Author's response to reviews

Title: Long-term declines in ADLs, IADLs, and mobility among older Medicare beneficiaries

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Author's response to reviews: see over
Dear Mr. Hopkins:

In response to your kind invitation of May 27th, my colleagues and I wish to re-submit our manuscript (MS: 5548232995286075) that is now titled:

"Long-term declines in ADLs, IADLs, and mobility in older Medicare beneficiaries"

for publication as an Original Article in BMC Geriatrics.

You asked that in the revised manuscript I highlight all of the changes that have been made. This has been done using yellow highlights. You also asked that we respond point-by-point in this cover letter to the comments and concerns of Reviewers 1 and 2. That response immediately follows.

Reviewer 1

1. This reviewer asked that we provide a stronger rationale for focusing on state changes between just two points in time. This has been done on pages 5-6, 10-11, and 18-19. Simply put, one of our main objectives is to identify aging effects, and whether they are linear or non-linear. This requires having variation in the length of time between the two observed time points and introducing a quadratic measure of that time into the model. When all subjects in an analysis are examined over the same fixed two-year period(s), aging effects per se cannot be addressed.

2. This reviewer asked for a stronger rationale for including self-rated health as an outcome in the analysis. Basically, we believe that this is a philosophical question about the definition of what constitutes functional status that varies by disciplinary perspective. There is no right or wrong answer. After much consideration, however, we have chosen to drop self-rated health as an outcome rather than to incorporate what might be a distracting discussion of disciplinary perspectives on functional status.
3. This reviewer was troubled by the exclusion criteria necessitated by our focus on self-respondents at both time points whom we were able to link to their Medicare claims, and who were also not in Medicare managed care. As described in the original paper, we did this to avoid the issue of differential source reporting. After much consideration of this Reviewer’s concerns, we have included the first and last interview for every AHEAD subject regardless of respondent (self- vs. proxy-respondent) status, and regardless of participation in Medicare managed care, as long as the linkage to Medicare claims could be made. This increased the sample size by about one-third from roughly 4,300 to nearly 5,900 of the 7,447 original AHEAD participants. This is explained on page 9 and details that of the original AHEAD participants, 774 did not consent to linkage, 28 did but provided erroneous information, and 774 never had a follow-up interview, leaving the current sample size of 5,871.

At the same time, this required that we address the methodological issues associated both with respondent status and with Medicare managed care status, and further required us to include a set of binary indicators for respondent status at both time points, and a binary indicator for Medicare managed care status. These indicators, however, only captured the additive effects of respondent status and managed care status. To capture their potential interactive effects, we introduced sets of multiplicative interaction indicators. Ultimately, this required considerably greater amounts of text (see pages 5-7, 11-12, 15-16, 17-18, 19-20, and 21-25), but did result in a stronger manuscript that now makes both methodological and substantive contributions. We thank the Reviewer for raising the concern that eventually led us in this direction.

4. This Reviewer asked that we strengthen and expand the discussion section. This occurs throughout the new discussion section on pages 21-28.

5. This Reviewer pointed out Crimmins’ counter-argument about functional status improvement, and this has been noted and referenced on page 5.

6. This reviewer was also concerned that we did not consider modeling improvements in functional status. This point is now moot, because adding in the proxy-respondents at either or both time-points reduced the prevalence of improvements to a level that is not sufficient for statistical analysis. This is now described on page 18, where we note that the prevalence of improvements in ADLs, IADLs, and mobility are now only 1.6%, 1.3%, and 7.7%, respectively.

7. This Reviewer pointed out that mention of the non-effect of former smoking would strengthen our argument. This has been added on page 29.

Reviewer 2

1. This Reviewer asked that we more directly state the research question, which has been done on pages 3 and 6.
2-4. These points raised by this Reviewer are all complimentary. We appreciate this very much, but note for the record that it did not lead to any manuscript revisions.

5-7. This reviewer presents these points as questions, but unlike point 8, they are not followed by any indication that further clarification is either desired or required. Therefore, we assume that this Reviewer meant to indicate that the answers to these points were all in the affirmative, and therefore no changes were made.

8. This Reviewer raises a series of suggestions in point 8. In response, we have clarified in the discussion section why transitional care planning for post-acute hospitalization care is needed (page 26). We have also expanded on the associations involving the health lifestyle factors and functional decline. The desire to have recovery addressed, however, is no longer relevant, inasmuch as inclusion of the proxy-respondent interviews virtually eliminated any evidence of long-term improvement (although some meaningful improvement in function occurred, it was very modest at 1.6%, 1.3%, and 7.7% for ADLs, IADLs, and mobility, respectively). Furthermore, addressing intervening improvement (i.e., from wave-to-wave of data collection) is not compatible with our focus on aging effects. Terminal drop and dis-saving have been better described and defined. Finally, the entire manuscript has been edited and re-edited for clarity.

In submitting this revised manuscript, I affirm that each of the authors have participated sufficiently in the conception and design of this work and the analysis and reanalysis of the data, as well as the writing and rewriting of the manuscript, to take public responsibility for it. We believe the revised manuscript represents valid work. We have all reviewed the final revised version of the submitted manuscript and approve it for publication. Neither this manuscript nor one with substantially similar content under our authorship has been published or is being considered for publication elsewhere. If requested, we shall produce the data upon which the manuscript is based for examination by yourself or your assignees. We certify that we have no affiliation with nor involvement in any organization or entity with a direct financial interest in the subject matter or materials discussed. Finally, in exchange for publishing the paper in the *BMC Geriatrics*, copyright for the paper will be transferred to the journal.

I may be reached directly on 319-384-5129, by FAX on 319-384-5125, or by e-mail at fredric-wolinsky@uiowa.edu. I look forward to hearing from you.

Sincerely,

Fredric D. Wolinsky, Ph.D.
The John W. Colloton Chair