RWD77

Real-world data analysis showing a significant improvement in glycemic control of people with T2D in Poland when using a blood glucose meter connected to a mHealth app

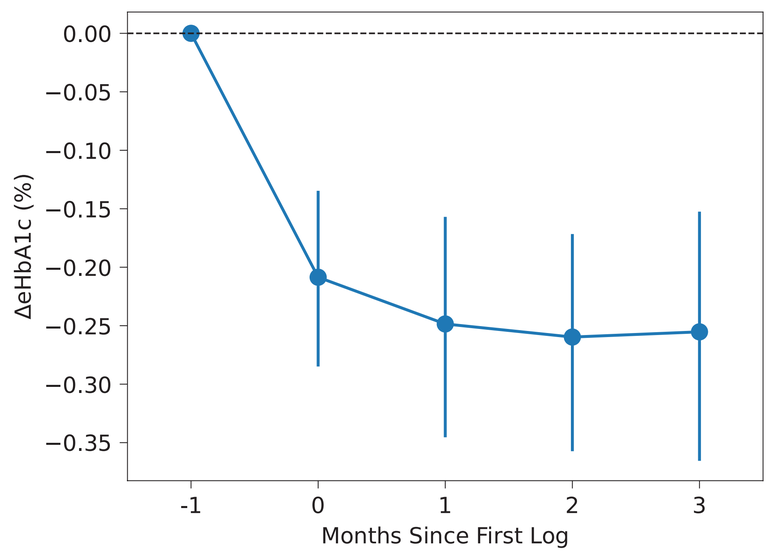
Tim Arnaut, Bernhard Ruch, Mandana Ivascu, Ezgi Bingol, Piotr Olechno, Veronica C. Munk

Background

The use of mHealth applications has been shown to reduce the burden of diabetes self-management , leading to improved glycemic control and in turn less complications. The aim of this real-world data analysis was to investigate the impact of using blood glucose (BG) monitoring meters connected to a mHealth app (mySugr®), on glycemic outcomes and costs in Poland for people with type 2 diabetes (T2D), since this population tends to show poorer glycemic outcomes.

Estimated HbA1c change over time

Figure 1



Time point "-1-0" refers to historic data imported from BG meters

Materials and Methods

We performed a retrospective analysis, including 267 highly engaged people with T2D in Poland, who used BG (Accu-Chek) meters connected to the mySugr® app, between January 2018 and November 2022. BG measurements within five 30-day blocks where performed and only people with ≥2 logs on at least 14 out of each of the 30 day-blocks were included. Subsequently, the impact on estimated HbA1c (eHbA1c) was calculated after 4 months of connecting the BG meters to the mobile app. By linking the observed eHbA1c change to the annual incidence rates of diabetes-related complications, the resulting decrease in complication rates and healthcare cost savings were calculated for a population of 500,000 patients with T2D.

Results

After 4 months of use of the mySugr® app connected to BG meters, a statistically significant improvement in eHbA1c was observed for highly engaged users with T2D (-0.26%; p<0.001; 95% CI [-0.37, -0.16]) in Poland (baseline eHbA1c level: 6.74%; CI [6.60, 6.88]) (Figure 1).

The percentage of blood glucose tests performed in range by T2D users significantly increased (4.960% points (3.082, 6.929 95% CI); p<0.001) with mySugr® app connectivity, same as for glucose control, it was already observed after 1 month of the app use (data on file).

By using the modeling approach, described by Fortwaengler et al[1], the observed change in eHbA1c was associated with an annual decrease of 6% of diabetes-related complications (Figure 2A), resulting in an annual healthcare cost saving of 91.7 million PLN (20.5 million EUR) for a population of 500,000 people with T2D in Poland (Figure 2B).

Figure 2

Modelled annual incidence of diabetes-related complications (A) and public healthcare cost savings (B) with and without the observed eHbA1c change.

