Reviewer's report

Title: Magnitude and factors associated with asthma among under-fives in Mulago Hospital Kampala Uganda: a cross sectional study.

Version: 1 Date: 10 May 2013

Reviewer: Rebecca Rosenberg

Reviewer's report:

- Major Compulsory Revisions

This was clearly a good deal of effort on the authors’ part to better describe asthma in low-income countries and subSaharan Africa deserves this attention. However there are some serious methodological concerns about the case definitions and lack of clarity in the precise scientific aims of the study.

1. The bulk of this work was focused on better case definitions of asthma. However it is not clear how exactly these definitions were created and on what authority, as definitions for these diseases exist. I defer to whatever paradigm (European or British) the authors choose to use, just be consistent within that framework.

2. Methods: Patient population included would be better if children under 1 year were excluded or analyzed separately. Bronchiolitis disproportionately affects this group, by definition (British/European <1yr; US, <2y). It is difficult to state whether a 9 month-old has “asthma” or even reactive airway disease or is simply having bronchiolitis.

3. Strongly consider seeking a consultant who has a history of research publications to review for overall scientific writing style. For example, standard techniques such as nasopharyngeal swabs need not be described in detail but rather as “nasopharyngeal swabs obtained using standard technique” or “as per Company X instructions” and then reference appropriately.

4. Please state if RSV is a common cause of bronchiolitis in Africa and use references. There are many viruses that cause bronchiolitis of course. Note that the DFA technique is only 50% sensitive for detecting RSV, and that is likely lower in the setting of lower prevalence.

5. The abstract and Introduction/Background do not quite match or elucidate the exact objectives of the study. The last paragraph of the Introduction/Background should include the goal of the study. In particular, “magnitude” is not a precise scientific term. The goal of the authors seems to be 1) describe factors associated with asthma exacerbations among children 2mo-12y (although I would argue 1y-12y or 2y-12y, see above); 2) estimate true prevalence of asthma exacerbation in a sample of hospitalized children in a tertiary Ugandan hospital. If indeed the authors endeavored to screen every patient over a year (see Methods query below), then this is actually a prospective cohort study and
not a cross sectional study.

6. Abstract: Please review typical parts of an abstract and rewrite after revising the rest of the sections.
   • 1-2 sentences about background/current knowledge
   • Aims of study (once authors have clarified them)
   • Methods: type of study, duration, location; subjects; and enrollment; how study was done (how case definitions were constructed and applied); statistical analysis: multivariate logistic regression
   • Results: put all prevalence numbers in 1 sentence, and one sentence for factors.
   • Conclusion: fairly good as is, but next steps/main conclusion might not be correct; I would argue that the next study is to: 1) determine how or why physicians may underdiagnose asthma (education gap? Lack of awareness?)

6. Methods: The development of the case definition is actually the most important part of this paper. However, there are no details about how these case definitions were developed especially in terms of WHO classification of case definitions of diseases. (This related to point 1 above).

7. Methods: Please use a diagram to demonstrate the enrollment of patients. It is unclear what the total potential patient range. Were any patients missed and at what point during admission were they enrolled?

8. Methods: Unclear what was adjusted for in the “adjusted” OR. Typically age and gender. Also you are describing a backwards stepwise regression. The power calculation sentences is incomplete; I am not clear what the study was powered to detect. Typically the authors would estimate a potential difference between the null and alternative hypothesis. In this case, the study was already done so I would argue to not include this calculation. I think (?) this was a convenience sample

9. Results: Information about screening and enrollment belongs in the Methods. Demographic characteristics of the enrolled sample belong in Results.

10. Discussion: note that “routine data from Mulago hospital” includes patients 2months to 12 years, which isn’t germane because the study is 2months to 5 y. Also do not use “two-fifths,” just use percentage.

11. Discussion: maternal asthma and asthma in offspring connection is circular, because the authors included maternal asthma in the case definition for patient asthma.

- Minor Essential Revisions

1. Figure 1: Please present data in either graph/bar chart or tabular form. Pie charts are not typically appropriate for scientific publication, nor informative when there are overlapping categories of data. A better way to give this information graphically, although I think it is already in the text, would be a table. The label is not accurate as the data is proportion of asthma among children presenting to an acute hospital setting with respiratory symptoms, not the proportion of asthma.
2. Table 2: Please make clear what the asthma column represents and relabel as “present” or “not present” rather than “yes/no”. For example, what is 27? It should be a proportion of total asthmatics. Also, consider organizing the factors for ease of reading by some order, preferably either type of factors (personal, familial, environmental, etc) or by decreasing COR. Also COR and AOR should be written out in the table as Crude OR and Adjusted OR. Typically there is an asterisk to indicate what exactly was adjusted for (age? Sex?). Remember that many readers only read the table. Also labels can be succinct but informative: Maternal asthma instead of history. Also, is “birth weight” meant to be “Low birthweight?” The table also needs a better label. Does this table of asthmatics include those with pneumonia and asthma and exclude bronchiolitis? Not clear.

--Consider another table that has the raw data, with 4 columns: 1 for the variables, better organized; 1 for “No asthma”, and 1 for “Asthma.” and 1 column with fisher’s exact value and p value for each variable.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests.