Author’s response to reviews

Title: Emergency department visits in older patients: a population-based survey

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Author’s response to reviews:

Dear Editor, Dr Swapna Munnangi,

thank you for giving us a second possibility to make corrections to our manuscript "Emergency department visits in older patients: a population-based survey", and for extending the deadline to this. We would also like to thank you for your open peer review policy and your excellent choice for reviewers, whose contribution we found most valuable and encouraging. Please see below our point-by-point responses to their comments and suggestions. Should there yet be some concerns regarding this ms, please let us know and we will deal with them without further delay.

We hope you find the manuscript now acceptable for publication in BMC Emergency Medicine.

Kind regards,

Yours truly

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RESPONSE TO REVIEWERS

We would like to thank the reviewers, professor Chaput and professor Peran again for their excellent work and efforts in helping us improve our manuscript. We will address all the comments individually below. Reviewer comments (C) and our responses (R)

Reviewer #I:

MAJOR POINTS:

BACKGROUND

C1: Although quite improved I'm still not clear on the first paragraph of the METHODS section. The section (lines 34 and 35) on the catchment area is difficult to follow. They seem to differentiate tertiary and secondary catchment areas tate that the ED as an over one million inhabitant cat Still not really clear why.

R1: Indeed, this part of METHODS section was difficult to write and explain even for us who know how the healthcare here is facilitated. In order to clarify things, we have now rewritten this section according to your comments, and it now reads: “The study hospital is a tertiary referral centre with catchment area exceeding one million inhabitants during the study period. The hospital ED also provides all primary and specialist ED care 24/7 within the city of Tampere with a population of 225,118 inhabitants (of which 10,852 were 80 years or over) in 2015 and 228,274 (11,129) in 2016. As we were interested specifically in including all emergencies, the city of Tampere was used for our study purposes. Only appointments with ED physicians were included.” (page 3, paragraph 5)

C2: They also state in the following paragraph that they were interested specifically in including both primary and tertiary care patients although again, they provide no rationale for this.
R2: That is true, and thank you for pointing this out. Please see response 1. As all those living within the city limits visit our ED in case of any kind of emergency, we have now left out the comment about including both primary and tertiary care patients. Instead, we mention including all emergencies from Tampere, hoping to clarify this issue.

- C3: Finally, the cost section is not very clear either. From what I can comprehend from the 3rd paragraph there are no detailed actual costs billed per patient but rather, the hospital bills the universal health care system a set fee per ED visit. This set fee per ED visit can be greater depending on the time of day or associated lab/radiology requests. If this reasoning correct then it should be more clearly stated.

R3: You are right. We agree that it was, as you commented, rather difficult to understand. Now this paragraph is rephrased under a subheading “Cost analysis” and hopefully it has improved.

“The cost analysis is based on the system in use in our hospital, which grades patients according to variables such as the time of day during the ED visit (i.e. higher costs during nights and weekends) and need for laboratory and radiological examinations. Consequently, the actual costs of individual examinations (i.e. the costs for each examination) could not be counted. Instead, the calculated cost represents how much the community (i.e. local taxpayers) is charged for the care. In the Finnish health care system, the majority of the costs are covered by taxes. The patients are charged a nominal fee of 32.70 € / ED visit regardless of the actual expenses. This fee paid by the patient was not taken into account in our cost analyses. Only in-hospital tax-funded costs of ED visit were included; costs of patient transfer, hospitalization and post-discharge care were not analysed. The tax-covered costs (€) per ED visit are presented. In the cost analysis, costs are also adjusted to the size of the same-aged population, and per capita costs (€ / same aged inhabitant) are then reported.” (page 4, paragraph 1)

RESULTS

C4: What does "…admitted…” to primary care services mean? Is this a post triage stage, where patients are directed to either specialist care (surgery for trauma for instance) or remain in the ED under the care of the emergency room physician?

