Reviewer's report

Title: A review of patients who suddenly deteriorate in the presence of paramedics

Version: 1 Date: 6 February 2008

Reviewer: E. Brooke Lerner

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Major Compulsory Revisions

1. This paper needs to be more focused and would benefit from some heavy editing. It presents a lot of information but tends to stray from its main purpose of describing trauma patients who deteriorate during EMS transport.

2. The abstract does not stand on its own as a summary of this paper. The results presented must support the conclusion; in particular the percent of calls the 2,893 represents needs to be stated and there is no data in the results to support the last two sentences of the conclusion. These statements should be removed or that data added. The country where the ministerial review took place should be stated and an abbreviated definition of sudden deterioration provided.

3. The definition of "sudden deterioration" seems problematic. The defined drops seem appropriate, but the cut points are confusing since they closely match the trauma triage guidelines for EMS providers shown in figure 1. It is unclear if a patient whose systolic blood pressure was 86 at the time of EMS arrival would be considered to have suddenly deteriorated, if their second SBP reading was 88. Further, would a patient whose SBP was 92 and then a second reading was 88 be considered to have suddenly deteriorated? Further, the quoted MROTESV calls for patients who "severely deteriorate" and are in "immediately life threatening situation during transport" it is unclear that this group represents those patients. Justification should be provided for why this definition is appropriate and the definitions should be more clearly stated.

4. There should be some discussion as to whether these patients really needed the closest hospital or the trauma center. There is no discussion of the data from papers like:

which showed a 25% improvement in survival when trauma patients are treated at a level 1 trauma center. The question of who needs to divert to the closest hospital seems much more complex than what is discussed here and what the definition of sudden deterioration used in this paper would allow. Again you must discuss what hospital based intervention these patients needed immediately so it can be weighed against the risk of delayed arrival at the trauma center.
Especially given that some of your deterioration criteria are the same as the trauma center criteria used by EMS.

5. The discussion is very broad and tends to stray from the study questions. For example, the discussion of gender and age seems unrelated, as does the identification of major trauma in the field.

6. I am troubled by the confounding effects of EMS provided pharmaceuticals that could have caused a change in vital signs. Is that really a group of patients who should be diverted to the closed hospital because of unstable vitals? Please justify their inclusion and the effect of diverting or not diverting these patients.

Discretionary Revisions

1. It would be useful if this report included some information on destination decision and the effect of this decision. What was the difference in transport time when by-passed hospitals were available? What was the immediately needed intervention these patients needed that EMS could not provide? Ultimately this paper should focus on if these patients, who were destined for a trauma center, might benefit from receiving interventions at a lower level hospital before treatment at the trauma center. It is not clear that this study includes that group of patients nor is it clear what stabilizing intervention these patients needed that they were not getting from EMS.

Minor Essential Revisions

1. Introduction: please define the fist use of all abbreviations including: MICA in the 3rd paragraph and ASV in the next to last paragraph

2. Methods: please report how many charts had insufficient information.

3. Methods: RR, sensitivity, specificity, positive predictive value calculations are not provided in the results. Please report these findings or remove them from your methods.

4. Results: It is not clear why the time intervals are presented or how they relate to the study question.

What next?: Reject because too small an advance to publish

Level of interest: An article of limited interest

Quality of written English: Needs some language corrections before being published

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

Declaration of competing interests:
None