

Category

Best Startup

Product/Solution Name

InTandem

Date of Approval

2022-03-09

Indications

Chronic Stroke
Multiple Sclerosis
Parkinson's Disease
Post-Acute Stroke
Functional Neurologic Disorder
Aging in Place

Therapeutic Categories

Neurology
Physical Medicine & Rehabilitation
Physical Therapy
Neurologic Music Therapy

Attached Files:

- MedRhythms_NonCon_Overview_202303vS.pdf

Background information and need for solution/product

In the United States alone, over 100 million people live with persistent walking and cognitive disabilities caused by a neurologic injury or neurodegenerative disease. Walking deficits are highly prevalent in particular conditions, occurring in over half of chronic stroke survivors (3.5 million people in the US), and signaling disease progression in others, like multiple sclerosis (MS) and Parkinson's disease (PD). Unfortunately, there is no standard of care for these patients and traditional treatments, like drug interventions and medical devices, often provide limited benefit. Over time, walking deficits add significant direct and indirect costs to the healthcare system as they contribute to falls, other health resource utilization, and decreased quality of life. Patients are desperate for new care solutions, as gait impairment is frequently cited as the area of highest unmet need

History of the development of the solution/product

MedRhythms was founded out of Spaulding Rehabilitation Hospital in Boston, MA, where co-founder and CEO, Brian Harris established the world's leading neurologic music therapy practice. There, Brian and the other MedRhythms' clinicians saw the figurative – and literal – strides taken by patients in response to Rhythmic Auditory Stimulation (RAS), a well-researched form of neurologic music therapy. Unfortunately, when patients left the hospital, they had no way to continue with treatment, as access to trained neurologic music therapists is extremely limited. There are only 350 Neurologic Music

Therapist Fellows in the world. To address this gap in access, and to bring these novel interventions to more patients globally, MedRhythms looked to technology as a means to bring scalable, evidence-based, individualized interventions to patients.

Today, MedRhythms has built the world's first prescription music platform. The proprietary, patented platform combines wearable sensors that capture real-time gait data with a rhythmic stimulus, delivered in the form of user-preferred/familiar music. The music is pre-analyzed to ensure therapeutic benefit and altered in real time in a closed-loop system based on a user's gait by proprietary algorithms. In order to provide all patients using the platform with access to the most diverse and culturally rich collection of music ever assembled, MedRhythms entered into a collaboration with Universal Music Group in September 2021.

MedRhythms has developed a robust pipeline of disease-specific DTx candidates based on its platform, and partners strategically on research, development, and commercialization.

MedRhythms has established world-class research collaborations with the top research institutions, and with leading KOLs, including leaders of their respective fields, such as Dr. Michael Thaut, the founder of the evidence-based treatment system of Neurologic Music Therapy, and experts from the Cleveland Clinic (Dr. Francois Bethoux), the Albert Einstein School of Medicine (Dr. Joe Verghese), Boston University (Dr. Lou Awad), and Johns Hopkins (Dr. Alexander Pantelyat).

In May 2021, MedRhythms initiated its collaboration with EVERSANA, a leading provider of global commercialization services to the life sciences industry, to launch and commercialize InTandem, a digital therapeutic for chronic stroke. Then, In May 2022, MedRhythms entered into a license agreement with Biogen to develop and commercialize a digital therapeutic for multiple sclerosis.

Why this solution/product is innovative, the broad implications for future research, and/or how it will improve the human condition

MedRhythms builds products that will usher in the future of neurologic rehabilitation by scaling a music-powered mechanism of action and leveraging advances in sensing technology with software to introduce evidence-based digital therapeutics that address areas of substantial unmet need, while also bringing the potential to address historical gaps in access to care by reimagining the longitudinal care paradigm and enabling patients to engage in their treatment in a home setting.

MedRhythms' platform is based on cutting-edge neuroscience that demonstrates how music can profoundly impact the human brain, target specific neural circuitry to enhance clinical outcomes, and boost neuroplasticity. The platform delivers novel, individualized, interventions based on Rhythmic Auditory Stimulation (RAS), that leverages the mechanism of action of auditory-motor entrainment. Auditory-motor entrainment is a neurally-mediated process whereby the timing of motor movements is involuntarily synchronized with the timing of an external rhythmic auditory stimulus, such as music featuring a strong beat. By leveraging the involuntary synchronization between movement and auditory rhythm it is possible to provide an individualized and progressive intervention by adjusting elements of the auditory rhythm, like tempo and beat salience. Proprietary algorithms autonomously individualize the auditory rhythm to each user's unique gait pattern by combining real-time gait sensing (including of gait quality) with closed-loop control of music eliminating the need for clinician and user input within a session. Despite 30+ years of clinical research demonstrating the efficacy of RAS across disease states, access to RAS treatment remains severely limited today as there are fewer

than 5,000 board-certified neurologic music therapists in the United States.

In clinical studies, InTandem and other MedRhythms disease-specific pipeline candidates have demonstrated quantifiable improvements in gait and mobility. Notably, in June 2020, MedRhythms received Breakthrough Device Designation for InTandem (MR-001) from the US Food and Drug Administration (FDA).

These improvements are transformational for patients. Impaired walking speed is directly correlated with health care resource utilization. Every 0.1 m/s improvement in walking speed reduces risk, health resource utilization, and direct and indirect costs. Additionally, lack of ambulation ability significantly decreases quality of life for patients and increases feelings of loneliness and isolation. With an aging population and a growing number of people with walking impairment due to underlying injury and disease, the imperative to address this unmet need has never been greater or more urgent. MedRhythms views each indication in its pipeline as an independent vertical with treatment, diagnostic, and predictive potential. The company plans to expand the scope of its pipeline by addressing other deficits, such as upper extremity mobility, cognitive, and speech and language impairments.

MedRhythms' work to develop and commercialize the world's first prescription music platform is truly trailblazing. First, it comes down to delivering positive outcomes for patients. Each individual pipeline candidate has the potential to directly improve the human condition by providing novel, safe, and effective treatments in areas of high unmet clinical and public health need.

Please provide appropriate references (ie Pubmed links)

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