Figure A

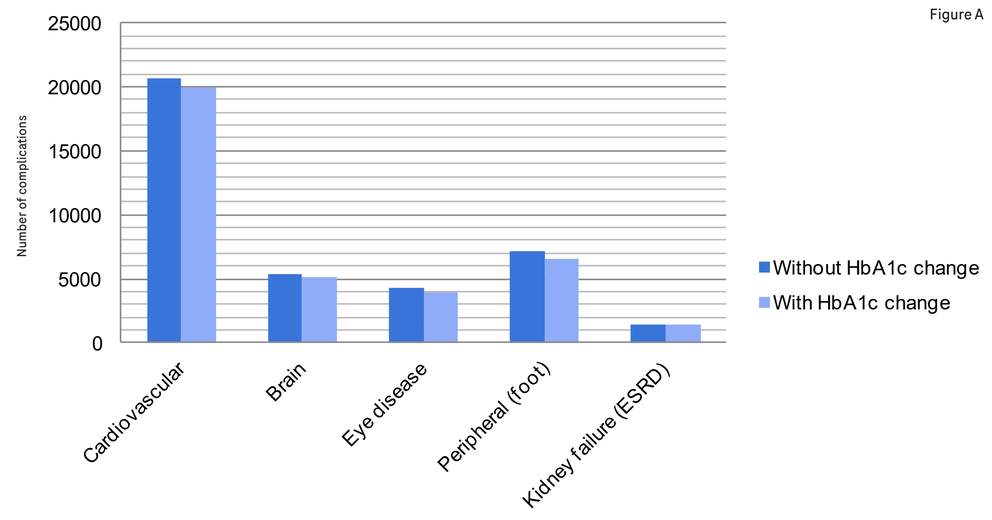
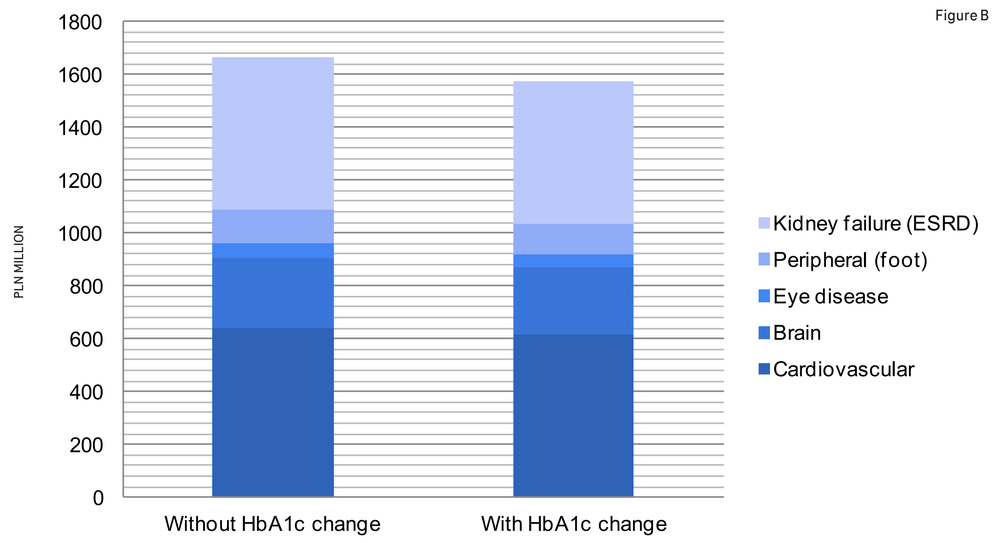


Figure B



Modelled population was assumed to have an average age of 56, been diagnosed with T2D for 8 years on average and have an average baseline HbA1c level of 6.74%. eHbA1c level assumed the same after 4 and 12 months.

Conclusion

When using a BG meter connected with the mySugr® app, a significant improvement of glycemic outcomes over a 120-day period for people with T2D in Poland was observed, resulting in a decrease in complication rates and healthcare expenses.

1 Fortwaengler K, Parkin CG, Neeser K, Neumann M, Mast O. Description of a New Predictive Modeling Approach That Correlates the Risk and Associated Cost of Well-Defined Diabetes-Related Complications With Changes in Glycated Hemoglobin (HbA1c). Journal of Diabetes Science and Technology. 2017;11(2):315-323. doi:10.1177/1932296816662048