EPISODE 9: NAVIGATING DIGITAL HEALTH WAVES

Garry Aslanyan [00:00:07] Hello and welcome to this episode of the Global Health Matters podcast. Increasingly, digital technologies are transforming the delivery of health services and the functioning of health systems. During this pandemic, many of the technologies have also presented new ways of doing research and informed rapid decision-making. However, not all countries have equal access to these technologies, and many low- and middle-income countries still lag behind in terms of capacity, training and infrastructure. To narrow this gap, global multilateral agencies such as UNICEF and the World Health Organization have developed global strategies on digital health. These strategies aim to give direction and guidance to countries on how to accelerate the development and adoption of digital technologies.

Garry Aslanyan [00:00:56] Today, I am joined by two experts in this field, Dr Alvin Marcelo, who is a general and trauma surgeon and Chief Medical Information Officer at St. Luke's Medical Center in the Philippines. He's also the Executive Director of the Asia e-Health Information Network. Hi Alvin.

Alvin Marcelo [00:01:18] Hi, Garry. Good morning. Good afternoon. Good evening to everyone.

Garry Aslanyan [00:01:21] My second guest is Dr Karin Kalländer, who is the Senior Health Adviser and Chief of the Digital Health and Information Systems Unit at UNICEF. She's also leading an exciting new initiative called DICE, the Digital Health Centre of Excellence. So to start us off, Alvin, I'd like to start with you. You told me that your career has gone from being the only guy who knows how to use a computer in your department in the 1990s, to today being the Executive Director of Asia e-Health Information Network. What sparked your interest in digital solutions for health so early on?

Alvin Marcelo [00:02:09] It's a long, long way back. It started because I didn't actually want to go to medical school. I wanted to go to computer science, but I got a scholarship to go to medical school and my parents were so elated, so I had to follow my parents' advice. When I finished medical school, I got accepted into the Department of Surgery and way back in the 1990s the Department of Surgery at the Philippine General Hospital was one of the first ones with computers. We didn't have networks back then, even the internet. And so what I did was just Word Perfect and a very simple spreadsheet of a list of all our patients, the operations and the outcomes. And it was really like a wonderful thing back then. And that brought back my desire to use information technology and now I was also a surgeon and I was applying that new knowledge in medicine.

Garry Aslanyan [00:03:06] OK, that's interesting. And Karen, I understand that you worked for a long time in Uganda where you experienced firsthand some of the health system challenges that could have been solved with digital tools. Maybe you could tell us more about this experience.

Karin Kalländer [00:03:23] My background is really in child health, epidemiology and working with community health workers in particular to try to improve the quality and access to services for sick children in rural and remote areas. And I was living and working in Uganda for many years, working as a researcher and lecturer in the School of Public Health in Makerere (University) and what we found back then and still even up to today, is this lack of information, both among health workers who are treating patients and being able to sort of access information on best practices and even just simple patient history. It's a big problem. And similarly for the health planners and those who do the forecasting of medicines and who plan health services in the country, they also lack a lot of information on numbers of patients seen, numbers of malaria cases treated and so on. And this barrier to information is a huge problem and it really limits the efficiency of health services as well as the quality. So what we were exploring while we were supporting the government to deploy these community health worker programmes, where the community health workers were diagnosing and treating sick children with malaria, pneumonia and diarrhoea, was that with very simple mobile phone tools that were programmed to basically allow the community health workers to send data on a regular basis on how many patients they patients they had treated and how much stock they still had of common medicines was a way that they could quickly address some of these issues at higher levels or at the supervisor level. Also simple things like allowing health workers to get SMS messages that were motivational that prompted them to apply best practices in how they diagnose and treat children was also seen as something really useful and it actually showed in randomized controlled trials that we did that it improved quality of care significantly just by having very simple information shared by mobile phones.

Garry Aslanyan [00:05:49] So are you finding that the countries you work with at UNICEF are requesting more support for implementing digital solutions? I understand you're working with different partners, you've created this mechanism called DICE. Can you tell us more about how that works.

Karin Kalländer [00:06:07] Sure. We definitely see an increase in demand following the pandemic. Before the pandemic, a lot of the requests and a lot of the support that UNICEF specifically was involved in for health was perhaps more related to routine health services, especially when it comes to maternal and child health. But since the pandemic happened, we've seen a huge increase in demand for real-time data primarily, both on COVID cases for countries to understand the access gaps and the equity gaps in terms of who reaches the vaccine and who has problems getting access to the vaccine that is being rolled out. And one of the issues that we specifically knew was going to be a problem when COVID hit is that it could get very crowded at country level among partners trying to help. And even though there is a lot of goodwill and best intentions, it's not always working in a way that can maximize the support that is provided to countries. We've seen this from past experiences in West Africa during the Ebola epidemic when when there were over 50 different digital tools being implemented and piloted in the country. Only one or two of those tools actually stayed and was maintained after the epidemic was over. And we knew this could be an issue also for COVID. And one way to address that that we initiated earlier this year in February was a mechanism that we call dice, the Digital Health Center of Excellence. It's basically a coordination mechanism to help the partners working in this space, the donors, to provide more coordinated and agile support to countries that are requesting for help to set up digital

solutions, initially for COVID vaccine rollout, but also for broader health system strengthening. And the way DICE operates is that we're working through a knowledge management platform that we are establishing where countries can request support these requests. It's very important that they are endorsed by government authorities and that they're part of a plan, either a national vaccine deployment plan or a national digital strategy. And from the point of receiving those requests, we either at UNICEF or co-leads at WHO can then discuss how we best support those requests and who are the best partners at the country level to support the government in deploying those solutions.

Garry Aslanyan [00:08:58] So, in a way, DICE helps to reduce confusion within the system with competing platforms and competing solutions.

Karin Kalländer [00:09:07] Exactly. And it's meant to also promote best practices in this space, which includes using open source global good solutions which have been tested and we know work and that we know there is a community around them to support deployment. And it also means that a country government, it shouldn't matter who they turn to when they ask for this support. If they go to WHO, if they go to UNICEF, or if they go to USAID, because we're all part of the DICE consortium and therefore the plan is that it's sort of a mechanism to make sure that the same advice, the same best practices and the same recommendations are provided, regardless of who countries turn to. And it also will avoid deployment of solutions that are not interoperable, not best practice, or that lead to vendor lock-in, which is often the risk when you let the market take over and where we see partners and players and private sector sometimes coming in with solutions that do not necessarily follow the best practice guidelines that WHO and others have established.

Garry Aslanyan [00:10:23] Alvin, during the pandemic, digital solutions have been in demand. What has been the strategy that was adopted in the Philippines in response to COVID-19?

Alvin Marcelo [00:10:33] Right after the lockdowns were announced in the Philippines, people started finding ways to connect to their primary health care practitioners. In the Philippines, this is the social media capital of the world, so everyone has a Facebook Messenger account, a Viber account, a WhatsApp account, and so it was so natural for them to just connect using whatever they already had in their hands. Just that, more than just using it to talk about things that are not health related, they started talking about health care, and it was natural for them to do that now because it was the only means and mode that they could reach their caregivers. So it wasn't really too difficult in the sense that the lines were reconnected using social media accounts. There were a lot of concerns about privacy and about whether they should actually be sharing very sensitive information using social media accounts. But the urgent need to connect to their health care workers became the primary concern and it was good that the Ministry of Health released some guidance, because it was a government imposed constraint for them not to get out, then it was also Government telling the people that for the meantime, to be able to reach your health care worker, you can use these social media systems. Having said that, this was really to me a welcome development because I've been pushing for telemedicine for more than 20 years, and it was a very, very slow uptake because there was no real need for virtual consultations with the doctors because the traditional methods were easily accessible. Even if they lined up in the clinic of

the doctor, they would do that because it's the traditional thinking that you do set an appointment with the doctor and wait for your turn. But when the lockdown came, all the default modes of communication or of contacting or connecting with the doctors became shut down so people looked for alternative ways. And it's good that we had this Chat instant messaging culture in the country, and they quickly adapted to that.

Garry Aslanyan [00:13:12] So how did different stakeholders in the Philippines respond to this development, Alvin.

Alvin Marcelo [00:13:20] For the first few months, one of the challenges of the country was how do we manage all of these volumes of hundreds of thousands of messages coming in. And the big companies stepped up. I was one of the people involved in thinking about what might be the solutions. The Department of Health was asking civil society for suggestions. The big companies - Google, Facebook, Viber, they all contacted the Ministry and offered to create chatbots because it was impossible for humans to manage all of the volumes of the messages coming in. And Government listened to all of their presentations and decided on a single platform, not because they were preferring one particular vendor but because they just needed to be able to send a clear signal to the people that this is the the channel for the meantime. To me, that was a good development that the private sector was very willing to offer their services and that Government was willing to listen to the different offerings and finally also have the leadership to make a decision on which one to choose. That was a wonderful public-private collaboration that I saw develop quickly in front of my eyes. And then, of course, the challenges came in that not all of the questions can be answered by the chatbots. And so now Government started looking for telehealth providers in the private sector who were willing to provide their services for free. And they went through a vetting process, and after they went through a vetting process, they were listed as one of the telehealth providers that the citizens could avail of while the Government was deluged with the actual physical care of the sick patients in the hospitals.

Garry Aslanyan [00:15:22] Karen, I understand that in Jamaica, a digital platform was able to support vaccine rollout and you already alluded to that earlier. Maybe you could tell us briefly how that process unfolded.

Karin Kalländer [00:15:35] Jamaica was one of the countries who reached out very early on when the vaccine was about to arrive in the country. So already back in February, the Government reached out to our UNICEF team in Jamaica and requested help to establish an electronic vaccine registry solution for the COVID-19 vaccine. And this is a very typical request that we see now coming in to DICE where governments need help very, very quickly. They need something urgently to be set up in time for the arrival of the vaccines. So we had basically just two months to establish this solution and scale it nationally in a country in two months. And I think this is a record breaking deployment. Still, the process of trying to do this properly, whereby we try to understand the requirements of this solution: What was it meant to do? Who were the users of this platform? Who were the health workers who needed to enter information? And what kind of patient data did they want to collect? All of that happened fairly quickly because the Government was very organized and had already established these parameters. So then, within UNICEF, we were able to reach out to a number

of digital public good platform vendors who thankfully had prepared themselves already and established COVID-19 vaccine modules as part of their offer. So we, in this case, partnered with one of those digital public goods called CommCare, run by the Dimagi platform, which is typically used for community health workers but they have now, as I mentioned, created this COVID vaccine module, which worked really well for Jamaica. It really fit their needs. And so we supported the Government there to customize this for the Jamaican context and configure this solution. And they were able to. Within two months, they had a solution that worked for them to then register every patient that comes in and gets the vaccine. And of course, having a digital vaccine certificate linked to this. And that's another very trending request that we see now coming from countries who have established these vaccine registries is that, how do we now link that to some kind of paper or a digital QR code that can be used to open up society and open up for travelling? So that's where we are now engaging with the Jamaican Government to help them establish that system.

Garry Aslanyan [00:18:23] Mm-Hmm, interesting. Alvin, do you have any observations from the experience in the Philippines.

Alvin Marcelo [00:18:28] That resonates very well. There was a frantic search for solutions locally for something that could generate a database of vaccines before the vaccines arrived. We didn't get our vaccines immediately, but there was a need for Government to quickly come up with the list so that they could preemptively prepare for the people who would be receiving the vaccines when they arrived. So we called it the vaccine information management system, so that was created. And I think the lesson that I hear from Karen is, if you're going to start something from scratch, two months is not going to be fast enough. And I think that the reason they got that two months fast enough is because CommCare was already working even before the pandemic, and the two months was just for customization and scaling up. I think that's a very important lesson for a lot of governments around the world that the next pandemic will probably come, it might be another virus, and we learned that we should be using software that already works, not create software from scratch because it's very difficult to develop software at national scale. Too much is definitely not enough. So what Karen's doing in terms of coming up with a catalog of software that already works is very, very useful because governments can just look at the catalog and say, I want this one, because this matches very closely to what we need right now and it's already a public good. And, they might be surprised that it might still take two months, but two months is actually a very short time if you're going to scale software at national levels.

Garry Aslanyan [00:20:20] You are working with this network, Asia e-Health Information Network, have the countries in the network been working with each other or supporting each other? What kind of mechanisms they've adopted to make this happen?

Garry Aslanyan [00:20:34] So mostly the sharing is about the scars or the challenges that they've been facing. I think the solutioning is kind of difficult because of the context of where they're coming at are different. I remember one webinar when we had participants from different ministries of health. We conducted this webinar and we asked them to share what solutions they all created. And they were all different solutions to different problems. And I think what they realized then and I would like to quote one of the participants then, is that

"we are all in the same storm, but we are in different boats". And that really struck me in the sense that the pandemic really hit everyone almost the same way, but not everyone had the resources or the capacity to battle the storm the same way. And so while I do agree that we should have catalogs like the digital public goods, we have to have that very ready so that when governments need to look at the catalogs and what's inside, it's already there. We don't need to scrounge for all of these and gather them all into one place. But we really need to guide the governments as well to be able to select the right ones, depending on what is the situation of their boat, so to speak. So my suggestion is that we need to work on both sides of the fence, the demand side and the supply side. The supply side, I congratulate Karen and her colleagues for gathering all of the knowledge and putting them in one place. But we also need to work on the demand side because governments can get that catalog and look at the global public goods and they still don't know what to do. So they still need to get to that level of knowing how to understand what their needs, how to convert them into tenders, or let's call them architectural artifacts, and then look at the catalog and see which of these solutions actually fits their local situations and local context. So the demand side and the supply side needs to be addressed at the same time. And we had a focus group discussion about this about two months ago because we wanted to find out the ability or the needs of governments when it comes to adopting open source software. We need to work on the demand side and the supply side. If Karen would be the one working on the supply side, the solutions, you can say agency is working on the demand side, assisting the governments and increasing their capability to express what they need in terms that they can now look at the catalog and find the right solution for their specific context.

Garry Aslanyan [00:23:31] So it's clear that we still have a lot of barriers preventing low- and middle-income countries from effectively using these tools, and it's still out there. So, Karen, do these barriers mentioned by Alvin resonate with you? And are they similar to your plans and requests to DICE that you receive from countries? Do you have any comments on that?

Karin Kalländer [00:23:58] One of the things we started within UNICEF, and eventually we partnered with a Digital Square in USAID on this, was a mapping exercise whereby we.... It's called the map and match exercise, where we start the consultation with countries who request support with a landscaping assessment of what solutions do they already have in place? Because many times what they have and are using for, say, for maternal health or child health can be utilized for COVID and vice versa. So we really try to encourage governments to first explore the systems and solutions they have to see which of those can be utilized for COVID. What those countries already have that they can build on. Because it's much faster and much more efficient cost-wise to just expand systems that they have already which are deployed, which users are familiar with, and then instead focus maybe more on the interoperability and making sure that the systems... that the data that is produced in a standardized way, that it links to their health manage information systems, etc. So oftentimes it's not the new tools that we need, it's just the functionalities that need to be expanded. And I think Alvin is really touching upon this around the demand because oftentimes when we have a new shiny platform that says it will deliver an electronic immunization registry for COVID vaccines but that can also be used for childhood vaccinations and that later on can be used for nutrition services, what we often don't have proper insights in is what exactly is that platform delivering? What exact functionalities does it offer? Does it match what the

government needs, what the health worker needs, what the nurse needs? And I think this is why it's so important that we guide the users, the governments, in better understanding the real detailed functionalities that they're looking for so that we can make a better match with the solutions. And this can often be solved by just adding those functionalities to platforms that they already use, but perhaps for a completely different use case.

Alvin Marcelo [00:26:22] Just to add to what Karen said, that's true because a lot of the agencies within the government don't know what each other is doing. And so the tendency is to look for a new thing when apparently there's already one agency that already has something that has been working for quite some time. And when you start getting in this new thing and it starts competing with that previous thing that is already working, then you get into this conflict and then things become messy and there's a lot of competition and a lot of elbowing. And I think that's why one of the first things we advocate with our members is they should have a clear governance structure because these decisions are major decisions and it cannot be made by one agency. It needs to be done multisectoral and then I totally agree with the landscape analysis, what is the current architecture of the government? Because you might be surprised, they actually have things that are working. It might be silos, but they are working within their silos. It doesn't mean that you need to break the silos and completely bring in something that's totally new. What they need to do is just understand the strengths of what their silos can do. And maybe their solution is to look at the catalog of Karen and see that they need an interoperability layer or they need a middleware that just connects their silos so that these silos are now talking to each other. I think that's the missing thing. After governance, it's actually the blueprint or the architecture. Until they have a blueprint, they cannot really know where they are right now and where they want to go.

Garry Aslanyan [00:28:15] Those are very interesting insights. Either one of you have seen another angle of this increased use of digital tools. Have they been used in research or collection of data for research or in the time of pandemic? Have you had that experience with any colleagues in countries that you work in or you are in?

Alvin Marcelo [00:28:37] One of the first things Government did was to create this standard for submitting COVID-19 test results. And the laboratories, twice a day, would be able to upload these test results and then they would anonymize these test results and put them into what they call a data drop, which is a Google Drive where other researchers could download and do their own analysis. And I don't know all of the researches that have been made based on that data drop, but I know somebody tried to match the test results with bed capacity. So that's one research. He was able to create an application that matches what the results were saying based on a particular location and what bed spaces are available, also based on the daily reports that the hospitals give in terms of occupancy. Another group would do predictions and another group would give another set of predictions using a different set of algorithms. And so what we discovered is by making the data open data, you encourage people to get onto the same dataset and create innovative solutions.

Garry Aslanyan [00:29:54] Karen?

Karin Kalländer [00:29:56] Yeah, I think there are many interesting examples, especially using sort of big data and using that for actions. So not just doing research, but really using those findings to influence actions taken now during the pandemic. There are a couple of examples. For example, UNICEF has a platform called You Report, which is a two-way communication platform which has a really wide reach with millions and millions of young people subscribing to this chatbot. And it has been used very effectively during the pandemic to generate insights into young people's experiences with the pandemic. And it has also been used now beyond just young people but to understand populations, sort of, the information that is perhaps lacking around the vaccine, the misinformation that is around in the society, and that information in itself using surveys and polls, etc., using this two-way communication platform, has been really helpful in trying to understand how we can better target information campaigns and drive up demand for health services and the COVID vaccine, etc. So that's one thing where it's related to research and the infodemic that is going on, but also to really drive the response. And other areas where we've seen very interesting examples, I think this came specifically from Indonesia, where they have used big data from people's mobility and using sort of social media information. So it's sort of data that is semi-open but it's anonymized where you can actually establish trends in people's movements in relation to lockdown orders, etc., to be able to understand or to predict how the spread is progressing of the virus, and also to understand the efficiency of lockdown orders, whether it actually works and how long people are accepting to stay in lockdown before they get tired, etc. So I think we see a lot of new ways of analysing data for a pandemic purpose. And I think this is going to increase in the future. We're going to see a lot more of this coming out.

Garry Aslanyan [00:32:26] Thank you. Well, both of you have a wealth of knowledge in this area. I'm amazed how much really has been going on recently in this area. So just to wrap up our episode today. A final question to both of you. If you were to give two pieces of advice to countries wishing to leverage digital tools and based on this wealth of experience that you have, what would your advice be?

Karin Kalländer [00:32:53] Sure. I think first one would be to look at what you have right now already in the country that works. Is there anything that you can build on, because there are usually partners already in the country that can support. So that would be my first advice. Don't just look for a new shiny solution, but look at what you have and how that can be repurposed. And the second advice would be this. I know it's a bit cliché at this point, but this "build back better" can actually build a stronger health system in the future, going beyond COVID. So the second advice would be to do this better by not building COVID silos, but build them in a way that they are set up to follow standards and best practices so that the information goes into a health information system so that they can be expanded to address EPI programmes, that they can address maternal health, etc.

Alvin Marcelo [00:33:51] For me, two things. The first thing is governance. The reason we have data silos is because we have agency silos. So creating a multisectoral governance would break the people silos or the agency silos because they've started to talk together and share their pain points and agree to collaborate in selecting their digital tools that they will use together. So the first thing is governance, and the second thing is architecture or blueprint, which is actually the current landscape that Karen is saying. An architecture is what you have

right now and what you want to be one or two years from now and the sequence plan of what technologies you need to bring you from your current system to the future system. So that whole thing is called architecture. So those are the two things that we advocate at the Asia e-Health Information Network, that ministries create that multi-governance structure to break down the people silos and then come up together that multisectoral collaboration they will come up with a shared blueprint. And that will really help them find out if this is our architecture, then these are the global public goods that give our architecture.

Garry Aslanyan [00:35:07] This was a great discussion. Thank you, Alvin, and thank you, Karen.

Garry Aslanyan [00:35:13] On behalf of the global health matters podcast, we want to thank you for listening to this episode. I hope that you enjoyed the discussion we had with Alvin and Karen and how digital solutions are increasingly becoming an integral part of health systems in delivering interventions, conducting research and providing evidence for decision-making. We are sure that you, our listeners, may also have some thoughts to contribute to this discussion. As always, we want to hear from you. Please engage with us, either on social media or send us an email. More information on our guests, their work and today's show notes are available on the podcast webpage. If you liked this episode, please subscribe to the podcast and also give us a five star rating on your listening platform of choice.

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