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AUDIO TRANSCRIPT

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Interviewer: Machine learning and artificial intelligence are changing every aspect of our lives, from how we do our jobs to how we shop for our products to how we travel. And healthcare is no exception. How can machine learning and AI help us live happier, healthier lives? Welcome to The Next Big Thing in Health, a podcast from America's health insurance plants. I'm your co-host, Matt Eyles.

And today, we're speaking with Sig Shirodkar, managing director with Accenture Health. We'll be discussing how technologies like artificial intelligent and machine learning are improving health outcomes while making healthcare more accessible and efficient. Sig, before we go too far into the weeds, I'm curious about your role in healthcare, and what brought you to your current role with Accenture Health.

Respondent: So, Matt, you know, I started my career right out of university at a New York cancer center in the '90s. And then building on that operational experience, developing provider managed care networks for a New York Blue Cross Blue Shield insurer. I was sought out by consulting firms looking behind the MBA to provide real-world solutions to their healthcare clients.

Nonetheless, having acquired an NPA in healthcare and an MBA in management, I spent over 20 years consulting to payer, provider and pharma clients accumulating a 360-view of healthcare and witnessing the convergence of these sectors in recent years. For most of my time as a consultant, I've been fascinated with

how talent in organizations, are key success factors for the many transformations my clients have undertaken.

The fact is, talented humans in organizations are going to be evermore important as they're called upon to maximize the promise of artificial intelligence or AI through various forms, including bots, natural language processing, data algorithms, predictive analytics and machine learning to increase value and productivity while decreasing costs.

So, I'm living in a very exciting age in that my client base is overlapping increasingly, and converging increasingly, and learning from each other around how each uses the various forms of AI. And so, it's an exciting time for us to be talking, and it's an exciting time for us to be working in the healthcare industry.

Interviewer: So, backing up a bit, what is machine learning, and how is it being used in healthcare.

Respondent: In the, sort of, digital talk soup, right, of all these words, right, we often use these and other phrases interchangeably, right. And we should be more careful not to create noise, when we are really intending to create buzz. Artificial intelligence as defined in the Human + Machine book, written by Paul Daugherty and James Wilson from Accenture, defined as systems that extent human capability by sensing, comprehending, acting and learning. In short, smart machines, right?

Machine learning on the other hand, is a field of computer science that deals with algorithms that

learn from data and make predictions without being programmed explicitly. In short, an application or type of artificial intelligence.

Interviewer: Wow, that's really interesting. Now, we know healthcare is such a personal and intimate service. Why would people want to use machines and artificial intelligence or AI as you mentioned. And what's the promise of machine learning for patients and consumers?

Respondent: Let's break down how we got here, right? Humans, since prehistoric man, have made use of technology to make life simpler, whether it's, you know, basic hand tools or the ox-driven plow and the wheel. So, at the dawn of the industrial revolution in 1760, and for the next 200 years — and this is going to be important — manual tools, animal labor, basic forms of human labor, were slowly replaced by powered machines. And, you know, mostly in developed countries.

It wasn't until the '60s that we saw the coming of the information age. So, that's 200 years later, right? That then birthed the internet in the '90s, 30 years later. And the internet of things enabled by the cloud, just five or so years ago. So, the speed at which we're moving to where we are today, cognitive systems, is what is at the crux of how humans handle this speed of technology, this exponential speed I should say.

Now, collaboration between human and machine has never really been as fast as it is today, as powerful and really, as critical. If you consider that for the past hundred years, how technology has changed how we live, work and play, and that the next hundred years will eclipse if not make instinct, all that we think is technologically advanced about the way we live today.

So, how does that translate to patients and consumer. You know, this morning before I left the house, I spoke to Amazon's Alexa, right? And I said, "Hey, Alexa, what's the weather like in the two cities I'm going to visit this week?" My son asked Siri at the breakfast table, you know, what the NBA game schedule at Madison

Square Garden was going to be in the upcoming month. My wife received a notification from her Google phone about when she should leave to make her first real estate appointment. And lastly, my mother received a reminder from her drugstore app that she will need to refill her medication. Oh, and by the way, here are some coupons that go along with her medical condition that she could use while she's in the store.

These are all examples of how voice recognition, web searches and behavioral algorithms work together to deliver daily service and products seamlessly. Really, sensitizing us to the new machine age. However, these machines, they learn from our inputs and patterns. And that's just scratching the surface, what I would call low-fidelity AI, right.

So, what if the next generation of AI doesn't have to rely on our inputs or our patterns to aid in decision making? What if the next gen of AI, and I think it's already happening, computes a billion facts and takes in sensory inputs to tell me that I shouldn't visit one of those cities this week because there's an impending snowstorm or what have you. Or tell my son which team will win the next NBA at the Garden. Or tell my wife that her buyer is not going to purchase that house today. Or that the drug my mother needs refill can be personalized to increase efficacy and eliminate her side effects. And that's just thinking in today's low-FI AI paradigm, right?

