maternity services? Or that Xu’s study is flawed?

Basically, health expenditure among the poor is mostly related to medicines, and among the well-off to health plans and medicines. This study shows that the poor are protected from out-of-pocket expenditure in a critical time such as the birth of a child due to high coverage by the SUS. Rest assured that the system does not operate that well in many other areas.

MINOR ESSENTIAL REVISIONS

Abstract
14. Background: clarify which event (i.e. deliveries); maybe better to say household out-of-pocket payment, rather than private health expenditure which could denote private health insurance contributions.

Text modified as requested.

15. Results: Even among those mother covered by a private health plan, nearly 50% of births were delivered or covered by the SUS?

That’s correct – please see Table 4.

Introduction
16. Second sentence should this read: the highest proportion of people suffering from catastrophic payments?

Text modified as requested.

17. Sentence 6: this study: which study?

Text revised.

Methods
18. Second paragraph: Were age and skin colour used in the wealth index? If not, why are they not included in results?

Age and skin color or the mother were included in Table 1 for descriptive purposes only. We think it is important to give the reader an idea of the distribution of these characteristics in the sample.

19. Why transform income into minimum wages and not keep it as a continuous variable? Was income collected on monthly or yearly basis, how was the question phrased?

Most studies in Brazil report income as minimum wages, and usually, in categories. The epidemiology community also favors this approach. In this paper, as with age and color, income was reported for descriptive purposes only. An asset index, the IEN, was used for economic classification.

20. Provide some information on what the IEN is and how calculated (which assets does it include). How does the wealth ranking based on assets compare to the wealth ranking using family income?
The IEN was created exactly to overcome limitations of income as an economic indicator. Details are published in the freely available paper at http://dx.doi.org/10.1590/S0034-89102005000400002.

21. Who else is likely to have paid for the plan? Husband, parents?
In most cases health plans are paid for a person living in the household. Sometimes, an ex-husband, a parent, or a son in case of an elder is in charge of the payments.

22. How was the question on under-the-table fees presented to respondents, how was it phrased?
Two questions were made to the mothers. 1. Did you pay any additional amount for the delivery to the hospital? And 2. Did you pay any additional amount to the doctors?

23. Were transport costs included and time costs for companions? If not, why not?
We did not investigate costs related to transportation, meals, telephone calls, etc., but only those related to health care. Please bear in mind the source of the data used here is a general study on newborn and maternal care, and not a specific investigation of delivery financing and costs.

24. Which analyses were conducted? It would be helpful to announce type of analysis done and key research questions in the methods.
The objectives of this study were summarized in the last paragraph of the introduction. We did not feel that calculation of percentages, means, chi-squared and t-tests needed explaining in methods.

25. Page 6 first table, what do you mean by ‘and indicated in the Table’?
The text was removed – inadvertently remained from a previous version of the phrase.

Results

26. Can you give examples of sorts of services that would require additional charges amongst the poor? Are these copayments? What are the direct payments for (drugs; informal payments; lab tests?)
The third paragraph of results was revised for clarity. These are not copayments, but small fixed charges in order to discourage unnecessary use of medical services.

27. Do the health plans operate at the individual or household level? If at the household level, how is it impacted by household size?
Health plans in Brazil work as individual insurance, and their cost is dependent on the number of members, age and services covered.

28. For all the statistics it would be helpful to present the mean for the sample as a whole before indicating the differences between lowest and highest wealth group.
The results section was revised so that overall means and proportions were always presented before subgroup results.

29. Could some of the women have had some of the costs paid by SUS and paid some costs directly themselves: i.e. the categories of financing presented on page 7, 3rd paragraph, starting the Brazilian public health system… are not mutually exclusive if deliveries could have been financed by a combination of direct payment and SUS or health plan.
This situation is not allowed by SUS regulations for any single treatment or hospitalization, such as childbirth. In other situations, a pregnant woman could, for instance attend a prenatal clinic in a public health center and have an ultrasound scan through her health plan.

30. When you say that 49.2% of those with a health plan were financed by SUS, do you mean they delivered at a SUS facility? If so, would this not still be financed by their health plan (i.e. SUS facility reimbursed)? Need to clarify what you mean by this.

Also, despite having tried to do so, public hospitals have not been successful in recovering costs of treatment offered to patients covered by private health insurance.

31. What do you mean on page 8 by ‘about 90% of those deliveries that were paid directly were c-sections?’ what is paid directly? Paid by mother not covered by health plan? Does this mean c-section not included in health plans? What proportion of women had a c-section versus normal delivery.

We mean direct cash payments to the hospital, that is, not SUS or health plan. These private patients suffer a 90% C-section rate, above the 83% C-section rate that health plan mothers are subject to. Overall, 45% of the deliveries were C-section. The phrase was removed as it holds no relation to the objectives of the study.

Discussion

32. The fact that only mothers were interviewed is an important issue, as they may not be aware of expenditures that took place. It would be helpful to comment on why this was (were husbands unavailable?) and to discuss non-response rates.

Non-response rates were added to the text. As this is a maternal and child health study, mothers were interviewed. Fathers are much more difficult to interview. In our culture, the woman participates actively of the household management and it is unlikely she is not aware of expenses related to the delivery.

33. If payment was unobserved for the poorest 40% then payment was not the same across all economic groups. Rather the poor paid little to nothing and the higher income groups paid more. When you talk about payment need to take into consideration contributions to health plan and SUS in addition to direct expenditure to assess how equitable the health system is, or the financing incidence of the system.

The paragraph was revised to improve clarity. What we mean is the direct cost to the patient when the payment is made in cash to the hospital. In these cases, each delivery cost nearly R$2000 (roughly US$ 1000 in today’s exchange rate). We stress again that the main interest of our study is to explore out-of-pocket spending related to deliveries as potential cause of low-quality maternity care or excessive expenditure. We did not intend to study the financing of deliveries in terms of costs to the government or private insurance companies.


