Author's response to reviews

Title: How can we improve targeting of frail elderly patients to a Geriatric Day-Hospital rehabilitation program?

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Author's response to reviews: see over
To the Editors of BMC Geriatrics

RE: MS 4547378943515110
TITLE: How can we improve targeting of frail elderly patients to a Geriatric Day-Hospital rehabilitation program?
AUTHORS: Silvia RM Pereira, Wendy Chiu, Alyson Turner, Stephanie Chevalier, Lawrence Joseph, Allen R Huang and Jose A Morais

Dear Sirs:

Below you will find our responses to the reviewers’ comments in italic text. We trust that our modified and re-submitted manuscript adequately answers the reviewers’ concerns and now meets your publication standards.

1. It is important to characterize the group who improve following Day Hospital attendance. The authors could comment further whether it is their opinion that people with lower test scores on admission are a group that Day Hospitals should target for intervention, or whether this finding is a function of the test measures used (noting that the authors have discussed these issues). Furthermore the assessments used mainly relate to functioning at a limited activity level. Should consideration be given to including outcome measures that provided assessments at an ICF participation level?

We have included additional text discussing these issues. The reviewer is right in that ICF participation level may be a useful way to tease out patient profiles that would provide more information for GDH targeting. This would be a topic of a separate prospective study.

2. There are other models of assessment and rehabilitation for older people. In some countries there is significant investment in ambulatory rehabilitation services for older people in which programs are provided at home or treatment centres (for example, see Crotty et al Age and Ageing 2008; 37: 628?633 doi:10.1093/ageing/afn141). The authors could comment whether their findings might be applicable in other settings where there are therapeutic programs provided to assist older people to improve functioning.

We have added text to the discussion to include this excellent suggestion. The results we report show that our ambulatory rehab service is effective. Whether these results can be extrapolated to a home treatment program is uncertain. We show that there is no best single or combination of functional tests that can predict who is going to improve. Despite low functional scores, many patients have the potential to improve. This point is certainly applicable to the home rehabilitation patient, who would more likely have more functional impairments.

3. There is a significant amount of missing data (102/335). These data are probably not missing at random and details of patients for whom missing data applies should be presented and briefly discussed.

Agree. Additional descriptors and discussion of the patients who were not included in the analysis have been added. In order to develop a predictive model we needed patients who had a
complete admission and discharge data set. Other descriptive analysis included any patient who contributed any data points. Based on the Reviewer comments we searched for the baseline characteristics of the 102 participants not included in the predictive model and compared them with the ones retained for the analysis for the variables listed in table 1. We found statistically significant differences only in mean Barthel, TUG and Berg scores. These observations and their significance are reported in the discussion.

4. In Table 2, it is not clear why negative values are used when functioning has improved. Thank you for this important observation. The negative numbers were the result of incorrect calculations, where we initially subtracted discharge from baseline values, which have been corrected in this re-submitted manuscript.

Discretionary Revisions

5. The criteria listed for improvement in each of the assessment measures are appropriate. However, the extent of improvement to reach each criterion varies. The 6 minute walk test, in particular, may be more responsive than the other measures and thus is more likely to be a significant predictor of improvement. The reviewer is not sure that this matters, but the authors may wish to comment further on this. Additional comments have been added to the discussion to address these concerns. The psychometric properties of the functional tests used, including their significant change thresholds were taken from published literature. Unfortunately, we have no way of determining if the improvement in one of the tests is easier to attain than in another.

Reviewer 2 report

Reviewer's report The authors study the factors which could be related to rehabilitation outcomes in Geriatric Day Hospital (GDH). Significant improvement was reported in 58% of patients. The major finding is that some tests on admission were found to be significantly associated with rehabilitation success. The authors conclude that further research will be done to use 'a composite ?rehab appropriateness index? for targeting frail elderly to GDH rehabilitation services'.

The authors emphasize the need for a prospective study to develop tools to better target patients who will benefit from rehabilitation. I agree with that statement and would like to add that a composite rehabilitation index could be created even using the data presented here. One option in creating such index is to use a multivariate logistic regression although I would anticipate that many of the measures will not be statistically significant under the background of 6MWT ? that can be easily checked. The other option could be just counting (after an appropriate transformation) ALL 9 measures each of which might contribute to the composite score even if some of these items are not statistically significant. I would like the authors to comment on that. Of course, prospective validation of such index would be important when the data are available.

Additional text has been added to the methods and results sections to address these concerns. The results of a preliminary analysis (descriptive statistics and univariate models) was used to discard variables that were non-informative, especially with the small sample size of our cohort.
The logistic regression model used in the analysis of our data did generate a total of 512 models, and the best predictive model happened to highlight the 6MWT alone, despite having poor prognostic value.