Reviewer's report

Title: An automated CPR device compared with standard chest compressions for out-of-hospital resuscitation

Version: 1 Date: 16 February 2012

Reviewer: A Nishisaki

Reviewer's report:

Major Compulsory Revisions

The authors conducted an epidemiological study to evaluate the effectiveness of AutoPulse to improve the ROSC at the time of hospital arrival. The propensity-based matching has its limitation.

1. AutoPulse machines were selectively placed in rural area (described in the last paragraph of background). I think the geographical area (used more often in rural area) may be a confounder and could potentially biased the effect of Autopulse toward null. Does the Response time a surrogate for this and therefore accounted for in this analysis? The Method section stated that the ‘control’ was selected from the trial sites. Does this mean each propensity –matched control cases were selected within the same site for each Autopulse case? Please clarify.

2. Despite propensity-based matching, Table 1 still has some discrepancy in underline characteristics. Please explain (especially Precipitating event).

3. The Authors stated in Method (line 10) that the paramedics were trained to place AutoPulse while minimizing interruptions. Do you have any data or observation to support or negate this? This could be a source of ‘negative’ result.

4. Authors need to state how many cases were available as a candidate for control during the study period.

5. Table 3 is not intuitive for readers. I would strongly suggest changing this table to report
   a. The survival rate to hospital admission in patients with initial VF/VT+A-CPR, with initial VF/VT+C-CPR, with initial Asystole/PEA+A-CPR, with initial Asystole/PEA+C-CPR
   b. Same statement for hospital discharge

6. Table 2—it is not clear the meaning of presenting the Model 1 and 2, as Model 1 already adjust for confounding factors by matching. It is not surprise those two results are not different. This table would have been more helpful if you had unadjusted data (including all from your Victoria database) in Model 1 so you can demonstrate how the propensity-based matching did its job. This is just a suggestion but would suggest considering.
- Minor Essential Revisions

1. The table 1-3 title should state aged ≥ 18 years, not “>” as the data include 18 years old.

- Discretionary Revisions

None

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests