

Podcast Transcript

Risk Never Sleeps

Episode 3

John Halamka

Ed Gaudet: Welcome! I'm Ed Gaudet. I'm the host of today's podcast. Welcome to the Risk Never Sleeps Podcast series, and today, I am joined by my good friend, Dr. John Halamka. Welcome, John.

John Halamka: Well, hey, great to be here.

Ed Gaudet: Dr. Halamka is an emergency medicine physician, medical informatics expert, and the president of the Mayo Clinic Platform, which is focused on transforming healthcare by leveraging artificial intelligence, connected healthcare devices, and the network of partners. John, that's a mouthful. What do you actually up to these days?

John Halamka: So if you ask yourself the question, given what we've learned in the COVID period, and I know it's not exactly a post-COVID new normal, but let's call it that, what are we seeing? Supply chain disruptions, staffing disruption, burnout. So if we're going to survive, in fact, if we're going to thrive in the next six quarters and beyond, we're going to have to embrace new machine-learning approaches to augment human intelligence, and that means we're going to need robust data sets. We're going to need data that has depth kinds of data, breadth, numbers of patients, spread, heterogeneity of that data in those patients. And we're going to create models, and we better test those models and validate those models and tune those models.

John Halamka (cont'd): So Mayo Clinic platform was established in 2019 to give us repeatable processes and technologies for the whole ML ops lifecycle while protecting privacy and ensuring what we do is ethical and safe. So I joined Mayo Clinic in January of 2020 to lead that effort.

Ed Gaudet: And you joined from where?

John Halamka: So having served in Boston for 22 years, both, you know, as CIO of Harvard Medical School and Beth Israel Deaconess and then working in our regional area and nationally on policy matters. Mayo had a unique approach to innovation and risk-taking that seemed to be the right place to take on some of these new challenges.

Ed Gaudet: While riskier than Boston.

John Halamka: I would argue, Boston was timid, right? So that is.

Ed Gaudet: Oh no, listeners from Boston, listen up here.

John Halamka: We recognize that we need to disrupt our own business models. We need to try things that may be speculative. Will large language models augment healthcare or be too unsafe? Does anyone know? You got to try.

Ed Gaudet: You got to try.

John Halamka: And that's where I would just, of course, I work globally, but my colleagues in Boston have stayed close friends. And if nothing else, if I can be an early mover and show what is possible and then bring others who may be slightly more risk-averse into the activity, everyone will win.

Ed Gaudet: Now, do you see ChatGPT taking my gallbladder out anytime soon?

John Halamka: So, no, I mean, as you probably know, GPT technologies are really at the nascent stage. Now, I think fundamentally, we will recognize that all of healthcare, I mean, not surgery, but mean cognitive healthcare is about pattern matching. And what does that mean? Well, I went to residency so that I would see thousands of patients, so when I would see the next patient, I would say, Oh, well, based on the thousands that came before you, here are the diagnoses to consider and the tests to order. Well, to be honest, pattern recognition is something machines do reasonably well. Machines don't have empathy, machines don't have sentience, they don't necessarily respect the needs of the individual, but they can augment. So they can say, Oh, there's a 64% chance that Ed has a gallbladder problem. Okay, great, I will, with my human judgment, order some diagnostic tests and not forget to look at the gallbladder along the way.

Ed Gaudet: So a tool in the tool belt, but not a replacement.

John Halamka: No, here's what I would tell you, Ed. Doctors, and in fact, financial administrators in healthcare, will not be replaced by AI. However, doctors and administrators who use AI will replace those who don't.

Ed Gaudet: That's, there it is. That's the phrase for the day, I think. I think there's a lot of information going out around what AI is and what it isn't. And so thank you. I think that clears it up for me anyway. So you have a very interesting background, and I don't think a lot of people know how you got into healthcare or how you got into IT or cyber in particular. We'd love you to share with folks how you did get into healthcare.

