Author’s response to reviews

Title: Outcome of Elderly Emergency Department Patients Hospitalised on Weekends – A Retrospective Cohort Study

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Author’s response to reviews:

Dear Dr. Tu

We are grateful for the opportunity to submit a revised version of our manuscript “Outcome of Elderly Emergency Department Patients Hospitalised on Weekends - A Retrospective Cohort Study” and also for the helpful comments and suggestions of the reviewers. We are glad that the reviewers shared our opinion regarding clinical relevance of this paper, and their criticism has permitted us to amend the manuscript.

We include a point-by-point summary of the reviewers’ comments and suggestions followed by our response.

We are convinced that the modifications improved the manuscript significantly and hope that the new version is now suitable for publication in BMC Emergency Medicine. Of course, we remain at your disposal should this version raise any additional remarks.
We look forward to your decision.

On behalf of all authors,

With kind regards,

Steffie Brouns

Point-by-point response to the comments and suggestions by the reviewer:

Reviewer 1: Marc Sabbe

Some minor language adjustments are needed.

p4 line 16 deemed "to" be necessary

Response: We thank the reviewer for his comprehensive review and changed the typographical error accordingly.

“deemed the be necessary” was changed into “deemed to be necessary” (Methods, Page 4, Lines 16-17).

p5: line 9 and 13 (and others): a decision needs to be made to use English or American spelling: categorized versus categorised. In the entire tekst, there is a mixture of both spellings.

Response: We thank the reviewer for his careful observation. Accordingly, we modified the following sentences according to English spelling:
“Visits were categorized into weekend and weekday” was changed into “Visits were categorised into weekend and weekday” (Methods, Page 5, Line 9).

“the first physician on ED was categorized in to a medical student” was changed into “the first physician on ED was categorised into a medical student” (Methods, Page 5, Line 16).

Reviewer 2: Fiona Lecky

Thank you for asking me to review this Single Centre study from the Netherlands which seeks to establish whether 2 day and inpatient mortality is subject to a weekend effect for older people with medical admissions.

The authors have studied more than 2,500 patients aged 65 and over presenting over 2 years from September 2010. Weekend was defined from midnight Friday to midnight Sunday. The analysis suggested a slightly higher crude mortality rate at the weekend which bordered on being statistically significant, however the effect lessened after adjustment for the increased acuity (MTS) and co-morbidity levels associated with weekend presenters. The authors conclude that care appears adequate for older internal medicine admissions in the Netherlands at the weekend.

The paper is well written, the analyses appropriate and clearly presented. My suggestions for improvement are relatively minor

Response: We thank the reviewer for her positive judgment of our study and in particular for her review and very helpful comments.

Other publications in this areas have compared week day time 8am-6pm to weekend daytime as this is the biggest contrast in service and senior availability - after hours services during the week are often more similar to weekend than week days. This would be a worthwhile further sensitivity analysis to increase the rigour of the findings (also week evening night 6pm-8am) to weekends

Response: We thank the reviewer for her helpful comment regarding the added value of a sensitivity analysis in order to evaluate the effect of time of hospital admission during weekdays versus weekends on in-hospital mortality. Accordingly, we performed the advised sensitivity
analyses. Taking the logistics of our hospital into account, we considered 8 am - 5 pm as daytime instead of 8 am - 6 pm. The following sentences were added:

“Daytime was defined as 8 am – 5 pm and off hours were defined as 5 pm – 8 am, corresponding to the different shifts at our hospital.” (Methods, Page 5, Lines 11-12).

“In addition, a second sensitivity analysis was performed in order to evaluate the effect of daytime admission on weekdays versus on weekends on mortality rate. “(Methods, Page 6, Lines 21-23).

“The second sensitivity analysis demonstrated a higher in-hospital mortality rate among elderly patients hospitalised during daytime on weekdays compared with on weekends (13.2% versus 9.3%; OR 1.5, 95%CI 1.03-2.1). After multivariable adjustment for age, CCI, urgency level and the number of diagnostic tests, the in-hospital mortality for daytime admission on weekdays and on weekends was similar (ORadj 1.3, 95%CI 0.95-1.99). The 2-day and 30-day mortality was comparable among elderly patients hospitalised during daytime on weekdays and weekends.” (Results, Page 8, Lines 15-21).

“Remarkably, comparison of in-hospital mortality following daytime admission on weekdays versus weekends, which represents the main contrast in availability of resources, reveals no differences after adjustment for severity of illness.” (Discussion, Page 10, Lines 14-17).

The series of patients is relatively historical and it would be good to include a more up to date patient cohort if data is available.

Response: This criticism is well taken, however more recent data is not available. Although the study population was included from 2010-2012, we believe our results still representative for current patient care and emergency care organisation as the logistics did not changed during this period. Therefore, these results contribute to the limited existing literature on the weekend effect in elderly patients.
It is a stretch to conclude from this single centre historical data that all Netherlands internal medicine services perform effectively for older people at the weekends. The discussion should reflect upon the evidence for the generaliseability of these findings.

Response: We agree with the reviewer that the generalisability of this single centre study is important in interpreting the results. Therefore, we tried to clarify this with the following sentences:

“The discrepancy with other studies might be due to the difference in health care organisation of various countries. It is plausible that certain health care systems, or even individual health centres, create a weekend effect [5, 19, 20].” (Discussion, Page 10, Lines 3-5).

In addition, we modified the following sentence:

“Furthermore, the organisation of acute care system in other centres and countries should be considered in interpreting our results, although we can also learn from the differences in this respect.” (Discussion, Page 11, Lines 15-16).