Author's response to reviews

Title: Lung inflammation in healthy and asthmatic children in a contaminated city.

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Author's response to reviews: see over
Dear Dr. Adam Collison and Ms Ma. Celine Zapanta

I appreciate the useful commentaries of the reviewers and add the third version of
the following manuscript:

MS: 3074480271034563
Research article
**Lung inflammation in healthy and asthmatic children in a contaminated city.**
BMC Pulmonary Medicine (Section: Epidemiology and public health)

**Reviewer 1**
**Reviewer:** Paolo Montuschi
**Reviewer's report:**

1) These references, demonstrating the reproducibility of new specific non-invasive
techniques for assessing airway inflammation such as e-nose (J Breath Res.
2013;7:017103) and NMR spectroscopy of EBC (Eur Respir J 2012;39:498-500),
have to be included.

R= these references are already included (number 37 and 39 respectively),
and their results were specified.

**Reviewer 2**
**Reviewer:** Joerg Mattes
**Reviewer's report:**

Major compulsory revisions

1) The novelty of the findings is significantly compromised by ref 18 and 19 but
the authors argue that their study shows data from children living in an area with
high ambient air pollution. To elucidate the modulatory effect of air pollution on
an inflammatory marker in EBC then appears to be the primary aim of this study.
However this is not really addressed. Therefore, the association between
exposure to air pollution (e.g. average/peak 24hr/3d/1 week prior to
measurement) and the inflammatory EBC marker needs to be determined. R= We changed the objective as follows: To elucidate the modulatory effect of air pollution on Cysteinyl-leukotrienes (Cys-LTs) levels in exhaled breath condensate (EBC) among healthy and asthmatic children.

2) Related to 1) were is the evidence to suggest that exposure to ambient air pollution was higher in this cohort as compared to ref 18 and 19? What exactly was the difference? It appears an unsubstantiated suggestion that the main reason for differences in EBC markers would be differences in air pollution levels. R= It was supported considering that in the last three years the average levels of PM10, reported by the Air Quality in Europe in cities of similar studies were 28µg/m³ in London, UK and 49.4µg/m³ in Padova, Italy; significantly lower than in our population (196.7µg/m³). According to the Air Quality in Europe. 
http://www.airqualitynow.eu/es/comparing_year_average.php

3) Define "normal" and "abnormal" as well as "mixed", "obstructive" etc Spirometry. R= The presence of spirometric values below the 5th percentile of reference values were considered abnormal. The obstructive pattern was defined by the diminution of the FEV₁ and FEV₁/FVC index, the restrictive pattern by diminution of the FVC, with normal FEV₁/FVC index, and mixed pattern by diminution of FVC and FEV₁. It is specified on page 7, paragraph 2.

4) Which reference value equations were used? GLI equations are Recommended. R= Reference values of Hankinson et al. for Mexican-Americans were used, considering that children > 7 years old can fulfill ATS criteria of quality after the first spirometric evaluation. Page 7, paragraph 2.

5) provide p-values with OR and 95%-CI. R= 95% CI was added to all results on table 2.

6) Fig 1 was does "A" and "S" mean? add to legend R= It was added the meaning of SD as standard deviation in figure 1.

7) "FEV1%/FVC" do the authors mean "FEV1/FVC %"? R=Yes, it was changed.

8) There is no difference in FEV1/FVC% between asthma and non-asthma, yet asthmatics seem to have more an obstructive pattern. This is counterintuitive and requires discussion as well as see 3) R= It can be explained by the difference in FEV1 (% predicted) between groups.
9) the sentence in the discussion starting with "So it seems....." is unclear, please Rephrase.
R= This sentence was rephrased.

10) Re power calculation, the difference that can be detected is often expressed as difference in STD, can the authors provide this information in addition/rather than "10%" difference.
R= We performed a re-power calculation using the difference in standard deviations and means in addition to only 10% difference between groups in Cys-LT levels and the result was 93%. It was added at the end of discussion.