Reviewer's report

Title: Randomised controlled trial of an automated, interactive telephone intervention (TLC Diabetes) to improve type 2 diabetes management: Baseline findings and six-month outcomes

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Reviewer: Courtney Lyles

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Overall, I think this study evaluating the effectiveness of a trial using telephone-linked care on diabetes outcomes is a useful contribution to the literature – especially as a comparison to other trials that have varying levels of healthcare provider support. I also thought the comparison of the trial participants to the AusDiab study was useful. The introduction is comprehensive in citing the other trials of TLC on diabetes outcomes, and the methods appear to be solid, especially the comparison of the change in A1c over time which adjusts for baseline A1c and intervention arm (and their interaction).

My specific major comments/questions are:

• I am not as familiar with seeing differences in geometric means over time, rather than raw A1c values. Perhaps the arithmetic mean by arm could be included (at least in the text, as this was used as inclusion criterion), even if the regression analyses log-transform these values due to the skewed nature of the data. In addition, it is not clear to me that the Table 1 A1c values are arithmetic or geometric means.

• The results on page 10 state that there is “little evidence of difference between study arms varied with baseline A1c”, but p-value for the interaction is marginally significant at 0.09 (especially given the limited power of this sample size). I think this wording should be less strongly stated. I believe the TLC arm started the trial with somewhat lower A1c values and still made more significant improvement compared to usual care.

• I wanted clarification about the AusDiab comparison sample, especially since the sample size seemed small. If there were over 10,000 individuals in that study (I thought all of whom had diabetes based on the Methods description?), how was this limited to the 156 for the comparison group? If this smaller comparison group is still the most representative of the diabetes population in Australia, then I think it could be fine, but I was wondering about the statistical power to detect a difference in sample characteristics between the survey and the trial participants – that could be a limitation.

• The Discussion states on page 11 that this is the first study to examine an automated, interactive telephone intervention in the world. To be more specific, I think the statement that this is the first TLC intervention without any healthcare provider assistance/ follow-up might be more accurate (that is, differentiating
from the Piette et al. trial, etc.

- The conclusions compare a 0.8% reduction in A1c to the UKPDS study, but I was unsure if they also used geometric means? I was wondering about the comparability of the different mean measurements.

**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:**

I declare that I have no competing interests.