

Life 2.0: Matt Sakumoto, Virtual Physician

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SPEAKERS

Matt Sakumoto, Yan Chow (Host)

Yan [00:09]

Welcome to **Life 2.0**, a podcast about the personal impact of future technologies. I'm your host, Dr. Yan Chow, a physician, a technologist, and an entrepreneur. This podcast explores upcoming innovations and how they will transform daily life for you, your kids, and their kids. Life 2.0 will interview thought leaders who can help us understand what it really means to be human in the 21st century.

Yan [00:39]

My guest today is a primary care physician in San Francisco who specializes in virtual care. He also completed a fellowship in clinical informatics at UC San Francisco, with a focus on virtual care and clinician efficiency tools for the electronic health record or EHR. In his current role as a regional Chief Medical Information Officer for Sutter Health in the East Bay of the San Francisco Bay Area and as a clinician advisor to many early-stage health tech companies like Clearstep, Nabla, Oncoustics, Carbon Health, and Rocket Doctor, he is passionate about exploring and implementing effective and evidence-based AI into clinical workflows, while maintaining digital empathy to better connect with patients and care partners. Who is my guest today? He is Dr. Matthew Sakumoto. Welcome, Matthew!

Matt [01:26]

Thanks so much!

Yan [01:27]

Before we start, can you give the audience a way to get a hold of you if they'd like to follow up?

Matt [01:31]

For sure. LinkedIn is kind of my place of choice, so it's just 'Matt Sakumoto,' M-A-T-T-S-A-K-U-M-O-T-O. Both LinkedIn and, I guess, Twitter / X are the places that I tend to be most active.

Yan [01:44]

You call yourself a virtualist. How did you get to that point? What was your background, your career path? Did your parents influence you? How did you get to become a virtualist?

Matt [01:54]

No, for sure. I mean, I was barely even thinking about becoming a doctor when I started out. So, I think it was what you and I chatted about before. So, I did my initial training in biomedical engineering and I thought, I'm going to do research. Like that's going to be the biggest way to have an impact on the most people, try to cure cancer or something like that. And then I realized I neither had the focus nor the ability to do that level of math and science. So, I switched to pre-med about halfway through undergrad. So that was like, I wasn't even thinking about being a doctor, even as a kid. So came into it on the later side of stuff.

So, and then even during medical school, this idea of providing care beyond the clinic walls was always there. I thought about it more as how do you do population health work and patient outreach, so that was sort of my idea of care beyond the walls throughout medical school. And then during the clinical informatics fellowship, I heard about this thing called telehealth. Some people were doing it. So, a couple of my projects were just based around that. And I was like, okay, that's how you can really provide care

beyond clinical walls. Patient gets to stay at home. And I did my fellowship around 2018. Happened to graduate from fellowship in July 2020, so I had a front row seat to the massive boom that was telehealth on the tail end of my fellowship. And it kind of felt like the worst final exam of my life. So basically between, you know, January, definitely March of 2020 up through the end of fellowship in June, it was just setting up the different COVID clinics, virtual COVID care clinics, and really seeing how quickly and fast you can move when everyone is aligned and you're not having to sit in multiple committees to stand up a, you know, a COVID care clinic. So that was really, the fellowship was a big push, and then I worked for a couple of different commercial telehealth companies after that and really started to say, wow, this is a fun new skill. I think for myself it was just like a learning project, and just the profound impact you can make on patients to be able to allow them to have visits from the comfort of their own home.

Yan [03:57]

So, you mentioned COVID, and of course COVID was a huge motivator for telehealth. What were sort of the factors besides the obvious ones such as, you know, not coming into the clinic, getting care at home. What did you see as the real pros and cons of telehealth in those days?

Matt [04:14]

I think the biggest one, I mean, the safety piece, of course, right? And then the hidden pros and cons and things that we started to realize. At least one of the benefits was we brought back house calls, like that used to be the Marcus Welby thing that people would talk about, but I could get to see patients in their home and really realize the difference that that makes in my medical decision making and just understanding of them as a whole. So that was huge. Just the ability to do that. I mean, I'll be honest, the other huge pro is I get to work from home pretty often. The flexibility that that brings is huge and just additional time spent at home. So, the clinician wellness side is also not to be understated at all.

Yan [04:52]

Did you notice that patients actually behave differently vis-a-vis talking to you when they're at home? Is it different than in the clinic?

Matt [05:00]

Yes, and actually this is the pros and cons piece, I think. So definitely I think net positive, they're kind of on their own home turf, so to speak, so they get to do it from home. I think the downside is a few patients treat it differently. So, I mean, I've definitely had, and I have colleagues that have had, patients actively driving a car while doing their visit, right? So, there's certain norms and things you have to set up. So, resetting those norms, because when you're walking into the doctor's office, I mean, it's on our home turf, so to speak. So, you know, we get to kind of control the flow. Once the patient's out in the wild on their own, it's kind of they get to do what they get to do. So, resetting those norms was definitely part of it. And I think the other part too that people don't think about, and this falls under the health equity side of things, is it's really nice to be able to do a visit in the comfort of your own home. But for those that are in shared households, multi-generational households, they actually don't have that same level of privacy that you would get within the four walls of a clinic or in the four walls of a doctor's office. So, I think those are different things. And it's not insurmountable, definitely things that you can kind of work around, but learnings, learnings!

Yan [06:06]

For sure. Would you ever do telemedicine through a mobile phone?

Matt [06:11]

Oh, all the time. All the time. And I think that's the other thing that I realized is so much of medicine is actually just based on the patient's story. So, like getting a good history gets you close to 90% of the way there. Being able to visually see something kind of you know gets a little bit of extra information. So, I mean, either I'm like bad at my physical exam now, or we just have so many other tools, imaging, blood work, point-of-care ultrasound, all of those things, that we can augment the physical exam. So, it's still important and don't get me wrong, but I think there's a lot of extra tools that we have at our disposal. And again, the patient story just drives so much of it.

Yan [06:50]

I remember reading some vendor promotional materials saying that the ultrasound, the portable ultrasound is going to replace the stethoscope. So, we'll see if that happens. But if it's a mobile phone, that's the channel, the modality. Does that change the relationship between you and the patient? Because you're in their pockets literally, there all the time and potentially accessible all the time so that your role, it becomes more like an advisor as opposed to, oh, you just go see the doctor at a certain point when you're sick, that kind of thing.

Matt [07:21]

Now, I totally agree. And we're getting into more continuous care and less of this episodic care. So that helps to do it. And that's doing a video visit, right? So, they have to still stop and take out their phone. We've definitely moved into an era now, and my clinical practice is set up this way, where we do a lot of asynchronous messaging too. And I think even more so that helps to just integrate into the patient's life, where them thinking about their health and wellness promotion is not discrete from going to the doctor's office. So, I think for better or worse; for better. For better, because we are, again, integrated into the patient's life. I think the tough part is we are, all of our current systems are, set up to just do office visits or episodic care. And how do we have support staff set up and everything like that to work into the flow of the clinical team's life?

Yan [08:12]

I can see, for instance, this is a common situation: a patient forgets to take a medicine, and then the question is, should they take it, or should they just skip it, right? And so, I can imagine a scenario where they can text you, which means to say you have to have an infrastructure to respond to it, to say, okay, this and that, if this, then that, whatever. Do you think that kind of care, where it's kind of continuous, do you think we'll ever achieve that? Or is that something that is too different for most physicians and nurses?

Matt [08:42]

I think we're, I think we're going to get there. Is it different? Yes, it is. Change is hard always. Like that's a constant across all time. But we're kind of already there. So actually, the care team that I work with is just three of us currently. It's myself, a physician's assistant, and a medical assistant. But we're also integrated into a care team that includes a clinical pharmacist. So, these are not just our clinic, but they're shared throughout all of the other docs in my primary care group, but there's a clinical pharmacist that's on there. So that exact question, I'll be honest, the pharmacist knows the answer way better than I do, and they're also responding to the patient at this point not in real time but within two to three hours. And you know at that point that's appropriate, you know, clinical time lag from a patient wondering, to someone answering. So, expanding the concept of the care team, who's there, who can answer for the patient, I think is that's, we're already moving there.

Yan [09:39]

Have you guys done surveys of what patients think about this kind of care?

Matt [09:43]

We have, and I think it's hard because it's so different for them, it's different too. So, I think, net positive. I think it confuses a lot of patients currently because they say, like oh, but all of my other doctors said I had to have a visit before they would refill my blood pressure med and I was like, you know, what if you text me a picture of your current blood pressure reading and we know where we're at, that's good enough for me. So, once they kind of get it, they're like, okay, that is more convenient, but even they're asking for a visit or wanting to come in. So, retraining even the patient, let alone the rest of the care team, is a work in progress, but we're getting there.

Yan [10:18]

And does it make a difference regarding how old they are? Or which generation?

Matt [10:22]

Not at all. Interestingly, the penetrance of a smartphone is so high, even in the 65 and up crowd. One thing that I tell people is, yeah, so the digital divide is not necessarily based on age. COVID was a big thing around this too, is like grandparents loved FaceTiming with their kids. They got so used to doing these

video visits and getting that set up that there are, I mean, I have 35-year-olds that are less tech savvy than some of my 85-year-olds. And the other thing too that we really focus on is if the older person that's my patient isn't quite as tech savvy, like we very quickly loop in either a caregiver, tends to be like their child that can kind of help facilitate some of these things. So, there are ways to make sure that we're reaching the harder to reach populations and yeah, we've developed kind of workarounds for most of that.

Yan [11:12]

I imagine there must be quite a spectrum of, you know, channels to reach the patients. Some patients want just a voice phone call. Others prefer a text; others prefer the web. I think one of the challenges, how do you deliver the same equivalent information through all those channels?

Matt [11:28]

You know, that's hard. It is, and a lot of it is just kind of working with the patients, meeting them where they're at. So, like, we don't force anybody even onto the patient portal. I mean, it really facilitates it. It's helpful if they can. And 99% of my patients are on the patient portal. But I have one patient that's in my practice that does not even own a mobile phone, only has a landline that's at his house. But we're able to titrate his blood pressure meds. We set up the phone calls at the end of each phone call. We say, hey, this is going to be, we're going to call back in two weeks. We give them the date and time. And he has been my most compliant patient and doesn't miss any of his visits compared to some of the other people that have a smartphone. So, it's doable. It's a lot. It is extra work. But I think if you have the right patient and the right setup, you can do it. And not everybody's going to be right for this as well. Like we have an entire practice of docs that do traditional primary care. So, I've had some patients that'd be like, ah, this isn't quite for me. And I'd rather see doctor so and so. And I think that's fine. I think that's how it should be. Patients should have choice, and clinicians should have choice of how they want to practice.

Yan [12:28]

That brings up the question on the other side, you know, what do clinicians, what do nurses and physicians think about this? And if you think about the motives behind clinical practice, I have to say one of the big ones is financial. Is that a driver at all? Or is it more sort of a different way of delivering care?

Matt [12:44]

This model that we work in, and I've talked to other colleagues that have a similar setup, is telehealth isn't really set up for fee-for-service. Like for all the reasons it just, I mean, medicine isn't really set up for fee-for-service either but that's a whole different conversation. Yeah, but telehealth, in particular, this idea of asynchronous messaging, I mean this whole idea of having to charge patients for patient portal messaging, that's all with a very fee-for-service episodic care mindset.

As soon as you flip into value-based care, which is an overused word, or just kind of capitated payments in general, it's what do you have to do to connect with a patient through any modality, in-person visits, video visits, messaging, or phone calls, to make sure that they get the care that they need and that they're appropriately utilizing care. Once that becomes your guiding goal, all of this makes sense. Yes, message me as much as you want. I'd rather you text message me 10 times and we can walk you through not going to the ED, than a traditional system where you call your doctor's office, no one picks up the phone, or someone picks up the phone and says that their next available appointment is two weeks from now, and the patient goes straight to the ED. So as soon as you start to align those value-based and, you know, utilization decreasing goals, all of this makes sense.

Yan [13:58]

Yeah, no, that makes sense. I mean, in the middle of a crisis like COVID, one of the big enablers was that the government actually subsidized the fees, you know, so you could actually get paid for telehealth. After they got rid of that, it's actually a challenge to try to figure out how to code and how to get paid for that work. I think if you're in a value-based system then obviously that's a very different structure and you really do have an incentive, the right kind of incentive to help people stay healthy.

So, with telehealth, what does that mean in terms of the future? Do you think that we'll just keep getting into more and more technology, let's say, into remote monitoring, into remote vital signs, even haptic feedback or listening to the heart, things like that?

Matt [14:39]

I think so. It's just going to, that more and more care is just going to be able to be delivered into the home, and I think particularly in the aging space, ability to age in your own home, not have to go into a nursing home or assisted-care living or things like that. So, I think just the ability of things, sensors are going to get better, kind of the ambient, both ambient listening and/or just like ambient sensors basically are definitely going to only get better and better.

Yan [15:04]

I saw an apartment complex that had been built with weight sensors in the floor, sort of monitoring kinds of fixtures and toilets and sinks and things like that, obviously built for people who are aging and maybe not as cognitively capable. And so, you know, one of the issues that I've run into, I thought about is that when you bring in all this technology and the telehealth, telemedicine care and things like that, do we have a standard of practice or do we not? Or is it something that we're going to have to work out?