R4: Yes. We have now rephrased the phrase as follows: “In 74% of cases patients (n=13,158) were triaged to emergency room physicians, whereas 26% (n=4,611) were triaged to other
specialists or residents (i.e. surgeons, internists or neurologists).” (page 4, first paragraph of RESULTS)

C5: The first paragraph of the results section is just too confusing and some statements simply do not make any sense. For instance, authors state that the patient count is 750 (8% of the total older patient) and they made 7.9% of all visits and give an n of 1400 visits? I would completely rewrite this paragraph to make it much clearer. For instance; A total of 6915 older patients (median….), representing 4.8% of the total ED population, made 17769 ED visits during the 2-year observation period, accounting for 15% of all ED visits (n=…). Sixteen percent (n=…) of older patients made a single ED visit whereas 11% (n=750) made 5 or more visits during the 2-year observation period, for a total of … visits (7.9% of the total number of visits made by older patients). Twenty-five percent (n=…) of patients were triaged to … whereas 75% (n=…) were triaged to primary care services. Thirty one percent (n=…) of patients were admitted to hospital, 0.2% (n=…) to the intensive care unit, 38% (n=…) were discharged to home or ….and 31% (n=…) to other health care facilities"

R5: Thank you for your excellent comment. This paragraph is a good example how you get blinded to your own text. We have now re-written the paragraph according to your kind suggestion. Again, when double-checking all patient numbers we found a fault that led to wrong percentages, and we have now corrected them. We apologize sincerely for this. The paragraph now reads:

“A total of 6,944 patients (median age 85 years, range 80-104 years; 67% female) aged 80 years or over representing 1.5% of the local population, made 17,769 ED visits during the two-year observation period, accounting for 15% of all ED visits (n=118,076). Forty-two percent (n=2,884) of older patients made a single ED visit, whereas 8.2% (n=570) made 5 or more visits per year (range 5-46) during the two-year observation period, for a total of 1,400 visits (7.9% of the total number of visits made by older patients). In 74% of cases patients (n=13,158) were triaged to emergency room physicians, whereas 26% (n=4,611) were triaged to other specialists or residents (i.e. surgeons, internists or neurologists). Thirty-one percent of patients (n=5,423) were admitted to hospital (0.2%, n=33 to intensive care units), 38% (n=6,755) were discharged home (or residential care) and the rest 31% (n=5,591) to other health care facilities. (page 4, 1st paragraph of RESULTS)

DISCUSSION
C6: I would start the discussion section with this study's primary finding. As such, I would start the paragraph with the phrase on line 24 "In this study we report a high incidence of Ed visits.....". The first 3 phrases of the opening paragraph (Starting with "Older patients..." and finishing with " .... "Consequently we need a …".) are summary conclusion statements. I would probably put these 3 phrases with the 3rd paragraph, that beginning with "While our aim was not to...."

C7: It appears to me that the 3rd and 4th paragraphs in the DISCUSSION are essentially conclusion statements, rather than an elaboration on the author's results. I have difficulty seeing what the direct relation is between the author's data and these two paragraphs. In addition, some of the phrases in these 2 paragraphs are redundant. I would suggest synthesizing these ideas and shifting the result as a last paragraph of the CONCLUSION section (to which I have made minor grammatical suggestions in the MINOR points below).

R6-7: Thank you for these comments. We have now started the DISCUSSION as you kindly suggested. Again, we synthesized major points in paragraphs 3 and 4 of DISCUSSION, and moved them to CONCLUSIONS. Furthermore, we have replaced the 3rd and 4th paragraphs with a new one, now hopefully elaborating our data in a better way. Some phrases in the DISCUSSION section have thus been rearranged. We hope you find these changes satisfactory.

NB: Due to the changes, references #8 and #13 have changed places both in the text and in the reference list.

MINOR POINTS:

GENERAL COMMENTS

C1: There is a lot of variability in the terms used for an ED visit ("accesses", "presentations"). I would just use the word "visit" or "visits" and standardize on that.

