Digital Health: the good, bad & ugly

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[00:00:00] Josh Mandel: So I thought what I would do would be to share a little bit about my story and the kinds of projects that I've worked on in the healthcare, uh, sort of digital health domain. Uh, and you'll hear a couple of teams. One of them is providing access to health information and, uh, make it as easy as possible for folks to work with the information that's already being collected in the healthcare workflow.

[00:00:23] Josh Mandel: And then thinking about ways to collect better information, um, over time. And my interest here really started when I was a medical student in Boston in let's say 2008, 2009. Uh, at that time I had a background in software development. So I had done undergrad in electrical engineering and computer science at MIT.

[00:00:42] Josh Mandel: And then I was in medical school rotating through hospitals in the Boston area that were just starting to put electronic health record systems in place. Uh, so we're just at this sort of transition zone where. Some hospitals still had big paper binders and you'd have to go [00:01:00] and hunt them down and, you know, look for the notes for this patient and maybe somebody else actually had the binder 'cause they were writing their note and you have to go and negotiate who could get access to that paper record.

[00:01:09] Josh Mandel: Um, so like we're just on that transition between this paradigm and digital charts. And the digital rollout was really rocky, at least in my estimation. So one of the jobs that we got to do as medical students was, uh, like on my surgery rotation, we would come to the hospital at five in the morning and we would, we copy down numbers from the computer on paper because the computer would only show you sort of one patient at a time.

[00:01:39] Josh Mandel: And what the residents wanted when they got got in at six in the morning was to see how is everybody doing on the whole surgery floor. Uh, you know, there might be 15 patients and different things,

different events that happened overnight and they wanted a synoptic kind of view. And so the medical students would.

[00:01:55] Josh Mandel: Produce that view one patient at a time and jot notes down on paper. Uh, [00:02:00] and I realized like the computer literally had all the information in it that we wanted. It was just very hard to access. I wouldn't draw it all on the screen at the same time and it wouldn't make a chart, uh, wouldn't make a plot of people's fever curves overnight.

[00:02:13] Josh Mandel: And so the medic students would sort of fill that gap. Um, I realized, okay, this is something we could automate. And I wound up putting together, uh, a script that would basically do what the medical students would do and it would interact with the computer as though it was somebody typing at the keyboard.

[00:02:28] Josh Mandel: Uh, and it would simulate these keystrokes and it would just open one patient record after the next, and it would look at certain regions on the screen and copy the values down into a template, uh, and it would produce the reports we wanted. And at the end of that surgical rotation, I got some great feedback from the chief of surgery at Meet and Wellesley Hospital.

[00:02:48] Josh Mandel: He was like. I heard you wrote this computer program that was able to generate these summaries. You know, I've been asking the IT department for something like this for, for a long time, and they told me that our system just couldn't do that. [00:03:00] Um, and I was like, well, it's true the system couldn't do it, but it had all the information and if you could just sort of get outta the way, uh, then people could make that happen by, uh, essentially, uh, working with and extending what's there.

[00:03:14] Josh Mandel: And so I came to see that as a really important kind of function that if you knew what you wanted the system to do and if you were willing to kind of work through that integration effort, you could make a lot of things. Happen. Um, but often there were these kinds of official hurdles in the way. So like, if I had tried to get permission to do that project during my AP surgery rotation, you know, that would not have happened.

[00:03:38] Josh Mandel: Um, so like I really learn, and something important away from that, which is this idea of permissionless innovation is really important.

[00:03:44] Mm-Hmm.

[00:03:45] Josh Mandel: The people who are doing things with health data, of course they need to be authorized to see the data. You can't let people like break into your system and steal data.

[00:03:52] Josh Mandel: They're not allowed to see. But you shouldn't try to prevent legitimate users of your system for using it for the things that are legitimately allowed to do. [00:04:00] You shouldn't have permission layers in place there. Um, so as I was graduating from medical school, I realized this was a set of problems I wanted to work on.

[00:04:08] Josh Mandel: Uh, and I had a good fortune to. Do some independent studies with, uh, a couple of folks at the Harvard Medical School who were working, um, in this general area on connectivity for, for healthcare applications. They had just gotten a grant to work on some federally funded research, uh, to help take this idea and scale it out so it could work with lots of different electronic health record systems.

[00:04:32] Josh Mandel: Um, so that was kind of my own backstory. Uh, but to put this maybe in a more formal sense, you know, years later we ran, uh, a series of interviews with an organization called Class, uh, that does physician TAing interviews, kind of gets people's perspective on healthcare software and how things are working.

[00:04:47] Josh Mandel: And, you know, I thought this quote was pretty good at capturing the same kind of pain that I had felt. Uh, you know, this was from a, a physician working in an outpatient practice who said we had this wonderful population health tool, but we couldn't get [00:05:00] our electronic health record system to interface with it.

[00:05:02] Josh Mandel: So we had to enter information by hand, and eventually we just gave up because we couldn't keep up with that. So, you know, that that remained like a common problem for almost a decade. I became really interested in how do we solve this, uh, at scale. And right around the time that I was graduating from medical school, the us you know, we're talking about kind of the great recession in Europe, 2008, 2009.

[00:05:27] Josh Mandel: I graduated in 2010, uh, just as the US was starting to fund the adoption of electronic health records. Mm-Hmm. And it was this sort of interesting mix of, there was a national interest in having better

health records systems and also there was a national interest in just sort of injecting cash into the economy.

[00:05:46] Josh Mandel: And so there was this federal program for about $35 billion to incentivize hospitals and clinicians to adopt electronic health records and make meaningful use of that.

[00:05:59] Josh Mandel: Um,

[00:05:59] Josh Mandel: so it wasn't okay. [00:06:00] It wasn't enough just to have a hospital by the EHR. They had to use it, you know, deep records hit it, that kind of thing.

[00:06:06] Josh Mandel: And so as the federal government was spending $35 billion to incentivize adoption of what was then the current generation of technology, there was also a, a much smaller investment in new technology development. Um, so I got to work on this project at Harvard that had received a $15 million grant, uh, which was over four years, so 2010 to 2014, uh, to develop kind of technologies that could become part of the next generation of these electronic health record systems.

[00:06:34] Josh Mandel: And so to say it in one slide, uh, the goal is really to allow for many different kinds of healthcare applications to connect to many different kinds of clinical data systems. Um, so if you look at just electronic health record systems, like, you know, doctor, hospitals, smart views, there's hundreds of those systems that are made by, um, hundreds of different vendors.

[00:06:55] Josh Mandel: Um, if you live in Madison, Wisconsin, you know, epic is the dominant force, and that [00:07:00] is pretty true throughout the us but there's a very long tail of these systems. And they all work differently. They've been built by different teams at different times. They all have their own internal data models and events that they use to manage health information.

[00:07:13] Josh Mandel: They all have their own look and feel. Uh, and so if you wanted to build an application that could plug into all of these, it would be sort of an impossible task. Uh, so that's what this project was all about, was basically saying, how can we break down this problem to say what are the core kinds of data that an application should be able to receive from an electronic health record system?

[00:07:33] Josh Mandel: Let's make a list of what those are and set up what we call an application programming interface or an API so that you could write an application once and plug it into any of these different EHR systems. The app should not have to pre coordinate with the developers of hundreds of different EHRs. Uh, if somebody has a good clinical idea, they should be able to implement it as an app and plug it into whatever system their hospital happens to be using this year.[00:08:00]

[00:08:00] Josh Mandel: So to give you like a really concrete example. Some of these can be simple things. Uh, so, so we had a requester and the cardiologist at Boston Children's Hospital. So they manage kids with high blood pressure and you know, one of the things they asked for early on was better decision support tools just to figure out if a kid's blood pressure was normal or hot and to be able to track that blood pressure over time.

[00:08:22] Josh Mandel: So for adult medicine, this is pretty straightforward. We have kind of thresholds that we use. So it used to be, you know, when I was in medical school, if your blood pressure was over one 30 milliliters of mercury and a systolic, that might be high. Uh, and then if somebody's blood pressure was over one 40, maybe you were really gonna do something about it.

[00:08:39] Josh Mandel: Uh, and everybody had those numbers in their head. It's very easy to work with. But for kids it's more challenging because the normal range really depends on whether it's a boy or a girl and how old they are. You know, a 1-year-old and a 2-year-old have very different normal values. And it also depends on whether they're big or small for their age.

[00:08:57] Josh Mandel: So where are they along those growth curves? [00:09:00] So if you were going to do. What the clinical guidelines said you should do, you'd have a kid in front of you. We'd figure out on the growth chart what percentile they were at. So if I've got a 2-year-old girl, you know, maybe she's at the 75th percentile of height, and then I would look up in a table for 2-year-old girls in the 75th percentile of height.

[00:09:18] Josh Mandel: What is a normal blood pressure? So you do this kind of triangulation from one set to the next, and then you plug your value into this one and you'd say, oh, okay, good. The, the, the blood pressure is well managed, or she doesn't have a problem with blood pressure in the first place. Um, and you could imagine for a busy clinician trying to do this all day long, it would be pretty infuriating.

[00:09:37] Josh Mandel: And yet this kind of capability, like pediatric blood pressure management was like a super specialty feature did not exist in the off the shelf EHRs, you know, it's pediatrics, so that's specialty already. And then it's cardiology. So that's like a subspecialty of a specialty. Um. I'm sure by now the EHR vendors have gotten much better at doing this kind of thing.

[00:09:58] Josh Mandel: But there's always something [00:10:00] like this, which is like the end users know what they want and they could build it for themselves, or they could hire a software developer to write for them in a summer. But being able to plug that into the system is so hard. Uh, you know, that you'd spend that whole summer getting it to work in just one place, and then if you happen to practice across town, you'd be outta luck.

[00:10:18] Josh Mandel: You, you wouldn't be able to continue it. So this is one of the first apps that we put together was this pediatric Blood Pressure percentiles app. Um, so if you fast forward to sort of 2024 that, sorry, 2014 era, um, we, we had been working on this platform, which we called the Smart Help IT Platform, and we launched this app gallery where anybody who wrote an app could list it and sort of share it with the world to say, you know, here's an app that I built and here's what it can do.

[00:10:45] Josh Mandel: And so one of the apps in this gallery. So Blood Pressure Percentiles app. Um, and this, this is like the very first thing that we launched at Boston Children's Hospital. Um, it's a very simple app. Um, basically it connects to an EHR [00:11:00] in the EHR system. There's always some kind of patient in context. So typically this would just load in the chart that was already open, and then you could see, right, you know, this kid has blood pressure that's in the 83rd percentile.

[00:11:11] Josh Mandel: Um, so if you hadn't memorized all those tables, you would see the important information just laid out there for you on the screen. Simple stuff, but, you know, very powerful. And it enabled academic research, but it also enabled better care because people had the information they needed to, uh, actually follow the guidelines for taking care of the patients.

[00:11:30] Josh Mandel: So this plugs into a bigger story in terms of our national investment in data standards and requirements. So we built these, um, technical platforms initially with funding from the federal government. But the question is, what would cause electronic health record systems to adopt this? Uh, and there, you know, we have some market pressures.

[00:11:52] Josh Mandel: So some of the first vendors to adopt this and I would put, um, Cerner, hi on this list really came to us and they said, you know, we think it would be a [00:12:00] competitive advantage for us to have excellent support for standards, to be able to tell our new customers, uh, that, you know, if they go with us, they'll be able to extend the system in ways they want.

[00:12:10] Josh Mandel: Uh, they'll be able to take what they've built and use it elsewhere if we think that's good for us, it's good for our business. So for some systems, you know, we got that kind of inbound interest, but again, it's a very long tail. So if we were going to see broad adoption, it was gonna take some pressure. Um, and ultimately the federal government stepped in with regulations to start moving things in this direction.

[00:12:32] Josh Mandel: There have been several rounds of these regulations up to this point, um, but maybe the most impactful one came from a congressional. Act that was passed in 2016 called the CURES Act, which said many, many things. But front and center in the CURES Act was this idea that authorized users should be able to access all electronic health information without special effort.

[00:12:57] Josh Mandel: Uh, which is like an awesome phrase if you're Congress, [00:13:00] uh, like, you know, you're not gonna be writing technical specifications, but you wanna convey something about the idea that it should be like easy and automatic, so without special effort. Um, and then it becomes the job of regulators to interpret that and actually pin it down to some meaning.

[00:13:14] Josh Mandel: And that, you know, by the clock here, took about four years. So by the end of 2020, we had a regulation that came out of what was done in the office of the National Coordinator for Health Information Technology that said, okay, we've gone through this CURES Act and we figured out what it means. You know, what the different EHRs actually have to do.

[00:13:32] Josh Mandel: And there are two big pieces to it. One was the idea, uh, of without special effort. And they said, well, what that means is you need to support standards. You need to support APIs like this Smart on Fire project that I've been describing, that they, an app should be able to connect to the DHR and query for all these common kinds of data, blood pressures, medications, allergies, labs.

[00:13:53] Josh Mandel: Well, that needs to work out of the box, but that's how they interpret it without special effort. Um, and that's how sort of this [00:14:00] smart project got pulled into the regulations. And the other thing they de, that they defined was non-technical. That it was this important policy piece. And this is about getting permission.

[00:14:09] Josh Mandel: Do you need to get permission? Who needs to give you permission to implement this idea that you, uh, and so this was the idea, the, the concept of information blocking the national coordinator said basically if there's an authorized use of health information, some user is authorized to see the data, and an electric, an electronic health record member or a clinical provider organization gets in the way of that use.

[00:14:33] Josh Mandel: That's called information blocking and you're not allowed to do it, and you could be subject to fines if you do it. And then there were about eight exceptions that went into great detail about all the reasons why it might technically be okay to block access. You know, maybe if you were protecting somebody's privacy or you knew they were gonna be in danger for some reason.

[00:14:51] Josh Mandel: You know, all these exceptions that are, but the baseline rule under this information blocking regime is you have to provide access if the user is optimized. And [00:15:00] together, those two things have been really powerful for driving, uh, adoption and driving support. And meanwhile, these regulations have moved on and on.

[00:15:08] Josh Mandel: We've seen additional waves. You know, in 2022 there was a new rule proposed called health technology. Uh. HTI one, which laid out a whole new set of programs, new versions of these APIs to adopt. Uh, just last month, uh, we had a new proposal called HT I two, which will play out over the coming five or six years.

[00:15:29] Josh Mandel: And the main point that I wanna make with the timeframe is that things change really slowly. I mean, healthcare is not like most of the technology sector where year over year you might see lots of new technology being, uh, introduced to the market. Um, but historically that's just sort of how healthcare has worked.

[00:15:48] Josh Mandel: And there's some good reasons to be cautious and work slowly because patient lives are at stake and you know, you don't wanna do anything that could be like the Facebook move fast and break things ethos, but at the same [00:16:00] time, like patient lives are at stake

and you don't wanna let things linger over years and decades if you don't need to.

[00:16:05] Josh Mandel: So there's this difficult balancing. Um, but I've been increasingly worried because when I think about the pace of change in technology. Right now, I mean, there's a lot happening with the development of AI that is or should be changing the way that healthcare systems work with data. Um, so I got a little bit of an early preview back at the end of 2022 into some of these capabilities.

[00:16:32] Josh Mandel: Uh, just from where I was in Microsoft research, I got to see kind of an early version of the open AI GPT-4 model and the kinds of things that it could do in terms of processing healthcare data. And I was first of all like really impressed. I was a little scared. Um, but I quickly came to think that of all the work that I had done in my career for these, you know, apps and integrations, you know, really it boiled down to two things.

[00:16:58] Josh Mandel: One was access, so can [00:17:00] people get access to the day they need? And two was the sort of structure and organization, you know, can we make sure that I. Blood pressure always comes outta the system looking that will, and can we make sure that medications are always modeled perfectly with the right fields in the form.

[00:17:16] Josh Mandel: So the software system that receives the data will know exactly how to process it. And I, I started to think that, you know, I've made contributions on sort of both sides of the fork in the road, the data access and the structures. But as I could, as I started to see what these language models could do, I quickly began thinking that this piece about structuring the data was gonna be much less important over time.

[00:17:39] Josh Mandel: It was gonna become a commodity. And the kinds of things that we used to meet a human being to stare at and like carefully think about, we're starting to become things that we could automate in terms of data structures. So just, I mean, to give you a really concrete example here. One of the agreements that we have to get international agreement about is how do we write a [00:18:00] medication down using these standards?

[00:18:01] Josh Mandel: And so, you know, we'll spend years sometimes and work through all the details to say, okay, if I'm writing a prescription, um, for a medication, how do I say how often to take this drug? And so in this case, you know, the answer might be twice a day. And so, you know, we get all

this agreement about where to put the square brackets and where to put the curly braces.

[00:18:20] Josh Mandel: And if I wanna say twice a day, well that's a frequency of two, and then a period of one and a unit of days. And that's how I would say twice a day in a way that internationally, any system should be able to interpret. And it's very nice and it's useful to have structure and consistency around these things, but it's also sort of limited.

[00:18:41] Josh Mandel: There might be some things that are really hard to express in format like this. You know, I wanna say take after meals as needed, anywhere from three to four times a day starts to get pretty complicated, pretty quick.

[00:18:51] Josh Mandel: Mm-Hmm.

[00:18:52] Josh Mandel: Um, and our structures don't always keep up with the real world complexity.

[00:18:55] Josh Mandel: There's always this balancing effort. Now meanwhile, [00:19:00] um, you could imagine something like this picture here of a shit old fashioned prescription form. Maybe that's your source of truth. Like maybe a doctor wrote this out on a prescription pad and handed that, uh, paper to the patient. And so maybe that's how the data originated.

[00:19:17] Josh Mandel: And the truth is, we could use language models today to just take that picture and turn it into any structure we want, sort of just at the moment when we want it. So this is an example from the chat GTT interface. This is publicly available language model. So I can just paste in that picture and say, please take all the details.

[00:19:40] Josh Mandel: Format into fire. Uh, so that'll standardize. Now I'm having this interaction in a chat box because it's easy to talk about and show you a demonstration, but all of these tools can be automated, um, so that the system simply takes a picture like this, um, and then reach through it. And [00:20:00] what does it say? It looks like you've uploaded an image containing a prescription.

[00:20:03] Josh Mandel: Here's what I can read on it, then. It does a pretty good job of reading everything. The DEA number is incomplete and yes, indeed, that was blank on the form that I, that I past it in. So the model is

able to take this and then structure it into this payload with all the curly braces and exactly the right place.

[00:20:19] Josh Mandel: And you know, in this case we're gonna dispense 30 tabs and you're gonna take it orally and so forth. So how important is it really to convince hundreds of EHR vendors to all be able to output a format like this if you know any way they wanna output the data? 2028 is gonna be good enough. So we're at this really interesting time right now where things have been changing very fast and it's not clear how much you want to invest in new regulations that are gonna take five or six years to come to fruition if by the time they come to fruition they're asking people to do something that feels, you know, that feels antiquated, old fashioned, maybe pointless.

[00:20:59] Josh Mandel: So I've [00:21:00] been thinking a lot about where should we be investing in these detailed data structure discussions and where should we be just sort of backing up and focusing on this access policy piece. Um, I'm trying more and more to focus myself and my team on the access policy, but there are still some places where we are spending time on structured data, but I wanna highlight a couple of them 'cause they might not be so obvious.

[00:21:24] Josh Mandel: Um, so the first thing to say is when it comes to the regulations we have right now, they're focused on what's called a core data set. So if you want to connect an app to the EHR, you can get the core data set outta that system. So that's medications, problems, labs, allergies, a history of when you've had clinical encounters.

[00:21:42] Josh Mandel: Uh, it includes clinical notes, which are super valuable. They notes are probably as valuable as everything else combined, uh, when it comes to the clinical insight that you get from them. But there's still a lot that's missing. Um, and you know, my estimation is that over time we should be pushing more towards [00:22:00] raw data and more towards complete data and just storing those things.

[00:22:04] Josh Mandel: And if we need to add structure, we can add that structure leader. But you know, one example of the area that has been standardized for decades but is still practically inaccessible for patients would be imaging. So you go and you have a CT scan or an MRI done. And, you know, still very, very common today that patients go home with no record of Mm-Hmm.

[00:22:25] Josh Mandel: Uh, or if you've got a record, whether you get, you got a CD run. And then like, you know, good luck. You could go by an easy reader and try to plug it into your computer, but like, you know, your computer might be not even have a port for that CD reader. It's like a perfect example of where we're relying on antiquated technologies.

[00:22:46] Josh Mandel: So you, there's no reason you shouldn't be able to get your images outta that system just as easily as you could connect an app and get the rest of your clinical data. So last year I, I worked with an industry accelerator group on sort of building out a set of [00:23:00] APIs specifications for how that could happen.

[00:23:02] Josh Mandel: Um, and you know, the basic idea here as a patient, you authorize access to your data and that should include your clinical data, like allergies and your problem list and your medications. And it should also include your images. And an app should be able to get images right alongside the clinical data. It seems pretty straightforward, but we're still a long way from that being a reality.

[00:23:24] Josh Mandel: And a lot of it comes down to just who produces the software. Um, so the groups that make electronic health record software that stores the allergies and the conditions and the medications, that could be software like Epic or Cerner. Um, totally different companies produce the picture archiving systems that store the cts and the M mri.

[00:23:43] Josh Mandel: And there's no strong pressure for those kinds of, for those companies to work closely together to produce a good, coherent user experience. And at least there's no strong pressure yet. So part of what we're trying to work on here is just the storytelling. Like this could be easy. Technically there's no reason it needs to be hard, [00:24:00] but it's gonna take, um, a nudge, I think from the federal government and maybe from large healthcare organizations that care about making this easy for patients.

[00:24:08] Josh Mandel: It's gonna take that kind of push to make it happen. Um, so this is an area I'm still working on technology for and also just advocating for better policies. Um, another fun one that I've gotten to play with this year has been continuous glucose readings. So this is a relatively new kind of data stream in healthcare that's emerged over the last 10, 15 years, uh, where, you know, it was first used in a population of type one diabetics to say, you know, if you wanna keep closer track of your glucose over time, rather than sticking your finger with a, with a lancet after each meal and sort of putting a drop of blood onto a glucose meter and getting

one point in time, it'd be great if, if patients could actually get a time course to know what their glucose was throughout the day.

[00:24:55] Mm-Hmm.

[00:24:55] Josh Mandel: And you start to see interesting patterns. Like you can really tell, uh, how [00:25:00] much what you choose at a meal makes a difference or what order you eat things in, or when you exercise compared to when you eat. If you've got more data and you lower the latency so you can see the data all the time, pretty quickly you start discovering things about those patterns that just naturally help you manage your glucose better.

[00:25:17] Josh Mandel: So there's some really good science for type one diabetes. Just using these devices is helpful even if you don't introduce any other changes, um, you know, even if you don't change the medication regimen, just giving somebody the device and letting them see the data already starts to become helpful. Um, and of course this is the kind of data that's useful, not just in people with diabetes, but people who might have pre-diabetes or people who might just be curious about their own healthcare.

[00:25:43] Josh Mandel: Uh, and so this year, for the first time in the US these kinds of devices are available over the counter. There's one from Abbott and one from Dexcom. And they basically come with a two week sensor battery powered device that you stick on your arm. It inserts a small catheter just below the skin, and it [00:26:00] just sits there for two weeks and it sends a reading to your smartphone once a minute for two weeks, and you can see what your glucose is.

[00:26:06] Josh Mandel: It's, it's not quite your blood glucose, it's measuring the glucose in your interstitial fluid. Um, and it's a really good approximation for your blood glucose. Um, it lags a little bit in time, so it gives you a picture of what your blood glucose was maybe 10 or 15 minutes prior. Um. But it's a really interesting and, and high velocity data stream.

[00:26:24] Josh Mandel: And it's just the kind of thing that we should be making better clinical use of, uh, more and more patients have these kinds of devices. So a project that I've worked on this year has been focused on sharing the results of those kinds of continuous glucose monitoring. And on the one hand you wanna be able to share reports like, let me see what the average glucose was at different time of day.

[00:26:43] Josh Mandel: Uh, and there's a whole bunch of detailed data under the hood from these kinds of reports. Um, my numbers aren't really interesting because this is a report that's designed for people with type one diabetes. Uh, I don't have type one diabetes, so like, I'm mostly like green in this picture. So like my blood glucose looks pretty good from that [00:27:00] perspective.

[00:27:00] Josh Mandel: But honestly, I. There's other interesting patterns to be determined, you know, day by day, hour by hour, in these data sets. So a big project we've been working on this year has been being able to share these data sets, not just as a report, but as the raw underlying readings so that clinical systems can import the data, uh, and make use of them, and so that researchers can use these kinds of data and developing better models, health and risks of developing disease.

[00:27:26] Josh Mandel: So, you know, this is an area for sure. Please, just,

[00:27:29] Guest: just a question about continuous data.

[00:27:31] Josh Mandel: Yes.

[00:27:33] Guest: In my experience, electronic health records have been captured that better data, right?

[00:27:37] Josh Mandel: Yes.

[00:27:38] Guest: So in your project, where is that being stored and how do you decide what, if anything, you'll share with me? hr.

[00:27:45] Josh Mandel: Yes. So you're completely right.

[00:27:48] Josh Mandel: Uh, most EHRs today don't store it much high velocity data or continuous data at all. Um, and so this is the sort of needle threading exercise of developing standards. [00:28:00] What we say when we work on this standard is we will provide a way to submit data at a couple of levels of granularity. So we'll provide a way to submit the minute by minute three weeks, we'll provide a way to submit a two week summary that just give you statistics and we'll provide a way to submit a report as a PDF doctor and the EHR can pick and choose.

[00:28:20] Josh Mandel: We save whatever level the granularity makes sense to them. My estimation is over time people are gonna realize that it

would be crazy not to say in store and make use of all of these detailed data. I mean, there's, there's signals in the minute by minute data that you just can't see if you boil it down to a two week summary.

[00:28:39] Josh Mandel: But we're also meeting the universe where it is, right clock, uh, recognizing some systems want that level detail and some don't. So all we really standardize is here's a, here's a buffet of data that could be served up to the EHR. ER can store what it go. Does that, does that make sense? Sure.

[00:28:59] Guest: Well, there [00:29:00] are, just to everything else, there are companies that are developing the capability for structure architecture to capture that information.

[00:29:08] Guest: They're not being

[00:29:10] Josh Mandel: a hundred percent. So yeah, we see healthcare systems that will deploy these things side by side. And in some cases, when they ingest data, they'll store some summaries, statistics, and the hr and they'll persist other data to research warehouse or other piece of their internal architecture that's more interested and more able to store those kinds of kind data.

[00:29:29] Guest: I think one of the questions in the world is, or any of the [E]HR is gonna be a leader in a advance of what they're doing now and uh, these other ways of storing and managing data. Yeah. Or well, another system.

[00:29:45] Josh Mandel: Yeah. No, it's, it is huge question. And I think we're gonna have to see how it play that we're gonna see a lot of investment on both sides.

[00:29:52] Josh Mandel: Um.

[00:29:54] Guest: But your project and what we're talking about, digital health is what's gonna drive it.

[00:29:59] Josh Mandel: [00:30:00] Yeah, no, I think that's right. And so we wanna make it even to share and the systems that are most able to stand up and capture the data that are shared, I think over time those are the systems that are going to succeed.

[00:30:11] Josh Mandel: But there's a lot of dynamics at front and, you know, the switching costs for a health system to say, you know, today we're running Cerner and we wanna change to an Epic implementation. That's like a multi-year project. If you're a big health system, it's on the order of a billion dollars to do. Um, so even if there's something better out there, like organizations don't switch quickly, and that's sort of part of how things can stagnate.

[00:30:37] Josh Mandel: Um, the flip side of it is, you know, the, the large health record vendors get the chance to look around, see whether their technologies are successful, and you know, if they're nimble, they will pull in those technologies as as they go. So, I, I. I'd be hesitant to make a bet about where this functionality will land, like what systems will support it.

[00:30:55] Josh Mandel: But I would definitely bet that five years from now, more systems will be [00:31:00] storing more raw data and really focusing on that complete picture. It's gonna become more and more, um, I have a fun topic here that I'm gonna skip over, which is, okay, we've talked about this core data set. What about everything else?

[00:31:16] Josh Mandel: Uh, the short answer is we have a regulation that says patients have a right to export everything else to get a copy of the full electronic data set.

[00:31:24] Mm-Hmm.

[00:31:24] Josh Mandel: And it's fine if it's not standardized. Every system could do it differently, but there's gotta be a way for patients to request the dataset and get, um, currently that's what the regulations say.

[00:31:35] Josh Mandel: It's not working very well. Uh, vendors are implementing this in a way that it's almost impossible for patients to actually chase that down and get the data out on the other side. So. More work is needed. Although I, I was able to get my data out of the, the local, uh, epic shop where it was, where it's kept, uh, where my provider uses.

[00:31:54] Josh Mandel: Uh, it took a few weeks, it took some intervention from the Epic team, but I was probably one of the first users to [00:32:00] ask for my data in that format. So, you know, it could be a rough to start, but we might still get some work there.

[00:32:04] Mm-Hmm.

[00:32:05] Josh Mandel: Uh, I really did, um, tweet out my experience sort of day to day as I was going through this process of like waiting to get the data out.

[00:32:12] Josh Mandel: And at about the three week mark, I got a text from one of the executives at Epic who said, somebody pointed me to this thread, you know, uh, would you mind if we, uh, reached out to your doctor? And I said, sure, Bravo. Sure. I mean, I didn't really want special treatment, so part of it was like, I wanna know how this was actually working.

[00:32:28] Josh Mandel: But by the Phil leave Mark, I had determined that it wasn't working. And so I figured, alright, let's, let's see.

[00:32:35] Guest (2): Did you do that primarily as an experiment to see how it was working?

[00:32:41] Josh Mandel: Both so. Honestly my long-term goal with like pushing for policy here, I mean, a, I think it's the right thing to do, but BI think this becomes a really powerful vehicle for clinical researchers who want to get a full picture of somebody's health.

[00:32:56] Mm-Hmm.

[00:32:56] Josh Mandel: And today a lot of research is bound to one institution. [00:33:00] You know, I'm running a study at Harvard Medical School and all the patients that are gonna be in my study will have been enrolled there. And if you're running a study at one institution, then it's fine. You work with the institution and you get data from their database and their, their institutional review board approves it.

[00:33:16] Josh Mandel: That works. But if you wanna run a study on a rare disease, like, you know, your patients are not all at Harvard Medical School. They're, you know, one here, one there, they're spread out. Um, so I think this, this kind of export becomes a really powerful way for patients to be able to participate in research.

[00:33:30] Josh Mandel: To say, no matter where you got your care, if you wanna donate your dataset to research, you should be able to do it. Um, so a big piece of my involvement here has been. How close is that to reality? What are the places where we could improve, make the workflow easier, um, and then start to, to push on that kind of adoption?

[00:33:49] Guest: About 10 minutes, Josh.

[00:33:51] Josh Mandel: 10 minutes. Perfect. Okay, so, so I really wanna talk more about AI in the last 10 minutes. Um, many, many use [00:34:00] cases where AI is already starting to and, and will make a huge difference in clinical care management, patient education, administration, billing. I mean, this is going to be a transformative technology.

[00:34:13] Josh Mandel: I don't know how much folks have played with sort of today's language models, but I wanna show you a few examples just to give you a sense of just what you can do with off the shelter tools right now.

[00:34:23] Okay.

[00:34:24] Josh Mandel: Um, so one simple one is clinical encounter audio reportings. Um, there's a very strong trend. Um, I don't know if, if folks have experienced this already, uh, where.

[00:34:34] Josh Mandel: A healthcare provider might take an audio recording and then a digital scribe will like, make a, make a clinical note. Um, that's pretty common, uh, growing, growing the use. And that kind of audio recording is typically ephemeral. So it's taken just during your visit. Maybe there's a human scribe right now to know based on it, or maybe there's an AI tool that's writing that note automatically.

[00:34:58] Josh Mandel: And then typically the audio is [00:35:00] sort of front away and the note is persisted in the DHR. Um,

[00:35:04] Guest (2): so is that like instead of your doctor, the physician there having to write the note? Yes. To take the time to write the notes, it's recorded and then

[00:35:16] Josh Mandel: Correct. And it's huge in terms of just increasing in FaceTime between clinicians and patients.

[00:35:22] Josh Mandel: I mean, there was, there was a decade or more where like you would just see, I. The back of your doctor who was hunched over the computer and like, we're just starting to see our way past this. Um, but that's still very, very common. So the AI technologies are gonna make a big dent there. Uh, I'm even more interested in what happens with those raw reportings because they have their own potential in these kinds of clinical workflows.

[00:35:46] Josh Mandel: Um, even just in terms of helping patients understand what happened at a visit o oftentimes, especially for like a specialty consult, a patient might wait six months to have this visit with a specialist and like it's 30 minutes long and they've [00:36:00] got a huge list of questions they wanted to ask, and all the pressure is on, you know, that visit's over and you can't even quite remember everything that happened.

[00:36:06] Guest (2): Mm-Hmm.

[00:36:07] Josh Mandel: Um, so if there was a recording and you had access to that as a patient, that could also be quite powerful. Um, so just, you know, this is a trend that we're seeing more and more of. On the one hand, uh, clinicians are sometimes taking recordings that they're using for their own note taking, but patients are always also taking recordings.

[00:36:24] Josh Mandel: Sometimes they do this over the table, you know, is it okay if I record this? Sometimes they do it under the table. I mean, I have a mobile phone in my pocket all day long. Why shouldn't I press the record button? Uh, and then I've got encounter audio. And so the truth is, if you're a clinician, like whether you like this or not, whether you want this or not, this is just the world you live in.

[00:36:46] Josh Mandel: Some percentage of your patients will capture an audio recording and take it home with them. So you just sort of have to accept that as reality. Um, so, you know, I've, I've got examples here from clinician discussions on Reddit. You know, I just assume [00:37:00] I'm always being recorded. Don't say anything to patients, but I would not be comfortable facing after the fact.

[00:37:06] Josh Mandel: That's, it's a good way of practice. That's just, just realistic. Uh, and you can see similar reflections in the academic literature, right? Our foremost recommendation is that physicians strive to treat every interaction with a patient as if it were being reported. Um, again, it's just prudent whatever angle you want to take on it.

[00:37:21] Josh Mandel: Um, so that said, like. Where does AI come in here? I just wanted to show a quick example of taking an audio recording. In this case, I didn't have a good real clinical reporting, so I took one from YouTube, um, which was, which was shared as a open, openly published patient visit, talking about end of life care.

[00:37:41] Josh Mandel: So pretty heavy stuff. Mm-Hmm. Um, and it was a five, a 15 minute video, and I just uploaded the transcript from YouTube into chat, GBT, and I asked chat GBT to create, uh, a list of some items from the conversation that patients might want to review later. So basically just saying like, what are some topics that were discussed here?[00:38:00]

[00:38:00] Josh Mandel: And then I took the output of that, which, which included timestamps because I asked for the timestamp of each piece of that discussion. And I asked a tool called Web Sim to imagine for me a webpage that might be like a patient facing app that would, that would show like what it looked like to review the encounter after the fact.

[00:38:17] Josh Mandel: So you've got your video recording and then, you know, let me review what, what I said were my preferences. Uh, you know, let me review what I said should be done in an emergency situation if I collapse. And you could just jump to the right point in that recording and review what was said. It was a very simple use case with AI just structuring the information, but suddenly you surface key points from a long encounter to a patient.

[00:38:38] Josh Mandel: I make it really easy to work with. So that's, that's an example of just taking audio, making it more useful. Um, a more fun example for me is chart summarization. So clinical histories are really complicated. Uh, I'll send you an example here where I put together a simple app that I could use to [00:39:00] connect to my own healthcare provider.

[00:39:02] Josh Mandel: They use an epic system. And so I would, I would sign into my MyChart account here, who, um, you want my MyChart and username and password. There's a couple of approval steps here. So before this app can connect to my record, I have to sign in, I have to approve it, I have to review all the different kinds of data this app is going to be allowed to see.

[00:39:20] Josh Mandel: But as long as I'm comfortable with that, I can allow access. Um, well that's fun. My, my poster not be complete because I'm an error. Well, glad it happens to you too. It it sure does. I actually, this, this hasn't failed for me this way, so I'm gonna try it one more time, uh, just because like, I wanna see the other end of this interaction.

[00:39:38] Josh Mandel: But I'm also on the cell phone network here. Maybe it doesn't recognize my IP address. There it goes. So this app is just sent of all my clinical notes. In this case. I have 23 clinical notes with this provider.

Um, and I've been dealing with after effects of a series of concussions, unfortunately. So I'm gonna search all these notes that have to do with concussion and [00:40:00] I'm just gonna copy them on my clipboard.

[00:40:03] Josh Mandel: So that's about 10 clinical notes, um, covering the last four years or so. And I can just use a tool like quad.ai, which is probably the best currently available model that's out there today. And I can paste in, you know, all 10 of those clinical notes and say, please produce timeline, detailed timeline of all concussion symptoms, treatment, et cetera.

[00:40:30] Josh Mandel: And with a prompt like that, this model can sort of churn on that data set and say, sure, you know, it started in July, 2020 where there was an initial incident where I hit my head on a bike rack attached to a car. Yep. No loss of consciousness and so on. Take, you know, year over year, different treatments, occupational therapy started at this point, um, follow up with a primary care physician re-injury.

[00:40:54] Josh Mandel: But like very quickly you can start to get a high level and very accurate summary of information that's [00:41:00] spread across many notes in many years. So you can imagine if you're a patient trying to. Remember your own story or if you're a clinician trying to come up to speed, these kinds of tools are super powerful.

[00:41:12] Josh Mandel: Got two minutes left. Yep.

[00:41:14] Guest: Okay. Let me, let me, let me leave you, um, a question about charting real quick. Yeah, of course. Uh, daughter's a nurse, uh, and she charts excessively and complains bitterly about how much time she spent charting compared to working with the patients. Mm-Hmm. And also newer nurses come to the floor and they become better nurses, but they're terrible at charting and it's all on Epic.

[00:41:39] Guest: And we've talked about what, if you could speak, when you were talking about the audio recording Correct. Is there progress in, in this that, that the charting could be less laborious going through layer after layer of ethic and. Just say what's they're doing.

[00:41:55] Josh Mandel: Yeah. So it's still early days for the application of these kind of technologies [00:42:00] straight in, real clinical workflows.

[00:42:01] Josh Mandel: Uh, it still seem seen as somewhat risky because these AI tools, while they're extremely helpful and extremely good, they do

make mistakes. It can be hard to predict when they're going to make mistakes. Um, and so the places where these tools are seeing the most adoption today are sort of low risk points in the workflow.

[00:42:20] Josh Mandel: So maybe your clinic, a clinician's gonna be writing responses to patient inquiries through their inbox and they've got plenty to get through. And if there was a draft that was like written really empathetically and really clearly in a lot of detail, then the clinician could just quickly review that draft and adjust it and hit send you get higher quality results.

[00:42:40] Josh Mandel: And so this is an example that's been studied in real clinical workflows. Um, it's not fasting. By the time you read a note and edit it, it takes you about as much time as it would've taken you to write it from scratch. But it's much better. Patients like it a lot more because it's detailed, it's empathetic, it's not in these clipped [00:43:00] phrases.

[00:43:00] Josh Mandel: Um, so we're starting to see introduction in these lower risk areas, typically where there's some clinical review stack, but that certainly applies to charting. You know, you might think I'd be willing to spend some time reviewing the information that went in there. Um, if it could save me time in the moment and let me have a better interaction with patients, I think that's really going to be huge.

[00:43:22] Josh Mandel: Mm-Hmm.

[00:43:22] Josh Mandel: Um, one last quick example, which, you know, I'll, I'll, I'll just point to really briefly, which is driving clinical intake conversations. So there's a lot of these domains in medicine where, you know, patients got low back pain, they've got a. Migraine. We've got high blood pressure, there's no treatment protocol.

[00:43:48] Josh Mandel: And, you know, occasionally update the treatment protocols based on research and science. And clinicians have continued education where they'll go learn about the new protocols. Maybe they'll read the guidelines that are published [00:44:00] from professional societies, uh, and hopefully they'll incorporate that information into their practice.

[00:44:05] Josh Mandel: But like the truth is that the things that we think are the best ways to take care of patients are not always implemented in the real world. Um, there's just so many things that get in the way of sort of

following the dial. Sometimes there's lack of time, knowledge, just being used to an old way of doing things.

[00:44:23] Josh Mandel: Many, many reasons. Um, but one of the things I'm particularly excited about with these language models is providing them a set of guidelines and saying, okay, given this set of guidelines for doing an anxiety assessment or doing a headache intake. Simulate a conversation with the patients, ask 'em a set of questions, ask 'em what's been going on.

[00:44:46] Josh Mandel: Um, you don't have to make a diagnosis, you don't have no prescriptions, but just go through this workflow before the patient even shows up for a clinic visit. So they've had an excellent history taken and that information could [00:45:00] be shared with a care team headache. Um, taking a detailed history is a very slow process, and we often take shortcuts in the real world.

[00:45:08] Josh Mandel: It's just, it's proven, but I think that, you know, if we can structure the guidelines right, we're gonna start to see those guidelines being used to automatically drive a dialogue with the patient. Um, so I won't go through the details, but you know, this was an example of one where I, I pasted in the US Preventive Services guidelines for screening for anxiety, which, you know, most people do not do, but the guidelines say that for patients, you know, y age range, you should ask 'em some questions, just no matter what they're coming in for.

[00:45:39] Josh Mandel: See if they're experiencing a anxiety, um, pretty common problem. We just don't ask about it unless there's some real clear truth. Uh, so I just put in those guidelines from the US Preventive Services Task Force and I asked Claude to simulate a conversation with me and it does a great job following guidelines, you know, how old are you?

[00:45:56] Josh Mandel: Uh, I wanna ask you some questions about your mental health to health history. Is that okay? [00:46:00] Uh, I wanna ask you about reproductive status. Fine. There, there's sort of red flags and a pregnancy is one of them. Uh, uh, you know, I wanna ask some questions related to anxiety. It goes through a standard anxiety screener, and the, the great thing about this is it's not like press one or some days, press five or most days where you feel like you're talking to a robot and it doesn't understand what you're saying and it misstates everything you write.

[00:46:24] Josh Mandel: Like this is a system that is capable of understanding fluid language and translating it on the fly just like that. Like it

took that picture of a prescription and translated it into a standard fire payload. It can take, you know, whatever I have to say in response to these questions and slot it into those surveys.

[00:46:39] Josh Mandel: So I think it's gonna be super powerful in terms of providing more consistent care to a broader population. Um, and that's the example I'll lead you with. I'm really excited about this technology overall. Yeah.

[00:46:51] Guest: Thank you so much. Uh, Josh. Okay, Frank, another perspective.

[00:46:58] Frank Byrne: So in, in the [00:47:00] tradition, you know, academia or whatever publication you have to declare any conflicts of interest or disclaimers. I am an unabashed fan of the digital evolution and transformation of healthcare and what it can do, uh, for all of us, uh, to make us healthier, to make healthcare better, safer, and hopefully less expensive at some point.

[00:47:24] Frank Byrne: Uh, uh, that said, I feel about digital health possibly. The way, uh, my wife feels about me. And I, I love, one of the things that that gives me great comfort is my fiercest advocate and my strongest critic is the same person and she has her heaven on the next pillow

[00:47:48] at

[00:47:48] Frank Byrne: night. And, uh, you know, to get to me, I sleep the sleep of the, just because to get to me, you gotta get through her and I don't like your chances.

[00:47:57] Frank Byrne: Okay? And I feel that way about digital health. It's not [00:48:00] perfect. There are problems, there are issues. We still have a lot of challenges to sort through, but it's there. I also have to declare, uh, you know, that I am, uh, a, a, uh, an enthusiastic fan of Epic and what they've done. Uh, you know, as a business partner of Epic as I was during my employed days, uh, I've never worked with a company that was more, uh, customer friendly than Epic in terms of.

[00:48:30] Frank Byrne: Uh, adjusting to things, some of the problems that exist that you've alluded to. Your daughter's charging problem, you know, the charging problem. Um, I can say this 'cause I don't work for Epic. Not an

epic problem. It's a customer problem. Okay. And the way their systems are set up, the systems are not set up.

[00:48:49] Frank Byrne: Tono acknowledge human factors and, and, you know, human limitations. And I'll get into that in just a second. So, just a few thoughts so you under understand the sweep of my [00:49:00] perspective on this. Uh, you're shocked to find out I'm a little bit older than Josh. Uh, and, uh, you know, when I was in med school, the CT scan was just emerging.

[00:49:13] Frank Byrne: It was called the M and that's Digital Health, right? It was called the EMI scan. Does anybody know why?

[00:49:20] Guest: Sure,

[00:49:21] Frank Byrne: Bob.

[00:49:22] Guest: Well, it was, uh, made by EMI Industries, which was owned by the Beatles. Um, at least in part. And, uh, they, they, uh, also did recordings and other things.

[00:49:35] Frank Byrne: E-M-I-E-M-I owned it. And they also had the Beatles recorded.

[00:49:39] Frank Byrne: So it was the EMI scan and not the CAT scan initially, but uh, uh, and it's amazing what that's done right. You think about it, right? They trained surges at that time. If you're not taking out a certain percentage of normal appendices, you're not taking out enough. 'cause you're missing them. But, you know, but Brian's point, the rebound and what's that symbol where you twist the knee?[00:50:00]

[00:50:00] Frank Byrne: All this stuff? Well, you don't have it. Our, our, uh, I don't wanna, I, I won't identify 'cause I don't want to file it as hippie, but hipaa, somebody, um, uh, close to us, uh, had abdominal pain, went to the ER at St. Mary's, had a CT scan Yep. At your appendix. Had an appendix out laparoscopically, didn't burst good recovery, you know.

[00:50:23] Frank Byrne: Mm-Hmm. And so taking out normal appendix. Probably shouldn't happen too much anymore. Um, the MRI, our professor, one of our professors that went to med school in Brooklyn at State University or downstate, Raymond v Damian, you was one of the developers of the MRI Magnetic Ance Imaging. And he showed us this diagram that looked like it is out of a space age, you know, science fiction movie.

[00:50:48] Frank Byrne: And they talked about magnets and magnets, were gonna do this and no radiation. And of course, you know, we were all very accepting of, ah, this guy's nuts. Well, a few years later, of course, things shows up in the New York Times, the [00:51:00] MRI exists and he unfortunately was the one developer who was not a recipient of the Nobel Prize, which you should have gotten when the developers did.

[00:51:09] Frank Byrne: And, uh, there was efforts to try to correct that. Sadly, you know, we see some of the things that have, have happened over the years, uh, uh, during my career. Pretty amazing. Um. You know, the could HIVI was at the beginning of HIV before it had a name. Mm-Hmm. Uh, and the research was slow and you didn't know what it was, and a lot of misconceptions and so forth.

[00:51:34] Frank Byrne: Now it's a chronic disease, you know, with, uh, and, and there was a lot of, a lot of computer work involved in doing that. So I had a perfectly good job where I actually was part owner of the business, uh, which is like the Dean Clinic. Uh, for some reason I went into administration, uh, uh, which I wonder why, but I saw I had this perfectly good job as a simple country lung doctor.

[00:51:59] Frank Byrne: Uh, [00:52:00] uh, but I went there. But it was a, it was a creative health system that wanted to create the future and a better future. And I also was on the hospital board. The bank, you know, there's two regional bank CEOs I think for what was what became, uh, Wells Fargo and Chase and I talked to them about, you know, computers and it, and this kind of thing.

[00:52:20] Frank Byrne: And like we were at least 15 years behind in deploying information technology. That's a generous, it's probably more in, in deploying information technology to improve our services, the quality of our services, uh, responsiveness to customer safety, accuracy, all of those things. Uh, so I went back to school, went to Carnegie Mellon, uh, because of their prominence and information technology.

[00:52:44] Frank Byrne: And we had this professor, latanya Sweeney was brilliant. And she, uh, uh, she went back to our at Harvard later, but she's continued, uh, to publish. And, you know, she was showing us the promise of digital health and what we could do with the data. And she [00:53:00] also, by the way, opened up in class Unscreen like this, uh, again, I won't mention anybody's name, but the health record of eight.

[00:53:08] Frank Byrne: Prominent CEO of a multinational corporation based in Pittsburgh, you might or might not have later become a sec, a cabinet secretary and showed us that, you know, you gotta worry about privacy too because it's uh, you know, 'cause you're gonna give that up. So that, that's sort of the sweep of things. Then the EHR started, uh, uh, being implemented and you could get, uh, commercial off the shelf, which was Meditech basically.

[00:53:38] Frank Byrne: You got what you got. That's what you got. Thank you very much. Mm-Hmm. If you don't want that, see you later. Then there was other systems, and then these cobbled together systems, best of breed days where cardiologists would come back from a meeting and there'd be a software, you know, an application that they wanted to do that was just, oh, absolutely had to have it.

[00:53:58] Frank Byrne: PS didn't work with [00:54:00] anything else. It didn't interface well with other things, and it was a nightmare. The IT people, uh, told us it was gonna be a nightmare. Uh, there was also proprietary the data and using the data and data should be available to make everybody's health better. It should not be, uh, you know, a revenue stream for somebody.

[00:54:20] Frank Byrne: So for example, American College of Cardiology to do cardiac research, uh, you had to be in the a CC database, which was a huge revenue stream for the Berg College of Cardiology, the surgeons at Squi, uh, uh, for the, for surgery. And that was expensive. And by the way, how did you populate it? Back to your point, Josh, you had highly paid, skilled healthcare professionals.

[00:54:42] Frank Byrne: A lot of times nurses. Abstracting charts. Collating the data, entering the data manually. Right. That, that was my third example, which I, I cut for time. Yeah. Yes. Well, uh, so there you go. Back in. So it was terrible. So we had a great community research center where I was in Fort Wayne apart for research [00:55:00] center, one of the most successful community hospital research centers.

[00:55:03] Frank Byrne: You're talking about research in the country because we were easy to work with. Uh, we kept the data, we paid for the databases, we had people, we enrolled patients when we said we were going to, and we were easy to work with than large academic medical centers who always wanted more money and they wanted to do it their way because they knew the best way.

[00:55:21] Frank Byrne: Uh, so there's a lot of community hospital research being done now that's all automated. Right. And those nurses are doing. More important things like inter interfacing with the patients and treating the patients. Saw, you know, the development. We went out to GTE, which is now part of Verizon. Uh, they, they had a regional office there and they were showing us, well, look at this.

[00:55:41] Frank Byrne: Here's an otoscope. I can put it in your ear and the computer, and it comes up on a TV screen wherever you wanna be,

[00:55:48] you

[00:55:48] Frank Byrne: know, and can look in your eye otoscope, you can look at your skin leash. All of this has come to pass now, right? The stuff we dreamed about in Latonya swings class at Carnegie Mellon is all coming to pass.

[00:55:59] Frank Byrne: Now [00:56:00] with, with, uh, with digital healthcare, uh, you know, there's also non, you know, clinical, there's clinical stuff that's also. Uh, digital health, right? Like the new scopes and robotic surgery, that's all the stealth station for neurosurgery. It's like if I'm gonna have brain surgery, which I'm hoping to avoid, uh, the stealth station, which has a new name now, right?

[00:56:24] Frank Byrne: Better mapped, more accurately mapped where the areas of the brain were that they wanted to operate on. That less interaction with, uh, you know, normal brain and so therefore less morbidity, better recovery, uh, more complete recovery. I'd like that station. Robotic surgery, the outcomes were the same for prostate surgery, but the recovery was short.

[00:56:46] Frank Byrne: You couldn't give away a non robotic prostatectomy in this town. In, in beginning about 2005, 2006, robot. Here's where our cost's coming, $1.7 million. And it's, so, [00:57:00] it's the razor blade model. 'cause there's disposables with every case, except the handle of the razor blade is very expensive. 1.7 million. More than that now, by the way.

[00:57:09] Frank Byrne: So, you know, um, personally, remote monitoring is an intensivist, remote monitoring viscu, which that later was bought by Phillips. Um, and when I asked, uh, E Epic, you know, when we were looking at

some of that, they said, we're not gonna do that for a while. If you need that now, you're gonna have to go with with that.

[00:57:29] Frank Byrne: But they could do it now. But, but Icq there shortage of intensivists. Uh, patients needed to be monitored properly. Uh, UW had a bunker where they had, they had an early system here too that's out on Old Middleton Road and, and lower level of a, a place that, uh, uh, Dennis Mackey and others sit there and monitor patients from all over the state and they could be anywhere.

[00:57:52] Frank Byrne: It took my son to see. The robot, uh, at Mayo in Scottsdale, uh, when he was a young [00:58:00] teenager. And he said, so dad, if the surgeon's over here and the patient's over there, why couldn't the surgeon be in the next state or another country? And I said, exactly. That happened. The US uh, military was doing sur, you know, was having surgery supervised from Hawaii that was being done invo, for example, at that time.

[00:58:19] Frank Byrne: So, I mean, these are all great, uh, great advances. Uh, personally, you know, I will say I had a, a weird illness, but since where it's not a HIPAA violation of, I say it, I had this weird febrile illness in 20 18, 20 19. I got fantastic care at Dean at St. Mary's, uh, from Dennis Mackey at uw, uh, and ultimately a Mayo.

[00:58:42] Frank Byrne: Then when I was referred up there and my records thanks to Epic were all, uh, and, and all the systems happened to be on Epic. Mm-hmm. My records were always where I needed 'em to be. My images were always where I needed them to be so they could decide what to do and they could decide who should be [00:59:00] doing it.

[00:59:00] Frank Byrne: And when I had to have my spleen taken out, who was the surgeon that should do that? Um, uh, and, and our oncologist and surgeon here said, no, this is the guy you have to go to 'cause this is gonna be a mess. Which it was. Um, and it all worked out because guess what? I'm here tonight. So, uh, which was in, in question for a while.

[00:59:21] Frank Byrne: So the point is, all of this stuff has evolved now with remote monitoring, with telemedicine, shortage of psychiatrists and behavioral healthcare. You can do that over it. Over, uh, you know, telemedicine, uh, telestroke we started, right? Stroke screen. Bob's specialty, right? Uh, screening for stroke. Do you get the clot busting drug or you need an intervention?

[00:59:42] Frank Byrne: You need somebody to pull a clot outta your brain that you can do all that stuff, uh, remotely. Dermatology. The, have anybody tried to get an appointment with a dermatologist? Oh, in this millennium, uh, you know, uh, so you can do all that, that kind of stuff. It's, it's fantastic. And you have, [01:00:00] you know, the Apple watch now, which is like, he's got EKG, oxygen saturation, heart rate, sleep monitoring, and coming soon they say blood pressure.

[01:00:12] Frank Byrne: So, so all of that stuff is digitally enabled. And then you think about how many lives are saved, digitally enabled vaccine research, operation, warp speed, how many lives have been saved, uh, because of that. So that's why I'm a fan, the bad. Has been privacy loss. We don't have it. And you know, so it's always been a trade off.

[01:00:34] Frank Byrne: Just as in the old paper medical record days, you could have a perfectly secure medical record under a lock key, or you can have an open access medical record to make sure your records are where they need to be. And to have that your privacy's at risk. Because now guess what? We've had the data breaches.

[01:00:51] Frank Byrne: Ascensions was a mess, right? A mess. Huge impact. I mean, we got, last year we got [01:01:00] four or five different notifications of data breaches from healthcare change, healthcare, uh, a company called Navis that was a contractor, a contractor to the people I was getting in the system where I was getting my healthcare.

[01:01:13] Frank Byrne: The change health thing is huge. Billions of dollars. HSHS, uh, based in Illinois. But with operations here where I'm on the board, we had a breach, you know, and, uh, it could happen to anywhere. My, my, our daughter is, our older daughter is a. Vice president of cyber or uh, insurance underwriting for Berkshire Hadley Company,

[01:01:32] uh,

[01:01:33] Frank Byrne: based in Atlanta.

[01:01:34] Frank Byrne: Mm-Hmm. And like we talk about, we, you know, we're like cyber nerds together, talking about some of this stuff. And he said, yeah, this is not good. Uh, but we don't do healthcare cyber insurance. You don't do it. We don't. They do healthcare. Professional liability.

[01:01:49] Josh Mandel: I, I just, I have a snarky side comment about the privacy laws.

[01:01:53] Josh Mandel: We do have the laws. If we didn't, you wouldn't hear about any of those breaches, right? They would

[01:01:58] Frank Byrne: just go silently. So the laws are, but we [01:02:00] don't have privacy. We, we don't have privacy. So the, and the breaches, the breaches are important to report, right? There are requirements of a certain number of patients that are affected.

[01:02:08] Frank Byrne: Not only do the patients have to be notified, like, well, everybody's giving me free credit monitor, you know? Right. They won't gimme the credit,

[01:02:19] Frank Byrne: but, you know, and then if it's above a certain number, you've got, call you, you've got, you've gotta notify the media. You've gotta tell the media that it happened. So, you know, a certain organization, I, by the run I've been affiliated with, we had a surgeon who was keeping their records on their computer, which they needed for their maintenance and certification and surgery, and the computer, uh, was stolen, uh, from their car or their home.

[01:02:46] Mm-Hmm.

[01:02:47] Frank Byrne: That was, and there was enough patients on there that it reached the threshold that we had to report it, you know? Uh, and, and, and that's good. So, yeah. So I, I, what was the snarky part of the comment? And we, I'm glad that we have the privacy [01:03:00] laws. It's just that, you know, our privacy is in play. You know what the, once, once the date is gone, it's gone.

[01:03:07] Frank Byrne: The bad, you know, uh, the way this is going, and to your daughter's point, the administrative burden, see, all of that is driven by this crazy payment system we have. That is, and again, this is not an EHR problem. ER vendor problem. This is a system problem. The outmoded forms of payment. People talk about value-based care.

[01:03:33] Frank Byrne: It's all in my observation. Lip service. What providers are doing right is churning fee for service billing. You know, not just the providers, insurance companies. You'd think, oh, I signed up for United

Health Group's Medicare Advantage, and guess what? They're gonna send a nurse to my home. This is in the front page of the Wall Street Journal.

[01:03:53] Frank Byrne: A couple months ago. They're gonna send a nurse to my home. Well, that nurse was there and she met with the patients. [01:04:00] And what did she or he do? They reported back diagnoses that were not in the medical record, entered them so that their fixed payment for the Medicare Advantage payment Yep. Would be higher so they could bill more.

[01:04:11] Frank Byrne: It had no impact on the patient's health. These were not diagnoses. They were being treated for, you know, as a balogna. Okay. Then you have the thing with, I love MyChart, right? I mean, it's asynchronous communication. As a patient, I love it as a doctor, you know, there's a lot of it I would love, but the systems have not put in place.

[01:04:33] Frank Byrne: The healthcare systems have not put in place, uh, a rational way for, uh, utilizing this. You mean by a, a doctor I know, let's say had a system that he, he, he built, he or she, they built this a s Gump works where had a long-term unit secretary. And, uh, a long-term nurse. The [01:05:00] nurse knew the patients, the secretary knew the patients.

