Reviewer's report

Title: A Standard Procedure for Creating a Frailty Index in a Cohort Study

Version: 1 Date: 11 June 2008

Reviewer: QIAN LI XUE

Reviewer's report:

Major Compulsory Revisions:

This study sought to standardize the procedure for constructing the frailty index (FI) and apply to yet another population to show its external validity and reproducibility. While cross-validation of FI across multiple populations is important, the arguments presented in this paper could be made stronger if the following issues can be appropriately addressed. First, if one of the inclusion criteria for a FI is that “the variables must be deficits associated with health status,” assessing its predictive validity via its association with mortality seems a bit circular in the sense that one’s health status is expected to be associated with mortality risk. Also it would be helpful to clarify the definition of “health status.” Second, the methodology behind the proposed resampling procedure for studying reproducibility of the FI needs to be justified. For example, the choice of 80% for variable selection appears to be arbitrary as the reproducibility is almost certainly a function of the sampling proportion. Finally, the purpose of using the 18-month assessment was not clearly stated. It is also surprising that those remained in the study at the 18-month visit were frailer because I would expect that those who were less healthy were more likely to drop out. More importantly, what to make of the difference seen in the rates of deficit accumulation between the baseline and follow-up? Was it simply due to sampling error as suggested by the overlapping confidence intervals or meaningful between-person heterogeneity? If it’s the latter, what would be the clinical implications?

Minor Essential Revisions:

Results section, 1st paragraph, last line: “Each of these variables were eliminated because they … failed to cover more than one system…” First, change “were” to “was.” Second, the 4th criterion says that the selected deficits “that make up a frailty index must cover a range of systems.” It does not require that each variable has to cover more than one system.

Results section, 2nd paragraph, last line: change “cut-points offs” to “cut-offs”

Table 3 title: change “RR” to “HR”

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being
published

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests