Reviewer's report

Title: Do health care professionals' perceptions help to measure the degree of overcrowding in the emergency department? A pilot study in an Italian University Hospital

Version: 0 Date: 27 Mar 2019

Reviewer: Davide Duma

Reviewer's report:

The topic addressed by this paper is very interesting as well as the contribution of a real case study comparing an ED overcrowding index with the staff perception.

The paper is well written, I appreciated how it carefully describes the operational and organizational context. However, in my opinion, there are several points that should be better stressed to be acceptable for the publication.

Firstly, the choice to use the NEDOCS score should be better motivated, because in studies such as "Hoot, N., Zhou, C., Jones, I., Aronsky, D.: Measuring and forecasting emergency department crowding in real time. Annals of Emergency Medicine 49(6), 747-755 (2007)" has been proved that such a measure is not capable to provide an adequate forewarning of the ED overcrowding, even more so if you observe this index one time in an hour and in an Italian ED. I understand the choice of using the measure adopted by the regional system, but if you consider that the NEDOCS is not an appropriate measure to evaluate in real time the overcrowding level, you don't know if the perception of the ED staff is correct or altered. Perhaps further indices could be observed, providing a more complete analysis.

I think that also the method used for the comparison should be better motivated. Cohen's Kappa adequacy is very debated because of its limitations. For example, you can report several works that used the same or other methods, highlighting pros and cons of such approaches.

Furthermore, it is not clear the observation period you considered, since along the paper you talk about one month, then 2 weeks, and you indicated from February 19 to March 7 (that is 17 days).
A consistent part of the last section "Discussion" could be synthesized, reporting only the necessary information, and should be moved into the "Introduction". I think that at the end of the paper, the focus should be on the results and further works. Since this is a pilot study, I think that it is necessary to be more detailed about the research directions that you will take.

Some minor remarks follow below:

- To the best of my knowledge, the NEDOCS is not used nationwide in Italy.
- Page 10, 3rd row: the interface between the various -> the interface between various.
- Page 10, 5rd row: holding relation with spoke hospitals -> holding relation with the spoke hospitals.
- Just a question that could be motivated in the paper: Why did you take into account the perception of the overcrowding by all the staff and not that of more inherent professional figures such as the triage nurses and the case/bed managers?

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

Unable to assess

**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.

No

**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.

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Please indicate the quality of language in the manuscript:

Acceptable

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