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Can Digital Twin Technology Help Beat Chronic Disease? Twin Health Is Getting Users Hooked, And Off Their Meds

by [Marion Webb](#)

Twin Health's Whole Body Digital Twin uses AI and patient data from sensors to help people with metabolic disease overcome their disease. The tech showed promise in a clinical trial of type 2 diabetes patients.

It's that time of the year when many employees are taking a closer look at their health benefits as part of annual enrollment. And if it was up to Mountain View, CA-based start-up Twin Health, this would be the perfect opportunity for more self-insured employers and health plans to offer its developed "digital twin technology" to help people with metabolic disease overcome their condition.

The Twin platform uses daily data points and artificial intelligence to help people collect daily data points from continuous glucose monitors; wearables that track biomarkers such as heart rate, sleep, respiratory rate, stress and heart rate activity; blood pressure meters; and smart scales. In addition, Twin gathers detailed information about a person's food intake and activity levels and offers new members consultations with coaches, who are trained in behavior change and engagement, to help guide them. Every member also gets blood work done when they join the program and then every 90 days thereafter.

"We use that sensor, AI information and data to build the world's first commercial use of digital twin technology in health care," Lisa Shah, Twin's chief medical officer, told *Medtech Insight* at the recent HLTH conference in Las Vegas. "So, what this basically means, we can build for every person what we call their Whole Body Digital Twin, which is a replica of their human metabolism with real-time sensor data. We can take 3,000 data signals a day that come in on our patient and we are building cause and effect machine-learning models that are able to look at how their metabolism works, specifically to them."

Met with Twin Health execs who want to bring their digital twin tech to more health plans. Sensors, coaching-driven app for employers to offer to employees who want to make data-based health changes, obesity, diabetes. Lose weight, get off diabetes meds, reduce A1C. [#HLTH @HLTH pic.twitter.com/rL9WR0iKea](#)

– Marion Webb (@medtechMarion) [October 9, 2023](#)

Creating a representation of a person's specific metabolism allows Twin to make personalized predictions of a person's future health for different interventions. Twin has collected clinical data that shows its technology platform can help improve the health of people living with Type 2 diabetes to the point where they can stop taking certain medications. (Also see "[Abbott's Metabolic Biowearable Gets 'Extremely Positive' UK Reception; Next Up, US Filing](#)" - Medtech Insight, 18 Oct, 2023.)

A study using Twin's program that analyzed 199 people who had been diagnosed with diabetes for an average of about four years, and who at the beginning of the study had an average HbA1C of 9%, showed promising results. An HbA1 reading below 5.7% is considered normal, while 5.7% to 6.4% is prediabetes and 6.5% or above indicates diabetes, according to the Centers for Disease Control and Prevention.

After six months, 94.9% of participants in the intervention group reached an HbA1C of less than 6.5% using no medications or only metformin and 83.9% achieved diabetes remission based on the criteria of the American Diabetes Association. The findings were presented at the ADA's annual scientific session in New Orleans last June. Twin has an ongoing randomized controlled trial with a large academic institution that will conclude next spring, John Davis, Twin's chief commercial officer, told *Medtech Insight*.

Shah cited data from Twin's commercial population as of this August, showing that 72% of patients with type 2 diabetes reversed the disease in the first six months after getting on the program, meaning they have taken their HbA1C levels below 6.5% and are off medications, except for metformin, which can also be

Key Takeaways

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used preventatively. Furthermore, 71% of Twin members eliminated high-cost medications after six months of being on the program, and members achieved an average weight loss of 16.6 pounds with a standing body mass index below 30 in the first six months.

No Drastic Changes

Shah said the program offers each person tailored recommendations, such as types of exercise and foods that will keep each person motivated and engaged. The nice thing about Twin, Shah stressed, is that changes are “not drastic” and “based on understanding what a person is willing to do and not willing to do.”

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- Twin has collected clinical data that shows its technology platform can help improve the health of people living with Type 2 diabetes to the point where they can stop taking certain medications.
- Twin partners with self-insured employers that offer Twin as a wellness product to their employees, as well as with health plans to help members “live free from chronic metabolic disease by addressing the root cause of the disease.”

“We collect behavioral data at the start and then all the way throughout,” Shah said. One common example, she says, is that a person says upfront they are not going to give up chocolate. Consequently, the digital twin will take that into account and make recommendations based on what type of chocolate will give the person the best metabolic response.

