FROST & SULLIVAN

Healthcare Market Updates

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Wearables

Nuheara Goes Direct to Consumers With Self-Care Hearing Platform – April 11, 2019 (1/2)

Applicable Product Categories: Wearables

Technologies	Hearable (Device + App)	**Therapeutic Areas**	Hearing Loss
Applications	Remote Care and Monitoring	**Geographic Focus**	Global
Segment Focus	Clinical/Consumer Grade	**Topics (News type)**	Product and Business Model Innovation
Companies	Nuheara Limited	**Others**	NA

ANALYST TAKE:

Synopsis: Nuheara, the smart-hearing company, unveiled a new buying experience for millions of people with mild-to-moderate hearing loss. Using hearing products uniquely designed for active lifestyles, they can start managing their own hearing health from the comfort of home, enjoying flexible payment options and dramatically lower costs.

Industry Challenge: Industry estimates suggest, one in six people globally confront some level of hearing challenges, and most of those fit into the mild-to-moderate category. Traditional hearing aids are often in the form of lifestyle headsets costing an average of $4,300 and require setup, tuning and maintenance from an audiologist. This in turn results waiting time for most people who need help with their hearing problem. Researchers have found that addressing hearing loss earlier leads to a better quality of life and reduces the onset of other health issues including cognitive decline. Considering the limitation of current hearing aids, smart hearable solutions that promise to provide easy to use and self care modes are gaining traction in the market.

Nuheara Goes Direct to Consumers With Self-Care Hearing Platform – April 11, 2019 (2/2)

Value Proposition:

- The company announced the launch of its Direct to Consumer (DTC) platform, enabling a full self-care hearing journey that begins online. Building on its original website, Nuheara has revolutionised the customer journey to cater directly to the customers' needs by providing a choice of world-leading online hearing assessments that categorises their level of hearing. Thus, customers can understand whether they may need hearing assistance and determine what level of self-care they would suit them effectively.
- **How it works?** The IQbuds™ BOOST with Ear ID™ (hearing buds) learn and automatically adapt to personalize accordingly to users' unique hearing profile in three easy steps, all from the comfort of home in less than 10 minutes;
    - self fit: Using the app, Ear ID™ measures user's hearing thresholds to create personalized profile.
    - self assess: Ear ID™ analyzes user's hearing thresholds using a prescription formula (NAL-NL2) used by audiologists everywhere.
    - auto calibrate: Ear ID™ calibrates your IQbuds™ to accurately reflect your personal hearing profile.
- The newly launched IQbuds BOOST™ achieved 73% of all unit sales in H1 FY19 with an average selling price (ASP) over $400 per unit.

- Frost & Sullivan finds Nuheara DTC platform-based self-care for hearing an innovative business model complementing the on-going industry trend towards preventive and self-health management concepts. Nuheara DTC program would remove the barriers to better hearing health by reaching out to people in remote locations, with products and technology that they can afford, and transform their lives for the better, at a much earlier age without delay.
- As per the company, the result is a dramatically improved hearing experience for 80% less than the cost of a traditional hearing device. To make payment easier, Nuheara offers two options: pay all at once, or on a twelve-month plan that amounts to less than two dollars per day. If for any reason customers don't like what they hear, they can return the IQbuds BOOSTs for free within 30 days. Given this flexible and patient-centric business model, Frost & Sullivan believes the Nuheara DTC platform-based self-care program hold the potential to become a Standard-of-Care for hearing loss condition management.
- **Target End-User:** Patients, Hospitals, Insurance Programs

WEBLINK: http://bit.ly/2Z7hcYd

Apple's New Patents Hint at Watch that Detects Smell to Monitor Glucose – April 10, 2019

Applicable Product Categories: Wearables

Technologies	Wearable (Smartwatch Device + Platform)	**Therapeutic Areas**	Diabetes (CGM)
Applications	Remote Patient Monitoring	**Geographic Focus**	Global
Segment Focus	Clinical/Consumer Grade	**Topics (News type)**	Product Innovation
Companies	Apple	**Others**	NA

ANALYST TAKE:

Synopsis: According to patents filed at the US Patent and Trademark Office, Apple might be working on smell sensors for a variety of uses within healthcare. One such patent points to a sensor that could monitor blood sugar levels by analyzing sweat particles in the air.

