Reviewer’s report

Title: Cholinesterase Research Outreach Project (CROP): Point of care cholinesterase measurement in an Australian agricultural community

Version: 0 Date: 06 Sep 2017

Reviewer: Dea Kofod

Reviewer's report:

The authors investigate the integration of AchE monitoring into routine health checks, and examine for association between AchE activity and agrichemical use for farmers in South West Victoria. The authors measure AchE activity at baseline and follow up for both farmers and non-farmers. I have gone through the manuscript critically, and in my opinion the following issues are needed to be addressed for the improvement of the paper.

1. The authors measure baseline AchE activity. However, it is not clear whether the farmers have been pesticide-free before measuring this baseline AchE activity and for how long. This information may be added to clarify to what extent the farmers have been pesticide-free before measuring baseline and to discuss the influence of this on the results.

2. The authors use AchE activity as a measure of pesticide exposure. However, only 14.6% of the farmers and none of the non-farmers use anticholinestase inhibiting compounds. Therefore, a discussion about the influence of this on the results would be of interest.

3. The authors find a significant reduction in AchE activity from baseline to follow up for both farmers and non-farmers. A discussion about potential explanations for the lack of difference between the two groups would be of interest.

4. Line 30-31: It says that "Acetylcholinesterase can be measured in red blood cells (AchE) and plasma (PchE)". However, acetylcholinesterase can not be measured in plasma - cholinesterase can as plasma cholinesterase. Therefore, the sentence may be changed appropriately.

5. The "methods" section in the abstract may be revised to include study design and an overall idea of the set up for data collection (as in line 151-153).

6. Line 202-205: The authors mention that fasting blood glucose, respiratory functions and eyesight were measured. However, the results of these tests are not to be found in the result section, neither in table 1. For the reader to gain knowledge about these results, they may be added to the result section or in table 1.
7. Line 245-250: The authors have recorded PPE used by farmers and non-farmers. For the reader to gain knowledge about all PPE used for respectively farmers and non-farmers, all percentages for all PPE recorded for respectively farmers and non-farmers may be added to the text or in table 1.

8. Table 1: Information about use of agrichemicals and PPE status of farmers can not be found in the table as stated in the table text. Therefore, the table may be changed appropriately to include this information.

Furthermore, for easier comparison of the two groups, statistical comparison with p-value for difference between farmers and non-farmers may be added for each variable as a separate column in the table.

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