



Talking Pop Health  
Episode 7: Star Cunningham on health care artificial intelligence  
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Eric Tower:

Welcome to the Thompson Coburn podcast series Talking Pop Health. I'm Eric Tower, a health care transactional attorney at Thompson Coburn. Our last speaker was Rishi Sikka, President of System Enterprises at Sutter Health. In that podcast, we discussed Sutter's PACE program and how Dr. Sikka uses data and analytics to improve health outcomes. Today, we're going to approach things from a whole new direction. I have with me Star Cunningham. She has a unique perspective on health care not because she's a health care provider, but because she's spent much time as a patient within the health care system fighting various chronic illnesses. Star also has a background with the IBM Watson program and we're going to discuss the exciting ways artificial intelligence and technology can revolutionize health care. Star, welcome to Talking Pop Health. Why don't we start off having you tell us a little bit about yourself and why you're here.

Star Cunningham:

Absolutely. I am pleased to be here. Thank you for having me. I'm Star Cunningham, I am the founder and CEO of 4D Healthware. How I ended up here, interestingly enough, my background is not in health care. My background is actually in artificial intelligence and machine learning with IBM. I was there working with a little product called Watson – you might be familiar with it before it even had a name. So, I've been associated with telecommunication companies, working on phone poles, down manholes and doing all of this while managing multiple chronic conditioning. And while I worked for IBM I literally traveled the globe on every continent except Antarctica. So, for better or for worse I consumed health care all over the globe. And there are a couple of things I've learned in that process, one is that in this country we diagnose and treat very well, but the thing that we don't do very well is empower the patient to assist in their own care. And we also don't do very well preventative care. How do we make sure that people don't turn into patients? With the knowledge and background that I had from IBM Smarter Planet and the experience that I had as a consumer of health care, to me it made a whole lot of sense to take the leap and build something that would address some of the issues and challenges in health care.

Eric Tower:

Well, let's follow up on that. What did you do?

Star Cunningham: So, my company, 4D Healthware started out as a company that I would take to a physician's group and offer to them an opportunity to perform a service called, chronic care management and that was back in 2015. And chronic care management was one of the first value-based reimbursement, but it was relatively small, about \$45 per patient per month for seeing patients with two or more chronic conditions, non-face-to-face. So, remotely managing a patient who had two or more chronic conditions. What I saw was this landscape of what would be value-based reimbursement and that that was just the beginning. So, I did a pivot from 4D Healthware being just a chronic care management company to us being a value-based reimbursement company. So that as this space grew with additional reimbursements for complex chronic care and management, transitional care management, behavioral health integration and even what is now called, RPM (remote patient management and monitoring), that 4D Healthware would be a company that can provide all of those services and even new services as they are developed in the space of value-based care.

Eric Tower: Well, let's go a little deeper. You talk about the term value-based care.

Star Cunningham: Mmm-hmm.

Eric Tower: And you talked about \$45 per patient per month.

Star Cunningham: Right.

Eric Tower: How is the provider getting paid and how are you getting paid? How...you know, one of the tough things about health care is, a lot of times what you do is dependent on how you get paid.

Star Cunningham: Exactly. Exactly. And that's a great question. When we first started out we were in a revenue share model with the physicians practice. So, when we saw a patient, they would bill it and they would pay us for providing a service as a service provider. But that was a slow grind for 4D Healthware. And, I did a couple of things to, again, pivot the company so that we could become a provider and the insurance company would pay us directly. So, all of the services that I've already talked about that I run through the CCM (Chronic Care Management), CCCM (Complex Chronic Care Management), TCM (Transitional Care Management), BHI (Behavioral Health Integration), RPM (Remote Patient Monitoring), all of those services are services that 4D Healthware provides as a provider and the insurance company pays 4D Healthware directly.

Eric Tower: Well, that makes a lot of sense. Especially the insurance companies have the risk for all those hospitalizations anyway.

Star Cunningham: Right.

Eric Tower: So, you know, especially given what some of them are doing. You've got Optum/United.

Star Cunningham: Right.

Eric Tower: You've got Kaiser obviously has always been in that space.

Star Cunningham: Mmm-hmm.

Eric Tower: I was a Kaiser kid by the way. And then you've got Humana now saying, well they're not really going to be an insurer – they're going to be a provider with an insurance element to it.

Star Cunningham: Right. Exactly. And you have to remember too, that all of the services that we provide at 4D Healthware are non-face-to-face. So these are all services that are provided remotely. So this is new revenue. This is not revenue that a health system goes after today because the patient physically comes in to the walls of the health system and they are seen under a different reimbursement model. Our model is 100% non-face-to-face care. That's a very important and critical key factor because a lot of times the health system thinks that they can do what we do at 4D Healthware when we propose that we can come and work with you. And oh, we do that already. We have that covered. We have care management teams that call the patients every month. It's not quite the same. We are truly managing the patient outside the walls of your health system. And this is new revenue that only comes when you see a patient non-face-to-face.

Eric Tower: The old rule use to always be that you had to be either visualize the patient or touch them.

Star Cunningham: Yes. Yes.

Eric Tower: Are you finding a lot of difficulty with people accepting the idea that, you know, you can see the patient. You can't see their condition. I mean, sure a lot has changed with respect to telemedicine and how it's perceived. And I remember doing stuff in the '90s where state medical boards thought it was just fraud.

Star Cunningham: Right. Right. And what's interesting about that is – so when you say people, so are there physicians who feel as though the blood pressure that is taken manually when the nurse is touching the patient is more accurate than the blood pressure cup that the patient uses at home? Yes, there are physicians that feel that way. But that patient who has the convenience of monitoring their blood pressure multiple times throughout the day in the comfort of their own home and the multiple data points that we're able to receive because they're doing that actually provides more data and a higher level of accuracy than that blood pressure taken in front of the physician, which is many times elevated because the patient is nervous, they just had to rush to be there on time for the appointment or they may have something called

white coat syndrome, where they're automatically having elevated blood pressure because they're in front of a physician.

Eric Tower: So, let's talk about how you get your data.

Star Cunningham: Mmm-hmm.

Eric Tower: I mean, some people might have an iPhone, a FitBit...how are you doing that? You know, it seems, it seems like you're asking a lot in some respects.

Star Cunningham: So it depends on who I'm asking it for. So, asking the health care system for access to their electronic medical record data...that may come across as asking a lot. Because that data to them is very valuable and it's something that they've collected over time and they talk a lot about big data and precision medicine. So it's something that they perceive as very valuable. To the patient who has an iPhone, an electronic medical record and they also go see a chiropractor over here and they also go get some type of holistic treatment over there...to allow us access to that data and analyze it so that they don't have to go through the process of figuring out what's right or what's best and do it without the aid of a physician because as you know most physicians don't necessarily want to see a FitBit data.

Most physicians don't necessarily want to know about the supplements you're taking. So, when we have this holistic view of the patient from their standpoint the supplements they take, their fit-bit data, their information that's collected on their heart rate from the iPhone, that's important to them. And we're able to take all of those as different inputs, performed analytics on those inputs and we never remove the human element. I don't want anyone to walk away thinking that this is just another software program, or just another tool, or just another tablet or device. This is a platform that provides a service. So, we never take away the human element. Every person on the 4D platform has a clinical care team assigned to them. The only difference between us and the health system – my clinical care team is 100% virtual.

Eric Tower: And so how do you interface with the patient's original provider?

Star Cunningham: So, it's a number of ways. In most cases we interface with them because we have access to electronic medical record. We build a relationship with that clinic. So everything is dual-branded. Okay? The patient learns that 4D Healthware is their new care management provider. And, we're co-branded with the provider that they see on a daily...I shouldn't say daily. The provider that they see when they have an appointment. We are going to take care of them in between appointments. So, the patient knows that we're in partnership with their provider. And they receive lots of communications from 4D and their provider signed by both companies that help them to understand

that we're working together to ensure that they have care when they're at the facility and when they're away from the facility.

Eric Tower: So, I'm old enough to remember...actually it's not that long ago, when walk-in care centers actually became quite popular.

