Author's response to reviews

Title: Ambient biomass smoke and cardio-respiratory hospital admissions in Darwin Australia.

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Author's response to reviews:

To the editors
BMC Public Health

Thank you for your response to our submitted manuscript Ambient biomass smoke and cardio-respiratory hospital admissions. Please find attached our revised paper in which we have incorporated comments from all three reviewers as detailed below.

Yours sincerely,
Dr Fay Johnston
4th July 2007

Reviewer 1. (Ravi Maheswaran)

1. The authors state that the pollution caused by fires in the savanna surrounding Darwin results in a haze of variable severity for up to eight months each year. The case crossover method they have employed uses control days in the same month and as the days are matched by day of the week, some control days are as close as one week on either side of the case-day. As the pollution haze seems to be more of a prolonged episode rather than a daily variation problem, is the method used justified? It would be useful for the authors to think this through and discuss potential limitations in the discussion.

Response - The primary concern of this reviewer was that the pollution haze experienced in Darwin is of a prolonged nature, with little daily variation and that this could have affected our ability to detect associations with health outcomes using a case crossover analysis. As we have now clearly explained in the paper (page 8 para 2) this is not a concern in our setting. The haze in Darwin fluctuates
considerably from day to day eg PM 10 often climbs or falls by 15-20 ug/m3 over periods of just a few days.

2. The title has been amended as suggested to include '.... In Darwin Australia'

Reviewer 2. (Douglas Dockery)

1. Pg 5, para 1: Were no PM10 measures collected in 2001-2003?

Response - No air quality data was collected during that period. This has been now explained in the text.

2. Pg 9, para 2: What lag associations are reported for ischemic heart disease associations? Was running mean pM10 over multiple lagged days explored?

Response - Lag associations up to 3 days, but not running means were explored. Is now clearly explained and reported in the text.

3. References: Important references [27,33, and 37] essential to review, not available and copies not provided.

Response - References 27 and 37 are now published and available. For reference 33 (Morgan et al) the full paper is under review. We have substituted this for a reference to a published conference abstract of the same work that contains the same information. We have included an additional reference to a similar study from Brisbane (Chen et al. 2006)

4. Pg 5, para 3: What is meant by "passive filter collections"? Normally this means no active sampling, that is no pump.

5. Pg 6, para 1: Does the Partisol measure PM10 "gravimetrically"? This means to determine mass by weighing, e.g. on a balance.

Response - Yes this is what we meant for both points. We have explained more clearly in the text.

6. Table 1: What is the base population of total, indigenous, and <15 years old?

Response - We have now included this information in the text on page 4 paragraph 2.

7. Table 2: How many days of measurements? Percentiles would be more informative.

Response - Number of days of measurements and percentiles has now been
Response - This has been corrected

9. Pg 7, para 1: What is the population of the sample base in Darwin?
Response - This has been included on page 4 paragraph 2. See point 6 above

10. Pg 8, para 1: For highly skewed data such as influenza consultations, percentiles would be more informative.
Response - This has been changed to percentiles and included in the table.

11. Pg 14, Acknowledgements: Who is "Debbie"?
Response - This has been corrected

Reviewer 3. (Jeffery Spickett)

1. Use of PM10 in the abstract and PM10 as a suffix in the rest of the paper - needs consistency.
Response - We have changed to the use of a suffix throughout the entire paper

2. Methods in abstract should mention the meteorological parameters.
Response - We have now included these parameters in the abstract

3. Abstract - compare PM10 values with standards to give a point of reference.
Response - We have now included PM10 data in the abstract and compared with standards in the text (page 8 paragraph 2.)

4. Abstract last sentence PM10 add "exposures"
Response - This has been added

5. Methods last paragraph - list meteorological parameters. Is wind speed and wind direction important here?
Response - The meteorological parameters are already listed in the previous
paragraph. Wind speed and direction were not included in our models because although they influence PM10, which we measure, they are not related to hospital admissions and are not therefore potential confounders.

6. Results line 5 hospital admissions "and" PM10
Response - This has been corrected

7. second line up 10 give units ie ug/m3 also in title for Figure 2
Response - This has been corrected

8. page 3 of discussion. I am not sure that "toxicity" is the right word here. Maybe "adverse effects" would be better
Response - We have changed the wording as suggested.