

AHA ADVANCING HEALTH PODCAST: **THE ROLE OF TECHNOLOGY IN THE FIGHT AGAINST CORONAVIRUS**

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PODCAST TRANSCRIPT

Andy Shin, Chief Operating Officer, AHA Center for Health Innovation, and Kaveh Safavi, Senior Managing Director- Global Health, Accenture

Tom Headerly: Covid19 is reshaping healthcare through technology. Recent advances, such as artificial intelligence, telehealth, virtual collaboration and data tracking are stepping up to help address the virus and flatten the curve. We expect to see digital innovations continue to transform healthcare and change the way we care for patients forever. Welcome to Advancing Health, a podcast from the American Hospital Association. I'm Tom Headerly, senior writer with AHA. Today Andy Shin, Chief Operating Officer at the AHA Center for Health Innovation, is talking with Kaveh Safavi, head of Global Health at Accenture, about the role of technology in the fight against the Coronavirus.

Andy Shin: Hello. Today, I'm pleased to

be speaking with Dr. Kaveh Safavi, who I've gotten to know as really one of the brightest minds in healthcare. His clear and often pressing perspective is something I find to be a breath of fresh air, and mostly because you're always right to look beyond our borders or even our industry, to see what we can learn from others about how to transform and how you might even do it better. So Kaveh, welcome. If you could start by reminding us about your current role as the head of global health at Accenture.

Kaveh Safavi: Sure. Thank you for the kind words, it's good to be here. I'm fortunate enough to work with twenty-two thousand other professionals serving payers, providers and governments in around 20 countries. We focus on the intersection of technology and business and particularly focusing on questions like how does technology change the nature of what healthcare organizations can do for their citizens

or patients or customers? Also how do they change the work that they do themselves? Both the services as well as the way they operate. I've had the good fortune of doing this for 20 years and have seen a lot of different attempts and also have been watching some of the really new, interesting innovations. I'm looking forward to this conversation.

Andy Shin: Thanks. Clearly, Accenture is best in class and in that vein, it's been great to collaborate with you and your colleagues on a new market insights report that we released last year out of the Center for Health Innovation here at the AHA called **AI and Care Delivery**, which explored the impact of utilizing AI to improve care. And with a few major issues I'd put out there, that report has probably never been more relevant than thinking about how hospitals have organized themselves to respond to this global pandemic. So first, do you agree with that statement? And secondly, Kaveh, if possible, just help me understand from your perspective, where were we before Covid? How did we use to think about AI and the role it could play? Because I'm pretty sure we are seeing a change. Where exactly did we come from?

Kaveh Safavi: Well, first of all, I would say that Covid actually is an amplifier. It doesn't change things, but it changes the urgency of things. So, let's go back to the original question— I strongly believe that artificial intelligence, which is a type of information technology, will have a transformative effect on healthcare in a way that technology to this date has not had.

But I think it's going to play itself out a little differently than the way it has been largely reported in the media, where people have been thinking about artificial intelligence as being a substitute for a doctor and making a diagnosis and treatment.

Well, I actually think that artificial intelligence is going to have a role in two areas, which to this date have not been solvable by most of the tools we've had at our disposal. That's because it's required technology to substitute for human tasks that are generally not routine. And that has always been a limitation of technology. But artificial intelligence allows technology to take over routine tasks. The two big problems are:

1. Substituting for work that humans can do in order to give our caregiving system the capacity to serve more people without adding more caregivers, because we fundamentally have a shortage and we are also discovering that it is the cost of human labor. That's actually what drives the curve of healthcare costs to grow faster than the economies that they're in. So technology that can substitute for human labor and make human labor more productive is one big area.

2. The second big area is to make the healthcare experience more personalized because citizens in every country have an expectation that healthcare be more like the experiences they have from other parts of the society, more on their own terms, where they want it, when they want it. And if you want to deliver healthcare to individuals on their own terms,

personalized and not just biologically personalized, but from an experience perspective, you're actually going to have to use technology, plus the physical delivery system and the capabilities of artificial intelligence to know and to adapt to an individual experience— something we couldn't have done before.

We've actually done some research on this where we ask healthcare leaders, whether or not they think artificial intelligence will be just a substantial benefit or a transformative benefit. And what we found is across many countries, they view it as transformative, particularly around areas of the business of healthcare, and they view it as substantial, but not necessarily transformative in the clinical diagnosis of healthcare. So it's going to have a big role, but a transformative role in scaling our human resources and making the care experience more personal.

Andy Shin: I think that Covid as an accelerant couldn't be more accurate. And you know, you're describing substitution of work in terms of human labor. You're talking about the themes of consumerism and personalization but in a Covid world. So is it just accelerating what was happening before? Are there any Covid-specific use cases that are now changing AI adoption?

Kaveh Safavi: I think of Covid as having amplified three big issues that healthcare has been dealing with all along. It's introduced the requirement for distance in caregiving, not just because it's a nice thing from a convenience perspective for a citizen, but it's critical in terms of the primary

strategy for mitigation, right? Social distancing includes healthcare at a distance, and so that accelerates moving healthcare from a physical to a virtual technology. Then you add artificial intelligence as a capability on top of that. And it allows, for example, for patients to get common advice without requiring them to have an interaction with a human being. It also frees up that human labor to do other things. It's a combination of both the distance and capacity creation.

The other big area that's really important is we have moved the cycle time around our drug discovery up and that it requires a lot of analytic capabilities and artificial intelligence is one of the most central tools for modern data science and analytics. What you're seeing behind the scenes, it's not the only thing. There are many other things that go into that— the fact that we have sequenced the genome and been able to get drugs and vaccines to the market faster. But artificial intelligence as a tool kit for analytics is part of what drives that clock speed.

The third big area that really is coming out is the area of surge and the ability to be able to move healthcare resources where they're needed. And for that to happen, you have to free up healthcare resources. So, for example, if technology can serve some of the functions that humans can do, whether it's simple common advice or other sorts of things, then you begin to see how Covid just accelerates what was historically done as a matter of convenience and now as a matter of necessity, to give clinicians the time to work on the things that only clinicians can do.

Andy Shin: That makes so much sense. You know, Kaveh, one of the things that I'm struggling with, though, is why today, AI would be, especially in the use cases you've just mentioned, be so pertinent, but wasn't one of the biggest barriers to the broad adoption of AI before even just a few weeks ago. Let's remember that world—the importance of data, right, because AI is fueled by the diversity and volume of data. I mean, that problem hasn't really been solved today, has it?

Kaveh Safavi: Well, you're absolutely right. In fact, one of the challenges that we have with a new disease like Covid is limited information and artificial intelligence as a technological utility is predicated on information that is then used for the technology to train itself. So we don't have the luxury right now of using an experience, a large database of experiences around Covid to drive an artificial intelligence kind of learning engine that's going to come later, but where you start to see it is in other areas.

Let me just step back for a second and say that if you actually ask where is AI today in healthcare most frequently experienced, you see it in three places in the world of analytics and you also see it in the world of understanding conversations when you see it in the world of reading documents. It is understanding conversations. That is where it's mostly being used. And that is what I described earlier, which is the ability for citizens who have questions about their condition or their symptoms, whether Covid or non-Covid, can quickly get a sense of whether this is a big or a small problem by interacting with a number of tools that have been created that are using artificial intelligence for

the listening and understanding part of that so that they don't have to talk to a clinical caregiver in order to get their questions answered.

Andy Shin: Great point. It seems like the chat bots are going to be pervasive on every healthcare web site if they haven't already been over the next coming weeks. You know something I really appreciate, Kaveh, is your global view because they're probably 50 or maybe more distinct healthcare systems out there. I don't know if there's maybe 100, but there are so many good examples happening elsewhere in the world. This is a global pandemic. I'm wondering, have you seen any really good use cases for AI that are happening internationally that we're not deploying yet, at least at scale in the US?

