Reviewer's report

Title: Coverage of Vitamin A Supplementation in Nigeria and Implications for Childhood Blindness

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Reviewer: Clare Gilbert

Reviewer's report:

This is an important topic and the authors are to be congratulated in performing this analysis.

Small point: vitamin A deficiency is now called vitamin A deficiency disorders (VADD), reflecting the systemic and widespread impact of deficiency on multiple systems.

Introduction

"The primary cause of VAD is lack of an adequate intake of vitamin A". Please add to this by saying that children have relatively high requirements for vitamin A, and demand for vitamin A increases during infections.

VAS is only one strategy for control of VADD, and others should be mentioned in the introduction and discussion e.g., reducing diarrhoeal diseases; nutrition education; local production of vitamin A rich foods etc, as was originally advocated by WHO.

Please explain in the introduction how and where vitamin A is currently dispensed in Nigeria, and by whom. Does Nigeria use the Integrated Management of Newborn and Childhood Illness as the child health component of primary level maternal child health services? If so then routine VAS and measles immunization are included in this. Does MNCHW include VAS - we only learn about this in the discussion whereas it would be useful to know about this before reading the results.

Methods

Greater clarification is needed on how data on VAS were collected: what was asked? Were Road to Health charts checked to verify what the mothers said? If not then this should be stated.

Data analysis: as acknowledged by the authors, children aged 6 months would not be expected to have had a dose of vitamin A within the previous 6 months. This may explain the lower coverage
in infants aged 6-11 months (13%). It would good to analyse data for children aged 9 months and above as well, keeping 6 months and above as these findings are comparable with other studies.

More clarity is needed on the sources of data on blindness in children, and whether the data are population based, facility based, or came from examining children in special education.

Results.

This is not written well. Paragraphs and sentences should not start with "Table X", but the table should be referred to at the end of a section of text which describes some of the main findings in the table.

Re childhood blindness data: all studies have their sources of bias, which should be alluded to in the discussion. It is also not legitimate to perform statistical analyses as this requires population based data with variables that are normally distributed.

Discussion

This could be written more succinctly.

It is not clear whether the strategy adopted for VAS is by house-to-house visits in Nigeria, which would take an extraordinary amount of staff time, would be very expensive and take staff away from other duties in facilities.

Re mass immunization days (AVW/MNCHW in Nigeria). There is anecdotal evidence that one mother may take several children to be vaccinated, including those from neighbouring households. This means that mothers who did not accompany their child would not know what had happened. The authors should highlight that the data they present is, therefore, likely to be a minimal estimates.

Discussion

The discussion should not repeat the results: the rural / urban differences in VAS in the univariate and adjusted analyses should be highlighted in the results, and then commented upon in the discussion.
The paper reads as if the main reasons for the lower coverage in the north is because of religious and cultural reasons, which may be misleading. As I understand it, the north of the country has far poorer infrastructure and health care services than the south, which may be other explanations not captured in the analysis. The reference to disapproval by fathers needs to be mentioned with caution, as the same may apply in other areas of the country but where studies were not done.

The paragraph starting "Identifying inequities" needs to be broken up, separating regional differences from differences according to mother's education.

The paragraph on blindness in children needs to be qualified, as above, as eye care services are likely to be less available in the north than in the south to manage children with measles infection or corneal ulcers due to VADD or other causes.

Vitamin A deficiency disorders increase the risk of mortality, and this should be reflected in the concluding paragraph.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
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