Reviewer's report

Title: Ethnic differences in the association between blood pressure components and chronic kidney disease

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Reviewer: Joseph Eustace

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Research article
Ethnic differences in the association between blood pressure components and chronic kidney disease
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Subanayagam and colleagues examine the cross sectional association of Hypertension and its components with a single CKD EPI measured eGFR of <60 in 3 consecutive large cohorts that separately enrolled Chinese, Malays and Indians. The report uniform relationship between reduced eGFR and the presence of hypertension and with tests for linear trend across JNC-7 BP categories but differential associations for BP components between the 3 races.

The study is succinct, well written and adds scientifically valid data to this important topic.

My main concern is with possible biases that are difficult if not impossible to eliminate in such a study but may have contributed to the observed differential racial effects and warrant mention in the discussion, namely

Selection biases: Subjects for parent cohort were identified by age stratified random samples from lists provided by the Ministry for Home Affairs. It would be useful to describe briefly how the Dept of Home affairs created these lists and the potential for differential selection biases across races (e.g. if lists were in part based on health care utilization or socio economic status. This is also important in understanding how representative these subjects were of the general population. Secondly while response rates of those invited to participate were excellent (73%-79%), not all subjects had the necessary data available for the current analysis. Given the differences in baseline characteristics such as education level between races either declining to participate or having missing data may additionally introduce differential selection biases.

Secular Trends: The 3 cohorts were recruited over 3 consecutive time periods, leading to possibility of secular trends influencing the results, especially if there was focused public health interventions applied during this period.
Systematic misclassification of eGFR: The outcome is based on estimation of GFR using the CKD EPI formula, I am not sure of the extent to which this has been validated in the 3 populations studied, however, if there were differences in the validity of this formula between different racial groups this may contribute to the observed racial differences.

Reverse causation: The potential for reverse causation is mention in the limitations section, however its effect is potentially magnified in the analysis of JNC 7 associations by the decision to attribute all subjects on antihypertensive treatment to Stage 1 hypertension.