

Effect of structured self-monitoring of blood glucose, with and without additional TeleCare support, on overall glycaemic control in non-insulin treated Type 2 diabetes: the SMBG Study, a 12 month randomized controlled trial

SN Parsons, SD Luzio, JN Harvey, SC Bain, WY Cheung, A Watkins and DR Owens

Diabetic Medicine DOI:10.1111/dme.13899

Lay Summary

Does structured self-monitoring of blood glucose levels help improve HbA1c levels compared to no monitoring in people with Type 2 diabetes?

Why was the study done?

- The study was conducted over a 12 month period to see if people living with Type 2 diabetes who were given a blood glucose monitor, or given a monitor plus telephone support could improve their overall glycaemic control, in the form of HbA1c levels, compared to those without this support.
- Could it be effective to provide patients on non-insulin therapy with blood glucose monitors to enable self-monitoring, would this improve self-management of their condition?
- The study looked at intervals at 3, 6, 9 and 12 months to compare data.

What did the researchers do and find?

- The study was carried out on a sample of 446 participants, a third of whom were a control group who were not given a monitor and received their usual care; another third were given a blood glucose monitor and SMBG training and the final third, in addition to a blood glucose monitor and SMBG training, were given access to monthly “check ins” with their study team by phone.
- All participants were given the same initial education in the form of being introduced to and talked through the Type 2 diabetes booklet from Diabetes UK, all were given a copy of the booklet to keep and to refer to during the study.
- Participants in the two SMBG groups were asked to monitor their blood glucose levels before and 2 hours after breakfast and their main meal, 2 days a week. They recorded these readings on a chart and produced graphs showing their blood glucose profiles. They were also taught what action to take when they had high or very low blood glucose readings.
- The research showed that in the control group there was a small decrease in HbA1c – as expected. However, in the remaining two groups the results were very similar to each other showing a significant improvement in HbA1c of over 11mmol/mol (1%), indicating that blood glucose monitoring had a positive impact but the telecare support did not necessarily add much in terms of improving HbA1c.
- The results also showed benefits in other areas such as reduction in Cholesterol levels, BMI and weight but these were noted as an aside as not part of the main results.
- All data received by the blood glucose monitors were anonymized for data analysis and it was noted that over the 12 month period 130 patients recorded 1032 episodes of hypoglycemia, none of which required third party help.

What do these findings mean?

- By using structured SMBG, participants had more awareness of good diabetes control and how food and drink intake affected their blood glucose levels. It gave them the knowledge and tools needed to control their diabetes in a much better manner, giving them facts and figures to take to their HCP consultations and leading to more meaningful appointments.
- The conclusion in patient terms is that people living with Type 2 diabetes who are given a blood glucose monitor with adequate training of how to use it and action to take, can find it extremely beneficial to help gain good glycaemic control. People with type 2 diabetes should not be denied the equipment and training to help them self-manage their condition.

The full study manuscript can be found here <https://onlinelibrary.wiley.com/doi/10.1111/dme.13899>

Lay summary produced by Sarah Gibbs, Public Contributor, Diabetes Research Unit Cymru, Jan 2019