Reviewer's report

Title: Low level exposure to cadmium increases the risk of chronic kidney disease: analysis of the NHANES 1999-2006

Version: 1 Date: 10 February 2010

Reviewer: lesley Stevens

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To authors

1. The CKD-EPI equation has the same four variables as the MDRD Study equation but is more accurate and has been recently shown to be a better predictor of risk in population based studies. I suggest substituting the CKD-EPI equation for the MDRD Study equation in these analyses.

2. Continuous analyses can be more powerful than categorical. Consider examining the association between eGFR and UACR as continuous variables to Cd levels. Table 2 and figure 3 appear to show the same information. Consider revising the tables with the logistic regression so that they show the unadjusted OR and then show the affect of adjustment for each variable/set of variables. In particular, what is the affect of smoking given its association with Cd? The conclusions appear differ across the abstract, first paragraph of the discussion (which is a summary of the results), concluding paragraph and also are not comprehensive. Suggest making sure consistent throughout as well as including urinary findings, given that this was the rationale for performing this study. ROC analyses are helpful for assigning cut-points for diagnostic tests. It may be therefore be informative to indicate the values associated with the maximal sensitivity and specificity? Why was CKD not used for the ROC analyses? It would appear to be helpful to have that information as well or else indicate why analyses were not performed.

Minor

1. Consider moving the table with the median values and percent CKD/ALB before the results of the logistic regression
2. Consider reporting the upper and lower limits of the quantiles in the tables when mentioned.
3. The paragraph in the results on blood levels and CKD does not reference any table or figure.