Author’s response to reviews

Title: Impact of technology-based interventions for children and young people with type 1 diabetes on key diabetes self-management behaviours and prerequisites: A systematic review

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Dear Editor,

Thank you for your email. Please find our responses below:

Reviewer 1.
No comments

Reviewer 2.

Comment: I do not think the justification for including CGM is appropriate. If CGMs are to be included then why not pumps?

Response: We have included CGM but not insulin pumps because as stated in the abstract found on page 1 line 36-39 “Included studies examined interventions which supplemented usual care with a health care strategy primarily delivered through a technology-based medium (e.g. mobile phone, website, activity monitor) with the aim of engaging children and young people with T1DM directly in their diabetes healthcare” – CGMs can be considered as technology-based
medium which engages people directly with their healthcare i.e. by prompting the individual to make an adjustment. Pumps cannot be considered in this way as they make the adjustment automatically, thus bypassing the need to engage the individual. This is further justified on page 5 line 109-112.

Comment: In addition, the text is inaccurate. The G5 and G6 do not make automatic adjustments.
Response: We have removed this statement from the manuscript

Reviewer 3.

Comment: Line 112-113 (page 5) Dexcom G5 or G6 CGM which make automatic adjustments and would not be included- This is an incorrect statement and requires clarification. It gives the impression that Dexcom G5 and G6 CGM make automatic treatment adjustments. Dexcom G5 and G6 are new generation CGMs that do not require fingerstick blood glucose calibration.
Response: We have removed the statement relating to automatic adjustments from the manuscript.

Comment: Result section consists of sub-sections for interventions reporting on frequency of SMBG, insulin administration behaviour, glycaemic control (HbA1c), physical activity, psychosocial or cognitive indicators of improved self-management. While study results are presented under each section, there is not a clear interpretation of the data or its clinical relevance. There is a clinical relevance column in table 2, however does not provide an explanation of the clinical relevance and is not supported by an explanation in the results section. I recommend rewording of the clinical significance of findings column.
Response: The research team has reviewed Table 2 and all agreed that the clinical relevance has been stated clearly for each included article - within the word constraints, since the previous reviewer feedback requested that we reduced the word count of the article. Therefore, we have not changed text that appears within the table although our lead clinician has further reviewed the paper and has provided some additional text within the main body of the paper relating to the clinical relevance.

Comment: Some of the sentences are incomplete and confusing.
Response: We have reviewed the general writing of the manuscript and improved incomplete and confusing sections. Examples include: Page 7 Line 165, Page 8 Line 168, Page 9, Line 192-194 and Line 197-198 and Line 202, Line 207, Page 14, Line 326 and Line 331, Page 17 Line 406, and Page 18 Line 426.

Comment: There is no interpretation of the number of subjects lost to analysis or subject retention.

Response: The number of subjects lost to analysis and adherence for each included study is provided in Table 1. Interpretation is included in the discussion: ‘Although attrition appeared to be higher in studies involving a potentially greater burden of time or scheduled interactivity for the participant (e.g. videoconferencing), attrition across the studies was generally low. This supports previous findings that technology based interventions are generally well-accepted by children and young people with T1DM (4)’.

Comment: Discussion section could be enriched by expanding on the relevance of these findings from a clinical perspective. I suggest citing the results from the study by Petry et al. given the direct relevance to the review.

Response: Our lead clinician has further reviewed the paper and has provided some additional text within the main body of the paper relating to the clinical relevance. The study by Petry et al is not included in the systematic review as it does not include any technological intervention and so does not fulfil inclusion criteria. We have included reference to the paper in the discussion section on page 19, lines 451-454.

Comment: Limitations of the review paper are not stated in the text.

Response: Limitations are given on pages 21-22, lines 498-509 and include: only English language articles included missing other relevant articles published in other languages, publication bias meaning relevant findings may have been missed, failure to identify dietary management studies, lack of specificity with regards to age and a lack of focus on the influence of the types of technology.

Thank you again for these helpful comments which we feel have improved the quality of the manuscript.

If anything further is required, please do not hesitate to let us know.
The authors 10.12.2018.