Matt [15:38]

I think it's something we're going to have to work out. It's the example that I give, it's the level of care. So, people keep trying to equate a telehealth visit with an office visit. And it's like, is it as good? Are you as accurate? Are you able to bond with the patient as much in an in-person visit versus a video visit? And I really fight against that equivalency. It's like, no, there are certain things you're going to have to do in person. And I bill myself as a virtualist, but I go to clinic half day a week so like my practice is a truly hybrid practice, and I think there needs to be some level of like physical presence at some point, so I don't think we're ever going to go 100% virtual. Trying to make that equivalency is a false equivalency. The things that someone is able to test for in an emergency room is very different than what I can do in a clinic. And we don't ever try to say, is clinic care as good as emergency room care? In the same way, there's this continuum of care that's there. So virtual medicine is on the way to an in-person visit, is on the way to an urgent care visit, is on the way to an ED visit. So, it's not, is it as good as that, but where does this fall in our spectrum of care?

Yan [16:45]

I think you're right. I think it's a fallacy when we say is this technology as good as ideal care, right? And actually, the right comparison is, is this technology as good as what is existing for the patient at this time?

Matt [17:00]

Yes.

Yan [17:01]

And if you do that, then the fact that you can even have access to medical personnel is a huge plus because many patients do not. So, I think you're right. I think the perspective has to be a little bit different.

Now the hottest thing since two Novembers ago has been generative AI, you know, ChatGPT, Bard, Claude, all those things. What do you think the role of those will be and will they help, or will they harm the patient experience, physician experience?

Matt [17:31]

I think it's going to be net positive. It's actually funny, if you had asked me even three years ago, I was kind of an AI doubter, however you want to call it. And this is like AI as it related to machine learning and predictive analytics. And I think for me, it was clearly, I like to do things. I like to move fast. I like to see things go. And building these like really, really complex machine learning models, I was like, oh, like this, it just lags. Like this doesn't seem like it's going to be put into practice in a helpful way. So, I was kind of like anti-AI, if you'd asked me three years ago.

Talking to me now, I'm pretty bullish on Gen AI. And I don't know if it's just because companies like OpenAI have it available and it's easy for me to play with and like learn from, but like I can see so many more possibilities for this than I did for like the traditional kind of predictive analytics-machine learning AI that was kind of around, you know, three, four years prior when I was looking at this. So, I think the fact

that it is conversational does engage both frontline clinicians as well as patients. And like I said, I think the possibilities are swirling around, so we're right at the top of the hype cycle here. So, it's not going to be, it's not going to hit all those possibilities, but I'm pretty bullish on the various different ways that care can be personalized, connections can be personalized, through this transformer technology.

Yan [18:49]

I think one of the big factors in driving this level of interest from the clinicians is that they got to play with it. You know, actually the interface is very simple. They don't have to learn anything. They just enter a question, and it answers in a very human-like manner. They know that mainstream implementation is going to be a bit of a distance off, but everybody's very interested in experimenting. And you're right. There's probably a hundred different, thousand different use cases where Gen AI can help a physician. And I think that's what gets them excited. For instance, being able to summarize a patient chart in 10 seconds, that's huge. Being able to customize the after-visit summary to the patient's language and reading level, that's huge. I mean, there's things that it's almost impossible, it would be impossible for a physician to do. What do you think are some of the areas where AI and Gen AI could get the early, you know, the early successes?

Matt [19:42]

One area that I've looked a lot into is the ambient scribe, so AI scribe. Think of documentation burden, definitely a big driver of clinician burnout and moral injury. And I think just being able to take on some of those tasks is just going to be pretty transformative. Both in time, because I think the amount of time it takes to write a note and write a good note is long, but actually in cognitive burden as well. It's a lot easier to edit someone's paper than it is to write an essay yourself. So, in the same way, if you can start from a rough draft, I think there's no note that's going to be like 100% ready right out the gate. And again, we have got to not have these false equivalencies, right? Is an AI note as good as a human scribe's note or is an AI note as good as a doctor's note? No. Does it get me 80% of the way there and I can spend less time and less cognitive effort putting it together than, even if it's, you know, so I don't know, all these people that talk about like, how accurate is your note? I was like, I don't care about accuracy. I care about how much less tired do I feel at the end of a clinic session. That's my outcome metric!

