Reviewer’s report

Title: Operationalizing Frailty among Older Residents of Assisted Living Facilities.

Version: 1 Date: 1 December 2010

Reviewer: Peggy M Cawthon

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Major Compulsory Revisions
The paper is generally very clearly written and the analyses are sound. My biggest concern is that the reasoning that underlies this analysis appears flawed. Given the theoretical definition of frailty proposed by Fried, one would expect that nearly all of the individuals in an assisted living facility would be classified as frail. These individuals, since they require assistance for select “health and personnel services”, have an increased vulnerability to stressors that is the hallmark of the frailty state. Thus it is not clear that a frailty definition would have any utility in such a population where all the individuals are frailty. Thus testing whether such a frailty classification predicts poor outcomes in this population doesn’t necessarily have face validity. How could such a scale or index possibly “work” when everyone is considered “frail”? Perhaps examining whether presence of each additional frailty criteria (i.e. having 3 criteria vs. 4 criteria vs 5 criteria) would be more important than just the presence/absence of frailty in this population would be more important. It was somewhat surprising that even a very few individuals were actually classified as robust by the CHS definition – the number was low (only 3.4%), but one may expect that no one in an AL facility would be “robust”. Perhaps revising the introduction section and providing a few more analyses could alleviate these concerns. For example, I might state as a conclusion that almost none of the AL residents were robust; nearly all were frail or intermediate; and the overall mortality and hospitalization rates were very high. Additional methods that help divide this most frail population into groups based on the risk of hospitalization or death are needed and the CHS definition doesn’t do a great job of separating the somewhat frail from the very frail (which isn’t surprising since it was developed in community dwelling individuals.)

Discretionary Revisions
In the original CHS paper, three levels for frailty were considered – “frail” “intermediate” and “robust”. Did the authors consider frailty as this three level variable instead of just a “yes/no” state? What did such analyses show?

The authors should report the pvalues for comparing the AUCs for the various models. (ie. report the p-value for comparing the model with only age and sex to the model with age, sex and co-morbidity, etc.) in the last part of the methods section.
There is a large literature about the ability of gait speed to predict poor outcomes in various populations. I suggest the authors mention these other papers when discussing the gait speed results in the discussion section.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests