Reviewer’s report

Title: Predicting Diabetes Clinical Outcomes Using Longitudinal Risk Factor Trajectories

Version: 1 Date: 18 Apr 2019

Reviewer: Rosa Gini

Reviewer's report:

I agree with the authors that the paper is clearer now, and I appreciate this a lot. However, my main concern remains unaddressed: that what the model is predicting is not occurrence of diabetes, but rather occurrence of repeated visits to the clinic. From the current analysis, in fact, there is no way of telling how many of those who are classified as 'healthy' are in fact with undiagnosed diabetes, and simply visiting less often the clinic (possibly because overtly reassured by an occasional past negative FPG result). The data which is included in the response to reviewers reinforces my concern, as the authors acknowledge, but is not addressed in the paper. If this concern is not addressed, the current results may have the effect of further putting pressure on patients who are already correctly diagnosed and reinforce in those who are not regularly monitored the belief that they are risk-free.

In order to address this, I recommend to

1) reformat Table 1 by including one column per exposure strata; in this table all the characteristics now described for the whole cohort should be described for each stratum; additionally, number of measurements before baseline and after baseline should be described as well

2) explain more clearly in the Methods how missing data were imputed, and in the results which was the impact on each exposure strata of the imputation

3) a sensitivity analysis could be conducted among those with no imputation (3+ measurement before baseline and at least 5 after baseline).
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.

No

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

No

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

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