Reviewer’s report

Title: Evaluation of cardiovascular disease burden and therapeutic goal attainment in US adults with chronic kidney disease: an analysis of National Health and Nutritional Examination Survey data, 2001-2010

Version: 1 Date: 13 January 2013

Reviewer: Tariq Shafi

Reviewer’s report:

This paper by Kuznik et al highlights the undertreatment of hyperlipidemia and hypertension in the US population with CKD. The paper is well written and easy to follow. The paper can be greatly improved by the suggestions noted below.

Major Comments:

1) The key finding in this paper is that while the prevalence of CVD risk factors is high in the US population with CKD, two of the modifiable risk factors, hyperlipidemia and hypertension, are both undertreated. I think this is where the paper should focus on in terms of presentation of results. The paper will be greatly improved by highlighting these findings and exploring these differences within different subgroups.

2) The presentation of percentages in the paper is confusing in its current format. I suspect that the percentages represent the US population percents and not the actual proportion of the participants but this is not clear. This needs to be clearly stated and repeated as necessary throughout the paper.

3) Since NHANES are cross-sectional data, it is not possible to comment on progression of CKD and “improvement” in levels. This comes up in a number of places and needs to be modified.

4) Under the sample population, the total population of NHANES needs to be described. Also describe what number of participants were excluded and for what reason to reach the final N of 9915. Also describe how the included differ from the excluded.

5) CHD definition includes “heart disease” which is vague and should be limited to coronary artery disease, angina and myocardial infarction.

6) Please describe which sampling weights were used and if new weights were constructed for the analysis.

7) Table 1: Consider creating Table 1 by categories of interest in this paper. Suggest a table with columns for characteristics, overall, Goal BP and Lipids (yes, no and p), goal BP (yes, no and p) and goal lipids (yes, no and p). Could break into supplemental tables.

8) In Tables, please be very specific about the %s (sample vs. population %) and repeat footnotes at the bottom of each table that are relevant to that table.
9) Figures: is the % sample vs. US population?
10) Consider further stratified analyses by CVD and diabetes status. I would like to see if the treatment varies based on these two conditions in patients with CKD.
11) Comparisons among CKD stages: Stage 4 has only 60 participants so I would be careful with strong inferences about the US population trends based on comparing stage 4 CKD to other stages.
12) Discussion: I am not sure why there is such a long discussion about 4D and AURORA? The main study that needs to be discussed is SHARP. There are no dialysis patients in this study.
13) The difference in prevalence of CKD noted in this study and previous papers is likely to be due to a different subsample and the use of CKDEPI equation. The authors should compare their prevalence estimates to those reported using CKDEPI equation by the USRDS atlas of CKD (www.usrds.org) and by Levey et al (PubMed ID: 19414839).

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

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

None