John Halamka: Okay, this is a slightly longer story. When I was 12 years old, my parents went to law school, and I was a latchkey child in Southern California. Back then, this was the 1960s, Southern California had something I would call free-range children that is, go out and play, come back for dinner, let us know if you run into trouble, go to somebody's house because there are no cell phones, of course.

Ed Gaudet: That's right.

John Halamka: What did I do? I rode my bike to the dumpsters of AT&T, to Raytheon, and Hughes Aircraft, as back in the sixties, none of these things were locked. And so what did I do? I pulled integrated circuits, technical manuals, I taught myself in the 1960s and early seventies, analog and digital technologies, then early microprocessor technologies. And in probably about '72, I said, You know what? I bet healthcare is going to benefit from the emergence of these digital capabilities, because really any analog signal can be digitized, and the human body has multiple bits of telemetry, and we should analyze that. So that was in the seventies. And so then all of my education Stanford, Berkeley, UCSF, Harvard, MIT, all worked at that intersection of engineering and healthcare with the idea that would be my career.

Ed Gaudet: And then how did you get into becoming a medical doctor, and where did you start doing that?

John Halamka: So again, early on was this notion of being in healthcare and emergency medicine turns out to be a really good specialty, if you want to understand internal medicine, ob-gyn, pediatric surgery, right? It's very much a cross-cutting kind of profession, lots of interdisciplinary training. But there is another key point. When you work in emergency medicine, it is predictable shift work, work 8 hours a day. Well, that leaves 16 hours a day for innovation, right? And so I chose medicine early, but emergency medicine, because it enabled this working at the intersection of disciplines.

Ed Gaudet: That's fantastic. And your job today has obviously changed over the years. I'm assuming it's bigger than your last role. So give us a sense of the span of influence and control that you have currently with the Mayo Clinic.

John Halamka: The question, of course, if we're going to ethically, in a privacy-protecting and risk-mitigated way, take the data of the past to find insights for the future. What do we need to do? Well, we better build a secure enclave of de-identified data that enables us to bring novel tools and innovators to the data without exfiltrating the data or creating risk. So my role as president of Mayo Clinic platform is to oversee all of these 150 years of multimodal data on 10 million patients and use it for innovation and model development while keeping it private and secure.

John Halamka (cont'd): And then, of course, as you said in the introduction, we have about 160 partners. And these are companies that are developing novel algorithms, testing algorithms, experimenting with large language models. We also have a distributed data network, Mayo's 10 million patients. Well, it has a fair amount of depth and breadth, but does it have enough heterogeneity? Well, it doesn't necessarily include rural medicine. It doesn't include global patients, but it doesn't include a huge concentration of any one country. So we have worked out with multiple organizations in the United States and the world to have what I'll call reciprocity. You have your data in a secure location. I have my data in a secure location. Can we develop models against each other and validate them without having to centralize the data? And so, I oversee the distributed data network and all of these partnerships, collaborations, and innovation activities at Mayo Clinic.

Ed Gaudet: And given the global footprint, where do you find yourself most often which state or country or?

John Halamka: Well, so this is probably not going to surprise you, but I work very closely with colleagues in Israel.

Ed Gaudet: Oh, okay.

John Halamka: Because Israel is, of course, the innovation nation. And so Israel brings some very interesting cyber technologies and protections, but also very interesting aspects of data analysis, data visualization, and model creation. So obviously, we work across the United States, we work in the UK, Europe. I have previously in my life worked extensively in Asia, though during this COVID time doing a collaboration in Asia. It was just harder because of restrictions on travel.

Ed Gaudet: Yeah, that makes sense. And where is your data source coming from all of the country or just where the headquarters is of Mayo or?

John Halamka: So I understand Mayo has what I'll call a destination medical center in Rochester, Minnesota, but also in Jacksonville, Florida, and in Phoenix, Scottsdale, Arizona. We also have a location in London and a location in Abu Dhabi. We also, throughout the central part of the United States, have something called the Mayo Clinic Health System. And then we have affiliates not owned by Mayo, but affiliates of Mayo, some 73 hospitals that are in almost every state in the country. So there you go, it's a pretty distributed.

