Reviewer's report

Title: The assessment of renal function in relation to the use of drugs in elderly in nursing homes; a cohort study

Version: 1 Date: 16 July 2010

Reviewer: Andrea Corsonello

Reviewer's report:

The paper is very interesting. However I have some major concerns.

Major compulsory revision.

-Background: This section should be thoroughly revised. First, it is not true that cystatin C-based GFR is not affected by muscle volume (see Macdonald et al, Am J Kidney Dis 2006; 48:712-9). Second, I think it is not necessary to comment about each single drug (or drug class) in this section. The Authors should simply explain why these 4 drugs were choosen. Finally, the aim of the study should be better described. I think there is much more than simply investigating renal function in NH residents and prevalence of use of selected risky drugs in this paper (see below).

-Methods: a detailed description of the analytic approach (i.e. of what the reader should expect in the results section) is needed.

-Results:

1. It is not clear why the Authors reports only the prevalence of diabetes. The corresponding figures for hypertension, heart failure, arthritis, atrial fibrillation are needed to explore the appropriateness of prescribing selected study drugs.

2. The Authors explored the prevalence of different degrees of renal function using three different estimates, which is not the correct way to study the degree of concordance between different GFR estimates. I would suggest to re-analyze data in order to provide a complete agreement analysis (see Pedone C, Semeraro R, Chiurco D, et al. Reliability of equations to estimate glomerular filtration rate in the very old. Aging Clin Exp Res. 2008;20: 496-502; Pedone C, Corsonello A, Incalzi RA; GIFA Investigators. Estimating renal function in older people: a comparison of three formulas. Age Ageing. 2006 Mar;35(2):121-6). The authors may also wish to investigate main determinants of discrepancy in their paper.

3. As regards data in tables 3-5, I think the true problem is not simply the prevalence of use, but the appropriateness of use (see above) and dosage. While the sample likely does not allow to investigate appropriateness, I think the Authors will be able to present and comment data about the mean dose of a selected renally cleared drug in relation to GFR estimate.

4. Discussion. Since in the results section the Authors present data regarding the prevalence of reduced GFR with normal serum creatinine, they may wish to

Minor essential revision
The English language should be extensively revised.

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

**Quality of written English:** Not suitable for publication unless extensively edited

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**
I declare that I have no competing interests