Value Proposition: The two patents describe two different sensors, presumably intended to work together. One (**compact particulate matter sensor**) would use lights and photodetectors to "see" particles in the air. The second (**systems and methods for environment sensing**) would be an array of ionic liquid sensors that could actually detect smells. A machine learning algorithm could help the device learn to distinguish between different smells. Both patents talk about incorporating the sensors into portable communications devices, which could mean phones, tablets or smartwatches.

Frost & Sullivan finds, despite this significant R&D investment and innovation around IR spectroscopy, photoacoustic, impedance, etc., the conventional and painful method of finger pricking is the most reliable way to measure blood glucose. While several minimally invasive devices are available currently (e.g. Abbott Freestyle Libre), bringing to the market a totally non-invasive device would represent a great change for the market and for diabetics. This makes it worth to keep watch on Apple's recent patent, which may lead to non-invasive blood glucose sensing. Especially given that fact that, over the years, we have seen Apple patents for blood pressure monitoring on the wrist, vital signs detection using the iPhone's camera, health sensors in Apple AirPods, and a spectrometer for detecting sunscreen (and telling people when to reapply).

Target End-User: – Diabetes Patients, Insurance Programs

WEBLINK: http://bit.ly/2P3RcZ0

Cognoa Licenses Google Glass-based AI Technology for Children with Autism – April 10, 2019

Applicable Product Categories: Wearables

Technologies	Wearable (Smart Glass)
Applications	Digital behavioral therapeutics
Segment Focus	Clinical/Consumer Grade
Companies	Cognoa
Therapeutic Areas	Autism Spectrum Disorder (ASD)
Geographic Focus	US/EU
Topics (News type)	Product Innovation
Others	Google (glass); Stanford University School of Medicine

ANALYST TAKE:

Synopsis: Cognoa, a consumer healthcare company that makes machine learning-based app for tracking children's health and development, has exclusively licensed an AI system designed to improve socialization skills in children with autism spectrum disorder (ASD).

Value Proposition: Dubbed the Superpower Glass, the technology was developed at Stanford University School of Medicine. It uses Google Glass and is designed to encourage children's facial engagement while providing feedback on social situations. Children with ASD can struggle to recognize and respond to emotions, but the app reinforced these skills by providing them feedback in real time. A small study found when children used the Superpower Glass at home, it helped them decipher what's happening with people around them, bringing significant improvements in their socialization skills, compared to their counterparts that received only the standard care.

Frost & Sullivan believes that the AI-enabled Superpower Glass system holds the potential to improve socialization skills among children with autism spectrum disorder. As per the published research findings, the intervention teaches children emotion recognition, facial engagement, and the salience of emotion, suggesting the potential for multiple mechanism(s) of action driving the observed improvement in social behavior. Furthermore, favourable regulatory and reimbursement policies for clinically efficient digital behavioral programs are expected to help them gain more market traction in the near future, especially in developed countries such as the US and western European countries.

Target End-User: Autism Patients/Care Givers, Insurance Programs

WEBLINK: http://bit.ly/2UO0yxx

Mobile Phones/ mHealth

monARC Bionetworks Launches App to Help Patients Track Symptoms Between Clinic Visits – April 9, 2019 (1/2)

Applicable Product Categories: Mobile Phones

Technologies	Mobile App + Wearables	**Therapeutic Areas**	Interstitial lung disease (ILD) and atopic dermatitis (eczema)
Applications	Remote Patient Monitoring and Symptom Tracking	**Geographic Focus**	Global
Segment Focus	Clinical/Consumer Grade	**Topics (News type)**	Market Launch
Companies	monARC Bionetworks	**Others**	NA

ANALYST TAKE:

Synopsis: monARC Bionetworks launches the monARC App to empower patients to track their symptoms between clinic visits to inform better healthcare decisions and simplify research participation. The app currently supports monARC's Patient Research Networks for interstitial lung disease (ILD) and atopic dermatitis (eczema) with plans to expand to more conditions.

Industry Need: Clinical trials are slow and an expensive processes. Frost & Sullivan observes that over the years, especially from 2016 onwards, the number of drugs approved through successful clinical trials has reduced significantly. For example, about 80% of pharmaceutical trials do not meet enrolment deadlines, resulting an average loss up to $1.3 million per day for a given candidate drug. Integration of emerging wearable and mHealth technologies to enable remote/virtual trials provide the potential to increase the trial success through adaptive clinical trials—providing patient-centric trials, improving value-based care, and facilitating faster and more cost-effective outcomes.

monARC Bionetworks Launches App to Help Patients Track Symptoms Between Clinic Visits – April 9, 2019 (2/2)

Value Proposition:

- Beyond tracking symptoms, patients can use it to capture the impact of their condition on daily activities via connected wearable devices that track sleep and activity. By recording disease relevant measurements from in-home, blue-tooth enabled tools like pulse-oximeters and spirometers, patients can share these insights with healthcare providers to inform treatment decisions. As per Sunny Nagra, Chief Product Officer at monARC. “The new monARC app provides a concise, user-friendly interface that delivers meaningful insights.”
- The app also passively collects environmental data such as weather and air quality which may contribute to symptom exacerbation in patients with pulmonary or autoimmune diseases like idiopathic pulmonary fibrosis and eczema. By combining data from multiple sources into one simple app, patients can explore potential relationships between their environment and symptoms or track the impact of treatments. Sharing these previously unavailable insights with physicians, caregivers and researchers improves care and accelerates the development of new treatments.
- The app is a powerful addition to the monARC Smart Health Record™ which consolidates medical records from multiple healthcare providers into one digitized personal health record. The combination of medical records and routine daily data with powerful analytical and visualization tools provides a holistic, longitudinal view that informs both healthcare and research. By downloading the free app, patients become a member of the monARC Patient Research Network, allowing them to securely share their de-identified information with researchers, and, if interested, be matched to relevant clinical trials. All membership services are provided at no charge to patients.
- Frost & Sullivan’s recent research suggests that early application of wearable devices and smartphone apps driven remote or virtual clinical trials demonstrate compelling benefits around optimizing patient recruitment and monitoring process by opening up new geographies to increase access to a larger patient population and reduce trial costs by streamlining the trial processes demonstrating real-world efficacy. For example, easy access and convenience factors with mHealth-enabled remote trials can significantly reduce patients’ travel cost to sites, as they can participate from their homes using computers and smartphones. This will reduce costly and excessive follow-up visits, eventually improving their retention.
- Entailing this, Frost & Sullivan finds monARC’s mobile app for clinical trial participants/patients with a symptoms tracking feature as a timely solution to further augment the growing remote/virtual trial designs. However, there are bigger existing players such as Apple (ResearchKit), Google (Study Watch), Fitabase, and ActiGraph among others already being deployed across multiple clinical trials. Considering ever increasing competition Frost & Sullivan believes market positioning across focused use cases/ therapeutic areas will be the true differentiator for future success.
- **Target End-User:** Pharma Clinical Trials Sponsors, CROs, ACROs

WEBLINK: http://bit.ly/2v0syiP

To address health disparities, Cityblock closes $65M Series B round – April 12, 2019 (1/2)

Applicable Product Categories: Mobile Phones / Apps

Technologies	mHealth App	**Therapeutic Areas**	Several
Applications	Care Team Collaboration platform	**Geographic Focus**	US
Segment Focus	Consumer Grade	**Topics (News type)**	Business Model Innovation
Companies	Cityblock	**Others**	Sidewalk Labs / Alphabet

ANALYST TAKE:
Synopsis: Cityblock, a spinout of Alphabet subsidiary Sidewalk Labs, looks to limit disparities by providing preventative medicine and access to resources through its digital tools. The first of these tools, called Commons, was designed to help patient care teams collaborate. It includes a mobile app that helps link members of the care team.

- **Industry Challenge:** As the focus in healthcare changes from reactive to proactive care, factors that affect patient health are coming in to the picture. As social determinants of health become important in this quest of personalized medicine, so do tools to enable care teams to learn more about these factors that affect their patients' health, and be able to collaborate easily to provide better care.

To address health disparities, Cityblock closes $65M Series B round – April 12, 2019 (2/2)

Value Proposition:

- Within Common's system Cityblock uses a new model of care, where a Community Health Partner (CHP) hired from the community and trained in empathy and relationships acts as the point person for the patient. Then the Commons technology puts the CHP at the center of the care and communication team.
- "Importantly [the CHPs] are the culture center for the team. If a patient doesn't like how a doctor is interacting with them—the community health partner is never going to say don't prescribe that medication—that's not their job—but they are going to say check your bias," Iyah Romm, founder and CEO of Cityblock Health, said at the Connected Health Conference in Boston in October. "That is a statement that this member now no longer trusts you and we can push [the doctor] off the care team to bring in another member."

- Frost & Sullivan notes the need for improved care team models as a special need – one that exists in developed, but also developing regions. Cityblock's model (with some tweaks) can be applied to even developing regions where healthcare access is a major challenge.

- **Target End-User:** Insurance companies

WEBLINK: http://bit.ly/2P3b6TW

Study: Behavioral coaching app reduces hypertensive participants' blood pressure – April 10, 2019 (1/2)

Applicable Product Categories: Mobile Phones

Technologies	mHealth App	**Therapeutic Areas**	Cardiovascular Disease
Applications	Digital Therapeutic	**Geographic Focus**	US
Segment Focus	Clinical Grade	**Topics (News type)**	Care Delivery Innovation
Companies	Better Therapeutics	**Others**	Noom

ANALYST TAKE:

- **Synopsis:** Better Therapeutics's app was tested in a clinical setting with 172 participants, where it yielded "clinically meaningful" improvement in blood pressure among 172 users.

- **Industry Challenge:** Cardiovascular disease conditions are the #1 killer in the US, killing about 610,000 people annually, per the CDC. While the risk factors, if monitored and maintained, can help control the disease, managing them is easier said than done. Behavioral change is a difficult task to accomplish in patients; motivating them to adopt healthier lifestyles remains a challenge. While digital tools for patients to monitor their own conditions were thought to be sufficient to provide the motivation, it turns out that constant encouragement from professionals is also necessary.

Study: Behavioral coaching app reduces hypertensive participants' blood pressure – April 10, 2019 (1/2)

Value Proposition:

- Researchers identified and recruited hypertensive adults through Facebook and employer-sponsored advertisements. These individuals were required to live in the US and own a smartphone, and received the app-based treatment at no cost upon enrollment.
- All participants reported their blood pressure values and other optional measurements at will throughout the study period, and their demographics or background medical history at baseline.
- The app is supported by a remote multidisciplinary team that looks to support healthy behavior changes, with users receiving scheduled calls from a health coach over the course of a 12-week program.
- Among 172 participants with hypertension, 75 percent achieved a “clinically meaningful” improvement in blood pressure. By 12 weeks, 43 percent of the participants who were still tracking their blood pressure had achieved control.

- Frost & Sullivan notes that digital health models with a human touch are now beginning to see success – at least in pilot settings. Chronic condition management programs that employ digital tools to report vitals regularly, and provide constant feedback and guidance on disease management to patients are seeing success. Several examples such as Livongo Health, Noom and even disease specific models, such as Virta Health (diabetes) are claiming success. The future, it seems, is in these models which employ digital tools supplemented by behavioral coaching for achieving better disease management.

- **Target End-User:** insurance companies, employers, patients

WEBLINK: http://bit.ly/2Is5OjH

Tonal gets $45 million for connected exercise equipment with digital weights – April 08, 2019 (1/2)

Applicable Product Categories: -

Technologies	mHealth App	**Therapeutic Areas**	Health and Wellness
Applications	Connected fitness	**Geographic Focus**	US
Segment Focus	Consumer Grade	**Topics (News type)**	Technology / Business Model Innovation
Companies	Tonal	**Others**	Peloton, Germany's eGym, Mirror

ANALYST TAKE:

- **Synopsis:** Connected fitness company Tonal has raised $45 million in Series C funding, bringing the company's total funding to $90 million..

- **Industry Challenge:** With rising incidence of chronic conditions, there is also a trend of younger generations leaning towards exercise and fitness to stay healthier longer. At the same time, busy lifestyles do not always allow for sufficient time to exercise for these enthusiasts. Besides, personal fitness trainers add on to the cost for a generation looking forward to more personalized experiences in everything. The need is for at-home, personalized experiences in fitness training – it may become the next big trend in the $595 billion mind and body fitness segment of the wellness industry.

Tonal gets $45 million for connected exercise equipment with digital weights – April 08, 2019 (2/2)

Value Proposition:

- Tonal offers a special connected exercise machine with a AI-powered fitness software, all focused on the goal of strength training.
- Rather than using traditional weights, the Tonal machine uses “digital weights” which use magnetic force to provide resistance. This allows for much more fine-tuned weight adjustments, as well as for automatic “spotting” where the machine can remove weight when it senses the user is struggling.
- A large screen on the device offers video content from coaches and trainers, and guides users to different content — as well as recommending different weights and exercises — based on personalized data from a strength assessment the user takes when they first start using the device. Additionally, it stores historical data about workouts that users can review..
- The device retails for $2,995 plus a $49 monthly subscription.

- Frost & Sullivan notes the emergence of this market with names such as Peloton (and recently Mirror) making a mark on the fitness landscape. Increasing venture funding in this space (eGym, Freeletics, and now Tonal) indicate a strong growth potential. However, the high price tag on these solutions may require a pivot to leasing / subscription models for mass adoption, to truly rival gyms and fitness clubs.

- **Target End-User:** fitness and wellness enthusiasts

WEBLINK: http://bit.ly/2P5TIhs

Smart Home Devices & Appliances

Unlocking the secrets hidden inside your voice – April 09, 2019

Applicable Product Categories: Virtual Voice Assistants

Technologies	IoT, AI	**Therapeutic Areas**	Post-traumatic stress disorder, mental health
Applications	Disease Detection / Diagnosis	**Geographic Focus**	US / Global
Segment Focus	Clinical / Consumer Grade	**Topics (News type)**	Technology Innovation
Companies	New York University, CompanionMx	**Others**	-

ANALYST TAKE:

- An NYU psychiatrist is working on finding vocal biomarkers for post-traumatic stress disorder, and CompanionMx uses proprietary acoustic (voice) biomarker technology to identify mood states and depression.

- Frost & Sullivan notes the emergence of voice as another area of innovation for disease diagnosis and monitoring – startups such as Beyond Verbal are actively pursuing physical health condition diagnosis as well. With the rising adoption of smart speakers, and the availability of mental and physical health tracking biomarker algorithms, it is likely that voice technology may allow for mass screening of populations, ensuring early diagnosis of conditions and timely interventions.

WEBLINK: https://bit.ly/2UX0pnH

Other Interesting Articles

When available, other interesting articles will be covered here in short.

News Title	Link	Remarks
This Simple Tool Will Reveal the Secret Life of Your Smart Home	http://bit.ly/2v21z6I	It's a known fact that smart home devices communicate way more data back to servers than they are required to – something not acceptable from a privacy perspective. This new tool by Princeton University will help monitor activities of smart devices, currently in research phase.
Ecobee is building up a smart home ecosystem to rival Google's Nest	http://bit.ly/2uYCaL5	Challenging Google and Amazon, Ecobee is developing its own ecosystem which may help the company create its own loyal base of customers, and perhaps even provide a serious competitor to some well-known products.
Turkcell Launches Turkey's Yaani Assistant	http://bit.ly/2U9GQb7	Turkey's leading communication services provider has launched its own AI powered voice assistant, Yaani, which works with its search engine as well – and understands Turkish – an important distinguishing factor.
This Ex-Goldman Trader And His $800 Million Startup Hope You'll Pay Extra For Real Estate That Aces A 'Wellness' Test	http://bit.ly/2GkUeFO	Delos is a startup we have covered before, and focuses on the wellness aspect for real-estate. It is one of the vanguards of the concept for driving the real-estate industry's fascination with wellness as a differentiator, and one which may lead to the vision of healthcare delivering smart home.