Ed Gaudet: Big data set, big data set.

John Halamka: Source of data.

Ed Gaudet: So if I was at the 78 Grateful Dead show in Minnesota area, you might actually have my data somewhere?

John Halamka: Well, how about this? I would have no way of knowing.

Ed Gaudet: Good answer. Just a test, John.

John Halamka: Yeah.

Ed Gaudet: So what's the role of the job? What keeps you up at night?

John Halamka: Mayo always puts the patient first. And so what does that mean? We always want to look at aggregate de-identified data, respecting the needs and wants the patient. So we have a patient advisory council to say, Oh, we have this idea of aggregating de-identified data and creating algorithms from it. And is that ok? What does the patient think about what we're doing? So really important that we use something called Data Behind Glass is never leaving the Mayo firewall, the cloud container, it's fully de-identified, certified as de-identified. So what would keep you up at night is meeting the needs of the patient and using this in this fashion that I describe to ensure that you're always respecting their requirements.

Ed Gaudet: Great. So let's switch a little bit, and outside of healthcare. Outside of IT, I know you have a lot of interesting hobbies, shall we say, when you're not doing this worrying about data, patient data, or protecting patient data, what are you doing? What are you spending your time?

John Halamka: So, Ed, you remember that my wife was diagnosed with stage three breast cancer in December of 2011, and she's doing fine today. But as she began chemotherapy, surgery, and radiation, she said, I want to leave a legacy. I want to make sure that we create a community benefit that gives something back and lasts beyond our mortal existence. So 2012, you and I were serving together. We purchased land in Sherborne, Massachusetts, because in 2012 Wellesley was hot and Sherborne was not. Who would want to live in a socially distanced, biologically isolated community 25 minutes from downtown Boston.

Ed Gaudet: Exactly.

John Halamka: It wasn't a thing in 2012.

Ed Gaudet: No, sir.

John Halamka: We established Unity Farm Sanctuary and we started with alpaca and poultry and organic agriculture. And then by 2016, expanded, doubled the footprint. So today we have 300 animals on 60 acres with 500 volunteers. We have activities for the young, the old, the disabled. We have become a destination for the entire Metrowest community, for volunteerism, and for just anxiety reduction. Right time of COVID. Come outside, walk a donkey.

Ed Gaudet: So it is very Zen-like. I've been there. To my listeners, I highly recommend it. Is your web page still up? Do you have the web page?

John Halamka: The web UnityFarmSanctuary.org, 18 streaming cameras. We have blogs and newsletters and please, you know, engage. We'd love to see you.

Ed Gaudet: UnityFarSanctuary.org.

John Halamka: Correct.

Ed Gaudet: Excellent. So check it out, it's a magical place. You still growing mushrooms in the back?

John Halamka: We have about 500 mushroom logs. We have, obviously, it's winter, so not a lot growing right now, but we start with lettuces and peas, and spinach in the late winter and then move on to tomatoes, eggplant, peppers, and cucumbers. So we feed a whole lot of animals from the organic agriculture on the property.

Ed Gaudet: What's interesting to me is this whole notion of obviously marijuana being legal, but now psychedelic mushrooms are legal in some states. So is your phone ringing off the hook?

John Halamka: Well, yes, but for, not the reason you suggest. So as Ed knows, I am the nation's expert on poisonous mushrooms and plants, and I do 9000 patient consultations a year. And what does that mean? It means any time there is an overdose of a certain kind of mushroom or a toxic mushroom that creates a medical problem, I get the call. So, yes, my phone is ringing off the hook just because there are a lot of people eating mushrooms they shouldn't.

Ed Gaudet: That's right. So for your kids on listening today, you stay away from those mushrooms in Santa Cruz, of all places, in other places. I'm sure you get them today. John, this is excellent. I love this question because it gets people to think, what would you tell your 20-year-old self?

