Continuous Glucose Monitors as Behavioral Modification Tools to Improve Metabolic Health

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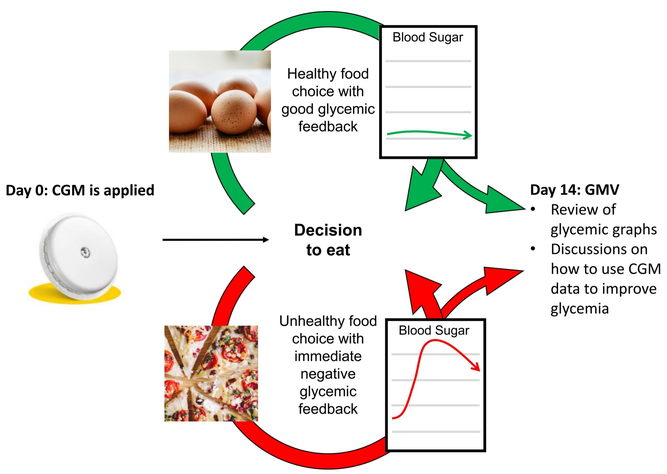
Background

Continuous glucose monitors (CGMs), in conjunction with low carbohydrate diets, have been shown to improve metabolic health through lifestyle changes alone in subjects with type 2 diabetes. Prior studies have investigated CGMs on a patient-by-patient basis, which can limit scaling of this modality to improve metabolic health at large. This study sought to combine CGMs and group medical visits (GMVs) in a comprehensive care model to deliver efficient care through patient-lead discussions.

Methods

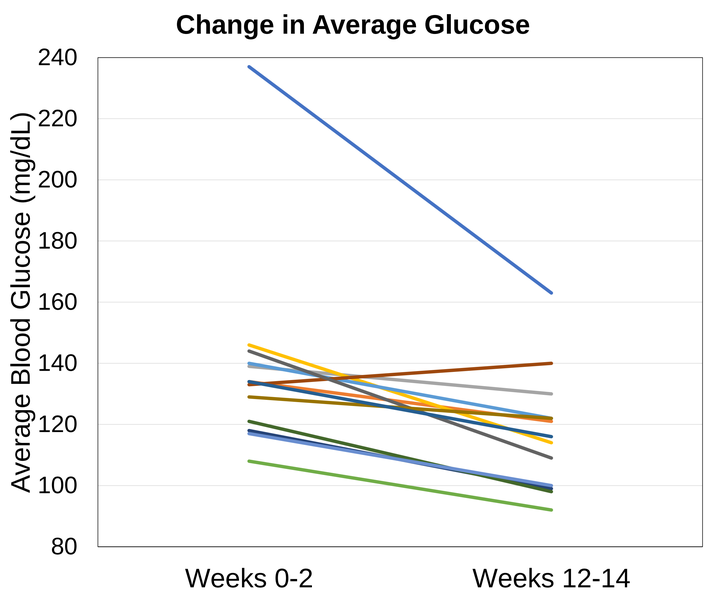
Two 8-subject cohorts were recruited from an academic family medicine practice. Subjects wore CGMs for 14-weeks with bimonthly 120-minute group visits. Subjects' data was utilized to create glycemic graphs as discussion points during each visit. The remainder of each visit focused on methods to improve glycemic control through food choices and lifestyle modification using real-time CGM data. A model of the CGM-Feedback system is shown below:



Results

There was a statistically significant improvement in weight, average glucose, and HbA1c.

Variable	Pre	Post	Difference (SD)	P value
Weight (lbs)	240.9	236.4	-6.4 (4.7)	<0.001
Systolic BP (mmHg)	134.1	131.8	-2.3 (21.9)	0.071
HbA1c (%)	7.1	6.7	-0.4 (0.5)	0.023
Average glucose (mg/dL)	138.5	117	-21 (19)	0.002
Glucose variability (%)	22.4	20.3	-2.1 (3.7)	0.068
LDL (mg/dL)	96.1	90.6	-5.5 (14.8)	0.21



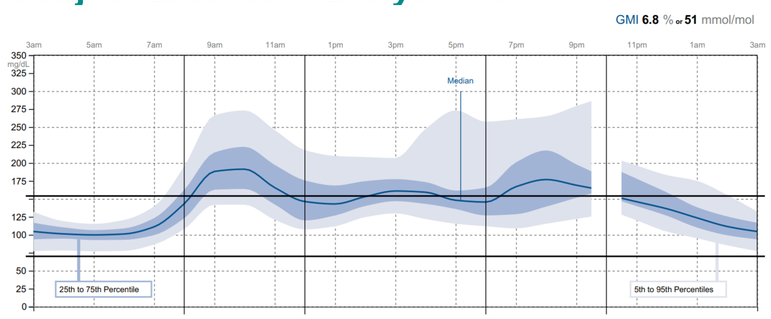
Discussion

Prior research by Oser et al.[1] has demonstrated marked improvement in metabolic health using CGMs in subjects with T2DM. To our knowledge, this is the first application of CGMs in a GMV setting. GMVs are synergistic with CGMs due to facilitating patient-lead discussions regarding what foods improved or worsened their glycemia.

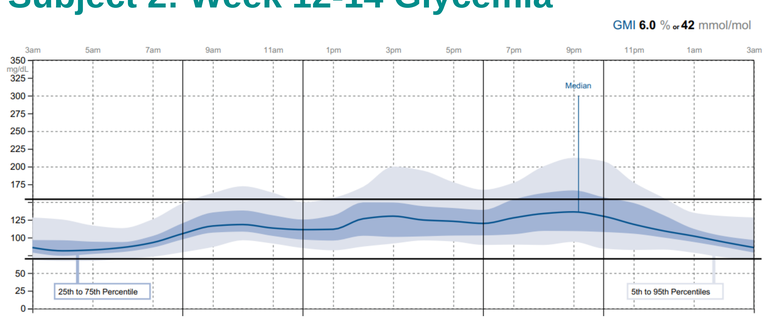
Conclusion

Our data supports the hypothesis that CGMs can be utilized in a GMV setting to improve metabolic health at large by empowering patients to understand the impact of specific lifestyle choices on their glycemia.

Subject 2: Week 0-2 Glycemia



Subject 2: Week 12-14 Glycemia



1. Oser TK, et al. An Innovative, Paradigm-Shifting Lifestyle Intervention to Reduce Glucose Excursions With the Use of Continuous Glucose Monitoring to Educate, Motivate, and Activate Adults With Newly Diagnosed Type 2 Diabetes: Pilot Feasibility Study. JMIR Diabetes. 2022 Feb 23;7(1):e34465. doi: 10.2196/34465. PMID: 35050857; PMCID: PMC8908197.

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