So, we're just beginning. And patients and consumers are melding, right? So, patients are consumers, consumers are patients at some point. And we're beginning to think of that very differently than we did before.

Interviewer: It's amazing to think about how rapidly the technology is changing and the impact it's going to have. But let's translate to that how a patient might actually experience machine learning. So, what does that look like in practice.

Respondent: That's a great questions. Let me take you through, kind of, a provider example.

And then maybe we can touch on a payer example. Kind of the continuum of how a consumer, as patient, would experience AI. AI provides the opportunity to take cost out of the healthcare system, right. Certainly, that helps everyone, not just the people delivering, care, but obviously, people who are consuming that care.

And AI, in its infancy, took hold in corporate back offices. And so, if you're looking at an insurance company or even, you know, our massive provider systems, that's where people have been most comfortable using bots that learn transaction patterns via human keystrokes, right. So, think of the long complex macros you may have used in MS Excel, for example. And then, you know, scale that, you know, 100 times, right, in terms of being able to use that to make transactions easier. AI is spreading into the field operations, and moving outside the organization, to engage and influence customers — in this case, patients.

So, in the provider example, AI is being used to reduced diagnosis errors, assist in surgeries, find new genetic links, chat with patients through chat bots. That's very real today as patients call in to their providers, or call into their insurers. Analyze unstructured data for deeper medical insights, and that's probably the most indirect, positive impact to the patient.

So, if you think of AI as the super-human computer brain assistant that can unemotionally gather and analyze data faster than the human brain can — and work without stopping to eat, drink or sleep — that's continuously providing information to providers that are then translated into patients.

The payer example, we're seeing AI being used to reduce the rocketing administrative costs. In a recent Accenture study, we found that insurers could save up to $7 billion over 18 months using AI-driven technologies, by streamlining admin processes — $15 million per 100 full-time employees by simply automating routine business tasks. In this same study, Accenture found that 72% of health insurance executives say investing in AI will be one of their top three strategic priorities for 2020.

So, what does this all mean for the patient? Reduce cost by reducing wasteful spending. AI could help insurers improve consumers' overall health in the way that they deliver services at a less expensive price tag. So, you know, I mentioned chat bots earlier. So, chat bots, you know, handle routine web inquiries about benefits, claims, provider networks. So, imagine you're calling in as a consumer, as a patient, and you're just wanting to understand what the status of your benefits are, your claims, etcetera.

And without having to, sort of, go through and wait for a human to come on to talk to you about it, you could actually simply, like, in an FAQ form ask questions and get quick answers. Now, behind the scenes, right, and this obviously, is indirect to the patient but extremely important, is detecting errors or missing information in claims. So, you're claim is hung up because it's, you know, it's got the wrong ZIP Code, it's missing a letter from the, a number rather, from the ZIP Code.

The AI that's deployed is able to find that out, potentially fix it and move that claim along, right. So, imagine, you know, getting adjudication faster or in the time that you'd expect to get it. And then lastly, predicting member events such as out-of-network or ER visits, right. These are, you know, some of the ways that AI is already working, you know, alongside humans.

Interviewer: So, with the growing use of robots, chat bots, AI and automation, there might be some fears out there. So, for example, there might be a fear of doctors being replaced by machines or some other changes. What's the human implication of the rapid and widespread adoption of AI in healthcare?

Respondent: Yep, oh, great questions and it's a question that we're often asked as people, you know, get to learn about AI and try to understand it further. So, AI spans routine or manual, to

judgmental or cognitive tasks, in ways that will continue to allow us to focus on more desirable and inspiring levels of work. So, working in the new requires a recalibration of skills and human talent, much like we did from the agricultural age to the industrial age to the information age and now to the cognitive age.

With each technological age, most workers have been resilient by adapting to the new way of working over time. But we're seeing wider talent gaps emerge over the last 20 years due to the speed of these technological innovations. Again, as I had mentioned earlier, you know, it took us 200 years to get through, you know, most of the industrial revolution. And now we're looking at, you know, tens of years and even singular years to get to the next stage.

But it's important to know that automation substitutes tasks and not jobs. And that's really important. You know, I was reading somewhere recently that, you know, in the US at least, there's something like six million people that are unemployed. That number may be less now. But there are six million jobs that are unfilled. The issue isn't not having enough humans, it's not having the humans at the right skill level, right?

And so, you've got countries that are, you know, much more state-biased, even if they are democratic countries such as, say, Germany where they are putting in investments to bring up the population, to upskill that population to be able to handle the emerging jobs that are out there. You know, in the US, we've got sort of a public, you know, public/private partnership and it works in various pockets and we certainly need to do more to be able to bring more of our folks that are out of work who have the right potential to be able to get the right skills to fill these jobs, right.

