Reviewer’s report

Title: Barriers to self-monitoring of blood glucose among adults with diabetes in an HMO

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Reviewer: Prof D S Simmons

Level of interest: A paper of limited interest

Advice on publication: Unable to decide on acceptance or rejection until the authors have responded to the compulsory revisions

a) Discretionary revisions
None
b) Compulsory revisions
1. The background para 1 suggests that the DCCT demonstrated the efficacy of management with insulin and SMBG-the study was testing the hypothesis that tight glucose control however reached was associated with less complications in those with Type 1 diabetes. The UKPDS was designed to test this hypothesis in those with Type 2 diabetes. This paragraph needs to be rewritten to this end. One also notes that this baseline data were collected before the DCCT-how would this have affected the interpretation of the results here? Many patients were using urine testing at that time, but this is not included in the paper-more information is needed.
2. The background para 2 is a very limited review of SMBG use and needs to include references to other studies identifying characteristics of those less likely to test.
3. On page 5, para 1, it is stated that only patients with no more than 45 days disenrollment were included-what were the characteristics of these patients? This may be a group at particularly high risk of non-testing and their exclusion could seriously bias the results
4. Does filling in the script signify using the testing strips? What evidence do the investigators have for this?
5. On page 6, paras 1 and 3, I do not understand why three groups were turned into 2 dichotomous variables, this has multiple implications for the analyses and would not be a usual approach to analysis. I recommend a statistical review. ON page 9, there seem to be multiple comparisons-how were these adjusted for?
6. On page 6, para 2-The reproducibility of the weightings for the socioeconomic score should be tested (eg by analyzing on half the sample and repeating the analyses on the second half). How were interaction terms considered in the analyses?
7. On page 6 para 3, pharmacy dispensing data were used to determine comorbidities-the reference relates to a paediatric study, not an adult study. How does the approach discriminate between drugs
with multiple uses (eg beta blockers for hypertension vs heart disease)

8. Page 7, para 3-do the patients attend elsewhere outside of the HMO (presumably with greater out of pocket expenses?), how comprehensive was this HMO’s cover for diabetic patient costs at the time?

9. Page 7/8-how were the analyses adjusted for missing data in the analyses (which were substantial)? On page 9, eg how were the differences in neighbourhood assessed when ethnicity was often missing. A statistical review is required

10. Although commented on within the discussion, the omission of duration of diabetes when interpreting the results to the analyses is problematic and could eg explain the hospitalization data. Utilisation analyses need to be adjusted for diabetes duration, without this, the data are hard to interpret.

11. What was the method used for HbA1c and what was the reference range? Was this consistent across all patients?

**Competing interests:**

None declared.