R1: Thank you for this comment. The terminology now standardized for the whole text (including the title). We are now using ED visit instead of ED accesses or ED presentations as suggested.
C2: Line 22. "...was to assess the burden on ED services caused by population ageing in Finland"

C3: Line 36 "...of which 10852 were 80 years or over."

C4: Line 39 "...and the associated costs of ED care."

C5: Line 3 "Finally, we attempted to assess the future need for ED services among older inhabitants using our incidence data and the population estimates provided by Statistics Finland..."

C6: Line 16. "A total of 6915...made 17769 ED visits ...study period".

C7: The share of older inhabitants visiting the ED was similar..."

C8: "The number of ED visits also showed..."

C9: "...while those aged less than 80 had 233/1000/year ED visits."

C10: Line 36. "The reasons for an Ed visit ranged...".

C11: Line 65: "The mean cost per ED visit in older patients was 422..."; "...

C12: Line 1. “...for example, the mean costs of ED visits were higher..."
C13: "Sixteen percent of patients (n=2886) underwent CT…"

C14: Line 34. "It is possible that an ascending trend in ED use by older patients may be observed globally as the proportion of older patients and the projected population demographics in our particular region mimic those in most parts of western…"

R2-R14: All suggestions are accepted and corrected to the text as suggested.

- DISCUSSION

Comment: Line 22. "Older patients frequently require more…., outcome is poorer…"

Response: Rewritten as suggested

C15: Line 33. I suggest the following re write (this is but a suggestion in order to make the text more fluid, the authors should feel free to rearrange as they please) "The demographic and clinical characteristics of elderly ED patients need to be more comprehensively described. In our study there was a three-fold increase in ED visits made by patients 80 years or more compared to those under 80. Non-specific diagnoses were frequent and generated similar or higher costs to those of patients requiring hospitalization.”

R15: As we have made structural rearrangements to the DISCUSSION, this could not, unfortunately, be executed as suggested. Nevertheless, the above-mentioned phrases are still included in DISCUSSION. (please see responses to comments 6-7 of DISCUSSION)

Reviewer #2:

METHODS
When I read the manuscript for the first time, I thought that I understand the cost analyses, but after the rewriting I am not sure. This is how I understand it now: Every patient is charged a nominal fee of 32.70 EUR which is paid from the taxes. The authors calculate other costs based on real examinations provided (based on the hospital system). If the reality is different than I suggest explaining it more simply. Some of the readers might not be familiar with different systems across Europe and this can be confusing.

RESPONSE: Thank you for this comment. We agree that the cost analysis was confusing to read, as both you and reviewer #1 commented. Now this paragraph is rephrased under a subheading “Cost analysis” and we hope it is now easier to read (below).

“The cost analysis is based on the system in use in our hospital, which grades patients according to variables such as the time of day during the ED visit (i.e. higher costs during nights and weekends) and need for laboratory and radiological examinations. Consequently, the actual costs of individual examinations (i.e. the costs for each examination) could not be counted. Instead, the calculated cost represents how much the community (i.e. local taxpayers) is charged for the care. In the Finnish health care system, the majority of the costs are covered by taxes. The patients are charged a nominal fee of 32.70 € / ED visit regardless of the actual expenses. This fee paid by the patient was not taken into account in our cost analyses. Only in-hospital tax-funded costs of ED visit were included; costs of patient transfer, hospitalization and post-discharge care were not analysed. The tax-covered costs (€) per ED visit are presented. In the cost analysis, costs are also adjusted to the size of the same-aged population, and per capita costs (€ / same aged inhabitant) are then reported.” (page 4, paragraph 2)

Comment: Summary. This article might support next research in this area.

Response: Thank you for the comment. After re-organizing and re-phrasing the DISCUSSION, we moved the following sentence to the end of the Conclusions: “However, the demographic and clinical characteristics of elderly ED patients need to be more comprehensively described in order to improve the risk assessment and identification of patients with specific, geriatric needs.”