Reviewer’s report

**Title:** Creatinine-or cystatin C-based equations to estimate glomerular filtration in the general population: impact on the epidemiology of chronic kidney disease

**Version:** 1 **Date:** 4 January 2013

**Reviewer:** Jan AJG van den Brand

Reviewer’s report:

The report details a comparison of four glomerular filtration rate (GFR) estimating equations used to assess the prevalence of eGFR lower than 60 ml/min (CKD stage III or higher) in the general population.

The authors show that agreement between the creatinine and cystatin C based equations is limited. On average, the CKD-EPI equations result in higher eGFR than the MDRD equation, and thus in lower estimated CKDIII+ prevalence. The CKDIII+ prevalence increases with age, but the within age category differences in prevalence by eGFR remain the same. The authors conclude that the introduction of cystatin C based equations would reduce the estimated prevalence of CKDIII+ by half.

Overall, the report is well written and presented clearly. However, there are a few point I would like to see addressed prior to publication.

**Major Revision:**

I would like to see some more details on the participant inclusion. How many persons were invited? How were community visits announced? A what times of day did the measurements take place? Could there be an inverse health worker effect if measurement took place during daytime, healthier persons are more likely to be preoccupied at least among those aged under 65.

**Minor Revisions:**

The term CKD is somewhat misleading, as the authors use it interchangeably to refer to chronic kidney disease as the entire disease spectrum and the subset of patients with CKD stage 3 or worse. I would like to advise to authors to use the term CKD stage 3 when refering to their estimates of prevalence.

Table 6 was difficult to read. Furthermore, I could not view it completely. Please change the the page format to landscape so that the table fits. Additionally, the authors may want to use the actual names of the estimating equations rather than binary designation in the table header.

The authors used the kappa statistic to assess concordance of the estimated CKDIII+ prevalence by eGFR equations. However, this statistic has its limitations. First, it depends on the number of categories used. The higher the number, the lower the kappa and vice versa. Secondly, the kappa depends on the prevalence
of the outcome. The higher the prevalence, the more likely concordance is due to chance alone. As a result the the kappa statistic by itself, without the classification tables on which it was based is hard to interpret correctly. Perhaps the original classification tables could be added to the (supplementary) results.

The intra class correlation coefficient (ICC) depends strongly on the range of the tested variables. The broader the range, the higher the correlation. Essentially, the Bland-Altman plots and calculated bias and limits of agreement address the agreement between two continuous variables more appropriately. Thus the ICCs can be omitted in my opinion.

Perhaps the authors could calculate and plot 95% confidence intervals arround the point estimates in figure 2 to give the reader an indication of the precision of the estimated CKDIII+ prevalence by age.

Discussion, page 13: use cannot rather than can't

Discretionary Revisions

Out of curiosity, did the standard deviation of the bias (Blant-Altman analysis) depend upon the level of eGFR? It would be usefull from a clinical point of view to know if a estimated eGFR is always within x% of the 'true' GFR regardless of eGFR level.

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 delcare that I have no competing interests.