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GREG HORNE: Hello. Welcome to the first episode in a brand new season of The Health Pulse Podcast. I am your host, Greg Horne, and in this series, we will be focused on health innovation. Looking to uncover where technology and new approaches will change the world of health and life science. And to start on that process of innovation, we are now creating the podcast in two formats.

So we have the traditional audio version that we used for season one. But right now you may well be watching us on the SAS software channel on YouTube. And as always, we welcome your questions and comments. Now you can leave them on the YouTube channel, as well, but there's also our email address, thehealthpulsepodcast@sas.com.

We had some really great feedback in the first season on that email address, and that's helped us craft what we're going to be doing in this season, as well. So please keep those comments and questions coming in. We love to hear from the audience, and we use that, as I say, to create new episodes.

But for our first episode in this new season I am going to be joined today by my guest who is Microsoft's chief medical officer, Dr. David Rhew. David has a background in infectious disease medicine, and he's been with Microsoft for about two years. And Dr. Rhew, welcome to the Health Pulse podcast.

DAVID RHEW: Great. It is nice to be here.

GREG HORNE: Thank you. And whereabouts are you today?

DAVID RHEW: I am in sunny New York.

GREG HORNE: New York as a New York City, New York state?

DAVID RHEW: New York City in Manhattan, in the Big Apple.

GREG HORNE: Fantastic. And how is it there today?

DAVID RHEW: Yeah, it's been fantastic. It was funny I arrived just when Ida hit. So it's been a little stormy on day one. But ever since then, smooth sailing.

GREG HORNE: So I'm here in just outside Toronto, and last night, apparently, we had the biggest thunderstorm that we've had in ages. I say apparently because I didn't hear any of it, which is very normal for me, I'm afraid.

DAVID RHEW: Yeah, we haven't had the thunderstorms yet.

GREG HORNE: They're coming. So David, let's jump into this. So you're at Microsoft now, but I'm really interested to hear a bit about your career. So you're a physician. Talk to me about being a physician, what you did, and how that led into a tech world.

DAVID RHEW: Hey, I think it's one of those stories where I was not really by design. I early in my career had just a passion for looking into and understanding things. I was very curious why there was so much variation in care. And the more that I looked into it, the more I realized that it was actually unwarranted, or unnecessary.

Doctors and clinicians practicing different ways, and also finding hospitals having different practice patterns. And ultimately, it leads to differences in outcomes, and differences in costs, and has a huge

impact on patient care. So one of the things I wanted to understand was, when there are evidence based practices, why don't we practice and adhere to them more often?

And in fact, I've been looking at ways that we could improve that level of adherence. I stumbled across evidence based guidelines, which ultimately were, at the time, not well accepted. In fact, many doctors still viewed that as contrary to what the art of medicine was. But many of us did believe that was a core part of what health care should be.

On standardizing on certain evidence based best practices. And to make that a reality, I did a lot of studies in terms of showing that giving the right information at the right time could lead to better health outcomes. Now that was in the context of studies, where you had people running around handing notes to doctors and nurses and others, providing that right information at the right time.

But clearly not a sustainable model. And where we saw the great opportunity was where technology could be coming to provide that on a more consistent basis, and a more scalable basis. And working with some colleagues, we built some software that ultimately became a company, the company was acquired by Cerner, and next thing I knew, I was in health care IT.

GREG HORNE: Fantastic. It's funny, you talk about that best practice, reminds me when I was working in X-ray. We were trying to stop routine preoperative chest X-rays being done because we knew they weren't being looked at. And the way we did it was we stapled the bag shut that had the X-ray film in, and then we counted how many came back unopened.

And there was huge numbers. And so there was the evidence based protocol to drive an end to those X-rays. But we've seen technology take over in that space so much recently. So since you've been a practicing physician, how has technology evolved, and how is it helping with some of those challenges you just mentioned?

DAVID RHEW: Well, I think one of the things we first saw was there was something called the electronic health record that came into practice. And largely based on the meaningful use and the HITECH Act, we found that these EHRs were a mechanism for us to digitize a large part of what we did.

But at the same time, I think we ran into a couple of unexpected outcomes, one of which was the amount of work that it took to enter orders, and enter a variety of different types of things into the EHR. It changed our way of thinking about clinical workflows.

But it also was something that allowed us to start thinking beyond hospitals and clinics, to think about how we could extend digital to become much more of the patient experience. Things that we deal with every day. And as part of that journey, my interest was looking at how digital technologies, such as wearables and sensors, could also be brought into a common platform.

And that's something that I think a lot of clinicians now are starting to realize that, as we think more holistically about patient care. It's no longer just about that one visit that we saw with the patient, and now it's about all the different factors that can impact a person's life, and their ability to adhere to treatment regimens.

And so as we think now also about the future, clinicians are starting to think that perhaps digital technologies can be used in ways that we haven't used in the past to take better care of our patients, and also to help us with things such as entering orders into the electronic health record.

GREG HORNE: Fantastic, actually. So what do you see then are key challenges in health today. and the key trends? How does that relate to some of this technology introduction, as well?

DAVID RHEW: Well. I think one of the trends I've touched on is this whole concept of consumerism, whereby a lot of health care now is based on understanding the consumers and patients' needs, and finding ways that we can meet them where they're at.

A really good example is, one of the projects that I worked on early on in my career around digital health was working to figure out ways that we could take a program that is traditionally in-person-- it's a cardiac rehab program for patients that have had heart attacks. It's about a 6 to 8 week program, come in three times a week, maybe about 30 minutes or so exercise.

And the reality is that most people don't complete these programs. We see nationwide, less than 50% of people complete it. Now the sad thing is that, this is such an important program that if you have more than half of the people not completing it-- according to the literature, there's a number needed to treat of anywhere between 7 and 17.

Which means that between 7 and 17 persons that don't complete this program, you basically lose a life. And so our opportunity is to save lives by having people complete the program. Now we've made it difficult. By making it difficult what we did is we said, you have to come in, you have to take time off from work, perhaps, maybe even get child care, transportation, things that are all barriers to care.

But what we realized is if we could somehow digitize this, and make this available on a smartwatch and an app, maybe we could improve adherence, and improve outcomes. And sure enough, when we did that, that digitization, we offered people a choice-- you could either do the in-person, or you could do this digital offering, we saw a significant number of people opt in for the digital.

And then the completion rate for this program jumped up. And so in the facilities that we worked in, we saw a baseline of 40 some percent jump up to 80%. And then here's the really interesting thing, 30 day readmissions dropped from 12% to less than 1%. I mean, pretty impressive in terms of how patient engagement, and making things easier, improve quality of care, and also reduce costs.

GREG HORNE: That's amazing. And it just shows, you made things easy for people, then they will do it. And it also speaks to a lot of what we're seeing at the moment around we're moving from being about health care to kind of wellness and prevention. And that kind of makes me think about our data sources. So what do you see as the next horizon in data?

Is it IOT, social determinants. You kind of touched on IOT already, but the social determinant piece, the virtual clinical trial. Where do we see this EMR data and other data evolving with other data sources?

DAVID RHEW: I think what you're touching on is this whole concept that there are multiple data sources, and we shouldn't be ignoring, or we should be trying to take advantage of the fact that we now have access to many of these. And so one of the things that we've been looking at are how do we make data more interoperable, more fluid, something that can be brought in.

And there are different data sets. You've got electronic health record and claims data sets. You've got social determinants of health. You've got genomics. You've got imaging. You've got a variety of different devices, biometrics that can be brought in.

And as we think about bringing that all into a common platform, organizing it, and then analyzing it, and providing the insights in AI that AI can be applied towards, then we can think about those actionable insights that can lead to the right decisions at the right time, and then coordinate care using some of the virtual care tools. So it's really all of the above.

But it starts with data, and it starts with the ability for us to bring data and make it more interoperable.

GREG HORNE: So it's kind of two follow ons from that, and they're to do with Microsoft, and how you act with others. But you recently just acquired Nuance. Not everyone will know what Nuance is, perhaps we can get into that. But where is that going next? How do you see that integrating, and what do you think is the next kind of area of innovation that you're going to look to in that space?

DAVID RHEW: Yeah, so for those that aren't as familiar with Nuance, Nuance is a company that has built some amazing technologies that focus in the area of natural language processing. It converts voice to text, and allows that information to be brought into medical records.

Now where we came in, in working closely with Nuance-- and this is a partnership that was established years ago-- was we started looking at this concept of ambient clinical intelligence, which is essentially a conversation that a patient could have with a doctor or a clinician.

And then not only going from voice to text, but having the computer understand what exactly is being spoken, and what is it about? So by understanding the concepts, we could then organize that into clinical progress notes, or to history and physicals, and then integrating it into the medical record. Now this was a dream for a large number of clinicians.

And this gets back to some of the challenges we talked about before about how do you make the lives better for clinicians. Well what we realized is that by doing that, we could actually decrease the amount of time that we take to enter these notes into the clinical record. And that is something that we recognize could be a big factor as we try to address the issues such as clinician burnout.

So really exciting technologies. We've partnered with them, we launched technology, and as you mentioned, we have also acknowledged that there is a desire for us to look towards acquiring Nuance. We've made that announcement, and that's something that we look forward to in the future.

GREG HORNE: Fantastic. Now, you kind of pick on something that's big in my mind, which-- I've always talked about this. Electronic Health Records are really just expensive paper if you don't use that data. And it sounds like with Nuance, you're finding a new way to use that data in terms of voice. But SAS and Microsoft have been working together now for about a year.

And that's a great data relationship. Where do you see that relationship going in the future?

DAVID RHEW: Absolutely. Well what we have oftentimes found is that, at Microsoft, our goal is to empower every organization, every individual to be able to achieve more. And largely what we have seen is that the ability for cloud, and cloud storage, and compute is a starting point.

Now what we want to do is we want to be able to bring together all the power and the capabilities that Microsoft has been building out. So this includes the artificial intelligence. I mentioned one of those pieces, which is voice AI, but we also have text analytics. We have visual analytics.

We have a variety of other types of impressive capabilities to then coordinate the care so we can be pushed out. And so pulling all this together into a common platform, which we now have launched as the Microsoft Cloud for health care, serves as the foundation for how SAS and Microsoft can work together. We can take the amazing software and components that SAS has, integrate with the cloud for health care, and create new use cases and capabilities.

GREG HORNE: Fantastic. Now that's really interesting when you think about moving forward. A lot of what we talked about today is future facing. But you know, right now we've been going through this whole coronavirus issue, and that's been impacting all of our minds. Tell me a little bit about what you've been doing during that time, and how that's benefited us towards coming out of this crisis.

DAVID RHEW: Well, I had been with Microsoft for about a year when the pandemic hit. And as a background, I'm an infectious disease doc. So for me, there was both a personal and a professional desire to lean in, and help out as much as I could.

I was asked to serve as the international coordinator for Microsoft's COVID task force, and work very closely with organizations across the globe as they started battling the pandemic.

A good example would be some of the work that we did with the World Health Organization to help them build a single data repository, to not only battle and address the current pandemic, but future pandemics, and look at health more broadly. They have an initiative called the 3 Billions Project, to improve the health of 3 billion individuals across the globe.

And what we realize is that public health infrastructure, and a lot of the things that are so important, we're lacking. We didn't have that in place. And so Microsoft has been leaning in. We've been working on everything from helping the CDC to deliver and capture information related to vaccinations, to deploying vaccination systems across the country, and also the globe.

But more recently an effort to bring not only vaccinations but other essential health services to underserved parts of the world. And that's something that we realize requires public private partnerships delivered at the local level.

GREG HORNE: Fantastic. And kind of a bit of a change in theme a little bit, but it's kind of linked, as well. You know, when I worked in a hospital, you could just walk into any medical records department, and lift off half a dozen notes if you were wearing a shirt and a tie, and walk out, and nobody really thought about it.

I can remember doctors retiring and bringing cases of patient notes from their garage, and saying, I think you better have these back, kind of thing. In this world of cloud-- and we talk about analytics, and we look at the data, and stuff-- one of the key things has become privacy and security. And I think there is more of a focus on the risks and security than there's ever been.

So when you talk to clients, is this something they're raising with you proactively, and how do you address it? What are you use as examples to help people overcome those fears?

DAVID RHEW: Absolutely. Privacy, security, and transparency. All absolutely critical elements. The foundational piece of what Microsoft has built, not only for health care, but really across the entire enterprise and government systems that we work with. What we realized is that, first and foremost, we have to secure the data. There has to be a mechanism.

