

Use of a Mobile Diabetes Self-Management Application is Associated with Increased Blood Glucose Monitoring Frequency and Improved Glycemic Control

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Introduction and Objectives

While recommended blood glucose monitoring (BGM) frequency varies by therapy and individual circumstances, many people with type 2 diabetes (T2D) may not follow suggested monitoring guidelines¹ or achieve glycemic targets.² Given recent advancements in blood glucose monitoring technology, we studied the impact of connecting a blood glucose (BG) meter to a mobile diabetes self-management app (mySugr[®]) on testing frequency and glycemic control.

Methods

We performed a retrospective analysis of 103,400 mySugr app users in the United States with self-reported T2D who enrolled between January, 2018 and November, 2023 and calculated the change in BG testing frequency and mean BG per 30-day period in the 180 days following glucometer connection to mySugr to the 30-day period prior to connection. We also analyzed the impact of BG logging frequency on glycemic control. To confirm that the impact was not limited to newly connected users, we performed a subgroup analysis of 44,275 users with a documented BG meter log >30 days prior to connecting to mySugr.

Results

In the overall group, following enrollment in mySugr and connection to a glucometer:

- Users increased the frequency of BG monitoring from a baseline of 19.87 (95% CI 19.61 to 20.15) logs in the 30-day period prior to mySugr connection to 52.38 (52.02 to 52.74) logs in days 0 – 30 following connection and 32.57 (32.27 to 32.86) logs at 150 – 180 days.
- Mean BG was 175.87 (175.43 to 176.36) mg/dL at baseline and 143.99 (143.62 to 144.38) mg/dL at 180 days following connection.
- Of the 45,615 users with BG data between days 150 – 180, those who logged greater than 30 logs had a greater reduction of mean BG (-20.44 [-19.70 to -21.22] mg/dL) than those with 30 or fewer logs (-18.35 [-17.78 to -18.95] mg/dL).

In the user group with a documented glucometer BG log >30 days prior to connecting to mySugr:

- An increase in BG logs was observed from a baseline of 34.02 (33.59 to 34.46) logs in the 30 days prior to connection to 50.65 (49.86 to 51.71) logs during days 0 – 30 following connection, but trended back to baseline by days 150 – 180 (34.54 [34.05 to 35.10] logs).
- Mean BG was 162.10 (161.52 to 162.71) mg/dL at baseline and 144.85 (144.31 to 145.42) mg/dL at 180 days.
- Of the 23,701 users with BG data between days 150 – 180, those who logged greater than 30 logs had a greater reduction of BG (-8.93 [-8.29 to -9.58] mg/dL) than those with 30 or fewer logs (-6.94 [-6.37 to -7.53] mg/dL).

Conclusion

Following BG meter connection to the mySugr app, users recorded more BG logs in the 30-day period following connection than in the 30 days prior – although those with a longer history of documented glucometer use trended back towards baseline monitoring practices at the end of 6 months. While increased BG monitoring frequency and reduction in mean BG was observed across all user groups, a relatively greater increase in BG logs and reduction in mean BG was observed in those with a shorter documented history of glucometer use. Limitations of the study include: 1) BG monitoring frequency and glucose value calculations may not have included BG results using a non-connected glucometer; and 2) there was no minimum number of BG values required to calculate mean BG during the 30-day periods.

Figure 1: Change in blood glucose logging frequency following connection to mySugr in all users

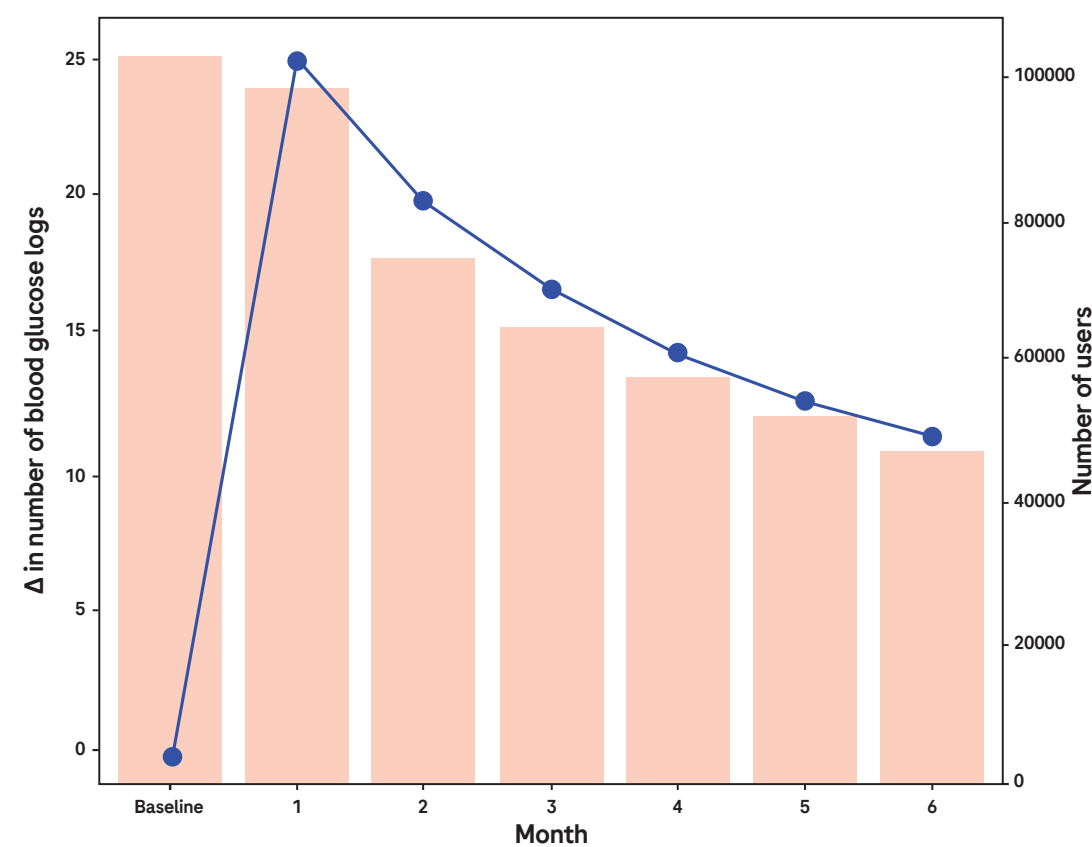


Figure 2: Change in blood glucose logging frequency in users with at least one BG log >30 days prior to connecting with mySugr

