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Ã¢â?¬Å?Protecting patient information is essential for building trust with both patients and healthcare providersÃ¢â?¬Â•

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In March 2023, Singapore-based Aevice Health, a MedTech company that focuses on developing patient management solutions for chronic respiratory diseases, announced that its flagship product, AeviceMD Monitoring System, was granted approval by Health Sciences Authority (HSA) in Singapore. Now the firm is seeking US FDA clearance. In an interview with BioSpectrum Asia, Adrian Ang, CEO of Aevice Health, shared some insights about the distinctive features and privacy concerns surrounding wearable devices.



How does the AeviceMD Monitoring System work?

The AeviceMD Monitoring System is like a virtual doctor with a stethoscope — it is a patient management platform that is powered by a smart wearable stethoscope to detect abnormal lung sounds in diseases like asthma and COPD so that exacerbations can be intervened in time. The lightweight sensor continuously and passively analyses chest sounds and logs the measurements (respiratory rate, heart rate, and wheeze) onto a user-friendly app to track clinical deterioration over time. Patients have the choice to share this information with their healthcare professionals. Alongside its ability to record and playback chest sounds like a digital stethoscope, the solution paints an overview of the patient's lung health in-between consultations, empowering doctors to make expedited and informed clinical decisions anytime and anywhere.

How do you envisage that the technology would be typically used? Is this something that is primarily for home use or for use by clinicians?

Currently, the focus of the AeviceMD Monitoring System is on home monitoring, where it is used as an at-home solution for patients with asthma and COPD. Our system offers continuous monitoring of patient's respiratory health, with a focus on tracking overall progress and early detection of exacerbations before they escalate. By providing patients with personalised insights, the AeviceMD Monitoring System empowers them to manage their conditions more effectively and proactively, ultimately leading to an improved quality of life.

The convenience of using the AeviceMD Monitoring System at home allows patients to receive long-term care without the need for frequent hospital visits. Our goal is to not only reduce the burden on healthcare systems but also help patients feel more in control of their own health. Furthermore, patients can easily share their data with clinicians, enabling healthcare professionals to remotely track their progress and make informed decisions about their treatment plans without patients leaving the comfort of their homes.

What were some of the challenges in developing this?

Developing the AeviceMD Monitoring System presented a unique set of challenges. One of the primary obstacles we encountered was creating a compact stethoscope and sensor that can accurately capture and analyse respiratory sounds. For the device to be comfortable and usable across a wide range of ages from paediatrics to geriatrics, it has to be lightweight and highly miniaturised without compromising on the quality of acoustic signals the sensor collects. After much R&D, we have managed to develop one of the world's smallest wearable stethoscopes for continuous monitoring of breath sounds with high accuracy for chronic respiratory disease.

Another challenge we faced involved adhering to various regulatory requirements and standards to ensure the safety and effectiveness of the AeviceMD Monitoring System. Apart from clinical studies, we have also conducted extensive user testing to validate the accuracy and usability of our product. This process required a significant investment of time and resources to meet regulatory standards and deliver accurate, reliable results for our end users.

However, while the development of the AeviceMD Monitoring System was challenging, it is a rewarding journey at the same time. We believe it holds the potential to improve the way respiratory care is delivered, ultimately improving the lives of those living with asthma and COPD.

Where do you currently see the most significant gaps in respiratory care? Is there room for innovation?

Respiratory conditions like asthma and COPD are often underdiagnosed or diagnosed at later stages. Developing enhanced screening and diagnostic tools to identify respiratory issues early can lead to more effective interventions and improved patient outcomes.

The COVID-19 pandemic has underscored the importance of remote monitoring and telehealth services for managing chronic conditions, including respiratory diseases. By expanding telehealth solutions and remote monitoring devices, such as the AeviceMD Monitoring System, patients and healthcare providers can manage respiratory infections more effectively and conveniently, reducing hospital visits and readmissions.

In many regions, access to quality healthcare services, equipment, and medications for respiratory conditions is limited. Innovations in affordable, portable devices and telemedicine can help bridge this gap, offering better care for underserved populations.

Could stringent regulations enhance the perception of wearables from being perceived as merely fashionable gadgets with some diagnostic features to being regarded as more credible medical devices?

We believe that stringent regulations could indeed enhance the perception of wearables like the AeviceMD Monitoring System, transforming their image from fashionable gadgets with some diagnostic features to credible medical devices. This is because strict regulations and standards help ensure that these wearables meet essential criteria for safety, accuracy and reliability.

For instance, when wearable devices like the AeviceMD Monitoring System undergo rigorous regulatory oversight and adhere to established medical device guidelines, we believe this bolsters the device's credibility in the eyes of both healthcare professionals and patients. As a result, such wearables are more likely to be accepted and integrated into healthcare practices, with companies demonstrating a commitment to providing accurate, reliable data and genuinely addressing healthcare needs.

Moreover, this regulatory compliance fosters trust and confidence among patients and healthcare providers, encouraging them to use and recommend these devices as part of a comprehensive care plan. In this way, stringent regulations can play a

pivotal role in elevating the status of wearables like the AeviceMD Monitoring System, shifting their perception from mere gadgets to legitimate, valuable tools for managing and improving health outcomes.

It is impossible to have a comprehensive discussion about the intersection of technology and healthcare without addressing privacy concerns. What is your perspective on this matter, and how does Aevice Health ensure the security of its devices?

We acknowledge that privacy concerns are of utmost importance when discussing the intersection of technology and healthcare. As a provider of healthcare technology solutions, Aevice Health is committed to ensuring the security and privacy of patient data collected and transmitted by our devices.

We believe that protecting patient information is essential for building trust with both patients and healthcare providers. To ensure the security of our platform, we ensure that the communication channels in which data is transmitted between the devices to healthcare professionals are highly encrypted. We also implement strong access controls to ensure only authorised users are allowed access to the patient data. These are just some of the many steps we have taken to ensure data integrity and patient privacy.

Lastly, we adhere to relevant healthcare data protection regulations, such as Health Information Privacy and Portability Act (HIPPA) in the United States. By maintaining compliance with these regulations, we ensure that our data handling practices meet the rigorous requirements set forth by the respective authorities, further emphasising our commitment to the privacy and security of patient information.

What’s ahead for Aevice Health? Any future visions you can share?

At Aevice Health, we are constantly striving to innovate and enhance respiratory care and overall patient experience. Our immediate focus is to launch the AeviceMD Monitoring System for asthma and COPD patients, while simultaneously working to expand its capabilities and explore new applications for our technology.

In the near future, we plan to improve the integration of our devices with telehealth platforms, facilitating seamless communication between patients and healthcare providers. This will enable more efficient remote consultations and expedited adjustments to treatment plans when required. Additionally, we are dedicated to broadening our global reach, making our solutions accessible to underserved populations worldwide.

Ayesha Siddiqui