Reviewer's report

**Title:** Autism, Circumcision and Analgesia: an Ecologic Link

**Version:** 1  **Date:** 5 December 2012

**Reviewer:** Deirdre J Lyell

**Reviewer's report:**

The authors are to be commended for undertaking a challenging and interesting hypothesis. I do have several concerns and questions:

1. It is not clear that the assumptions made which form the basis of the primary outcome—1. Antenatal maternal paracetamol intake across a population as judged from different studies, from multiple countries and 2. Circumcision rates, either actual or extrapolated—are reliable as proxies for actual intake and rates, enough so that one may draw conclusions about causation of ASD. These assumptions form the basis of this study, so the outcomes are also not reliable. Based on the lack of reliability of the assumptions mentioned above, the conclusion, that a strong correlation exists between antenatal and postnatal paracetamol exposure and ASD, is not justified. Further, the assumption that circumcision rates may predict paracetamol intake, is potentially flawed.

2. The title does not accurately reflect the study. I recommend adding the words antenatal and postnatal paracetamol, which would assist with literature searches.

3. The abstract background should clarify that the authors intend to examine both antenatal and postnatal parecetamol exposures.

4. For clarity, it would help to mention in the abstract the type of study being conducted.

5. The conclusion in the abstract and in the study--that a strong correlation has been identified--is too strong given the limitations of this study.

6. The background is quite long, though nicely summarizes the plausibility of the proposed link.

7. The methods need clarification, such that this study could be reproduced, and to clarify the authors’ approach.

8. It would help to report more clear date ranges for the studies examined and circumcision rates assumed.

9. Other reasons for maternal paracetamol use should be discussed such as fever, etc.

10. The authors should consider pursuing this study using a single country, rather than so many different countries where rates of ASD and potentially confounding practice styles will vary substantially.

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

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests.