



COULD VIVERA BE THE NEXT MEDTECH UNICORN START-UP?

Few technology companies reach unicorn status. US medtech company Vivera is hoping to be the next one, with its innovative approach to prescription drug delivery that aims to increase patient adherence and stop prescription drug abuse.

Unicorn start-ups are private companies with an investor value of at least US\$1 billion (£830 million). They are rare and difficult to find. Companies do not become unicorns without solving a big problem or disrupting the way an industry or market operates.

Vivera is an innovative pharmaceutical, biotech and medtech company with an extensive intellectual property portfolio. Its most noteworthy subsidiary is Vivera Technologies, with its leading tech solution ZICOH – a patented, dose-controlled, secure, electronic prescription drug delivery solution (Figure 1) that aspires to foster patient adherence and stop prescription drug abuse. With US patents for the most commonly prescribed medication formats – including oral, vapour, aerosol and liquid medications – ZICOH is set to disrupt how prescription drugs are prescribed, managed, used, tracked and traced across the entire value chain.

How Will ZICOH Disrupt the Prescription Drug Industry?

Conventionally, prescription drugs – including those with a high propensity for abuse and addiction, such as Adderall (amphetamine, Takeda) and oxycodone – are routinely dispensed as an entire month's supply in a plastic, orange bottle. Medications with low adherence rates are supplied in the same way. A childproof cap is the only security measure to protect patients from abusing, overdosing or diverting medication.

“The opioid epidemic costs the US billions of dollars annually to manage a crisis without a solution.”

Figure 1: Vivera Technologies' ZICOH, a patented, dose-controlled, secure, electronic prescription drug delivery solution.



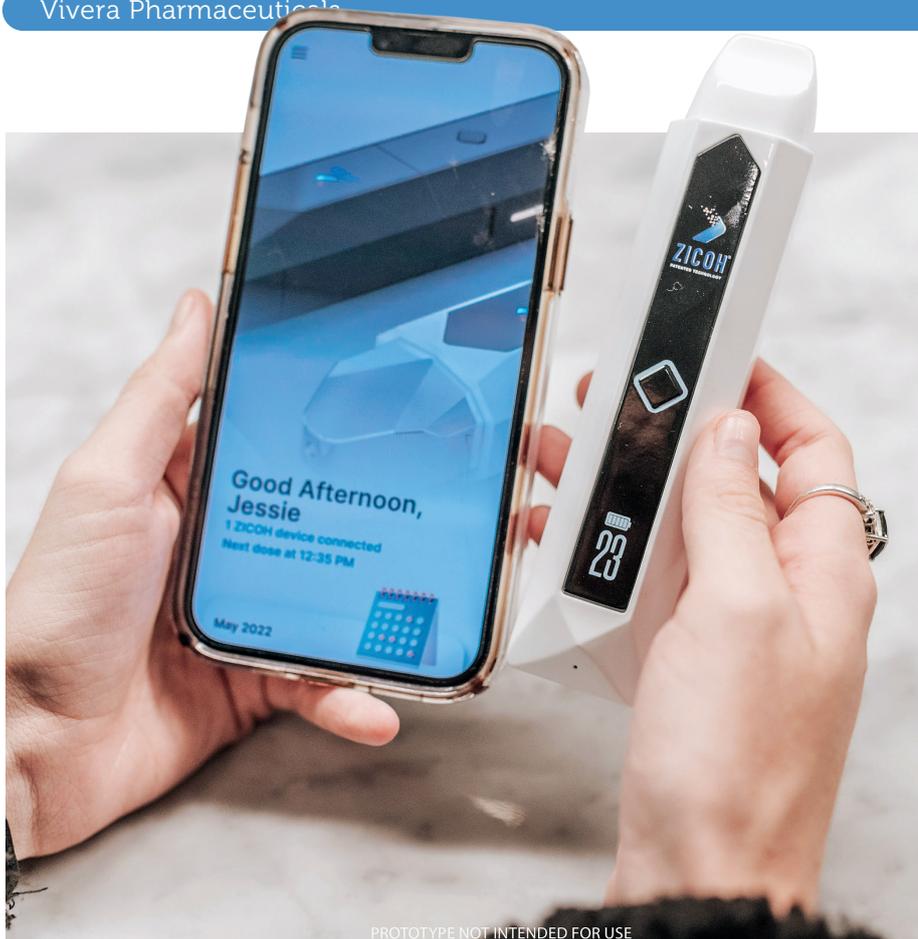
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PROTOTYPE NOT INTENDED FOR USE

Figure 2: ZICOH connects the patient's device and mobile app to a secure software system.

"ZICOH can be used for any medication, including prescription drugs associated with low adherence rates."

The opioid epidemic costs the US billions of dollars annually to manage a crisis without a solution, and it is a multi-trillion-dollar expense worldwide. In 2017 alone, the economic cost of opioid use disorder and fatal opioid overdose totalled more than \$1 trillion.¹ Nearly 80% of opioid addictions start with prescription drugs. Prescription nonadherence, whether intentional or not, costs the US healthcare system \$300 billion annually.²

ZICOH is the first patented smart drug delivery solution for prescription medications with routine identity verification and a diversely interconnected software system. The device provides a unique, customised and user-friendly experience where the prescriber, pharmacy, caregiver and patient are involved in the medication prescribing and delivery process. ZICOH is programmed and registered to the patient, according to the

prescriber's orders, with preset dosages and a continuously logged medication delivery history to monitor whether the intended patient is taking the correct dosages at the right times.

While it is a suitable solution for highly abused and addictive drugs, ZICOH can be used for any medication, including prescription drugs associated with low adherence rates. ZICOH will be offered to include patient-friendly features, such as medication reminders and mobile app check-ins, to guide patients towards proper medication adherence. The interactive device and software system can provide families and caregivers with peace of mind, knowing that the patients they care for are constantly monitored and prompted to take their medications as prescribed. ZICOH also allows the patient and prescriber a direct communication platform to adjust dosing as needed or report adverse effects.

"The interactive device and software system can provide families and caregivers with peace of mind."

"Accurate and real-time data will benefit physicians, consumers, insurers, and government and healthcare regulators."

In building a robust and integrated solution, Viverra has taken advantage of technology and software advancements to create a closed-loop ecosystem for prescription medications by connecting the drug developer, manufacturer, wholesaler, prescriber, pharmacy, insurance company, caregiver and patient.

The ZICOH solution connects the patient's device and mobile app (Figure 2) to a secure software system that, in turn, is linked to the doctor's office, pharmacy and, ultimately, the entire supply chain. This solution will enable stakeholders in the pharmaceutical supply chain to obtain pertinent data, including real-time drug supply use. Currently, the healthcare data collection system is fragmented, costs tens of millions of dollars to obtain and is not available in real time. Because data analysis and conclusions are often delayed by years, current methods are costly to the healthcare system – especially for pharmaceutical companies, patients, employers, their insurance plans and government insurance plans that rely on data to make decisions every year.

The McKinsey Global Institute estimates that applying big-data strategies to better inform decision making could generate up to \$100 billion in value annually from across the US healthcare system. Accurate and real-time data will benefit physicians, consumers, insurers, and government and healthcare regulators by optimising innovation, improving efficiency and building new tools for pharmaceutical companies, beginning as early as the research and development phase. Unlike the current healthcare system's data collection methods – which often fragment data into silos – ZICOH will electronically capture uniform and real-time data seamlessly through each phase of the drug supply chain. With ZICOH, data collection will be carried out from the clinical research stage through the commercialisation stage to build "smart" algorithms and produce consistent, reliable and interconnected data.

Introducing Vivera's High-Profile Advisors for ZICOH

While there is not a recipe for building a unicorn product or company, Vivera has brought on a solid team of technology executives and subject-matter experts to build on the company's foundations, drive value and growth, and scale ZICOH effectively.

Just a few years ago, Vivera's Founder, Chairman and Chief Executive Officer, Paul Edalat, and Chief Scientific Advisor, Mehdi Hatamian, envisioned a solution that would reduce the risk of patients developing addictions to prescription opioids. Today, their patented vision has evolved into a mission to transform the availability of actionable healthcare data; revolutionise the drug supply chain; and provide patients with a customised experience with their prescription medications – honouring Vivera's core mission of putting patients first.

Advisory board members leading ZICOH's initiatives include Stephen J McColgan as Chief Medical Officer, Guido Jouret as Senior Technology and Business

Advisor, Robert Massoudi as Senior Technology and Business Advisor, Bryan Hughes as Senior Technology Advisor, Geetha Rao as Regulatory Advisor, Saurabh Radhakrishnan as MedTech Operations Advisor and former DEA Special Agent Executive Alan Poleszak as Government Affairs Advisor.

ZICOH, the Future of Safe Drug Delivery

Similar to how Tesla changed the automotive industry, how Uber transformed the way we use transportation and the way Apple revolutionised and created a smartphone category, ZICOH is set to revolutionise the prescription drug industry. With a launch around the corner, it is poised to take on the title of a medtech unicorn.

ABOUT THE COMPANY

Vivera Pharmaceuticals is an innovative, science-driven pharmaceutical company located in southern California (US). The company has global exclusivity to license the patented and patent-pending

TABMELT sublingual drug delivery system for pharmaceutical use and holds its own issued patents on ZICOH, a smart dose-controlled electronic medical device, and MDZone, a portable telemedicine station. With multiple divisions, including its technologies, biosciences, medical devices and advanced diagnostics divisions, Vivera Pharmaceuticals is vertically integrated with patented technology, manufacturing capabilities and distribution for its products.

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