Yan [20:51]

You know, thinking on a side tangent, is that if you have an ambient recording system, then you actually have an objective recorder. That is, it's not subjective, it's something that will stand up in court. The ideal situation would be reverting to the old days. Doctor walks in, shakes hands, talks, doesn't look at the screen. There might be a screen on the wall that tells them what to do and things like that. But afterwards you get a structured note with all the details and the raw footage and audio recorded. And privacy concerns aside, I think that's actually probably a really good way to store encounters if you're not worried about storage costs, to store encounters so that you can do research later, just like they store raw data from clinical trials forever, you know, so you can always reinterpret it given new technology. And I think that, I think you're right, the ambient recording is going to get more and more capable, even with emotion sensing and things like that.

Matt [21:54]

That idea, and I forget who had introduced me to this, but this idea of sentiment analysis, I think, is so powerful. So obviously you can hear emotion in voice, but even as I mentioned, a large part of my practice is messaging based. And there are technologies basically that can read the content of a note and not just summarize the information, but also summarize the emotion and the sentiment behind it. And you know, that's kind of helpful to give me a heads up being like so and so. I mean, as a human, I can also read a note and kind of tell if a patient is unhappy or not. But actually, what I've seen some of these systems do is you can have two patients with the same clinical urgency of whatever they're putting in, but if one patient has a high level of anxiety or a high level of frustration, they can actually surface it to the top of my inbox before a patient with the same level of urgency, but also is like kind of chill about it.

Yan [22:47]

Or for instance, if the patient has asked the same question three times you know on previous visits, then you know you can have the AI kind of float that to the top, you know you have to address that. The other variable is that on the physician side there are some physicians that are not quite as high in EQ, you

know, whereas other physicians are more sensitive to a patient. So, in a sense it can, with that assistance, they can kind of level out the quality of care or the quality of the care experience.

One of the things that's interesting is that if you're doing ambient recording and you want to record something you don't want the patient to know, let's say you have thoughts about what they're saying or them or the diagnosis, how do you do that?

Matt [23:29]

Yeah, I think a lot of this, and this is like very much everyone is thinking about it, and I haven't seen anybody with a really good answer yet, is how do you balance that privacy and autonomy along with everything else? Most of these ambient things, you can say stop recording. I think that does either physically and/or verbally. So, I think that's one safeguard. And a lot of times, and I've used a number of the different ambient documentation solutions, is when you walk out of the room, you can kind of continue to do it almost like you're doing dictation. So outside of the room, you can kind of add additional stuff. And so, I think there's different workarounds and ways to do it. There's new workflows that will have to be put into place. So, is there change required? Always. There's always change. There's always change with the new technology. But I think a lot of it is just trust and transparency. And that's always the case whenever we have new technologies as well.

Yan [24:26]

One of the issues that happened when I was at Kaiser was that we had been experimenting with some advanced technology for decision support. One of the issues was that it was actually a black box. And so, if the clinician did not understand it, it was hard to explain to the patient, and the patient could certainly sense that. Is there a time in the future when you know it's just taken for granted that for physicians and clinicians, nurses, there'll be issues, there'll be recommendations they cannot explain? And then it's just, it's just based on hundreds of thousands of data points that the AI has done. And you think patients will accept that? Or I guess there's no choice, maybe.

Matt [25:09]

You know, I'll take it one step back. I'm humble enough to say I don't know everything. And we just have so much information, right? The amount of information, trials, evidence-based things that are out there is just absolutely ballooning. So, I've had times where patients would be like, oh, what do you recommend for this, that, or the other? And I'll be like, oh, hold on, let's look at it together. I'll pull up UpToDate or other things. So, I think that level of shared decision making just for knowledge, straight-up knowledge is, again, I'm humble enough to say I don't know. And let's look it up together.

Putting it into the AI context now, right, there's a recommendation based on that. I think it's the same thing. So, you got to say like, hey, I don't know, but I've used this system a bunch of times with other patients. Based on my baseline clinical knowledge, it seems like this medicine would be the best SSRI for you or the best statin for you, and I've seen it work in other patients. So, do you want to give this a try? Have the patient kind of opt into it. So, I think it'll just enhance shared decision making and I think it just gives, we always got to be a little more comfortable with uncertainty. I think that's actually kind of where it is. We think of evidence-based medicine as this thing, like, oh this is the definite right answer and I think that's not the case anymore.

