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Marani's Ann Holder On The Importance Of Improving Maternal And Fetal Health Outcomes, Collaboration With The Mayo Clinic And The Future Of Remote Healthcare

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I write about health tech, women's health and female entrepreneurship.

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Ann Holder, founder and CEO of Marani MARANI

For Ann Holder, it all began with a conversation. She had collaborated with the [Mayo Clinic](#) for many years during her career, focused primarily on the cardiovascular space. She had a strong relationship with both Mayo Ventures and with Dr. Paul Friedman, the Chair of Cardiovascular Medicine at the Mayo Clinic. Dr. Friedman as an electrophysiologist is a renowned researcher in the area of AI and machine learning in cardiology, and based on the research and development he had done in this area, he had an idea to do a similar development project in fetal monitoring. Dr. Friedman came to Holder and asked if she would be willing to help him and his team develop the technology as an entrepreneur in residence at the Mayo Clinic. After doing considerable research on the current state of fetal monitoring and assessing the market needs, which exposed huge technology and access voids, she jumped at the opportunity to work with him and the Mayo team. [Marani](#) (former Odonata Health) was born.

“The technologies used today are similar to what was in use when I had my four children and fundamentally the same technology in use when I was born. Very little time and money had been invested in this area of medicine, which allows us a great opportunity to disrupt the market. As I started the company, I was focused on developing a prenatal monitoring device to capture critical fetal biometric data, but as our team advanced the Marani solution, we quickly realized the monitoring device is a critical piece of a valuable broad prenatal care solution and we are focused on an end-to-end prenatal care solution,” she starts her story.

Holder, now founder and CEO of Marani, is a Medical Device Executive with a rich background in sales, marketing, finance, and operations. She began her career in the U.S. Army after graduating with a Bachelor of Science Degree in engineering from the United States Military Academy at West Point. Most recently she has been helping companies commercialize in the U.S. while focused on developing fetal monitoring technology with the Mayo Clinic.

In her own words, Marani is “laser-focused on the prenatal telehealth solution space to address a significant need for the remote monitoring of pregnant women at home”. After a year of the pandemic behind us, it’s obvious that the heightened need for this solution was driven out of the Covid-19. And not only when it comes to pregnant women - here in the U.K., for example, breast screening was suspended in March 2020 to try to reduce the spread of Covid-19 and to free up resources for the NHS, and while screening was paused, estimates show that around **986,000 women** missed having their mammogram. Breast Cancer Now estimates around **8,600** of the women caught up in the screening appointment backlog could be living with undetected breast cancer. In 2019, the Centers for Disease and Control and Prevention in the U.S. found that approximately **60%** of pregnancy-related deaths were determined to be preventable and did not differ significantly by race/ethnicity or timing of death.

Additionally, the transition to and acceptance of remote monitoring has grown exponentially over the past year. Many physicians are looking for solutions to better manage their patients, particularly high-risk patients, from their homes. The care teams are looking for solutions to capture more data to allow the clinical team to better understand whether a mother and her unborn child are in need of additional clinical assessment. This need is paramount in rural areas, where clinical prenatal care is difficult, as well as in urban areas where mothers may not have the ability to get the care that they require. This is where our company comes into the picture. “We are developing a low-cost, technology disruptive device for fetal and maternal monitoring for use in a clinical setting as well as for remote monitoring in the home.”

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Marani's initial product is a patient-facing pregnancy education and engagement mobile app incorporating Mayo Clinic's *Guide to a Healthy Pregnancy* along with Marani pregnancy tracking and preparation features. Next up will be the patient management platform followed by the pregnancy monitoring band. “We are also working on an exciting project with key medical institutions to use artificial intelligence to evaluate the relationship between baby heart rate and outcomes of baby and mom.”

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The company's first users are clinical providers of prenatal care - these are OB/GYNs, maternal-fetal medicine (MFM) specialists, nurse midwives, and nurses - essentially anyone caring for a pregnant mother in a clinical setting. With the focus on improving maternal and fetal outcomes and reducing overall costs for both the providers and the payers by identifying medical issues earlier and preventing costly outcomes, their business model is based on a SaaS model for the care of patients during pregnancy and through postpartum care.

When it comes to fundraising, back in the early days, Holder was able to raise some early funding from close friends and family, but when it came to formal fundraising, she needed institutional investors. She was introduced to Kathy Tune as someone who is a savvy healthcare investor and someone who may be interested in investing in her vision. “Kathy very quickly became my partner and mentor as I learned about the world of healthcare fundraising. She led Marani's first financing round and became the chair of the company's board. It was the beginning of an amazing relationship with another woman who shares my passion for solving this market need and developing our technology solution. Kathy currently serves as board chair and is now the CFO and COO,” adds Holder.

The company has raised over \$5 million since its formation, including **\$3.7 million** raised during the pandemic and **National Science Foundation** Grant to support research and development on their pregnancy monitoring platform. Their investors include a

number of experienced healthcare angel investors and several early-stage investment funds.

Among the investors was San Francisco-based [HTEC Group](#), Marani's technology development partner and a pioneer in dry-electrode and AI implementation in telehealth devices. On HTEC's side, the project is run by an amazing young woman, Masa Vukomanovic, who has relentlessly driven the product forward despite the hardships brought by the pandemic this year. "Together with Marani, we have created a technologically advanced solution that will make pregnancy safer, reduce unnecessary outcomes such as C-sections, and ultimately save lives. The fact that Doppler ultrasound-based technology, designed in the 1960s, is still the most widely used form of technology for monitoring fetal health, is unacceptable. If you take CTG as an example, which is focused on heart rate and contractions, it requires mom's presence at the clinic, it is very inconvenient, bulky, and not designed for home use, and lacks any AI capabilities. In short, current technology does not fit for purpose in 2021, and that is down to the lack of research and investment that female health receives. In addition to developing this potentially life-changing new telehealth solution, we were also delighted to participate in Marani's recent fundraising round, which will play a significant role in ensuring the technology receives FDA approval," Vukomanovic, Project Manager at HTEC, shares with me in an email.

For Holder, the fundraising experience during the pandemic was overall quite positive. "During the pandemic, telehealth has proven to be critical to providing efficient and effective healthcare and Marani fits squarely into these solutions. Women's health has also become an interesting sector for investors in the last few years."

I was curious how big this market could actually be. "We don't yet know how large this market can be, but with more than [385,000 babies](#) born around the world each day, and a significant need to develop digital health solutions for prenatal care, we see this market as substantial," concludes Holder.

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