Reviewer's report

**Title:** Helicopter Emergency Medical Services (HEMS) over-triage and the financial implications for major trauma centres in NSW, Australia

**Version:** 1  **Date:** 19 January 2013

**Reviewer:** Esther Van Lieshout

**Reviewer's report:**

The authors of this article aimed to investigate the financial implications of HEMS over-triage from the perspective of major trauma centres in NSW. They used data form all trauma patients transported via HEMS to 12 major trauma centres in NSW during a specified period.

The multicenter nature of the study is valued, and the study seems well-conducted. The results are described and discussed in a concise and very readable way.

I would propose some modifications:

**Major Compulsory Revisions**

1) **Methods section/data capture – first paragraph:** this paragraph should start with details on the selection process and a clear list of the in- and exclusion criteria. How were the patients identified?

2) **Methods section/costing methods and linkage:** could it be that the control group was confounded by eligible patients not transported by HEMS (under-triage)? And if so, did the authors correct for this? It would be worth mentioning this in a bit more detail, or add it as limitation to the discussion section.

3) **Result section/treatment costs – second paragraph:** The authors stratified by ISS score. Gender as well as body area injured (e.g., head trauma) may also affect costs. Did the authors look into this in more detail? ISS is an accepted way of discriminating between injury groups, but may not be sensitive enough to detect all relevant effects.

4) **Results section/sensitivity analysis:** the authors use an ISS level of 12 as cut point. How does the analysis look if the more generally accepted level of >= 16 is used?

5) **Discussion – first paragraph:** “…Specifically, in terms of potential funding discrepancies, over-triaged HEMS patients can be as costly to a trauma centre as correctly triaged patients…”. I would be hesitant to state this so firmly. Propagating to change the system into funding based on dispatch numbers has the downside that it may reduce the trigger for optimizing the dispatch protocol. Instead of asking for more money, optimizing the dispatch protocol (after studying protocol adherence) should of course receive the highest level of attention.
Minor Essential Revisions
6) Abstract – Methods section: financial year is not very indicative, mentioning the study months makes more sense.

Discretionary Revisions
7) Discussion – third paragraph: here, the authors list a major point, that should be indicated as a clear limitation of the study. Protocol adherence and correctly identifying the patient that would benefit for on-scene advanced medical assistance by a HEMS team is a critical issue. Given the high rate of over-triage (and an unknown rate of under-triage), optimization of the dispatch protocol seems warranted.

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

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**
I declare that I have no competing interests