John Halamka: Interesting, right? I've written a number of books and articles reflecting on my life. So I am almost 61 years old. And what does that mean? It means I've got to experience the evolution of technology, right? As you hear from the sixties to the present, and certainly in my earliest stages of my twenties. We all are a little worried about our own identities, establishing who we are. And you feel pretty insecure when you're in your twenties, like, what am I going to do? Oh my God, it's so intimidating. So I just think back, back in my twenties, how concerned I was about the place I'd end as opposed to the path. And so I'd go back to my 20-year-old self and say, It's the journey that's the reward. And don't worry, you're going to be fine.

Ed Gaudet: I love that. I love that, that's so true. It's so interesting too, how perspective is really such a great governor on one's life and one's journey. And the more perspective we have, I think, the more just enjoyable life really is, because there is ups and downs and everything in between, and it certainly is not without challenges some days, and other days you have just a beautiful Zen-like experience at Unity Farm Sanctuary.

John Halamka: So here's what I would tell you is that, as you point out, you don't know what each day will bring, but there's a process for everything. No matter what happens, good or bad, there's a process to get you to the next step, whatever that is. And that's the thing that has come with age, the understanding, Oh, well, this looks like a bad thing, but there's a process, and it'll be fine.

Ed Gaudet: That's right, yeah. Time is a great healer. We just give things a little bit of time, they kind of work themselves out. I think there was a lyric in there somewhere. All right, John, we're getting ready to come to the end, but I do have a couple more questions. What are you most proud of this past year, personally and or professionally?

John Halamka: Sure, on the professional side, the role I play at Mayo Clinic is really focused on elevating healthcare, quality, safety, and access globally. And that is, it's about building coalitions and communities. And so when you start to look at these last year or the last two years, there have been a number of coalitions that I have been involved in, COVID coalitions, AI coalitions, clinical trials, coalitions where ultimately we've brought thousands of organizations together to make a difference for the benefit of society. So I'm hoping that when all is said and done, you could say, oh, wow, you know, in some subtle way, I made a difference. But as a catalyst for many organizations working together, certainly, I see that in the last year.

Ed Gaudet: Absolutely. The COVID work you did was just amazing, actually. Pulling together that group of leaders to tackle a really insurmountable problem at the time, I think, really helped a lot of people out.

John Halamka: And one of the things that I would say personally feels very good to me is when I am traveling around the country, and somebody says, you know, Oh yeah, my knees swell and tears, at your sanctuary. Oh, I watch your cameras every night. Oh, I read everything you write, and it brings me peace. It's again, that community benefit becomes quite tangible.

Ed Gaudet: Excellent, excellent. Okay, because this is the Risk Never Sleeps podcast. I'd be remiss if I didn't ask you this question. What is the riskiest thing? And this always gets people, I want to ask them. What's the riskiest thing you've ever done in your life?

John Halamka: Oh, well, that's quite simple. So you know that I've been an alpinist for 40 years.

Ed Gaudet: That's right.

John Halamka: And so I have done a lot of rock and ice climbing. And the thing you need to know about ice climbing, and a nice New York Times article about that a few weeks ago, given climate change, ice climbing is even more difficult and challenging is that if you fall while ice climbing, you will hurt yourself 50% of the time. And because ice is a friable medium, it's pretty likely you're going to fall. So I did extensive amounts of ice climbing in New Hampshire in my forties.

Ed Gaudet: Oh, wow.

John Halamka: And what you learn is when you're 20, you bounce. When you're 40, you break, and when you're 60, you shatter. And so I don't do ice climbing any longer. Now that I'm in my 60s.

Ed Gaudet: Mount Washington, or?

John Halamka: Crawford Notch and/or North Conway.

Ed Gaudet: Yeah, nice.



John Halamka: ... I mean, there's a number of ice climbing area.

Ed Gaudet: Beautiful.

John Halamka: Yeah.

Ed Gaudet: All right, well, very good. John, that pretty much wraps us up for the podcast. Really appreciate you joining us today and spending time with our listeners again. Thanks, everybody. Thank you for your service, John, obviously, on the front lines of healthcare and patient care, and for everybody else, you know, stay vigilant. There are a lot of bad actors out there, and remember, Risk Never Sleeps.



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