Star Cunningham: Mmm-hmm.

Eric Tower: And a lot of doctors strenuously objected to the fact that patients were going to those things.

Star Cunningham: Oh yeah.

Eric Tower: How are doctors responding to 4D and then again, a related question, how are the systems responding to this?

Star Cunningham: So, you do have your group of forward thinking innovative physicians who will sit back and listen to what we do and say, okay yeah. I can see how that benefits my patient. I can see how that helps them to be on their medications and you checking in with them. I can see how that can help give them the information they need to eat better or to make it to their appointment because those social economic, those social determinants of health sometimes have to do with the fact that they don't have a ride to the appointment. That's why they didn't show up. And 4D can help coordinate tons of activities for patients. So the physician that's innovative and forward thinking that sits back and can see how in this partnership it can help patients and their practice. It's a great thing because we don't impact their physicians work flow.

They're able to go about their way at their practice, continue to seeing the patients and that 1% of patients that gets escalated through 4D caring for the patient now comes back into that work flow and they see that patient face-to-face. Otherwise we're kind of running in the background managing their patients, managing that population and those forward thinking innovative doctors like it. The physicians who feel as though we're going to interrupt their relationship with the patient tends to be the ones that are a bit more challenging because the patient will always want to see a physician. Patients will go and physically see their physician. But they also want the convenience of not having to do so unless it's absolutely necessary.

So, if I have a situation in my home that can be managed by a virtual care team it's convenient for me as a patient, it lowers the total cost of care for health care and 4D Healthcare can provide it any place, any time, any device, any person.

Eric Tower: Well if I'm running St. Elsewhere Health System, I might on one level like this. But on another level, you know, you're almost eliminating the need for me. If you keep people healthy and they don't need to go to St. Elsewhere, they're going to kind of, well they'll see their physician

every now and then...you know, maybe eventually they do need hospitalized, but they're not that loyal to the local system anymore. I mean, you're almost just eliminating them.

Star Cunningham:

Well, I would not say eliminate. Eliminate is a strong word. We're always going to need hospitals and health systems. But wouldn't it be great if we got back to the point where the emergency room was used for actual emergencies and not for primary care. Won't it be great when hospitals...the beds aren't empty. The beds are full of people who need to be hospitalized because they're going through the management of a crisis that cannot be managed anywhere else. Today one of the reasons that the cost of health care delivery is so high oftentimes you have patients utilizing the emergency room for primary care and you have patients who are hospitalized for illnesses or issues or problems that could have been managed or prevented and not have led to a hospital.

So now, as a health system, do I lose out on that patient not being in my hospital bed? Yes you do. But, you also don't spend that money that it costs to care for that diabetic patient in that hospital bed. You are able to now place that person that just came out of some extensive cardiac surgery that must be monitored in the hospital in that hospital bed. So, I think that as...if I were the owner of the health system, I would want the people in those hospital beds who need to be there and that when I spend the money to care for them, it is money that I am making a decent return on that investment, not that individual who didn't need to be hospitalized in the first place.

Eric Tower:

So, let's turn to the patients. I know your scraping a lot of data. I have a lot of questions in this area, you know, one of them being, let's take a look at my parents. My father is 96. My mother is 86. A significant portion of people who have any sort of chronic condition are going to have a hard time with technology. How are you interacting with them and making this doable? I mean, again I'll pick on my parents: my father needs help using an iPhone.

Star Cunningham:

Yeah. Yeah. So, everything is not for everyone. So, we won't have 100% of the population. But my mom is 80 and my mom is very proficient on the smart phone. And what you're going to find is that there are quite a few individuals who are seniors. They are called silver surfers and Accenture actually did a case study on this idea that senior citizens aren't good with technology.

The reason that my mom had me open an Instagram account for her when I was home last week – remember, she's 80 – is because she was around all of the nieces and nephews. And they are on Instagram. So what you're going to find is that this senior surfer population, silver surfers, a lot of them do have smart phones. They have technology. When you're able to make it easy and seamless for them it is just as easy for them to use as when they first started using remote control televisions to change the channel. Now it's something

that you can't imagine your parents at 86 and 96 being without a remote control to change the TV channel.

