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SerenOx Africa Addresses Drug-Dx/Chicken-Egg Problem In African Health Care

The social enterprise is looking at better ways to bring diagnostics to the continent.

by **Barnaby Pickering**

A lack of accessible diagnostics in Africa threatens to both limit the roll-out of life saving drugs and the development of new ones.

SerenOx Africa, a sister company to the UK-based Seren, is working to improve both the accessibility and quality of diagnostics in sub-Saharan Africa, with a focus on sustainability.

As William Mawalla, CEO of SerenOx Africa, put it: “Africa cannot always rely on other peoples’ social missions; we have to engage, give back and start producing.”

The not-for-profit is focusing on major issues impacting the region; sickle cell, infectious diseases and cancer, offering diagnostics at near-cost, and investing profits back into itself to further its work.

Speaking to Medtech Insight from SerenOx Africa’s headquarters in Dar es Salaam, Tanzania, Mawalla said that, currently, diagnostics are all-but inaccessible for the majority of the local population.

“Here in Tanzania, less than 10% of the population are covered by our country’s health insurance,” he revealed. “There is work being done to see how it can bring about universal health coverage so that people can offset the cost of sudden health care needs.”

These sudden needs, Mawalla explained, can be disastrous for individuals and families. Even a

simple monogenic qPCR test can cost \$100, which is more than a month's salary for some people.

Previous efforts to improve diagnostic accessibility have not helped. Once a project ends, the equipment and expertise are soon both forgotten.

"There's never any consideration about continuation of testing capacity [or] the human resources and maintaining equipment that is left behind," Mawalla noted. "Part of our work is one sustaining the expertise needed to run these tests, working with hospitals and other research groups to expand their [testing] catalogues in affordable ways."

A Chicken And Egg Problem

The accessibility of health care in Africa is a "chicken and egg problem," according to Mawalla.

He pointed out that there are huge efforts led by charitable organizations abroad intent on improving outcomes for patients in Africa.

Charitable projects in Africa usually focus on treatments for zoonotic viruses and multi drug resistant tuberculosis – diseases that could easily spill-over into the West. The treatments include antivirals, antibiotics and, in some cases, even targeted oncology drugs. But there is not as much attention on testing.

"The Max Foundation provides novel drugs to low and middle-income countries – treatments for things like chronic myeloid leukemia. But the problem they face is that to issue these drugs, they must confirm the patient has the condition. That takes us back to the problem of testing capacity," Mawalla explained.

The lack of testing capacity also impacts drug development.

Mawalla said that there has historically been great interest in running clinical trials in Africa, but a lack of on-the-ground resources makes this almost impossible.

"Companies will try to start a trial but won't find enough facilities [because] there is a huge shortage of human resources and as a result, a huge underrepresentation of the African genome in drug trials," he explained. "COVID, I think, taught us a very, very important lesson. New variants were emerging from South Africa and pharma companies recognized the importance of collecting data here."

The Value Of The African Genome

Improving the inclusivity of clinical trials is a major goal for regulatory bodies like the US Food and Drug Administration, however Mawalla argued that the African genome is still both undervalued and underrepresented in scientific literature.

“Stakeholders tell us that clinical trials are skewed. There are diseases like sickle cell that usually affects Africans – but the trials of drugs to treat them are not using Africans,” he explained.

Mawalla gave the example of Efavirine, which was introduced in Malawi back in 2013 to combat HIV. It failed to work on almost a third of patients and its neuropsychiatric side effects were found to be unacceptable.

“We are investing in sequencing the African genome, packaging it, and then hopefully selling it to pharma companies.”

In return, the revenue generated can be used to further improve diagnostic throughput capacity in Africa, he said.

Tanzania’s government is increasingly “receptive” to this idea, Mawalla said. It recently established the nation’s first biobank, and SerenOX Africa is actively working alongside officials to approach sequencing-tech developers like Illumina to source a high-throughput machine.

But it does remain a “sensitive issue,” according to Mawalla. “SerenOx cannot do this alone. We will only serve as a biorepository custodian. Government institutions will handle the sale of data, but they cannot handle the sequencing. ... That is where we get involved.”

SerenOx Africa must win over the people too. Mawalla said that, for many Tanzanians, genomic sequencing had a “mythological” reputation. However, SerenOx Africa has helped to dispel a lot of these fears with a screening program that enrolled 400 children.

“We’re lucky to have the north-south relationship with SerenOx,” said Mawalla. “They are well ahead of us in terms of training... our aim is to get both regional and national accreditation. Diagnostics need precision to produce objective and verifiable results... this is the goal.”