



Digital Diabetes Management Solutions

HEALTH TECHNOLOGY ASSESSMENT | MARCH 2024

Clinical and Economic Impact for Adults with Type 2 Diabetes

Peterson Health Technology Institute (PHTI) provides rigorous, evidence-based assessments of innovative digital health technologies to improve health and lower costs. PHTI does so by analyzing the clinical benefits and economic impact of digital health solutions, as well as their effects on health equity, privacy, and security.

Topic and Category Selection

PHTI selected non-continuous, digitally enabled diabetes management solutions for treating adults with type 2 diabetes for several reasons:

- Diabetes affects 11% of the U.S. population.¹
- It is one of the nation’s most expensive chronic conditions and disproportionately affects people of color and lower-income populations.²
- Diabetes care requires significant self-management to monitor and control blood glucose (as measured by hemoglobin A1c [HbA1c]).³
- There has been significant investment in digital tools designed to help patients better manage their diabetes.⁴

PHTI’s evaluation focused on digital tools that offer remote patient monitoring and behavior and lifestyle modification support and use connected non-continuous

glucose monitors to measure HbA1c. Non-continuous glucose monitors are the most common type of monitor used by type 2 diabetics.

Summary of Findings

PHTI’s evaluation found that the digital diabetes management technologies for treating adult patients with type 2 diabetes do not deliver clinically meaningful benefits and result in a higher cost than usual care. The evidence showed that

improvements in glycemic control for patients using digital diabetes management solutions were minimal and short-term.

Exceptions may include 1) people with higher starting HbA1c who are newly starting insulin, and 2) people seeking diabetes remission through nutritional ketosis.

THREE-YEAR NET SPENDING IMPACT OF DIGITAL DIABETES MANAGEMENT SOLUTIONS FOR A ONE-MILLION-MEMBER PLAN*

| | Commercial | Medicare | Medicaid |
|--|------------|----------|----------|
| Remote Patient Monitoring | \$65.6M | \$138.9M | \$28.1M |
| Behavior and Lifestyle Modification | \$17.3M | \$72.6M | \$23.0M |
| Insulin Users | \$2.1M | \$8.6M | \$3.0M |

* Assuming 25% of eligible people shift to digital diabetes management from usual care.

PHTI estimates that the tools covered in our analysis increase net spending over three years in commercial insurance, Medicare, and Medicaid because the average price of the solution exceeds the savings achieved from the marginal clinical benefits.

In the areas of health equity and access, the evidence does not show that these solutions are preferentially addressing health disparities. Further, only 29% of studies included participants with higher levels of blood glucose (above 9%), suggesting that solutions are being tested in less-complex patient populations, rather than among individuals who are at highest risk

for diabetes-related complications. As such, published results in the literature should be reviewed carefully before generalizing across populations.

These findings are based on the criteria set forth in the Assessment Framework and the currently available evidence. Please see the full PHTI report for complete assessment, methods, and recommendations.

Policy Implications of PHTI’s Digital Diabetes Assessment

The evidence suggests that broad deployment of the solutions evaluated in PHTI’s report produces little clinical benefit and increases costs.

An exception to this finding is the category of solutions that focus on nutritional ketosis, which did produce clinically meaningful results and may produce savings if the clinical improvements are durable. For payers, including Medicare and Medicaid, the evidence suggests that there are opportunities to do more to target who receives these tools and solutions, at what point in their diabetes care, and for how long. This may include evolving contracting models and reimbursement policies to better align with the evidence about clinical benefits.

For more information, policymakers and their staff should contact Mairin Mancino, Senior Advisor for Policy at MMancino@PHTI.com.

SUMMARY OF PHTI EVALUATION OF DIGITAL DIABETES MANAGEMENT SOLUTIONS

What is the goal of the technology?

Improved glycemic control for adults with type 2 diabetes, achieved through improved self-management using a noncontinuous glucometer with digital reminders, education, and behavioral coaching.

Which categories are included?

Remote Patient Monitoring
Glooko

Behavior and Lifestyle Modification
DarioHealth
Omada
Perry Health

Teladoc (Livongo)
Verily (Onduo)
Vida

Nutritional Ketosis
Virta

What are the clinical benefits?

Small improvement in HbA1c compared with usual care — only three out of 10 comparative HbA1c studies achieved a clinically meaningful between-group difference of at least 0.5% pt HbA1c (e.g., 8.0% to 7.5%). People who complete a nutritional ketosis program experience greater benefits.

What is the budget impact?

Digital diabetes management solutions increase total health spending because the average price of the solutions exceeds the savings from improved clinical outcomes. Nutritional ketosis programs have greater potential to produce savings over multiple years for patients who can complete them.

Which target populations could benefit most?

- 1 | People with higher starting HbA1c who are newly starting insulin; or
- 2 | People who are able to complete nutritional ketosis interventions

How can purchasers achieve better value?

Regularly analyze outcome and tie contracts to clinical performance

Deploy solutions to more diverse and high-risk populations

Reward evidence generation

Where are there opportunities for further innovation?

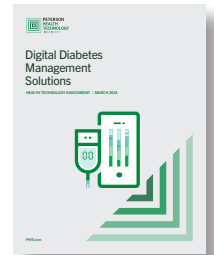
Evolve solutions to achieve clinically meaningful outcomes, which may include GLP-1s, continuous glucose monitors, and nutritional ketosis. Focus R&D efforts on underserved populations.

About the Peterson Health Technology Institute

The Peterson Health Technology Institute (PHTI) provides independent evaluations of innovative healthcare technologies to improve health and lower costs. Through its rigorous, evidence-based research, PHTI analyzes the clinical benefits and economic impact of digital health solutions, as well as their effects on health equity, privacy, and security. These evaluations inform decisions for providers, patients, payers, and investors, accelerating the adoption of high-value technology in healthcare. PHTI was founded in 2023 by the Peterson Center on Healthcare.

Accessing PHTI's Full Report

You can access the full report [here](#).



¹ National Institute of Diabetes and Digestive and Kidney Diseases. Health Statistics. Diabetes Facts and Statistics. Accessed Monday March 11, 2024. Estimated Prevalence of Diabetes in the United States.

<https://www.niddk.nih.gov/health-information/health-statistics/diabetes-statistics#factsstats>

² Emily D. Parker, Janice Lin, Troy Mahoney, Nwanneamaka Urme, Grace Yang, Robert A. Gabbay, Nuha A. ElSayed, Raveendhara R. Bannuru; Economic Costs of Diabetes in the U.S. in 2022. *Diabetes Care* 2 January 2024; 47 (1): 26–43. <https://doi.org/10.2337/dci23-0085>

³ Shubrook JH, Brannan GD, Wapner A, Klein G, Schwartz FL. Time Needed for Diabetes Self-Care: Nationwide Survey of Certified Diabetes Educators. *Diabetes Spectr*. 2018 Aug; 31(3):267-271. doi: 10.2337/ds17-0077. PMID: 30140143; PMCID: PMC6092887.

⁴ PitchBook Data, Inc

⁵ Perez-Nieves, Magaly, Rattan Juneja, Ludi Fan et al., "Trends in U.S. Insulin Use and Glucose Monitoring for People with Diabetes: 2009–2018," *Journal of Diabetes Science and Technology* 16, no. 6 (November 2022): 1428–1435.

<https://doi.org/10.1177/19322968211028268>.