Yan [26:20]

Well, you know the issue of explainability, right, the black box issue? I think there's a funny analogy to be made, that is, if you ask somebody, a physician who's a veteran, let's say, an older physician, how did you reach that decision? They're not going to be able to answer really, with any clarity. They'll say, well, based on gut feel, based on 30 years of experience. Well, what is that, right? What is that data that you used, and how did you come by that? And that's a mix of not just text data, interview data. A good physician sometimes can tell what you have before you say a word when you walk into the exam room. It's amazing, certainly in pediatrics. And that kind of experience is not something we actually feed into AI at this point, maybe in the future, but not at this point. So, the explainability issue may be right, that that's not that important to patients. It's actually the trust that's more important.

Matt [27:16]

I have a quick aside on that explainability piece. So, everyone complains, myself included, about the hallucinations or confabulations that Gen AI does. It's like they say things too confidently and you might believe them. Using your example of a physician's gut feeling, I guarantee you, because I've done this, that when you have a gut feeling, you feel the urge to at least somehow justify what you're doing. So when you're documenting and putting in your note, you're like, yes I decided to start them on this statin which is you know not generally indicated, but I'm just going to pull something up and kind of make up something and hand wave and say, a torr of 20 instead of a torr of 40, right? Or something like that. So, I think we confabulate, we do it on our end all the time. So anyway, we can't blame the Gen AI too much because I've seen myself do it, I definitely know other colleagues do it too.

Yan [28:02]

Yeah, I know, I have a feeling that's quite common because everything, when you talk about physician-scale practice for the individual physician, it's anecdotal. You don't have enough cases to really say I do it out of data. So anecdotal's great, I mean, it's a lot of things we figure out because anecdotal includes the non-medical part of the puzzle, right? The jungle that's out there. You sensed it, the patient came in angry, or they live in a certain neighborhood. You factor all that in and that's not purely clinical trial data. So, yeah, so there's a lot of stuff that goes into it.

So, what do you think are the sort of the exciting things, for instance, with virtual care, the role of virtual reality headsets, for instance, what's going to happen there?

Matt [28:45]

I mean, that's a super exciting field, I think, this level of immersiveness, particularly VR as a therapeutic. I think there's a lot of things, I mean, the loneliness crisis that we have here, just kind of the high levels of anxiety, depression. Novel, non-pharmaceutical methods of treating that and kind of having some of those things. I think there's a big, big possibility there. Pain management being another big one. So, I think there are ways to deliver some of these, I guess novel digital therapeutics, almost, you know, VR therapeutics? So, some stuff on the diagnostics, but I think the therapeutic possibilities are quite, quite interesting. And the patient can do this in the comfort of their own home, right?

Yan [29:22]

Yes. I remember those, the startup we saw years and years ago where you could have the patient put on a VR headset and it was a game that they were trying to go through. It was on an ice world, totally cold, they were frozen (numb) everywhere. And they were able to have minor surgery done without anesthesia. Pretty amazing when you think about it, this idea of supplementing with a non-medical approach. Of course, it could be pros and cons too, I guess.

Matt [29:52]

Yeah, the digital health equity piece is a big one, right? Who can afford these headsets and who has access to these? But I mean, it's possible, Like I said, will VR become as ubiquitous as smartphones? The penetrance of smartphones across all ages, demographics, socioeconomic statuses, is pretty close, it's close to 90 plus, 95 plus percent. Will VR hit that? Maybe.

Yan [30:17]

I don't know. We'll see. Yeah, it'll have to be a lot cheaper for sure. But you know, it's like the version of, we were just at the ViVE Conference where they had a puppy park, you know? And you can imagine a virtual puppy for people who are depressed, things like that. And it probably would work, have some benefit. But would MediCare reimburse for that, for virtual headsets for patients?

Matt [30:42]

You know, if the evidence is there, possibly, and going back to the fee-for-service versus other ones, if you just say, hey, get your patients to have their depression under control and not going to the ED by any means possible, this could be potentially a modality, right? So as soon as you start to realign those incentives and say not just how much is this, is this going to cost me, but how much does deploying this save me, that changes the calculus immensely.

Yan [31:10]

Any other technologies you've seen that are kind of exciting?

Matt [31:14]

I mean all the AI buzziness, I think, is big. The AI as a translator, I think, is a big one. So, right, and not just like a language translator, but this idea that patients can unlock more information. To be honest, even clinicians can kind of unlock more information. Ability to summarize, deliver personalized information, like very quickly, right? 30 seconds, 15 seconds to take information, summarize it and transform it. So, I think just that ability to navigate that world, write something once. So, like the idea of me just writing my clinical note and then saying, hey, Gen AI, transform this for an 85-year-old Spanish-speaking patient or a 32-year-old patient that has this sort of cultural background and, you know, make it more understandable for them. I think that's very much within the realm of what's going to be available soon. And I think that just improves patient engagement, patient education, connection, trust, without a lot of extra work.

