

Research insights

Majithia AR, Kusiak CM, Improved Glycemic Outcomes in Adults With Type 2 Diabetes Participating in a Continuous Glucose Monitor Driven Virtual Diabetes Clinic: Prospective Trial. J Med Internet Res. 2020;22(8):e21778. doi:[10.2196/21778](https://doi.org/10.2196/21778) n=55; 60 days intermittent CGM wear, n=43



Study objective

The Onduo virtual care management solution includes a virtual diabetes clinic for people with T2D, when clinically indicated. The program combines an intuitive app, access to coaches for remote personalized health coaching, connected devices and live consultations with Onduo board-certified endocrinologists for medication management and prescription of real-time continuous glucose monitoring (rtCGM) devices for intermittent use (when clinically indicated), which continually monitors blood glucose levels via an external device attached to a person's body, giving real-time updates.

This 4-month, prospective peer-reviewed study aimed to evaluate diabetes glycemic outcomes in adults with suboptimal glycemic control ($A1C \geq 8\%$ to $\leq 12\%$) after participating in the Onduo program with virtual clinic visits and intermittent rtCGM use. Researchers also evaluated select comorbid biomarkers.



Key observations

- Showed an additive or synergistic benefit of combining intermittent rtCGM and telehealth as part of the Verily Onduo for managing T2D in this population
- Associated with a statistically significant, and clinically meaningful, reduction in A1C at four months in high-risk participants with a 2.4% (avg.) decrease and overall, participants had an 1.6% (avg.) A1C decrease
- Demonstrated significant improvements in comorbid biomarkers, including weight, systolic blood pressure and serum lipids
- Improved diabetes self-care and understanding of its impact on glucose levels

Value to your plan

Improved health outcomes *may* lead to lower healthcare utilization and costs, while providing key population health insights.

Value to your clients

Employees who successfully manage their diabetes and experience fewer complications *may* be more vital, productive and less absent.

Select outcomes

Along with demonstrating T2D outcomes associated with Onduo, including marked decreases in A1C for higher-risk individuals, this was the first telehealth study in individuals provided with rtCGM devices that quantified rtCGM metrics changes beyond A1C for T2D.

Better glycemic control

Participants with suboptimal glycemic control experienced a statistically significant, and clinically meaningful, decrease in A1C from baseline to 4 months (all $P < .001$)

- Overall average: - 1.6% (SD 1%)
- Baseline A1C 8.0% to 9.0% A1C (n=36): - 1.2% (SD 0.6%)
- Baseline A1C >9.0% (n=19): - 2.4% (SD 1.3%)

Data also showed a mean 10% increase in TIR (n=43), which equals about 2.4 more hours a day. TIR is the amount of time persons spend in their target blood glucose range.



Improved health literacy and metabolic biomarkers

The use of rtCGM, monitoring, coaching and support helped study participants understand their condition and how both daily decisions, and habits, affect glucose levels.

Along with decreased time in hyperglycemia and no increases in hypoglycemia, the study demonstrated compelling changes in other metabolic parameters:

Biometric	Baseline Mean (SD)	Followup Mean (SD)	Mean Change (SD)	P-value
Weight* (lb)	217.5 (59.5)	208.5 (53.7)	-9.0 (10.4)	<.001
BMI*	33.6 (7.2)	32.2 (6.5)	-1.34 (1.5)	<.001
Systolic* BP (mmHg)	132.4 (15.8)	128.0 (16.6)	-4.4 (13.1)	.04
Diastolic* BP (mmHg)	80.5 (10.5)	79.8 (10.5)	-0.8 (7.5)	.48
Total cholesterol (mg/dL)	168.3 (42.8)	151.7 (41.1)	-16.6 (46.0)	<.001
HDL* (mg/dL)	40.4 (9.1)	40.0 (10.9)	-0.4 (7.1)	.90
Total cholesterol/HDL ratio	4.4 (1.4)	3.9 (1.3)	-0.5 (1.4)	.003
LDL* (mg/dL)	100.1 (36.5)	93.6 (31.9)	-6.5 (27.5)	.04
Triglycerides (mg/dL)	236.7 (194.30)	193.0 (163.2)	-43.7 (115.4)	.008

*For n=54 (1 subject didn't do the 4-month assessment at the site, but submitted results from an external lab)

BMI = body mass index; BP = blood pressure; HDL = high-density lipoprotein; LDL = low-density lipoprotein; SD = standard deviation



Optimized condition management

Utilizing intermittent rtCGM data, when clinically indicated, to guide clinical assessments and treatment plans is a unique Onduo for type 2 diabetes program benefit. And this study demonstrated intermittent rtCGM use supports individualized condition management via:

- **Better self-care:** Increased understanding and engagement in persons' own health and care plan per real-time view of how lifestyle factors impact glucose levels
- **Informed care plans:** Enabled Onduo licensed healthcare providers, where clinically indicated, to deliver real-world, data-driven lifestyle and clinical recommendations, such as medication optimizations

Connect with an expert

To learn how Verily Onduo can best support your health plan and members, contact a dedicated representative at: verily.com/contactonduo

A1C = glycosylated hemoglobin; BMI = body mass index; BP = blood pressure; HDL = high-density lipoprotein; low-density lipoprotein; rtCGM = real-time continuous glucose monitoring; T2D = type 2 diabetes; TIR = percent time in range

Disclaimers:

Onduo offers certain care management and coordinated clinical care programs for eligible individuals. Onduo LLC and a network of affiliated professional entities (collectively, "Onduo") collaborate to offer the services. Onduo services are meant to be used in conjunction with regular in-person clinical services and not intended to replace routine primary care. To preserve member privacy the people pictured are not actual Onduo members.

The Onduo app is not intended as a substitute for individuals' primary care physicians' care or guidance. Onduo members must discuss their treatment plan with said providers before making major lifestyle changes.

