Author’s response to reviews

Title: Association between Emergency Department Length of Stay and Adverse Perioperative Outcomes in Emergency Surgery: A Cohort Study in Two Colombian University Hospitals

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Swapna Munnangi
Editorial Office
BMC Emergency Medicine

RE: EMMDD-D-18-00145

Association between Emergency Department Length of Stay and Adverse Perioperative Outcomes in Emergency Surgery: A Cohort Study in Two Colombian University Hospitals
Dear Doctor Munnangi:

Thank you for your response and for suggestions to improve our manuscript. We have submitted a revised article addressing the reviewer’s suggestions. All changes made have been highlighted as requested. We hope you and the reviewers find the new version of our research paper satisfactory.

At your request, we include a point-by-point response to the reviewers’ comments.

Reviewer 1 (Katayoun Jahangiri):

Query 1: “In retrospective cohort, investigators access a historical roster of all exposed and non-exposed persons and then determine their current case/non-case status. Did you compare two hospitals with each other?”

Authors’ Response: We show a comparison of the included participants at both centers in Table 1. We also comment on these results in the first paragraph of the results section. We are now adding separate numbers for each participating hospital in the study flow chart (Figure 1) in order to describe case/non-case status.

Query 2: “I guess in this research, sampling frame was patients' profiles. However, you can explain more to make your design clear to me”.

Authors’ Response: We have added additional information in the first paragraph of the methods section as follows:

We conducted a retrospective cohort study, in accordance with the “Strengthening the Reporting of Observational Studies in Epidemiology” (STROBE) statement [15]. Study population comprised representative samples of non-cardiac surgery patients at two university hospitals in Colombia. Eligible patients were those admitted to the ED of both participant centers, aged 45 or more, who subsequently underwent non-elective (i.e., urgent/emergent) orthopedic or abdominal

Because of the resources and staff available for this project, center 1 was to provide roughly twice the participants included at center 2. While keeping representativeness, we also sought to generate more precise estimates of the association of interest by ensuring the inclusion of sufficient patients across all risk levels and a pre-defined number of adverse perioperative events. This goal was sought by enriching representative samples with subsets of higher risk populations within each hospital.

Our population thus included two patient subgroups (2:1 ratio) at both hospitals within the time window for patient screening: Two thirds of our population came from representative samples (all eligible patients admitted at randomly-selected weeks at center 1 or consecutively within a time period for center 2). The remaining third were patients whose hospital stay or costs exceeded the 75th percentile of the representative samples at each hospital. This second subset was selected in similar fashion, until recruitment goals were reached (See statistical methods/sampling size below).

Query 3: “How did you control the confounders?”

Authors’ Response: A statement explained how we controlled the confounders is added (page 9, third paragraph). This statement is read as follows: In a two-step process, we first explored variables potentially associated with both adverse perioperative outcomes and mortality. Those with p values< 0.20 were considered potential confounders. In order to control for these variables, we included them as factors in a multivariable logistic regression models to identify independent associations.

Results of the aforementioned analysis are shown in table 4 of the manuscript.

Query 4: “Why did you include patients over 45 years old. It is supposed that underlying diseases can make bias in this study.”
Authors’ Response: We acknowledge that older patients will have underlying diseases. However, we chose this population because it also has a higher risk of adverse events. Although comorbidities can behave as confounders, reaching a sufficient number of events was critical for our goals. We dealt with confounders by following the procedures described in query number 3. Exploring variations in the association between ED LOS and outcomes across different risk categories was one of our objectives. To do so, we used mortality risk factors identified in the VISION cohort study, which includes patients aged 45 or older as well.

Query 5: “How long does your data collection take?”
Authors’ Response: We have included this information (page 6, first paragraph): The time window for identification and data collection went from January 1, 2012 to June 30, 2017.

Reviewer 2 (Milad Ahmadi Marzaleh, Ph.D.):

Query 1: “Abstract is very long”.
Authors’ Response: We have corrected this. The abstract is now 270 words long.

Query 2: “Abstract rewrite.”
Authors’ Response: The abstract was restated as suggested by the reviewer.

Query 3: “Explain the introduction section further.”
Authors’ Response: We have expanded the section with new information. Paragraph third and fourth were rewritten following your suggestion.

Query 4: “Explain the purpose and purpose of the study more clearly.”
Authors’ Response: The purpose of the study is clearly and consistently stated (page 5, third paragraph). Now it is written as follows:
Study aims were to determine if ED LOS was associated with the incidence of adverse perioperative outcomes (APO) and whether this association varied across the patient’s risk categories in patients undergoing ES.

Query 5: Explain the methodology in the abstract clearly and transparently.
Authors’ Response: The abstract was rewritten and now clearly explain the methodology.

Query 6: “Does the study have a code of ethics? Please write in the methods.
Authors’ Response: We have added this information in the methods section, study design and setting subheading (page 7, second paragraph). Now it reads as follows:

The institutional review boards (research and ethics) of both centers approved the study protocol (Approval certificates code 441 June 11st 2014 for Fundación Cardioinfantil – Instituto de Cardiología, and code 53 July 28th, 2016 for Fundación Oftalmológica de Santander - Clínica FOSCAL) and because of its (retrospective and observational) nature waived the need for individual informed consent.

Query 7: “What moral issues did you consider? Please write in the methods.”
Authors’ Response: The institutional boards at both study centers addressed such issues, giving their approval as stated in query 6.

Query 8: “In the discussion section, compare your study results with others.”
Authors’ Response: The discussion section includes comments about the comparison of our results with other studies (page 12, third paragraph; page 13, first and second paragraphs; page 14, second paragraph).

Query 9: “The results and discussion are very well written.”
Authors’ Response: Thank you.

Query 10: “Also mention suggestions for future studies.”
Authors’ Response: The discussion mentions suggestions for future studies, (page 13, second paragraph). That paragraph was restated, and new bibliography supporting these proposals was included. The new part reads as follows:

“We do not know exactly the causes responsible for a prolonged ED-LOS in our system, but we are aware of the need to further evaluate these factors and the specific determinants of negative outcomes. Besides, we would like to assess alternative models of patient care aiming to reduce waiting times and ED LOS [22]”.

Query 11: “What is your study implications for the future?”

Authors’ Response: We are providing a discussion on the implications of our findings in the care of patients admitted to the emergency department and who will subsequently undergo emergency surgery (page 13, second paragraph –final lines-, and page 14, first paragraph). Now it is written as follows: In the meantime, we have implemented several changes focused on the establishment of new standards for access to operating room. Also, a prioritization system has been instituted as well as we have set a surgery room exclusively dedicated to the care of ES. Providing access to the operating room in a timely fashion for patients who need ES will require the efforts and commitment of medical, paramedical and administrative personnel, as well as clear hospital policies that optimize the use of currently available resources.

We hope the revised manuscript answers the questions and concerns raised.

As additional note, we kindly ask to re-write the name of the first author (for consistency with other works) as Felix R. Montes.

We truly appreciate your and the reviewers’ time and consideration to our paper and look forward to your response.

Sincerely,

Juan Carlos Villar, MD, PhD
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Bogotá, Colombia