Yan [32:11]

It's interesting because I have a feeling in the future that a lot of patients and consumers in general will start to encounter AI-based decision making, you know, that is not always explainable as we were talking about before. One of the complaints about AI is bias. And so, when you have a decision, let's say about your insurance premium made by AI, how do you counteract that? How do you make an argument? You can't, because you don't know how they reached the decision. So, what I've seen is that people are starting to experiment with countervailing AIs. That is, AIs that check on other AIs to see if they're biased, to see if they're fair, that kind of thing.

Matt [32:51]

I mean, yeah, that's going to be the case. The other example that I've seen is from the clinician's side, I'm like, oh, this is great. I can have AI draft my prior authorization note. Problem is on the insurance side, they also have an AI bot that is auto processing these things. So, the image that I often talk about, or I give to people is like, it's two Furbies talking back and forth to each other. So, you just have two machines. So, it's like, do you just end up in like this endless death loop?

Yan [33:19]

It used to be 'I'll have my lawyer call your lawyer,' you know. Now it's 'my AI call your AI.'

Matt [33:26]

Yep, so I don't know where that AI arms race is ultimately going to end up, but I think, that's why you need to keep the human in the loop. At some point you can't just have the machines go at it to infinity.

Yan [33:38]

I just read where people are moving forward the date for General AI, which is an AI that really acts like a human being. Do you think that's coming? And what does that mean for healthcare? I mean, is it like having an intern at your side, let's say who makes decisions, who can make recommendations and so on.

Matt [33:57]

I've seen those debates kind of come up too, just on the, you know, do you have a truly autonomous and generative AI? I don't know if we're actually going to hit that. For me personally, I don't know if that'll ever be the case. And I think just, I don't know if it'll ever intentionally hit that. I feel like we have enough fear, appropriately so, of letting any program go 100% unsupervised. So, I think there's just the, I hope at least, like the level of human fear is enough to keep that in the loop. So, I don't think so. I don't think I'm ever going to fully hit that or fully let it be unleashed.

Yan [34:31]

You don't sound 100% convinced, I don't know...

Matt [34:37]

I've also seen enough of the *Terminator* and *Avengers*!

Yan [34:45]

Things have moved so fast, it's accelerating. Things have moved so fast in the last few years that if you just draw the, you just plot out the curve, it's exponential, it's amazing. But I think the other thing holding it back is the issue of accountability. Certainly, the people that make these medical LLMs or AIs are not going to be taking responsibility for the outcome. Somebody with a license still has to do that. And therefore, they're going to be very cautious. And yeah, and again, without the best practices, without the medical establishment saying yes, this is the right way to treat this condition using telemedicine or using AI, it's risky. It's a little bit of risk, you know for a physician to do that.

Matt [35:31]

Yeah, so I think yeah, there'll be a human in the loop for a while, at least for most of my practice time, I think.

Yan [35:37]

Did you ever have a situation where you were doing telemedicine and you kind of got a gut feel that maybe I should see this patient?

Matt [35:44]

Yeah. And I think a lot of that is safety first always, right? So, I think there were things I would over-index on, say, like, ah, you know what, like, why don't we just come in and double-check it? And then I reassure myself and at times like, oh, you know what, for these things, like that actually was okay to do virtually. I mean, I'll give you an example. If you had asked me prior to COVID, is it safe to do a video visit with a patient with a respiratory concern? I would have said, no. Like you need to listen to the lungs! It's so important to listen to the lungs. Let's be honest. So many people have done a video visit for a patient with suspected COVID. And so you kind of start to realize, and this is like the fun part about doing the virtual medicine is that I kind of felt like I was going back to medical school again and like relearning physical exam, because you have proxies for things that you used to use a stethoscope for. So, would I like to have a pulse ox? Yes. But I just said, I told the patient, hey, can you just kind of stand up, do a lap around the room, sit back down? Do you have any shortness of breath? If they say yes, it's like, okay, you should definitely go in now. But if you're feeling okay, like, I mean, would I like to have a pulse ox? Sure. Is it enough to kind of do, you know, basically an evoked exam? Also, yeah, so you kind of start to learn these proxy measures for things that I used to be able to get in clinics. So that's the fun part, is like this continuous learning and kind of making it up as we go along. But yeah, learning what you need and what you don't need.

