Author's response to reviews

Title: Costs of vaginal delivery and caesarian section at a public sector hospital in Islamabad, Pakistan

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Authors’ response to Reviewer’s report: Stavros Petrou

Title: Cost vaginal and caesarian section delivery at a public sector hospital in Islamabad, Pakistan

Revised version; date; 5th June 2009

Authors: Attia Khan, Shakila Zaman

Major Compulsory Revision

1. In Pakistan the government spends 0.75% of GDP {Economic Survey of Pakistan (2005-06)} on healthcare which is far below the 5% recommended by WHO for developing countries. It is unjustified to expect funds to be available for costing studies on incremental health costs and incremental health gains with specific healthcare interventions. The few costing studies conducted in Pakistan published and unpublished (for example reference # 14) aimed at improving efficient allocation of resources through the costing study. Other possible use for our data has been mentioned in last paragraph of background.

2. Information on risk profile is provided in the results section under characteristics of postpartum mothers. Our results with context to other studies on maternity healthcare costing studies have been discussed in the discussion section.

3. Post partum mothers were interviewed in the ward in the presence of their husband or a close relative. Other concerns have been rectified under section ‘data collection procedure, patient perspective’.

4. The top down methodology and opportunity cost has been discussed in greater detail. Costing of staff activities was a limitation of our study and it has been discussed under last subsection ‘study limitations’ in the discussion section.
5. Data analysis is discussed in much greater detail in the revised manuscript. It has been clarified how missing data was managed and the variables included in statistical tests have been mentioned in text and in tabular form. Results of simple linear and multiple regression have been tabulated (table 4). Results of Chi squared analysis have been tabulated. The Monte Carlo boot strapping technique (table 5) has been applied to variables such as household income, total cost of delivery and others versus mode of delivery. We were not able to satisfactorily perform bootstrapping via other routes of computer analysis despite repeated efforts. Following routes were attempted several times. 1. Analyze # regression # nonlinear regression # option # bootstrap estimates of standard error. 2. Analyze # non parametric tests # two independent sample test # exact test # Monte Carlo test. Results of T test are given in table 3. Sensitivity analysis tests the robustness of the conclusions. The cost data from the provider did not have any degree of uncertainty as it was based on real data.

6. Study limitations have been discussed in greater detail. The possibility of underestimating caesarian section costs is definitely present. To cover all aspects of caesarian section sequelae and associated costs a study on a larger scale with a wider time zone is required.

Minor Essential Revisions

1. The term unit cost has been applied to a clinical event (such as unit cost of inpatient day, unit cost episode of child birth) in many published articles for example reference # 12, 13 and many others studies. Unit cost is defined as the cost per unit outcome or output (Andrews J: Pregnancy and Birthing Glossary. Health library home, EBSCO Publishing, 2008; Available from: URL. [http://healthlibrary.epnet.com/GetContent.aspx?token=d1db22f9-c4e0-4d22-bfa3-887872398b]). We have replaced the term unit cost with average cost of vaginal delivery/average cost of caesarian section.

2. The groups have been specified.

3. Costs have been presented in both dollars and Pakistan rupees. Conversion rate is 67 rupees to a dollar (forex rates of May 2008)

4. Reference is provided.

5. Exact dates have been provided

6. The name of the city (capital city of Islamabad) has been mentioned, but we believe it is not necessary to mention the name of the hospital.

7. The study population consisted of all Pakistani women by origin. We did not attempt to stratify them according to caste and language which could not assessed by observation alone.
Authors’ response to Reviewer’s report: Albrecht Jahn

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Major compulsory revision

Methodology

The sampling technique used was convenience sampling and not purposive as mentioned earlier. Random sampling was not possible due the limited time zone for sample collection which involved a high risk of losing mothers admitted and discharged overnight after an uneventful vaginal delivery. The hospital has a high bed turn-over in the general ward, and the need to have available beds for the next surge of patients is always a major concern therefore stable mothers delivered by SVD were routinely discharged after retaining for six hours.

Exclusion & Inclusion criteria have been made more transparent.

Details on the number of deliveries, the population covered and additional information about the context is given under “study area”. The derived costs are very much representative for the average cost of a CS in a tertiary care hospital in an urban setting. The costs may not be representative of deliveries in rural settings, private sector nor primary healthcare level.

It is true that more deliveries in Pakistan take place in private facilities as compared to public health facilities. According to Pakistan Demographic Health Survey 2007, 66% of deliveries take place at home, 11% in the public sector and 23% in private facilities. It is therefore understandable that if 66% of the women deliver in their homes, population based SC rate would be substantially lower than hospital based SC rates. The 23% CS rate was also the rate in the month of May at the hospital. The hospital statistics record a 25 % CS rate which remained more or less constant through out the year. Other Pakistani studies estimated CS rates as high as 45% (Ayub Teaching Hospital in Abbotabad, Pakistan (2007). Another study from Dacca, Bangladesh reference # 30 estimates a CS rate of
A detailed discussion of methodology is given in the revised version of the manuscript. Direct access to hospital budget data was provided. The depreciation of capital costs was based on their useful life as documented in the hospital records. Details are available in the data collection procedure. Assessment of working time and work load of healthcare staff was unfortunately a limitation of our study.

Results

All data on capital costs and recurrent costs was based on real data and we have provided the details in the data collection procedure, the provider perspective. The cost data on patient perspective was based on some estimates provided by patient and relatives and some real data.

All cost data has been presented in US dollars (conversion rate is 67 rupees. May 2008) and in Pakistan rupees.

Statistical analysis has been discussed in detail

Data on the education level has been included in table 3.

Reference data on general population of women from the most recent Pakistan Demographic and Health Survey 2007 conducted by National Institute of Population Studies, published in 2008 has been included and presented in the study. Reference # 7 and 10

According to this survey:

1. Women living in rural areas and those who are poorer are especially unlikely to receive any care during pregnancy and childbirth.

2. Home births are considerably more common in rural areas and amongst women with little or no education as compared to women with secondary and higher education.

3. One in three ever married women ages 15-49 in Pakistan has no education.

High referral rate of complicated cases of pregnancy and childbirth to tertiary care public hospitals is one major cause of observed high C section rates. The relation of high status to high C section rate could be a possible explanation for rising CS rates at private hospitals but not at public hospitals.

Discussion

There was some limitation of quality of the cost data on services that were shared amongst patients from other departments such as blood bank and
laboratory (pathology, biochemistry etc). Record of budget and expenditure on these services was available but accurate data on number of maternity patients taking the tests and the number and kinds of tests taken was not available to our satisfaction.

Results of costs are compared with results from other developing countries in the discussion section.

Reference number 30 has been corrected