

K30756_21005_RITM0365362_TheHealthPulsePodcastS3AntonioLevanaSaniAudio

[SOUND EFFECTS PLAYING]

[MUSIC PLAYING]

ALEX MAIERSPERGER: I'm your host, Alex Maiersperger. And in season three of the Health Pulse Podcast, we celebrate those changing health care and life sciences for the better. Previously, you've met Antonio de Castro as a guest. And in our continued globalization, we're so excited for this new phase where we get to have him as a special guest host for a few episodes focused on Asia-Pacific. And now, I get to pass the mic over to Antonio.

ANTONIO DE CASTRO: Hello, everyone. My name is Antonio de Castro, and I will be your host in today's episode of the Health Pulse Podcast. I am here to give a voice to health care and life science leaders here in Asia. Today's subject is on genetics testing in health care. Understanding genetic factors and disorders is important in learning more about promoting health and preventing disease, whether it's diagnostic testing to guide the administration of drugs or assessing an individual's risk of future disease. Today, we have an important guest who is leading the way for health care genetic testing here in southeast Asia, co-founder and CEO of Nalagenetics, Levana Sani. Levana, thank you for spending time with us today.

LEVANA SANI: Happy to be here. Thanks so much for having me.

ANTONIO DE CASTRO: So before we talk about the amazing work that Nalagenetics is doing, can you first tell us a little bit more about you? I know that your roots are coming from Indonesia, but also Singapore and the US is home to you. So maybe tell us a little bit about that dynamic and that upbringing.

LEVANA SANI: Thanks so much, Antonio. I started out in-- I grew up in Indonesia all my life, and then I went to college in the US and studied biochemistry. I think a lot of what I've learned today and being able to start a company after school really was a culmination of my early education background, back in University of Southern California in LA, where I met amazing professors and fell in love with biochemistry and then genetics.

And after that, decided to work in Genome Institute of Singapore before I went to business school back in Boston. I worked for a little bit in Boston but then decided that a lot of the problems that I was seeing in the US were problems that were inherently different in nature and different in terms of the constituents that I'll be helping. So I decided to move back home and, especially in Singapore, and started Nalagenetics.

ANTONIO DE CASTRO: So genetic testing in hospitals is quite prevalent in the US and in Europe but maybe not so much here in Asia, especially developing countries like Indonesia or the Philippines. Can you tell us about why it's important that we build and develop this service and also the competence that surrounds it in our region and how Nalagenetics is moving the needle on this?

LEVANA SANI: Yeah. It's important because genetic testing is a technology that increasingly is becoming more and more accessible to a lot more people because of the decreasing in price point and also just the amount of genetic capabilities, genetic testing capabilities, fortunately or unfortunately, because of

COVID-19. So a lot of the access and a lot of the interest in genetic testing came about maybe long before COVID-19, but I do think the pandemic brought about a lot more interest and awareness. It is important also that this access is given to developing markets because overall understanding the diversity of genetic information, genetic knowledge can only be grown or it can only be much more inclusive if we include data sets from these developing countries. So a very great example of this is what we're working on, what's called "polygenic risk scores." And polygenic risk scores basically calculate a single score for many, many different common variants in the human genome.

It has been found that a polygenic risk score that was built on just one ethnicity compared to a polygenic risk score that is built on multiple ethnicities ended up becoming much more accurate overall for this multi-ethnic blend. So it's very important globally that we give access to genetic testing for developing markets and not just one particular market or ethnicity at this point.

And also, I think a lot of the interest in genetic testing in this particular part of the world is also the fact that there are some diseases that are endemic to that population. We started out with leprosy. That was our first-ever small-scale project where we tested about 1,000 people and was trying to particularly prevent dapsons hypersensitivity syndrome from happening in one population, population in Papua, who had a high prevalence of this biomarker called HLAB 1301. So that type of story, that type of biomarker was unique to that population. So it was important that the local capability and the local access was given to this type of population.

ANTONIO DE CASTRO: That's excellent. Do you have any recent local or regional use cases where you're putting in the-- you're operationalizing the genetic testing in the hospitals, maybe here in Singapore or in Indonesia?

LEVANA SANI: Yeah. We are excited to actually share about our project with Raffles Medical Group. So the project with one of the private hospitals in Singapore is interesting to us because they wanted to test a population who are at risk of-- taking a certain chronic medication and they would test them regardless of whether or not they're sick.

But they feel like this is important for them to have in the beginning such that, when they actually get sick, this genetic information is already stored within their electronic health record as an important information, such that doctors can act upon it at the right time, right place, and the right setting. This is what's called "preemptive pharmacogenomics." And it's one of the first implementations in Singapore, if not southeast Asia.

And the important aspects of this project is much beyond the testing itself because the testing itself for germline testing, your information, your genetic information, doesn't change throughout your life. But there are many different points in your life where this information might be important for you or for your doctor. So how do we manage this information such that it pops up at the right time and the right place for the doctor such that the doctor can act upon this information correctly becomes an equally big aspect to the testing outside of the testing.

And so we worked a lot with the hospital system on cybersecurity approaches as well as what was the right best practices advisory to show when a patient actually has genetic information in front of them when they come visit this clinic or this hospital. So we're very excited about that, and hopefully get to see other hospitals also approach genetic testing in this mass screening way.

ANTONIO DE CASTRO: Great. So maybe let me pick on that preemptive or preventive side of things that you mentioned. Right? Because I think we've all seen these graphs where they say that your health, your

general health, especially when we're speaking about holistic health, 40% to 50% is determined by your DNA, your genetics.

And then there are certain proportions about your lifestyle, your environment, and the treatment that you receive. So maybe my question is, in case where, through genetic testing, we identify that someone is at high risk of, let's say, developing breast cancer, how much can we really change in terms of prevention and in terms of outcome?

LEVANA SANI: Yeah. That's a great question. And I would answer it, I guess, in two ways, in the level of the person and maybe the level of the payer, which prevention sometimes brings about conversation up. So in the patient level, we've done surveys or we've asked a lot of people whether or not knowing your risk of developing a certain condition is going to bring about good change, bad change, or no change at all. And people fall into different spectrums of these three options.

But in general, they were ready to make good changes in their lifestyle if there were something to do about it. So our ability to map people into high-risk versus low-risk need to be balanced with good actionable and clinically implementable recommendations. So in the patient level, they know exactly what they need to do when they receive the report. And this report then becomes important at any point of their life because there's no such thing as too early to kind of take charge of your health.

But I think, on the payer perspective, the question becomes a little bit more complicated because there's this idea of cost-effectiveness on a population level. They'll start asking questions like, OK, if we have to start mammogram earlier for someone who is high risk for breast cancer for example, how early do we need to start it? And do we need to recommend this person to start mammogram every year? Is it mammogram, or is it ultrasound?

Different approaches on actually doing this intervention. At the end of the day, they would look at whether or not it increases quality of life of their population and whether or not the cost that it requires actually is commensurate with the impact that it's making. In general, a lot of these population stratification projects ended up being cost-effective in the population or the payer level. A lot of publications have already mentioned this.

So I think it's a very exciting time, as a company caring a lot about prevention-- and Singapore as well had just announced a big move towards this as a country, to be implementing some of these genetic testing to ensure that early intervention can be implemented earlier, not to everybody but to those who really need it.

ANTONIO DE CASTRO: OK. Great. So maybe let me change pace here. There is now a push towards what we call "consumerism" in health care and how patients have more information now in their hands about their condition and personal health information as well as maybe the different risks that they have based on their profile. How is this new trend affecting your organization or your company?

LEVANA SANI: We're see it a lot, first of all. I think that's the cool part. And it's a lot to say in this part of the world, Antonio, because I think, you know as well, being an Asian culture is that you really regard and you really value hierarchy. And you put a lot of credibility in your doctors and what they say. And so having patients in a much more participatory way of their own health care is actually a very good trend. And it actually puts the physician at a much more-- I guess they need to take it into account what they say to their patients at the end of the day. So first of all, we see it. And second of all, I think it comes in the way that we service the patients. We have a mobile app that we give to the patients every time they have done testing. And this app, the coolest part about this app is that, for the patient, it looks very simple.

We designed it such that it's a clear yes-no kind of things that you need to see about yourself and what drugs you can take, what nutrition, when you need to start screening. But one of the projects that we have with one of the public hospitals in Singapore is kind of a different version of report that doctors can see by showing a QR code on their mobile app. So the question was, how do we create a very simple report for patients so that patients can be participating in their health a lot more but then give a personalized clinical decision support for the doctors whenever they want to see it?

So then we have this QR code where the doctor basically goes in to scan that QR code and put in the patient NRIC so that they can see the level of evidence of this recommendation, clinical guidelines, and even clinical decision support if they need to be able to act upon that report. So we're very excited for where this trend is going. And hopefully, we can invest a lot more in our mobile app.

ANTONIO DE CASTRO: Maybe let me touch upon another part of the whole puzzle that you evoked around. Well, data privacy. Right? Data privacy, data security, sharing, all of that because it's not given, especially when we're dealing with health data. Without going too much into detail, what would be maybe some of the roadblocks or big hurdles that you would advise people to focus on when they're embarking on such ventures in terms of sharing data, especially health data and genetic data?

LEVANA SANI: Yeah. Generally, there's different standard that companies can adhere to. But because it's such a new field, oftentimes these standard ended up being self-assessing to a certain degree. And so for example, like HIPAA compliance or PDPA compliance, yes, there are standards.

But the rule is that, if there is no breach or there's no material damage, there won't be any annual audit that the government does or anything like that. So to a certain degree, there are standards that companies can follow. But to the degree of how you want to invest in the cybersecurity measures, it's really up to each company. And I think that's where-- especially as we work a lot with hospitals, that's where an open conversation is really helpful, where we ask them what their standards are and get that checklist ahead of time to be able to integrate genetic information, for example, to their electronic health record system.

There are certain standards after that that we kind of talk about and make sure that we are on the same page on. On the patient side, I think one important concept that we always follow is that the patient has to consent and making sure that this consent form is always a part of the testing and is shared with the hospital system. And it's a part of every single data access and being able to access that consent form from the patients as easily as possible is key to data sharing, I think, overall from different institutions. So as long as that's well-kept, I think it should be OK.

ANTONIO DE CASTRO: So maybe let me ask you a question more on, let's say, the startup scene, particularly here in Asia. Right? Being an Asian woman who's a CEO, you are representing two fronts. Right? Both the diversity side and gender equality. Do you think it's tougher for someone with your profile? Or specifically, maybe on our region, which is known to be more conservative?

LEVANA SANI: Yeah. No. Thanks so much for asking that question, by the way. It is true. It is challenging. I think regardless of whatever gender and ethnicity, being a founder is already pretty difficult. But I think there is other responsibilities of being a woman where sometimes certain priorities kind of clash. Especially when you're starting out, it's very difficult to kind of raise, what people say, are like two different babies at the same time.

One is the human kind, and one is the company kind. So a lot of people struggle with that. My co-founder is a mom. She's managing it really well, so I have a lot to learn from her. But it's been a fun ride, and I'm

learning a lot along the way. And I have a lot of people to help support me. The community is great here in southeast Asia. So if anyone is actually looking to build a business, I think the community here is super, super supportive.

ANTONIO DE CASTRO: We like to end the Health Pulse episodes with optimism. So I would like to ask you, with all of what's going on in the world right now and the past difficult years we've had due to the pandemic and other things, what is it that makes you feel positive about the future?

LEVANA SANI: Great question. I think I'm optimistic that-- I think optimism comes from gratefulness, and I'm grateful for everything that I get to do and being surrounded by people who are as passionate about this industry and this sector and wanting to fight for it, whatever at the end of the day, the bad news that we see.

I'm confident that, whatever happens in the future, we are learning from our mistakes and our-- even with the way that we handled the pandemic, people are already looking to see how we can handle the next pandemics better. And I've seen my own country do that in Indonesia and setting up the infrastructure now, such that, in the future, can handle it much better. So I've seen it with my own eyes. I'm very optimistic. And hopefully, we get to see a much better recovery next time around.

ANTONIO DE CASTRO: Thank you, Levi, for an insightful discussion. I'm sure we will hear more from Nalagenetics in the future. To our viewers, we are always grateful for the time you spend with us. I hope that this episode's shown you Asia's competence and passion for the health care industry. As always, we are happy to hear from you. So please, reach out to us in the comments section below or email us at thehealthpulsepodcast@sas.com. Thank you.

[MUSIC FADING]