There are many attacks, cyber attacks, out there. There are bad players, and we have to stay one, two steps ahead of the game. And that requires us to constantly look at those vulnerabilities, and address them, and continue to find ways.

Now, cloud is amazing because you can make those pushes out, those patches, and do things that would normally take quite a bit of effort if you had on premise services or systems. But you can do that very quickly with cloud. We also have seen a significant amount of interest in terms of how the data is managed, and who has manage and access to that.

Privacy and transparency of where the data is and who manages that. Microsoft has no intention to monetize the data. We actually are here to enable individuals into organizations to be able to achieve their goals. So a large part of what we do is we protect the data. We secure it. We make sure that it's something that can be managed more appropriately, and analyzed.

But the data, the IP, all the elements that oftentimes are so critical for enterprise and government, are things that we leave to them. And that's something that's also quite important. So it's about trust. It's about making sure that we have the processes in place to enable platforms that can be used by organizations, whether they be in the health care side, or the non health care.

GREG HORNE: Now, thinking about innovation, as well. We've timed this podcast with the health conference, where you're a speaker. Can you just give us some spoilers, some of the parts of your presentation that you're going to be touching on this week?

DAVID RHEW: I think I've already shared a little bit of what I intend to talk about. Clearly the movement to cloud. The need for us to start thinking about artificial intelligence being applied into different contexts. Looking at the different trends that we see out there.

Microsoft has been leaning in quite heavily in terms of health care and trying to build the platforms that support organizational needs, not only for the current but for the future. And we believe that AI and machine learning are going to be a big part of that.

GREG HORNE: That's really great. When you think about the future, if you think about throwing kind of the ball forward six months, what do you think is going to be the biggest impact in health care we're going to see? And what do you want to see happen, and is that different to what you think might actually come forward?

DAVID RHEW: Well my hope is that as we get through the pandemic that we'll be able to focus more on some of the things that have been key initiatives. Everything from enabling virtual care, allowing us to be able to have improved user experiences for both clinicians and patients, finding ways that we can remove waste from the system.

But the project or the task at hand is find ways that we can address the current pandemic. So a large part of what I see happening is, there'll be continued interest in focus in terms of building public health infrastructure, allowing us to be able to understand how to work with communities.

Addressing issues that impact the underserved, those that are, unfortunately, least likely to benefit from some of these interventions that we're rolling out because of the challenges and barriers that are in front of them. So as we look around, social determinants and other barriers, how can we remove and address those issues?

So I think the future right now multiple things that we look forward to. But I think technology also is going to be a huge enabler.

GREG HORNE: Fantastic. And Dave, one other question we ask everybody on the podcast is, when you're not technology and being a physician at Microsoft, what do you do out of work? What's one of your hobbies, interests, or something you do socially?

DAVID RHEW: Oh, we touched on this at the very beginning. I love to travel. And so having the pandemic shut down travel, in a particular, international travel, has been a really bit of a bummer, and disappointment. But we also recognize that there's some very good reasons. I am super excited to see when we'll be able to travel.

And part of what I love is just meeting people, seeing new things, and learning. I love learning about culture. I love learning about history, and just trying to find ways to kind of improve my awareness of how everyone seems to work and live around the world.

GREG HORNE: Fantastic. I couldn't agree with you more. I think both private and personal, I've traveled to some amazing places with work, and I really do miss it at the moment.

DAVID RHEW: Yeah.

GREG HORNE: Brilliant. David, thank you very much for your time today. Really appreciate it. And thank you for those insights and discussions. I think Dr. Rhew brought a really interesting piece to the conversation today. And what we're looking for now is, for you as the audience, to email or put comments on the YouTube channel.

Remember, the email address is thehealthpulsepodcast@sas.com. I would be very interested to hear a lot more about those ideas around where the future of health care is going, equity, whether or not having access to care is going to change through digitization. So please keep those comments coming, and we are always pleased to receive them.

So just to wrap up, I've been Greg Horne. And I thank you for joining us on The Health Pulse podcast today. I look forward to bring you another episode very soon. Have a great day. Thank you.

DAVID RHEW: Thank you.