Yan [37:07]

It's a very, very interesting evolution, right? It's like we've gone into all this technology and now we're kind of getting back to the basics, like watching the patient run around the room, you know, and shaking hands and, you know, being the trust, the repository of trust and things like that, where those were kind of the skills that we had to develop when we didn't have much technology. So, very interesting. What do you think about the future physician, what is their main role? I mean, I've heard people say, you know, we have we're going to have so much knowledge and humanly speaking we can't keep up so we're going to have AI do it for us. So, does that reduce a physician to just a translator, you know, sort of a technician?

Matt [37:49]

You know, there's skill in that though, right? I think so, I think it is. It's less about like, how much do you know, and it's how good are you at convincing the patient to do the right thing. So, I think we can actually start to over-index on a lot of those things. And I think and again, this goes back to I know I've beat this drum on fee-for-service versus value-based, but like once you're, once you as a doctor, are personally accountable for your patient's outcomes, the amount of time you spend on smoking cessation counseling is going to go way up if that'll actually decrease the number of times that they end up in the ED. So, I think exactly like you're saying, like there's ways that you can kind of ask Gen AI for information. I talked about using UpToDate. I think there's ways that like, I won't even have to search UpToDate. It sort of will be floated to me. How much you know changes.

The analogy that I'll give is like, back in the day, the smartest med student on rotation or the smartest resident was the one that had Harrison's memorized, right? Like who had the textbook memorized? It was like, oh my God, they're like the best resident. Having UpToDate democratized that, right? So now it's

actually who can search the fastest and then put that knowledge into practice is kind of, that's a differentiator. Not who has the best memory, it's who has the best implementation. So, I think the third evolution of this is not even who can pull up information the fastest, but who can effect change, effect behavioral change the most effectively is actually going to make the most effective physician.

Yan [39:18]

You would think that with AI and that the important piece of that in the beginning might be for the physician to learn how to do prompt engineering.

Matt [39:27]

100%, yep.

Yan [39:28]

But it's interesting because NYU Langone just published a [study](#) June of 2023 that showed they could improve prediction of death, prediction of 30-day readmission, things like that. And the way they did it was not by having physicians enter prompts, but by having an inference engine watch the physicians. So, when they got into certain contexts, the thing would just run, and it would just give them the information. And so, I could see a world where this assistant could be almost invisible. It could be just kind of on the side, and then it'll pop in things that are important as the context arises.

Matt [40:08]

And I think we're all, I definitely kind of use that ethos in my training and monitoring of the physicians in our group. So, we're on Epic, we use what we call signal data, this idea of audit logs. There are doctors that tell me, I think the toughest part of my day is X, Y, or Z. And then you can objectively go back and say like, oh no, you actually, you know, you tell me that documentation is like the thing that feels the worst, but you actually spend the most time in chart review. So, it's, there's this essentially keystroke logging, audit log information that kind of, there's things people say, and things people do. Similarly, you have a patient subjective and objective. I have my physician subjective complaints and my objective observations of what they're doing. So, in the same way, we have the ability to collect lots of objective data that kind of monitor actions more than just words.

Yan [41:02]

So, would you advise a medical student to do what you did? Do you think there's something else for physicians in the future? Is it still going to be a viable career?

Matt [41:14]

That's a good question. I mean, things are changing so fast that I have no way to predict. I love what I do. It's like the, again, being on the edge of all the new stuff and getting to play with new toys is a lot of fun. And I feel like the role, particularly of a clinical informaticist, is to help the clinicians help patients. So, it's kind of, I really do think of the doctors as my patients. And you get, for me, I do get that same level of problem solving and counseling that I provide the docs that I do with my patients. So, I think that's always going to be needed. Like there's going to be frontline docs and there's going to be kind of those that help the frontline and support the frontline. So, I probably like getting people better at the EHR. It's not going to be the role that a future med student would do if they got into my role, but helping doctors help others is, I think, always, there's going to be a role for that in some way, shape, or form.

Yan [42:11]

That was fantastic. The time has really flown. That was a fantastic conversation. Let the audience know, again, how they can get a hold of you?

Matt [42:18]

Yeah, the best way is reaching out on LinkedIn. So, I'm pretty active there these days. That's just 'Matt Sakumoto.' Searching there for the username.

Yan [42:27]

Okay, you go by Matt as opposed to Matthew?

Matt [42:29]

Matt, yeah. Matthew's when I'm in trouble. Matt is day-to-day.

Yan [42:34]

Well, it's been a real pleasure, Matt. I really enjoyed having you on the podcast. Maybe we'll talk again in the future!

Matt [42:40]

Sounds good, Yan, I appreciate it. Thanks so much!

