Reviewer's report

Title: Performance evaluation of a health insurance program using optimal resource use: Health care providers perspectives

Version: 1 Date: 1 August 2013

Reviewer: John Ele-Ojo Ataguba

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The authors examine the National Health Insurance Scheme (NHIS) in Nigeria using the so-called optimal resource use (ORU) domains. There are still areas that need to be looked at critically.

Major Compulsory revisions

1. The methods (and the results) sections can benefit from an extensive revision.
   a. Explain the sampling strategy used. How were 509 (or 466) health care professionals (HCPs) sampled from the 68 (or 57) accredited facilities?
   b. What happened to the differences in private and public providers? Any difference?
   c. Not sure why some observations were deemed as not meeting the inclusion criteria (p. 6) even after the 509 HCPs have been selected based on a set of inclusion criteria.
   d. The so-called multivariate logistic analyses were essentially “data mining”. This is problematic. Stepwise selection method is heavily criticised. You do not fish for the best model in that manner. There need to be some theoretical underpinning for the variables selected for inclusion. It should not be guided solely by the significance of the variables (e.g. at the 5% level as the study did).
   e. Provide model diagnostics statistics and tests for these models.
   f. Also, the logistic regression models have some inherent problems. Note that the dependent variables are some sort of dichotomised self-reported variables based on the perceptions of the health care professionals. The explanatory variables are also measured at the health care professional level. In that case, what the authors have done is essentially using individual level variables (i.e. HCPs that provided the responses based on the NHIS/HMO) to explain the answers that they have also provided in relation to the domains. In that case, the interpretation should be for instance: a medical staff member is more likely to report good promptness of the referral system than a non-medical staff member. Instead of this, the authors explain the odds ratio at the level of the providers. While it is possible to do this under some assumptions, the type of analysis used here (i.e. Table 4) is inappropriate.
   g. Clustering effects are not account for. If the authors intend to make conclusions or inference at the provider level, they must control for the fact that
respondents from the same employer may have the same ‘objective’ response. You may want to control for this using the -vce(cluster clustervar)- option in Stata.

2. There are some issues with the variables listed in Table 1. For example, what does the fee-for-service payment method measure? This can be answered if the authors provide the questionnaire or explain the way these data were obtained. How large is a large amount reimbursed the providers?

3. In interpreting the odds ratio, the authors seem to say something about ‘cross-odds’. How do you order the odds ratios in the manner reported in page 8? The odds measure the behaviour of a variable in relation to the omitted category and should be interpreted as such.

4. The questionnaires should be explained or presented. The issue of recall period was only introduced in the discussion section. This is not appropriate.

5. Provide a description of the variables listed in Table 2.

Minor comments

1. P.9 “However, it would be unjust to equate better…” Avoid using the word unjust. Consider using ‘inappropriate’.

2. P.11 “When the capitation payment is reviewed and the FFS method is restructured, then the providers’ productivity and patients’ utilization of services would improve…” This is an ambiguous statement.

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