Reviewer’s report

Title: Situation awareness errors in anesthesia and critical care in 200 cases of a Critical Incident Reporting System

Version: 0 Date: 02 Aug 2015

Reviewer: Sabrine Hemmes

Reviewer’s report:

Schulz et. al. performed a review of retrospective data on situation awareness errors in critical incidents recorded in the German Critical Incident Reporting System. The manuscript is well written, and a joy to read. It covers an important topic in the current field of medicine. Analysis of critical events is increasingly performed to provide insight in the process leading to a critical event and to improve care-provider support systems to help prevent a critical event. The review process seems to be performed robustly and the discussion is quite complete. I only have a few minor comments to consider, regarding this study.

Minor Comments:

1. The very high incidence of situation awareness errors surprised me, as it occurs in the far majority of the 200 reported cases (81.5%). The authors shortly mention in the discussion that these numbers are in accordance with findings from aviation. However, did they expect such high numbers themselves? Are there any other similar studies in medicine (in anesthesiology, or outside; in surgery for example) that show similar high incidence of situation awareness errors?

2. Following the above comment, in 18.5% either no situational awareness error or no critical incidence was identified. Do you have the specification within this cohort? Thus, in how many cases no critical incident occurred and in how many cases it did occur, but without a situation awareness error?

If the majority of this cohort was excluded due to absence of critical incidents, this could suggest that when retrospectively analyzing critical events, an SA error can merely always be identified as a possible cause of the event.

3. This brings us to the possible "dangers" of retrospectively analyzing critical events to identify SA errors. As mentioned by the authors, several methods exist to analyze a critical incident. The Swiss Cheese model focuses on the system behind the error, intentionally avoiding the individual "blame". The analysis of SA errors, however, focuses mainly on the individual. Even though team SA errors do exist, they are difficult to identify. The evaluation of SA errors should therefor be performed with caution, as it is easy to put the "blame" on the individual that had "lost" situation awareness during the critical event. Outside the field of medical, the drawbacks of the term situation awareness are increasingly recognized [Carsten, Situational awareness: valid or fallacious? Cogn
Tech Work. 2015;17:157-8]. I would advise the authors to add a small section, focusing on the possible drawbacks of SA error identification.

Textual comments:

1. Is it situation awareness or situational awareness? In my country we commonly use the latter term.

2. The number of reported excluded cases is 18.5% in the figure, but you mention 17.5% in the discussion. Please correct.

3. In the list of Abbreviations I would advise to add the actual (German) translation of the abbreviation: e.g. BDA - Bundes Deutschen Anästhesiologen, and optionally add the English translation.

Or only mention the abbreviation of the English translation in the manuscript: e.g. AGA - Alliance of German Anesthesiologists.

4. Discussion: 1st paragraph, line 4: This is in accordance with findings…

5. Discussion: 3rd paragraph, line 9: In one qualitative study on diagnostic errors…

6. Discussion: 5th paragraph, line 14: …,which permits observing the patient more intensively.[20]

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Unable to assess

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics
Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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