Reviewer’s report

**Title:** Socioeconomic Status and Time in Glucose Target Range in People with Type 2 Diabetes: A Baseline Analysis of the GP-OSMOTIC Study

**Version:** 0  **Date:** 22 May 2018

**Reviewer:** Anderson Carlson

**Reviewer's report:**

This analysis of the baseline GPS-OSMOTIC study data used univariable and multivariable analyses to explore the hypothesis that socioeconomic status affects time in range (TIR) based on CGM data. By analyzing nearly 300 patients based on questionnaire and postcode economic data, the authors conducted a sound study to look at TIR and HbA1c based on SES status by decile and self-reported education attainment. I think these are important questions to answer and I agree with the premise that CGM data may become another standard by which we manage type 2 diabetes.

My comments/suggestions are as follows:

1. In the abstract, page 2 line 11, I would say CGM measures glucose every 5-15 minutes (15 minutes is just for the CGM used in this study).

2. Also in the abstract, line 18, I think it is more accurate to call TIR a "metric" or "index" rather than a "variable" -- if you are saying HbA1c and TIR both address glycemic control, I don't think of HbA1c as a "variable" per se.

3. On page 4, lines 49-58 (last paragraph), do you have any evidence that TIR is easier to understand than say HbA1c? I am not aware of any such studies. There is data to suggest real-time CGM affects behavior, but that isn't necessarily due to an understanding of TIR. If there is room to expand on this idea it may help build the case for this analysis.

4. On page 5, line 40, I believe you mean to say the most recent HbA1c level "greater than" or "at least" 0.5% above target, not just 0.5%?

5. On page 8, line 16, you mention adjustment for study arm, but then do not mention it in the results or the characteristics table. I would either include a note in the results or in the table (presumably the study arm did not matter), or else do not mention it at all in the methods.

6. In Table 2, the mean difference in TIR (adjusted) is listed as 1.5%, but in results text it says 15%. The same is true for HbA1c, listed as -0.06 on the table but -0.6% in the text. I think the results table needs to be clarified to be consistent.

7. In the discussion, line 40 (page 11), I would avoid using the word "improvement" in reference to
IRSD; perhaps just an "increase" in IRSD would sound less like a judgment statement.

8. I think it may be worth noting, if possible, any difference between deciles. For instance, I would suppose lower SES patients may be on lower-cost medications that are known to have more hypoglycemia and therefore less TIR (vs other newer medications like GLP-1RA known to have more TIR). I would possibly consider reporting any differences you found in baseline characteristics between decile 1 and 10?

9. Can you please comment on any further directions of this project: plans to use RT-CGM? Plans to reassess for TIR/A1c at a later date?

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.
Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.
Unable to assess

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.
Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.
I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:
Acceptable

Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this
2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

Yes: I have received research funding and consulting honoraria from Medtronic and Dexcom, and currently have an investigator initiated study proposal pending with Abbott. All payments go directly to my employer and none of it is paid directly to me. I have no other competing interests.

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal