

#COVID-19: What Do we Do in the Meantime?

Vaccines typically take years to develop, test, and release. Right now, researchers around the world are working to bring forward a safe and effective vaccine with unprecedented urgency. And early tests for coronavirus vaccine options are showing promising results, but we still have some time to wait before a vaccine is available to the public. While the world is on hold, many of us are understandably anxious. How is the scientific and public health community preparing for a vaccine's release? How is COVID-19 being addressed in the meantime?

This is The Antigen, and I'm your host, Lindsey Dietschi.

On this special miniseries of The Antigen, we're connecting with experts to give you accurate information on COVID-19. Today, we're tackling that big question: What can we — the research and public health community, doctors, and society at large — do while we wait for a vaccine?

To get some insight into this question, I'm speaking with Shanelle Hall, former Assistant Secretary-General of UNICEF. While at UNICEF, she helped maintain a steady and safe supply of vaccines for children worldwide and this is where I got to know Shanelle. She has since founded The Yellow House, a consulting company that advises governments, NGOs, and corporations about creating positive impact.

Lindsey: So, Shanelle, I'm really happy to be here catching up with you this morning. And for our listeners, can you please share a bit about your background and how it relates to vaccines?

Shanelle: Sure. Thanks, Lindsey, and thanks so much for having me. So, I was at UNICEF for 21 years and a good part of my time there I spent working on getting children access to health, and a big part of that was access to vaccines. And so, the work included engagement with markets and industries and obviously, manufacturers that are producing the medical tools including vaccines, but also the funders and the financiers, and of course, countries themselves and helping them reach their children. My first engagement with vaccines was in 1999, and with, I think there were about 20 governments present at WHO in Geneva, and there was a decision that we needed to move from kind of annual or twice annual National Immunization Days to eradicate polio, to six National Immunization Days, in some countries even more than that.

So, there was a change in policy from one day to the next, and without, at that point, quantifying it, the world had quadrupled the demand for polio vaccine. And at that point, there wasn't really a tradition of what has become such a central part of manufacturers and the global health community working together, which is understanding what are the needs of children today, two years from now, five years from now, even 10 years from now, for a specific vaccine. At that point, we didn't really quantify many of our vaccine needs and didn't know that we had quadrupled the demand. And we

were really took by surprise and we took heads of state by surprise when they had mobilized their country for a National Immunization Day and we're waiting for the vaccine to arrive.

And those incidents radically shifted how UNICEF began to engage with the vaccine industry and with countries as well. And since then, we have learned about the complexity of vaccine manufacturing, obviously, the complexity of discovery and development, and then just how close that all parties need to work together in order to get children immunized.

I mean, that took us years to develop and it took us close engagement with our partners, but that was really fundamental to eventually how we also looked at other health products, so medicines, bed nets, diagnostics, et cetera, and many of those things, which we also were informed by the creation of Gavi, so the Vaccine Alliance, have come together and are being used now in looking at COVID.

And then, I left UNICEF about a year ago and created a small consulting firm that helps organizations and institutions with purpose strategies, more or less, but definitely with a strong emphasis on public health and data. I just look at how can we take that expertise and help bring good change to the world?

Lindsey: Thanks for that, Shanelle, I think that's what makes me so happy to be speaking to you today, because the way you can break it down and thinking about the scale and the magnitude of a challenge, like you faced with polio, and then really matching that up with building a deeper understanding of where all the different partners can play a role, including manufacturers, and the collaboration that it takes to actually understand, where are all of the different partners coming from? How can they all contribute some comparative advantage to solve big difficult global health challenges?

And thinking about even the systems engineering background that you have, what are you seeing right now in global health, you and your colleagues? What are you all focused on right now with respect to COVID? And are there things you find particularly encouraging that are going on? Or, are there things that are really keeping you up at night around how we're tackling or planning for COVID-19?

Shanelle: Well, first of all, the amount of effort underway is maybe unprecedented for any health challenge. And that's pretty inspiring when you think of all of the expertise, all the resource, all the scientists, pretty much most facets of society are putting their talent and passion and resource in order to tackle this challenge, which is pretty rare for that to happen.

The second thing is really preparing and scaling up measures. I know that the situation or the risks in low-income countries are a bit different than they would be for example for North America and Europe, including just because of, at the essence, the strength or maturity of their health system. At

the same time, there are very different underlying disease prevalence between maybe the industrialized country and the developing countries. And so, a lot of work has gone into trying to pre-position vaccines, for example. So, while the logistic routes and supply chain routes were open, vaccines go via air and there's not a lot of flights going into Africa or different parts of Asia at the moment.

Obviously, one of the big challenges is the COVID specific products. So, while the demand has been enormous, obviously started in Asia and then in Europe and then in North America, for the personal protective equipment, for the masks, just for the whole set, but also, for oxygen, for test kits, et cetera. So, I mean, these continents and countries are in a constrained supply and so, how do you get those products also into Sub-Saharan Africa and other places that the disease maybe, a month or two ago hadn't hit in the same way, but still the health workers and the communities there needed to be protected.

And then, maybe the third thing is just supporting the COVID-19 ACT Accelerator, so ACT being Accelerating COVID Tools, that was launched at the end of May, and really supported by so many heads of states. And really as a means of accelerating the availability of therapeutics, of diagnostics, and of vaccines.

What keeps me up at night? I read something this morning, a Carnegie Mellon study showed that 45% of Twitter accounts providing information on COVID seem to be from bots and they're spreading conspiracy theories about, for example, mannequins in hospital beds, and that the coronavirus was linked to 5G et cetera. And that really struck me, that we're all trying to absorb and understand the situation, and it's dynamic, we're learning so much as we go. And I am someone who's sourcing a lot of my information from Twitter, because I think it's pretty amazing we can have access in many ways to the world's top scientists and experts that are sharing their views and what they're learning in real time.

But then, it also makes us very vulnerable to messages that are really been shared to divide and cause disruption. And it's not that... I mean, we need to know the good news and we need to know the bad news, but the divisiveness starts to harm social cohesion. And social cohesion is so fundamental in interrupting a contagious disease. And we've seen that in Ebola, we see it in measles, we see it that if you have a breakdown in society, then communities are less likely to work together, less likely to trust institutions and science. And not because anyone is not smart or bad hearted, it's just because the information that they're receiving it's so hard to filter. So, I would say social cohesion is a bit of a concern.

I think the other one is, the concern about whether the measures that we're using in industrialized countries are appropriate for Sub-Saharan Africa, for example, given the difference in underlying disease. A study that Johns Hopkins did, and I think it was released by The Lancet maybe two weeks ago, showed that because of the decrease in essential services in Sub-Saharan Africa, because of the measures undertaken, that they modeled that there could be an additional 6,000 children dying per day by the end of the year, which so far, I think the peak day of COVID deaths or deaths caused by COVID is somewhere like 5,600 or so. So, you start to worry about, are we contextualizing, and are we having the right measures? I don't know the answer to that, but certainly these figures makes us really need to think through.

Lindsey: Yeah, absolutely. And that concept you share about social cohesion, you can really see the role of that both within the scientific community, but within the home, at the community level, at a country level, and then across all the stakeholders who are trying to come together to figure this out. And I think some of the pieces you've highlighted about challenges we face actually aren't even specific to COVID-19, but are about getting people enough to eat, adequate nutrition, continuing the routine health programs that inevitably are challenged when people are at home, and medicines and vaccines can't be delivered at the pace that they were to prevent or treat diseases that we already have solutions for.

Shanelle: Exactly.

Lindsey: And that kind of leads me to how we're thinking about testing and contact tracing. And is there anything maybe you could share about how you're seeing testing and the role of it within global health, any improvements you're seeing on the horizon?

And even, for some of our listeners that might be interested in, what is this contact tracing, and how does it actually work? It's certainly in the news a lot right now, but how practically it works and how it helps us build a better understanding of how we understand the incidence of the disease, but also containing it.

Shanelle: Yeah, I mean, testing, right? It's so essential. It's the fundamental and so is the contact tracing. And maybe I'll start with testing. I think we probably have all become a lot more informed about the difference between an antigen test which is testing, do you currently have the virus in you? And antibody or serological testing which indicates, did you have the virus and therefore, has your body developed antibodies? And one is needed for diagnosis, so that means you have the active virus. And the other one is better at giving an understanding of, where has the virus been, and who may be protected?

We know that for other diseases such as HIV and malaria, to scale up, we couldn't exclusively rely on lab based testing. So, while there's a scale up of manufacturing of these PCR tests that are looking for antigen, and there's kind of new tests being launched, and obviously the scale up of the manufacturing, we're also looking forward to the development of a more simple test that could be, it takes longer to develop, so maybe we're some months away from that. But that could be used more quickly and at the point of care, so we wouldn't need a lab to do the test, you could do it at a health clinic. And it would be suitable for all kinds of contexts, certainly in low resource settings where you don't have the logistics or a good lab infrastructure. It's really the only way we've been able to test and then eventually treat for HIV and malaria, and the same with TB. So, I think we're really looking forward to a kind of a rapid diagnostics that's available, that works at point of care.

I think there's an estimate that for low income countries and middle income countries over the next 12 months 500 million tests would be needed. So, we have a lot of scale up to do, and obviously people need to be trained on how to test and whatnot. But it's so fundamental to slowing down the disease. I mean, once you have a positive case, then, as you mentioned, you need to do the contact tracing. And there's been quite a bit of innovation we saw in South Korea on contact tracing.

But basically, the goal is that if let's say, I test positive, then the public health official wants to know who else I was in contact with, given how contagious this is. So, they ask me to recall who have I been around. And they give parameters. So, perhaps who've I been around for more than 10 minutes, and I was closer than maybe more than... closer than a meter, or two meters. And we had a conversation, whatever it might be. So, you kind of have to go through your memory bank of who you are in close contact with.

And then, you share those names. Those are the contacts. You share their telephone numbers, if you have them. And then, a public health person, and there's actually quite a bit of scale up of people being recruited to make those calls, so then contacts the person and says that someone that you've been in contact with has been confirmed as having COVID, and we want to talk to you about whether you have any symptoms. And they make that contact and ask the person to self isolate for 14 days. And then, both people are called on a daily basis to remind them about staying in, and also hearing about whether they're starting to experience any symptoms. So, it's like somehow a big family tree so to speak. And the daily calls last for 14 days.

In Ebola, it was more done on a house to house basis in some cases, and really done by people who were trusted in the community. Obviously, that's a sensitive conversation to have. So, people making the calls need to be able to develop some sort of rapport and convey information in a trustworthy way. And it's confidential, right? So, you're not told who you were in contact with, and the

people that will convey also aren't told that you told them. But it's the way that really can have a lot of impact on reducing the spread.

Lindsey: Yeah, absolutely. You're definitely seeing that a lot in the news, even in the US with the recruiting and hiring of contact tracers in order for certain parts of the economy to be able to open up a bit. And I think you're pointing out something important relative to the privacy considerations around the use of technology to help make contact tracing effective and efficient. And at the same time, how much technology has advanced compared to maybe 20, 30 years ago. The fact that technology can play such a significant role in the contact tracing is for sure, from where I'm sitting, a positive evolution in how technology can play an important role in global health and particularly with respect to COVID.

So, as we think ahead, what do you see as being some of the most important decisions happening now that are going to affect how ultimately effective we are in reducing the health effects of COVID-19?

Shanelle: Well, obviously, kind of the R&D right now, the first thing everyone's looking at is, are there existing medicines that have been proven safe or effective to fight another viral or bacterial infection or whatnot that could be repurposed? Those would be the quickest things available, right? And then there's the novel products that are being created, and all that pipeline is going to progress at a pace that we've probably never seen before, which is amazing. I think, one of the things that's interesting that we may not be talking about enough is what we can do as individuals to improve our immune systems.

What we're seeing in terms of the people that are at higher risk, so people over the age of 65, and then also people with some underlying or precondition, and usually, I think in the US it was 88% of people with severe or critical COVID had more than one underlying condition. The underlying conditions themselves seem to overlap quite a bit but high blood pressure, so hypertension, diabetes, obesity, different... I mean, there's a long list of them, right? But there's a few that get concentrated. And, of course, we see people who don't have any of those either that are also being hospitalized. But something that sort of we've been speaking about is, in Africa for example, the number of smokers is quite a big range. But we know that lung health, if you have healthy lung, it positions you better to not have COVID disease progress into a severe or critical.

The most important thing we can do is really make sure that we are compiling the information and getting disaggregated data on cases, on how people recover, what were their underlying conditions?

Obviously, we're getting it on age, but are we getting it on wealth quintile of people? Are we understanding people's vulnerabilities? And I think, overall we're seeing that the virus exploits inequalities, it's finding them and exploiting them, right? So, do we understand that enough so we can get to some of those root causes and help those. And that's in addition to probably one of the greatest scientific advances in terms of R&D from academia and private sector, which we've really never seen come together in such a way as this. I mean, that's kind of a messy way of describing it, but I guess, just continuing to learn.

Lindsey: Yeah, thanks, Shanelle. I think, as you said, there's a lot that we can do as individuals to help keep us as healthy as possible. So, no matter what we're facing, COVID-19 or otherwise, we're in the best position possible to help fight off disease and even prevent it. And before we wrap things up, I think you've made such an interesting point about how unprecedented it is the collaboration taking place across all the partners, research institutions, academia, industry, global health partners. And it is inspiring to see that coming together and it certainly puts us on the best path we could be to continue to learn and gather accurate information and share that across partners so that collectively, we can all continue to make the best possible decisions to get our way through this basing it on current data, and the best scientific research that we can.

So, thank you very much for spending some time with me today. I learned a lot as I always do, whenever connecting with you, and really appreciate despite your busy schedule you connecting with me today. So, thanks a lot, Shanelle.

Shanelle: Thanks so much, Lindsey.

Thanks for tuning in to my conversation with Shanelle Hall, former Assistant Secretary General of UNICEF.

Before we wrap up, I want to share with you what else is going on at Pfizer — a few weeks ago, Pfizer scientists announced they are working to revive a compound that they identified in 2003 as a potential treatment for the SARS epidemic in China. And they recently shared that preliminary data confirm the compound shows antiviral activity against the COVID strain we are facing today. To learn more about this and the months of work still ahead before the compound will potentially be ready for human testing, head over to [pfizer.com slash coronavirus](https://www.pfizer.com/coronavirus).

Next time, on this special series of The Antigen, we're talking about the quest for a vaccine. What does that quest involve? What does finding a vaccine actually look like?

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