So, we still need to get qualified talent to operate, maintain it, innovate the machine. It's a symbiotic relationship. If the machine part of it is done well, it gives back to the human, in many ways, giving us super-human powers, right, enabling us to do the kind of work that we

wouldn't be able to do necessarily on our own, even if we threw more people into that job.

So, one example of humans and machines coexisting is with this concept of co-bots or collaborative robots. Intended to interact with humans in a shared space, or to work safely in close proximity made possible by the use of lightweight materials — ergonomic handling, sensors to limit speed or force. Imagine a co-bot to mind an immobile patient in a hospital or home setting. Imagine, you know, all the sensors that are deployed today to have someone in, say, the nursing station or some central location, you know, know that the patient is getting out of bed or needs to, you know, take some sort of action.

Imagine that, and it doesn't have to be sort of, you know, robots in sort of the R2-D2 sense. But imagine better sensors that are built into the beds or that are around the room, that are able to predict and notify what the patient wants to do or needs to do. Imagine that, you know, the AI in the room of that patient is aware of, right, because you've inputted their diagnosis, right. We've imputed their recovery. We've inputted a whole bunch of things that basically now have the AI in the room help the patient without having a human attendant, sort of, watching over that patient, right? So, that's a very real example that is actually taking place in hospitals across the country.

Interviewer: Wow, you paint a really detailed picture of how it could be useful and applied to patients. Let's talk about another human angle to this. Let's discuss privacy, safety, security. There might be some fears about how AI or machine learning might play into those elements. How are these technologies going to impact patients on those fronts?

Respondent: Yeah, no, and that's something that, you know, organizations are grappling with. You know, regulatory bodies such as the FDA for life sciences are coming in to talk about or to better understand AI. In fact, I was reading somewhere where in this case, the FDA, was in

a conference talking about perhaps artificial intelligence should be considered a medical device, right. And the way we regulate medical devices might be how we, in the future, regulate or put protocols upon how AI works within healthcare, right.

And so, you know, in terms of, you know, payer and provider, the use of data whether, you know, protected health information, personal information, de-identified or non-personal information is controversial as there are established and emerging companies that could benefit patients and providers with data-driven decision making. But these same companies could potentially harm patient security, privacy and safety if used in unlawful ways, even if unintentional, right.

So, there's no question that data privacy and safety is on the mind of patients, as it is in the minds of consumers, given all the breaches that we've encountered just over the last 12 months, right. So, while the, you know, the HIPAA, you know, Health Insurance Portability and Accountability Act, has specific standards for the collection and the use of PHI since '96. However, it narrowly applies to data process by covered entities and business associates, meaning that data miners like Apple, Google and Amazon to name just three, are excluded from this application, right.

So, does HIPAA need to be expanded to cover data miners? If so, how, right? The truth is, we have been giving up more privacy for the advertiser wars, but we want none of the risks, naturally, right. Public outrage over, you know, frequent cybersecurity breaches have led to international privacy laws. But the US still lacks comprehensive data privacy law. Several federal bills are being debated in congress as we speak, purporting to protect user privacy through increased transparency, oversight fines, liability, you know and if necessary, jail time for dishonest tech executives.

So, we've got, essentially for the first time, all these bodies — public and private — thinking about how to, you know, maximize the use of AI because it has so much benefit. But how to do it in a way that it doesn't harm. And I'm sure there's going to be, you know, more and more forums and conferences that we'll be a part of where we will hear more about how to do this in a reasonable way. Obviously, our government is going to weigh in on this as politicians make this part of their platforms.

And so, this is not the last we'll hear about it. I will say that, you know, in the book Human + Machine by Paul Daugherty, he talks quite a bit about the fact that, you know, we need to be responsible and we need to be, you know, ethical about how we roll out artificial intelligence. He talks about how this CEO of the future might actually be the Chief Ethical Officer, right. Because so much of what we're going to do is going to be in the data. It's going to be in the products and services that we deliver. And that, you know, you, you know, we know the term viral. Once it's in there, and it's scaled, it's out, right. And so, more to come on this subject.

Interviewer: You touched on a number of really important policy issues that we think about a lot here at AHIP — privacy, security. Are there any policy barriers though, that are slowing progress when it comes to machine learning and AI?

Respondent: I think that our politicians haven't quite caught up to how best to put laws in place that both, you know, allow us to be in the business of AI as organizations and take benefit from that. But also, protect the public. And the reality is, is that, you know, in our current system there's increasing talk but very little action that's taken place.

I mean, we're going to probably need something like a standardized, you know, national set of rules around, you know, governing of AI as it's delivered in this case, you know, in the healthcare environment, as it's delivery to consumers who are either acutely or chronically, you know, patients. That's probably as far I'd be able to go in this conversation.

Interviewer: Thanks, Sig, for joining us today. And we'd also like to thank your organization, Accenture Health, for serving as the sponsor for Season 1 of The Next Big Thing in Health.

Respondent: Thanks. Thank you.

Interviewer: If you like what you heard, tell a friend and remember to leave a rating or review. Thanks for tuning in.

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