Eric Tower: And again, let's talk about how you're getting the data.

Star Cunningham: Mmm-hmm.

Eric Tower: Blood pressure.

Star Cunningham: Yeah.

Eric Tower: Heart rate.

Star Cunningham: Yeah, yes, yes.

Eric Tower: They have to run out and buy FitBits or you know, what...and the reason I'm asking this is, you know a significant portion of the country, they're already strapped financially.

Star Cunningham: Right, exactly.

Eric Tower: And you know, the costs for some of this technology can be prohibited.

Star Cunningham: You're absolutely right. You're absolutely right. It's one of the reasons that 4D Healthware as a company started in the Arkansas Delta because that is the population that I wanted to make certain was able to have the access to this type of solution and technology. So at 4D Healthware we actually, whatever the device is that the patient needs, the blood pressure cuff, the wireless scale, the glucometer, the activity tracker, we obtain it on their behalf, place it in a nice box and deliver it to them with no charge to the patient.

Eric Tower: Wow, that's certainly impressive. That's a very good solution. At least it seems to me. You had referenced obviously Watson and Artificial Intelligence, where is that coming into the equations? Now you're getting all sorts of data.

Star Cunningham: Exactly.

Eric Tower: And you've alluded to the fact that you're coming up with care plans.

Star Cunningham: Mmm-hmm.

Eric Tower: You've also alluded to this what I'll call a data analytics capability.

Star Cunningham: Yes.

Eric Tower: Where do you sit with that at this point? Are you targeting any particular conditions or are you engaged in a much sort of deeper dive across the board?

Star Cunningham: So, we're not targeting specific conditions as of yet because we're still collecting enough data to be able to do so. But, what we are able to do right now today for example, a patient may need to have a physical appointment at the physician's office. We know because our software has attempted to contact that patient at 7:00 in the morning, 8:00 in the morning, 9:00 at night...we know through analytics the best time of day that is most likely that we're going to actually reach that patient.

So things aren't necessarily done on a schedule. Things are done in such a way that we have learned what is the best way to engage with that patient. Also, because patients are able to choose, able to choose if they want text messages, emails, how they want to be communicated with, we can do some customization of the care that we deliver to a patient so that they receive the care they want, the way they want it at the most convenient time for them. And then, finally the last piece of that is making certain that the patient's needs are cared for when you engage with them.

Eric Tower: So where does your clinical team set with all this and how are they involved? It sounds like you've got a lot of analytics, you've got a lot of computers, but there's this clinical team that sits on top that does have some of the interactions with the patients as well.

Star Cunningham: Absolutely. Absolutely, and the best illustration that I can use is, are you familiar with Comcast, the cable company?

Eric Tower: Well, I think everyone knows Comcast.

Star Cunningham: So, 20 years ago when you called Comcast they would roll a truck to your house. Someone would come to your house and figure out what the problem was and address it for you. Comcast today, first of all they want you to go on the internet first and they say hi, I'm Bill, how can I help you? Well that data that they collected over 20 years taught Bill all of these reasons that people call in for. So you're going to go through Bill first. Now when Bill is exhausted, and you know Bill's not a real person, right?

Eric Tower: No, certainly not.

Star Cunningham: Now when Bill is exhausted and he can no longer help you, then Comcast sends you to a customer service rep. But you don't see Comcast trucks in the neighborhood as often as you use to because the majority of the triage for a cable customer is now done based on the history that we have of how we manage cable customers. So now think about health care and think about 4D Healthcare. So we are right now collecting that information...what are the majority of problems? What are the biggest challenges? Where are the most questions coming from? And all of that is being fed into data analytics to learn how to answer these questions as they come up in the future.



But right now we still have human involvement in every interaction. Every interaction there's human involvement because you're still collecting that data and that information. Now, where are my humans? The majority of them are in the State of Illinois, but they're also spread out all over. The reason I want my clinical care team to be in the state where the patients are is because a patient in New York, a patient in the rural south and a patient in California are going to all have different experiences even if they are the same age, same background. They are going to have different experiences.

I think that the main part of my answer to that question is, my clinical care team is in the state where the patients are supported. Some of the clinical care team may be in a different state, but that person that has that relationship and interaction with that patient on a regular basis is someone that's in their space, someone that's familiar with their area, where they live, what they're going through, how far is the farthest supermarket, where can they go to get fresh fruit. I want that person that's engaging with them on a regular basis to understand what that patient is dealing with on a daily basis.

Eric Tower:

Star, what is the future hold for 4D Healthware?

Star Cunningham:

I love that question because one of the tag lines that I thought of early on is "moving the minds of medicine." And I am pretty confident that the future holds multiple things. It's not any one thing that allows health care to be delivered and consumed the way that it can be to ensure that we are spending the right money in the right places, doing the right thing.

In the short term, I believe that's something that has been termed as consumer driven health care is primarily going to be consumers wanting to have enough information to make good decisions.

As you know, 2020 is another year where health care costs are going up. People are paying more out-of-pocket for fewer services and people are really starting to know and understand it's no longer that open enrollment packet that comes in November that you sit on until December 31 and you check a box and you just put up with it for a year. People are really having to go through, read, educate themselves, understand how it impacts their family, what their cost is going to be.

The future holds the consumer being much more engaged in the management of their health because whenever money is impacted, people pay attention. So people are going to want to learn what do I need to do to be healthier?

There's no neat and nifty little personalized scale that tells you based on your background, your job experience, your history and the places that you lived and the air that you breathe, here are things you should check when you're 40. Here are the things you should check when

you're 50. Here are the things you should check when you're 60. But as we collect data and information we're going to be able to put together those customized, personalized checklists for people so that they can determine what needs to be done to avoid a health emergency at some point in the future.

Eric Tower: What would you say as you've gone on this journey to sort of transform health care, as you've gone on this journey to transform health care, what has your greatest learning been, the one thing that you think is important to keep in mind that you just carry with you.

Star Cunningham: I want health care to understand that entrepreneurs aren't out here willy-nilly being irresponsible, gun slinging slapping together solutions that could harm people. That's not what we're doing. We realize, understand, want to and are passionate about patient care just like health care is. We realize that doctors are doctors and we want physicians to be physicians. We want surgeons to be surgeons. We want nurses to be nurses. We don't want physicians to be tied down with an activity that someone else could do more efficiently, faster and better like getting a patient compression socks. They don't even need to have the conversation.

So I really want – I've learned on this journey that sometimes health care looks at entrepreneurs as a group of people who don't understand health care, who don't get it, who just want to come in here and screw things up and put patients at risk. It couldn't be further from the truth. We are here passionate about the delivery of care to patients in a convenient and affordable way providing what they need, when they need it and improving access to care for everyone.

Eric Tower: So do you think it's safe to say that maybe the patient's perspective has kind of been lost in the current milieu of how health care is delivered?

Star Cunningham: I would say that that is absolutely a true and valid statement, that as we provide our services to patients, when you have patients say things like "I wouldn't still have my foot had 4D Healthware not been around." When you hear patients gravitate towards the device, the tablets, when health care tells you patients aren't going to do that, they aren't compliant, they don't even take the medication I prescribed. There's no way they're going to take their blood pressure at home. And you have patients who take it seven times a day.

You know, understand and realize that there's a disconnect because patients haven't been given a chance. You haven't given them the tools. You haven't allowed them to be part of their care. You haven't educated enough to empower themselves to be able to do anything different than what you've already seen. But as we watch patients say to the TV play the diabetes educational video, we know that they are watching that video and they're more likely to watch that 90

second video than they are to read the pamphlet you hand to them that doesn't have anyone in it that looks like them, that doesn't have any language that they understand because 4D has taken the time to customize and personalize their experience.

Eric Tower: Wow. Well, I want to say this has been really a fascinating conversation –

Star Cunningham: For me as well.

Eric Tower: And Star, I really appreciate you takin the time to be on Talking Pop Health.

Star Cunningham: Thank you, great questions. Thank you so much for having me.