Reviewer's report

Title: Phenotypes of severe asthma among children and adolescents in Brazil: a prospective study

Version: 2 Date: 7 December 2014

Reviewer: Jodie Simpson

Reviewer's report:

The authors report a prospective study of children and adolescents from Brazil where participants were characterised into two groups, the first difficult to treat severe asthma and the second treatment resistant severe asthma. The findings included a group misdiagnosed as well as 20 treatment resistant and 16 difficult to treat severe asthma. The key differences between the group were FeNO and lung function parameters.

I have mostly minor revisions

Minor Essential Revisions

1. Results line 135 and 163 please remove the "Re-" immediately prior to Evaluation
2. Please add in the numbers of participants that had the other examinations such as CT scans, esophageal pH etc in lines 151-162
3. The results in lines 276-282 do not relate to Table 2 and perhaps have been included in the wrong part of the Results section
4. The discussion outlines the high costs associated with severe uncontrolled asthma (line 312-314), are these costs associated with an exacerbation or merely having a family member with severe asthma - it is unclear - also how does this cost compare to the cost of accessing medications in Brazil?
5. Passive smoking is presented in Table 1 with no clear method of assessment, also there is little information regarding how smoking from the home was eliminated (line 364-365)
6. Table 2, what was the time between the pre-protocol and post protocol assessment and did this vary between any groups of participants
7. Please include the sputum neutrophil proportion in Table 2 and 3
8. Table 3, the numbers for sputum phenotype do not add up 5+8+6+2 = 21, however there were only 20 participants in the group and below the table the footnotes states that 4 participants were not able to produce a sputum sample (a similar error is observed in the Difficult to treat group) - further detail is required about the sputum samples, how many were collected and the actual cell proportions should be reported in Table 3.

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 have no competing interests to declare