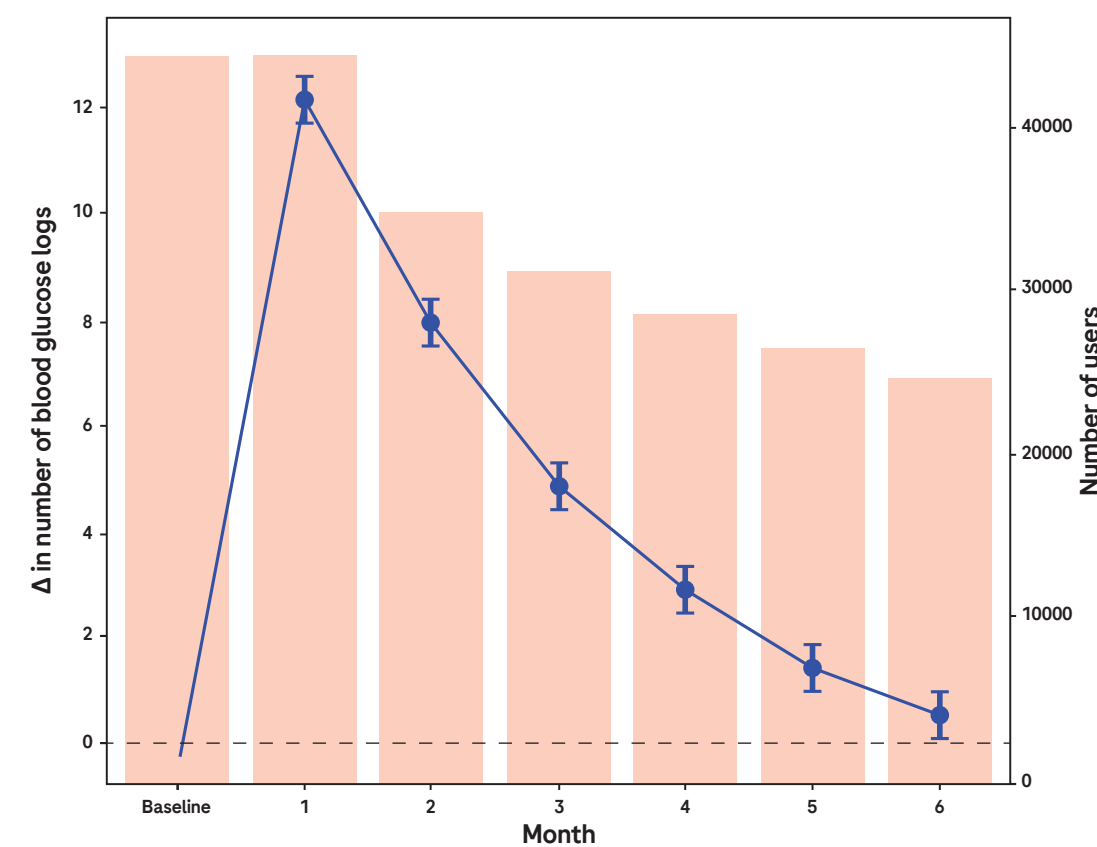


Figure 3: Change in mean blood glucose during month 6 in all users based on logging frequency

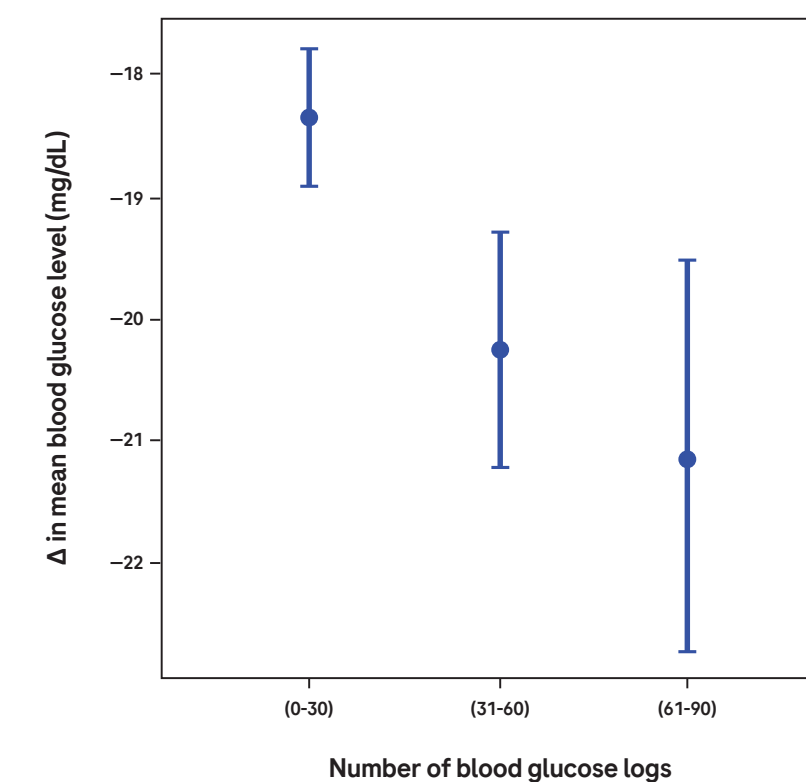


Figure 4: Change in mean blood glucose (BG) during month 6 in users with at least one BG log >30 days prior to connecting with mySugr based on logging frequency