“We can see in real time what’s happening with their metabolic response of that food, because we study the macronutrients, micronutrients and biota nutrients [to measure and predict glucose response],” she explained. “Dark chocolate might be better for somebody, but particularly if they eat it before 8 pm That might sound crazy, but that’s how much data we have.”

“People do this, because instead of going to the doctor and being told, ‘No more carbs, exercise all the time, take a bunch of meds, sleep better and stop stressing,’ we give individuals the three things on that given day that matter most for them as they’re going through their day all based on how they did yesterday.” – Lisa Shah

Partnering With Self-Insured Employers, Health Plans

Twin partners with self-insured employers that offer Twin as a wellness product to their employees, as well as with health plans to help members “live free from chronic metabolic disease by addressing the root cause of the disease,” Davis said.

“This results in lower health care costs, avoidance and elimination of costly medications like GLP-1s, and happier, healthier members,” Davis said. The company is not disclosing how many members are using their program. Currently, Twin works with 40 self-insured employers and several health plans. “Our goal is to create a community of Twins nationally living free of chronic metabolism diseases like type 2 diabetes, pre-diabetes and obesity.”

He added, “That’s a huge priority for us [for 2024],” he said. “For us, it really is about expanding our reach across health plans to knit together more of a national network of Twins ... so everybody can select health plans and take their twin with them.

Shah said that the company’s payment model is unique because payment is based on clinical outcomes.

“So, we don’t make any money unless we achieve [certain clinical outcomes],” she said. “We work with our partners to determine what those are, and they are about the same for everyone – if it’s diabetes, it’s A1C reduction, getting them [patients] off their meds ... the new GLP-1s cost so much money ... we only get paid if we eliminate it and sustain the elimination.”

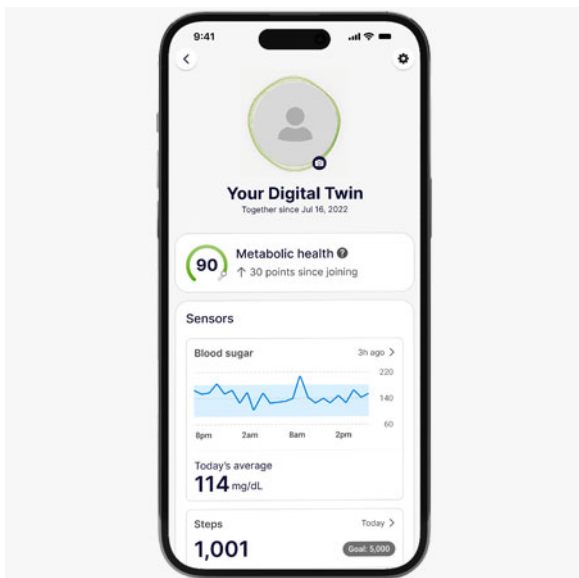
Payment is also dependent on patient satisfaction, which translates into staying with the program for at least one year, among other factors.

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Financial Backers

Since the company was founded in 2018 by serial entrepreneur and tech pioneer Jahangir Mohammed, it has raised total funding of \$187.3m over four rounds of financing. In October 2021, Twin announced it raised \$140m in a series C financing round with backing from Iconiq Growth, Sequoia Capital India, Perceptive Advisors, Corner Ventures, LTS Investments, Helena and Sofina. The proceeds were used to scale the Whole Body Digital Twin service and help solve the chronic metabolic health crisis.

A new [study](#) found that about 1 in 4 adults in the US have a chronic cardiac, renal or metabolic condition, a risk that increases with age. These



Source: Twin Health

conditions are the leading cause of morbidity and mortality in the US and are estimated to account for 1 in every 3 deaths. More than 37 million Americans have diabetes, or 1 in 10, the vast majority of which have type 2 diabetes.

Davis and Shah tout their Twin technology as being able to help people with chronic disease overcome their condition. Davis said that human resource leaders have told the company that their employees are declining job offers, because they don't want to give up their digital twin.

“Our job is to ultimately make sure we’re making Twin available for everyone that needs a Twin to get back to good health,” Davis said. “And we really believe that

by giving people access to their own data, their own information, and not a lot of support, but support where it's needed from a real human, people really can make change. Most people do want the right things for themselves and their family and that means getting healthy. They just haven't known what to do to get there.”