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## Outcomes of telehealth in the management of type 2 diabetes: A systematic review and meta-analysis of randomized controlled trials

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**Background:** The outcomes of telehealth in the management of type 2 diabetes (T2DM) have not been evaluated since the publication of recent clinical trials. The objective of this study is to conduct a systematic review and meta-analysis of recently published randomized controlled trials (RCTs) to assess the biochemical, clinical and psychosocial outcomes of telehealth in subjects with T2DM.

**Methods:** Electronic databases, MEDLINE, CINAHL, InformIT, Scopus and the Cochrane Central Register of Controlled Trials and reference lists of existing systematic reviews were searched until August 2017 to identify relevant studies. Study search and selection were performed by two independent reviewers. 4791 articles were retrieved of which 11 RCTs (n=3772) were included. A meta-analysis with random effects model was applied to estimate the pooled results.

**Results:** Telehealth was associated with a statistically significant and clinically relevant absolute decline in glycosylated haemoglobin (HbA1c) compared to usual care (mean difference -0.17%; 95% CI -0.25 to -0.09%; p<0.0001), especially if participants had a mean baseline HbA1c $\geq$ 8.0%; were less than sixty years of age or received telehealth for less than one year. There was no clinically significant reduction in LDL-cholesterol (LDL-c), body mass index (BMI), systolic (SBP) or diastolic blood pressure (DBP).

**Conclusion:** Telehealth interventions were associated with improved glycaemic control (HbA1c) in T2DM diabetic patients. However, no clinically relevant impact was observed on lipid profile, blood pressure, body mass index and psychosocial well-being. Future studies should seek to evaluate the effect of intervention duration on HbA1c, psychosocial outcomes and the effectiveness of telehealth in rural and underserved populations.