Kaveh Safavi: I would say that it's pretty common because the healthcare community is sharing everything as fast as they can so that conversational advice technologies are available and being used in many countries; they're country-specific because of language. But the underlying content or advice is coming from established global healthcare organizations and, for example, to help someone decide whether or not the symptoms they feel may or may not be called Covid, whether they should get seen. Those are standards of care. I'd say that you see in all of the countries with having an outbreak, they're using it. There is a lot of day-to-day innovation going on around the therapies for Covid. Most of those don't require any kind of advanced artificial intelligence. They're really very simple application of rules. It's just the underlying science is shifting on a daily

basis so that is really much more about the traditional proliferation of information than anything else.

Andy Shin: Yes, and you know, you've really described well, I think, that application of the conversation, the patient interaction component or use case of AI and I'm wondering if we could take it up maybe one hundred thousand feet to the spread or prevention of the virus for more of a macro or even global level. What's your perspective on how AI is being used effectively or could it be used more effectively as we think about getting a hold of this sort of at a population level?

Kaveh Safavi: Yes, well, I think the thing about artificial intelligence as a tool is it's fundamentally math and it requires both a formula or an algorithm and data. With artificial intelligence with Covid today, we don't understand the science, so we can't codify it into a formula and we don't have enough data points. It'll be a while before we have enough data. But at some point we will understand enough about Covid, will understand enough about transmission, will understand enough about immunity, that we could have a better way of anticipating and predicting hot spots. Most people think that until the vaccine is in market, which is realistically 18 months plus out, we will see recirculating Covid globally and the reemergence of hot spots that will require mitigation and social distancing. We don't want to take the approach that we are doing in the first round, which is everything has to shut down. But for us to be more tailored about it, there will be a role for mathematically-driven predictions. But it's going to have to be married up to direct surveillance and

direct test results. I expect AI to find its way into those public health tools as we understand the disease better and collect more data.

Andy Shin: Wow. Well, that's really important and we can only hope that the technology is there, because if this becomes something that's going to be 18 months, to your point, we're going to need those tools in our arsenal, for sure. So, thinking about something prior to Covid was constantly talked about was the role of the physicians and I know you're a physician. I remember an associates report that stated only 18 percent of physicians supported using AI for diagnosis of patients' medical conditions. I'm wondering, do you think that's changing at all in a Covid world?

Kaveh Safavi: I don't think that Covid really has an impact on that and I think that particular statement is a reflection to some extent about the confusion and complexity around artificial intelligence. If you think about artificial intelligence as a tool to aid the decision, aid the doctors in their decision making. I don't necessarily think that doctors are reticent to do it as long as they understand it and it's been validated. Where it gets a little more complicated is when people think that implies that the patient can have a direct interaction with a technology and that technology can itself definitively diagnose or treat. If you use that standard, then I think the skepticism is well-founded and nothing about Covid changes that because nobody is using the technology to substitute for judgment. We're using the technology to augment human capability, either to make the doctors more available to do what they can do or

make the doctor's judgment better by aiding their decision making and that's really where it's going to play itself out. I don't I don't think that the physicians would disagree with decision tools to help make the decisions better.

What is certainly an issue that is still relatively immature and will become more mature is artificial intelligence used as a technology for decision support tool areas. For example, where most of the work is going on, are areas like oncology. And that's largely because cancer as a domain is complicated in that it is a convergence of what has been viewed as immunology as well as traditional oncology. What we are recognizing more and more is that it is quite conceivable that no two patients would get exactly the same treatment if you fully understood their cancer and their biology, because there's so much heterogeneity, in individual's immune systems as well as their cancer. One could believe that the only way to guarantee that each person got exactly the right treatment, personalized to their biology, would be with the aid of a sophisticated tool that can do a lot of analysis and use a lot of what's been done in the research to come up with a recommendation. Even then, it doesn't actually tell the doctor to do one thing. It gives the doctor a set of options with weighted probabilities and other kinds of information. Then the doctor makes the final judgment because they're the only ones who understand the patient value so that there's no way to decide whether or not the patient considers the side effects of a treatment to be worth the outcomes without applying a level of human judgment that we cannot codify into artificial intelligence. We can get a

clinical recommendation, but the final recommendation is a human recommendation, and that requires the weighing of personal values. That's why the doctor is the last part of that decision.

Andy Shin: So is that layering of human judgment and that physician's decision making, is that the sort of criteria that you need as people are adopting AI really quickly in some cases, both in response to Covid and other factors? How do they ensure that they're doing it in a safe way such that there's confidence that this is enhancing or at least matching the level of quality of care, you know, prior to this?

Kaveh Safavi: This is a really important issue. This is true for adoption of artificial intelligence in any part of society. This is where we start talking about concepts like responsible artificial intelligence, which requires everything from being transparent about your intent, being clear and transparent about the sources of data. The algorithms or the models that were used and what validation was used. I think it is incumbent on anyone who is creating a tool that uses artificial intelligence to be very explicit and transparent about all of those inputs or it's a black box and if it's a black box, we're going to see limited adoption.

Andy Shin: So, I know that you get asked this a lot and even more so today, but if you could put on your fortune teller hat and tell us, look into your crystal ball— where do you see AI going after this is over or because of Covid, let's say, in the next decade? Has your opinion changed at all?

Kaveh Safavi: I think the three biggest areas remain probably the most fruitful for the next decade. The question will be what percentage of the tasks that are done by people are done by technology. So it is, as I said, almost at this point, a standard for any kind of data science or analytical organization to have AI machine learning technology and data scientists who are conversant in machine learning to help answer questions. If you are a data science shop and you don't have a central competency around data science, around machine learning and data scientists, or understand how to use those tools, you're not current today and that is just going to become a bigger issue going forward. We actually think that one of the biggest use cases is using the technology to read a clinical document and take essentially an unstructured document and convert it into structured concepts that can be used for a variety of things— they can be used for payment, they can be used for clinical decision making or automated decision making tools or quality reporting. In fact, if you look at the research that's been done on waste in the healthcare system, there's an Institute of Medicine methodology that in 2012, Don Berwick ran an analysis using that method and then his colleagues last year. The single largest category of waste in the U.S. healthcare system is administrative complexity. That's the single largest— bigger than care coordination failure, bigger than overtreatment. And inside of that, the effort associated with collecting data for the purposes of payment and quality reporting is the single biggest category within that category. That is because we spend a tremendous amount of time reading paper to try to find concepts.

What has been demonstrated now very well is that if you take technology that has historically been available, the ability of natural language processing, it's not good enough to read a clinical document and make sense of the clinical terms but if you add artificial intelligence to it, it is good enough and you can begin to actually do those tasks that humans were doing and that frees up a tremendous amount of human labor to do other things. And it creates a whole new set of data to improve the accuracy of this work.

We actually published something in the M.I.T. Sloan Business Journal a few months ago showing the results of trying to read a clinical document for clinical concepts—a human and AI reader separately and then a human, plus an AI reader. A human plus the AI reader did better than the technology or the human alone, so that together there was a more effective result than either separately. I think that's going to come after we mature the issue of reading documents. But what's already happening right now is the ability to listen to a conversation and make sense of it and capture structured documents. Healthcare providers have lost about 10 percent of their productivity because of typing. The only reason that they type is because it's the only way to capture structured data concepts during a visit. Otherwise, you just have a transcript. We now have many examples of people using technology, speech and language recognition technology, plus artificial intelligence that can listen to a clinical conversation and capture structured concepts and set a workflow, saving doctors a tremendous amount of time in the typing part of their day— separate

from the full transcription. I think it is going to have a really material effect on the experience of clinicians and patients in healthcare, and I see that as being a really important area. The tools are getting refined now. I think in one to two years, we're going to start to see real adoption and we'll really feel it in the next three to five years.

Andy Shin: Yes, really getting to that quadruple aim. So as they say, the future is now and I think you said it best Kaveh that this current environment has simply been an accelerant for adoption, new tools, technology and models. And I'm sure we'll be talking a lot more with you about that in the weeks and months to come, but until then, thank you, Kaveh and to Accenture for sharing your insight on today's episode of Advancing Health podcast.

Kaveh Safavi: Thank you. My pleasure. Andy. Talk to you soon. Take Care.

Tom Headerly: If you want to learn more about the advancement of AI in the future of healthcare and the Market Insights Report, visit us at [AHA.org](https://www.aha.org). This is Advancing Health a podcast brought to you by the American Hospital Association.