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Exec Chat: Butterfly Network Brings Maternal Ultrasound To Underserved Regions

by Reed Miller

Medtech Insight talked to Sachita Shah, Butterfly Network's director of global health, and John Martin, the company's chief medical officer, to learn more about how point-of-care ultrasound can benefit rural, underserved communities in Sub-Saharan Africa by helping to reduce maternal mortality and childbirth-related complications.

Butterfly Network is expanding its effort to bring point-of-care ultrasound (POCUS) technology to underserved markets in Sub-Saharan Africa and around the world following an encouraging experience in Kenya.

Supported by a $5m grant from the Bill & Melinda Gates Foundation, Butterfly supplied 1,000 health care workers in Kenya with its Butterfly iQ+ point-of-care ultrasound systems to improve maternal and fetal health in communities that usually have no access to ultrasound at all. (Also see "*Minute Insight: Butterfly Deploys POC Ultrasound In Kenya To Support New Mothers*" - Medtech Insight, 20 Sep, 2022.)

Medtech Insight talked to Butterfly Network's chief medical officer John Martin, and Sachita Shah, the company's senior director of global health, to learn how handheld ultrasound can help expectant mothers and their children in underserved parts of the world.

Q ***Medtech Insight:*** **What makes Kenya a particularly good candidate for implementation of hand-held ultrasound for improving maternal health?**

A Sachita Shah: In the US, we often take ultrasound and other imaging technology for granted, but in reality, two thirds of the world lacks access to medical imaging.

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In Sub-Saharan Africa, maternal mortality from pregnancy and childbirth-related complications still occurs at high rates due to limited access to resources for maternal and fetal care. Kenya, like many other countries in Sub-Saharan Africa, is trying to improve maternal and fetal health and is working to meet the *United Nation's 2023 Sustainable Development Goals* and the *World Health Organization recommendation* that all pregnant women get an ultrasound scan during pregnancy.

The Bill & Melinda Gates Foundation, which *awarded* Butterfly a $5m grant to deploy the Butterfly iQ+ with training to health care workers in Sub-Saharan Africa, has also designated Kenya as a priority country in its mission to enhance maternal and fetal care.

In addition, Butterfly's Global Health team had pre-established relationships with training partners in Kenya, which helped streamline the planning and execution of the program.

Q **Why is ultrasound such an important tool in maternal health?**

A Shah: Ultrasound is a critically important tool when caring for a mother and baby, allowing providers to see inside the body and identify early on high-risk conditions, like breech presentation, ectopic pregnancy, fetal distress, twins, low fluid and placental abnormalities.

Ultrasound helps providers in rural or limited-resource settings discern which patients have high risk conditions and need access to higher levels of care and scarce resources like operative care and physician specialists for safe deliveries.

In the US, most mothers typically receive at least two ultrasound scans during their pregnancy. In countries with limited access to imaging resources, like Kenya, ultrasound may not be available, and often mothers may never receive a single

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ultrasound during their pregnancy.

This means that these high-risk conditions can go unnoticed and untreated, leading to avoidable complications during delivery such as bleeding and obstructed labor which can severely impact the health of the mother and baby.

"We are also actively seeking impact funders and government partners that would like to expand or replicate this model in other vulnerable health systems around the globe." – Sachita Shah

Q **What results from this project in Kenya have you seen so far? What other data/outcomes do you hope to collect?**

A Shah: Our three-month training program in Kenya was the first-of-its kind and is the largest global medical device distribution ever. We deployed 500 devices and provided training for 514 midwives and health care providers across eight Kenyan counties, two urban facilities and three training institutions in Nairobi.

As a result of our efforts, 224 facilities in Kenya have free ultrasound services and tens of thousands of scans have already been performed. Within just a few days of receiving a Butterfly device and going through the training, providers were identifying and taking action on high-risk conditions. In fact, our one-month post-training survey found that over 90 percent of novice users have already found a high-risk condition that may have led to the death of the baby or mother.

These providers are the safety net for hundreds of thousands of patients in the region, and now, they have the technology, training and clinical integration knowledge to diagnose high-risk conditions and save lives.

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Q **What's next for this project – more centers, more countries, etc?**

A Shah: We're really excited about the interest and fast adoption of the Butterfly device that we have seen in Kenya. This spring, through our funding from the Bill & Melinda Gates Foundation, Butterfly plans to launch a second deployment program to health care workers in South Africa, focused on improving access to ultrasound and improving care delivery for pregnant patients.

Butterfly was created with the mission of bringing lifesaving ultrasound imaging to people around the world, especially those with limited access and in marginalized and vulnerable communities.

Our Global Health Program is a key component of this mission. We recognize that health inequities exist everywhere, so we are continuously forging partnerships to improve care for everyone.

We are confident that this program can serve as a model that can be used in other limited resource settings around the world. We are also actively seeking impact funders and government partners that would like to expand or replicate this model in other vulnerable health systems around the globe.

"We are very proud of our success in Kenya and believe that our probe deployment, paired with the maternal and fetal health

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POCUS training model we developed in Kenya, is applicable to many other specialties." – John Martin

Q **What other applications could hand-held ultrasound have in rural and/or relatively low-resource settings?**

A John Martin: We are very proud of our success in Kenya and believe that our probe deployment, paired with the maternal and fetal health POCUS training model we developed in Kenya, is applicable to many other specialties.

For example, we have worked with humanitarian organizations and physicians to deploy over 400 Butterfly devices in Ukraine to aid those on the frontlines of the conflict and for Ukrainian refugees.

A Shah: We are also supporting an increasing number of US-focused organizations as part of our mission to democratize health care everywhere. The COVID-19 pandemic highlighted a lot of health care inequalities in our country, specifically in the Native American and Indigenous Peoples community.

Butterfly devices have been used by health care providers in rural Alaskan tribal health clinics to reach and treat Native American and Alaska Native patients that otherwise might not have access to medical imaging. We are also supporting a mobile street medicine unit in Boston and are deploying Butterfly devices to help provide high-quality care to the local homeless population.

We believe this program can serve as a model for providing more extensive mobile medical care to marginalized populations with barriers to accessing hospital-based care throughout America's large urban cities.

Q **What makes Butterfly Network especially suited to address these kinds of challenges in countries like Kenya as opposed to any other imaging company**

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getting into POCUS?

A Martin: POCUS has been available for decades, but the uptake in low- and middle-income countries has been limited. Our distribution and training programs are put together by our dedicated Global Health team, led by Dr. Shah, with expertise in public health and epidemiology, implementation science and global health delivery, and research to better understand the impact of clinician performed ultrasound on patient outcomes.

A Shah: Our team is very hands-on, and we want to understand exactly what our global partners need. We consult with our global partners to set up their ultrasound services and offer support through tailored education and training and through each deployment program, we can learn something new that will make the next program even more successful.

"We are also supporting a mobile street medicine unit in Boston and are deploying Butterfly devices to help provide high-quality care to the local homeless population." – Sachita Shah

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Q **Is there anything else you want to emphasize or bring up?**

A Martin: Health equity means that all people have a fair and just opportunity to live their healthiest lives. At Butterfly, we are making an impact by enabling our ultraportable, whole-body ultrasound solution to be available in diagnostic deserts where clinicians have historically relied on physical examination and have had very limited access to tests/technology to inform decision making.

Today, we have over 350 partners in 70-plus countries across the globe and we will continue to expand our reach both in the US and abroad. The next frontier for continued ease of use for Butterfly's imaging solution involves integration of

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> artificial intelligence guidance to make our solution even more accessible.
>
> Our global health partners have already had great *success* in early studies in this arena, and we hope to see this expand in the future.

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