

TRANSCRIPT

HIE PODCAST 2: Anna Shuh and Seren

BH: Hi, I'm Bruno Holthof, and you're listening to Health Innovation and Entrepreneurship, a podcast series from the International Health and Tropical Medicines Programme at the University of Oxford.

Our guest today is Anna Shuh. Anna is a medical doctor, an academic researcher and a healthcare entrepreneur. She started working at Oxford University in 2006 and was appointed as Professor of molecular diagnostics in 2014. During this time in Oxford, Anna has been developing DNA-based tests for blood disorders and cancers. And her interest in global health started during her first trip to Tanzania in 2017.

She realized that while some effective and affordable treatments are available, they were missing a key component, affordable diagnostics. And of course, we all know that a precise diagnosis is essential in delivering the right treatment to the right patient at the right time. It's against this backdrop that Seren was born. This spin-out from Oxford University aims to promote and support DNA based diagnostics in low and middle-income countries.

The first facility in Dar es Salaam has now opened and will offer DNA tests for as little as \$10 per test.

Hey Anna, you're joining us from Dar es Salaam. Welcome to the programme. And it would be great if you could share your vision for Seren with our listeners.

GUEST SPEAKER – AS: Yeah, hi, Bruno. Thanks a lot for having me today. The vision of Seren is threefold. To start off, Seren is a global endeavour. The opening of the clinic and the laboratory in Dar es Salaam serves just as another testimony of the work and the impact that we hope to achieve. We know now and demonstrated with the opening of Seren Africa in Tanzania that we can promote and support sustainable diagnostics in low-middle-income countries. But our work really aims to extend far beyond Tanzania.

Bearing in mind that 47% of the global population has little or no access to diagnostics, it's really important that we strengthen all kinds of diagnostics from very basic diagnostics to more sophisticated diagnostics such as DNA sequencing, which of course is even more rarer to be accessed.

Oxford University has the knowledge in terms of the algorithm required for DNA analysis. It's also important that we have very deep knowledge on quality control. We provide cost-effective and impactful diagnostics for patients with cancer or other blood disorders.

Seren is dedicated to putting these to good use, to leapfrogging and ensuring that citizens all over the world have quick and cheap access to DNA-based tests.

Using modern HIPAA compliant cloud technology, we deliver diagnostic reports remotely. It also means that our colleagues locally can log into the cloud system and they can actually do

the analysis together with the Oxford team and over time learn how to do the analysis and then take over the analysis independently.

Secondly, we seek to provide medical training to clinical staff and bioinformatics training to data scientists. Bioinformatics is a key component of any precision diagnostics and there is really a lack of data scientist training currently in many low-middle-income countries.

We really want to train the new generation of global clinicians and diagnosticians because it's critically important that local clinicians and scientists take ownership over the data. We think that this will enable low-middle-income countries to provide diagnostics eventually independently, middle-income countries to provide diagnostics eventually independently, not just for patient care, but also for disease registries and DNA databases.

Disease prevalence and outcome data in these registries are key to inform research priorities and to secure funding, be it from governments or external stakeholders such as pharmaceutical companies. The data from registries is also really key to plan healthcare service provision in the medium and long term.

We believe that high income settings will hugely benefit from such a holistic understanding of worldwide diagnostics. So, this is not just an altruistic enterprise. This is actually something that we think is important for anybody worldwide.

Finally, Seren wants to generate and sequence African genomes. Less than 8% of sequencing data in current genome databases is from participants of African origin, and every day that percentage decreases more and more as we're increasing the number of genomes originating from people of European or North American descent.

Unravelling the huge variability of African genomes is not only key for the realization of precision diagnostics, precision medicine, and precision prevention in Africa. It's actually essential for our understanding of human disease, drug development, and pharmacogenomics globally. A resolution of variants of uncertain significance, for example, which are a big problem in diagnostics and also drug development, will only be possible if we have full understanding of the diversity of the human genome.

And that really includes very much the African genome, in particular in East Africa, alongside the Rift Valley.

BH: What a really great example of global health here, Anna, and how to involve the African population in terms of better understanding the human genome. I'm sure that if you could start over again, you would do certain things differently. What would those be?

GUEST SPEAKER – AS: Well, to start off with, I try to never regret anything in life because obviously you can learn from your mistakes. However, what I really have learned from this programme and you have to remember, I'm not somebody who started their career in global health. I came into global health very late in my career. But it was at a time where I, you could call it now when I look back, I was burned out. And I realized that later on that this was because I was trying to not just provide a service in the NHS, but also manage the service,

direct and mentor and teach. And these are five components and you can't do everything in one go.

So, what I really learned through the global health program is to delegate and to trust younger people, upcoming future leaders to take on responsibility and roles and also sometimes to run against the wall and make a mistake. But for me, what was important was that I managed to really learn what directing means and what delegation means.

And so, this is for me personally, the most important learning point.

BH: Yeah. And what a great transition to my last question, Anna. You know, we're training the future leaders in global health here in Oxford, and you've been working with them and, as you say, delegating and making them take ownership and move things forward. What advice would you give our students who want to pursue a leadership role in global health?

GUEST SPEAKER – AS: There are two things really I would mention to students looking to pursue leadership roles in global health. I mean the first one is choose your team wisely. It is really important especially when you're working across different countries and different continents that you have a team that is very aligned with your principles and values. When you start a global health programme, initially, I was very much in unfamiliar territory, in a different culture, in a language that was not initially speaking. So, there are many moments when the easiest thing would be to just give up and to throw in the towel. So, it's really important that you are surrounded by people who share your vision and your ambitions and that they are not just scientists with papers, but that they're really people who want to do impactful work. So, choose your co-workers carefully.

It's important, especially when you set up start-up companies, that you trust your instincts and your convictions. Don't be discouraged if you don't have conventional intellectual property. Many times, over, the lawyers say, oh, you know, this cannot be patented. And I actually think personally, it's much more important that you have know-how.

This might not obviously be what investors are looking for because they want a proof that something is very valuable and they think that the patent is that proof. But it is much more important that for impactful work at least that you have know-how and a lot of experience actually and a lot of respect towards other cultures which brings me to my last point is about collaboration - so you can't do it alone you always need other people to help you and it's important that we overcome those divides, whether these are north-south divides or south-south divides. We really have to work together there is so much work that needs to be done in the global health context and it's really important that as people coming from different cultural backgrounds that we see ourselves more as enablers and as mentors. We need to just make sure that people in low-middle-income countries, so many talented clinicians and scientists, that they're being encouraged and that they gain confidence in speaking out and realizing their dreams and their ambitions. There is no reason why that can't happen. And it's not always about money. It's actually a lot of the time about encouragement and mentorship and we do need to really understand and respect local national international context. The value of indigenous knowledge is completely underrated and over time I think you know when we're designing our research programs or when we're creating our companies or enterprises,

we need to integrate that indigenous knowledge and that indigenous culture into, you know, whether it's the business model or whether it's the research question. It is important to listen to our collaborators.

BH: What a really inspiring story, Anna. I really like that. If you also like this podcast and you would like to listen to other entrepreneurs in health, don't forget to subscribe to this podcast series. And if you're interested in reading more about the work we're doing in international health and tropical medicine, please click on the link provided below this podcast. Thank you, Anna, for joining in. Thank you for listening.

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