Reviewer's report

Title: The role of the combination of bone and fall related risk factors on short-term subsequent fracture risk and mortality

Version: 1 Date: 13 September 2012

Reviewer: Dana Bliuc

Reviewer's report:

Major:
1) In my opinion, the classification into 4 groups is quite arbitrary, as there is no evidence that each of the factors that grant inclusion in one group has similar risk value (i.e. does having a prior fracture after the age of 50 have the same predictive value as a family history of fracture?) The rationale for this classification should be better explained in the methodology and acknowledged in the discussion.

2) The cohort is assessed by the Fracture Liaison Service, implemented to evaluate bone and fall risk factors and to prescribe anti-osteoporosis treatment and fall prevention programs, yet there is no information on the osteoporosis medication and its up-take. The efficacy of osteoporosis medication in fracture and re-fracture risk is well documented, and there is emerging evidence that it may also decrease mortality risk. Thus, information on the osteoporosis medication, and fall prevention for each of the groups should be made available in this paper.

3) Authors state that subsequent fracture risk was highest at time 0. However, in the methodology section it is written that time of subsequent fracture is calculated from the current fracture to subsequent fracture; therefore time 0 must be the time of current fracture. This is confusing, and should be clarified in the methodology.

4) The rate of subsequent fractures and mortality is lower in this study compared to other studies. This may be the result of a short follow-up period, but also the result of osteoporosis treatment. There should be a detailed discussion and head to head comparison with other published papers.

5) Authors state that their major finding is the higher risk of re-fracture in the patients with combination of risk factors compared to patients with only bone factors. However, I think that this analysis should be adjusted for treatment, as the groups with bone factors may have a higher percentage of treated people and this may be the cause of a lower re-fracture rate.

6) It would be interesting to find out whether fall factors are associated with re-fracture risk independent of bone factors when the entire cohort is analyzed together and adjusted for all risk factors independently. The authors can then check whether there is any interaction between bone and fall factors.

7) As per point 5, mortality analysis should also be adjusted for treatment rates.
8) In order to conclude that there is no increase mortality in this cohort, a comparison with an age-and sex adjusted general population mortality is needed.

Minor
1. Figure 2 should include the fracture-free probability for all groups
2. I just feel that the wording “More than 1 in 2 had at least one clinical risk factor...” (used in first paragraph of results section) is not quite adequate in the context.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

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