[01:05:03] Frank Byrne: Uh, and, uh, you know, they might or might not have managed all the out-of-network referrals for somebody that I might know. And they might, you know, they, if they, they knew all these things and they knew that I couldn't be around other people. And so if I needed, before we had home Covid test, they say, okay, pull into the slot outside urgent care at the clinic, you know, asking for a friend, uh, pull out the side, oh, come outta the spot of your nose.

[01:05:32] Frank Byrne: Right? Well then, then of course, operations gotta be efficient. Those people aren't there anymore. And the doctor went from seeing, let's say 15% to 10% of their inbox to a hundred percent. Which is not the right number and it's not practicing. One of the cliches was practicing at the top of your license, right?

[01:05:53] Frank Byrne: So, uh, another company I I work with here, it's called Forward Health Group. They have a data analytics product that [01:06:00] actually works. This is about an advertisement for them. Michael Barbus, uh, who I first met on, uh, uh, uh, Wisconsin Collaborative for Healthcare Quality 20 plus years ago. Uh, and so we work with groups, analyze their data and look at things including this, a product they have

called Clinician Pulse, which you know, is looks at how are the systems set up because burnout is epidemic now over half of physicians.

[01:06:27] Frank Byrne: A lot of nurses, uh, the nurses just don't complain as much. They've got it just as bad. They just quit too. Same thing with some of the doctors, right? So, so anyway, working with a group of 23 primary care doctors in the Midwest, somewhere in the first nine months of 2023, those doctors got. 1.3 million messages in their inbox, uh, in their, it's on manage, it's in humanly possible for tho for individuals to [01:07:00] handle that.

[01:07:00] Frank Byrne: Right? And it was, it was self-inflicted wounds because 54% of the messages were internal for every test that the physician ordered. They got three messages.

[01:07:15] Frank Byrne: That's wrong. That's what that has to be fixed, you know, and, and, uh, and so, so that has to be done. It's, it's, uh, it's just, it's, it's just that, uh, able to be there. Now, one of the other downsides, we talked about surgery and the advances. One of the things I've heard, some surgeons that might be in the same age domain as me, rather than Josh say,

[01:07:41] Hmm.

[01:07:41] Frank Byrne: Do they know what to do if things go wrong or if it's unexpected? You know, if the, if the, do they know what to do? If they have to open you for your gallbladder surgery or your appendectomy or whatever. I mean, it was just a tragic case that got national publicity a few weeks ago where a surgeon goes in laparoscopically [01:08:00] and to do, to take out somebody's spleen, let's say, close to home, and, uh, took out the patient's liver by mistake, goes out and tells the family.

[01:08:08] Frank Byrne: That's the biggest spleen I ever saw. Well, guess what? It wasn't a spleen, it was a liver patient died. So, I mean, so you have to, you know, you have to acknowledge that these things can happen and you have to prepare for it. And lastly, the ugly, you know, the cost of care and technology is not the reason for the orbital cost of care.

[01:08:30] Frank Byrne: The technology can be used to mitigate costs. We're not, you know, it's, that's, it's the outmoded payment system. Which is crazy. I mean, the provi, you know, the people providing the care as we had here with the fully integrated systems, you know, we had three, the three largest insurance plans here when I came 20 years ago were provider

sponsored plan with the people who were caring for you were responsible not only for the quality of your care, but the cost of your care.

[01:08:59] Frank Byrne: Mm-Hmm. So you had [01:09:00] Dean Health Plan, you had Unity, which became quartz, and you had a course Physician Plus, which is now part of, uh, quartz. Right? And, and so they were exp they accepted that responsibility. That's the way it should be. And by the way, under those systems, if we had that kind of a system, you wouldn't have to work about all this coding our can, about how many, you know, how much of this and how much of that and how much time did you spend.

[01:09:27] Frank Byrne: You'd just take care of the patient. Which it turns out there's doctors in the room, Ron, Josh, uh, others. That's why I went to medical school, you know, not to, not to sit there and check boxes and all this stuff. The huge promise for me back going back to when I, the nineties when I went to Carnegie Mellon was decision support.

[01:09:48] Frank Byrne: I mean, somebody told me sometime in this brain scientist here, so I gotta be careful what somebody told me in, in an academic class that the human brain can integrate maybe seven facts [01:10:00] in making a decision. The computer has no such limitations if you set it up. So the computer's not gonna tell me what to do, but the computer, as Josh has pointed out, can make suggestions and show me and give me something to consider.

[01:10:13] Frank Byrne: You know, there's all sorts of, um, flaws in human decision making in terms of your biases and, and that kind of thing. It's, it, it, it comes down to the root of if all you have is a hammer, everything looks like a nail, uh, you know. But, but, uh, so those kind of things for decision support that's untapped so far that I, obviously we can see where we, where we can get from there, you know, and there's, there's so many, uh, different things that are going on that, but we have to think about what's right for the patient, what's right for the people, taking care of the patient.

[01:10:53] Frank Byrne: Actually, I mean, the only reason I think administration exists in healthcare or should exist in healthcare is to make sure [01:11:00] so that every doctor, every nurse, every technician, every housekeeper, every food service worker can go home every day, every shift, proud of the work they've done, period.

[01:11:10] Mm-Hmm.

[01:11:10] Frank Byrne: That's it. And the barriers are, I mean, I went out to medical school. Uh, there were barriers. You, you know, you had to have a jackhammer to get through, get people care in Brooklyn, you know, in the seventies in a city hospital. Uh. And so these are the types of things we have to blow away, but digital health has great promise for that.

[01:11:33] Frank Byrne: And then I'll conclude with a quote from Machiavelli from 1514. Beware those who would introduce a new order because you have strong enemies and those who profit from the old and only weak allies and those who might benefit from the new. All right. Thank you so much.

[01:11:57] Guest: Any more questions? I, I'd [01:12:00] like to make some comments because Okay. Please. I, I think there needs to be a little more controversy here. Good. And, um, uh, number one, uh, we, we heard an example of waiting six months to see a specialist. That's good. Uh, I mean that, that's better than some of the specialty practices here in town.

[01:12:21] Josh Mandel: Yes.

[01:12:23] Guest: Uh, another example of how, how do you get an appointment with a dermatologist? Uh, I can tell you some experiences there. Um, and it, it's, it is not just one system. It's, uh, Madison has an enormous number of doctors per capita. So we, we don't, we're not underserved in terms of specialists and, and primary care doctors.

[01:12:48] Josh Mandel: Mm-Hmm.

[01:12:48] Guest: But, uh, this computer system is worthless if patients can't get into the system to, to interact with the computer [01:13:00] and, and for all these people that are, are waiting in line. And if you, if you need to see a neurologist and somebody says, well, you know, we're gonna, we're gonna refer you to neurology.

[01:13:12] Guest: It might be months now in my current. Uh, work I'm doing peer review and some other things. Um, and, uh, I, I see patients that need to see a neurologist and have been seeing PAs and Mm-Hmm, uh, other people. Mm-Hmm. And haven't seen a neurologist for a year 'cause they can't get in. Um, and, and, and I am, it wasn't that long ago, I made a diagnosis of a LS on a patient.

[01:13:43] Guest: Mm-Hmm. That should have been made months and months ago. Uh, be because they couldn't get in. Um, um,

[01:13:54] Frank Byrne: that's right. I have a family member, uh, well somebody close to me who's been trying to get a [01:14:00] neurology appointment, uh, for an acute problem in another city. Uh. It's been over a month trying to, to complete my thoughts.

[01:14:11] Guest: Um, so access is, is really a problem in our system. Part of the problem is the electronic medical record and the, um, and I, I can't give you a percentage or whatever, but, uh, it, it really slows down the practice, uh, for people that are trying to deliver care. Uh, there's a, a, a doctors who talk about, uh, pajama time.

[01:14:42] Guest: That's the time when you have left the clinic and you're still on your computer at home trying to tidy up Epic or whatever system you're using to meet all of the requirements. Uh. [01:15:00] For, you know, these three messages that you're getting where it could've been long, uh, those kinds of things. Uh, and that's why, uh, we've got burnout, people that are quitting early, people that are, uh, and that's not just doctors, it's nurses.

[01:15:18] Guest: At the same time, there's an overload of information. I, I saw a chart just about a week ago. It was a first visit, physical therapy visit.

[01:15:29] Mm-Hmm.

[01:15:30] Guest: And the note was 37 pages long. Mm-Hmm. Oh my God. Now

[01:15:38] Guest: it, you know, was, it was maybe one page of what should have been there and 36 pages of bs.

[01:15:45] Josh Mandel: Mm-Hmm.

[01:15:46] Guest: Uh, but, uh, the, the amount of data that is collected is, is, uh. Exorbitant. And, and a lot of it is you can't see the [01:16:00] forest because of the trees. And, and, and so the question is, you know, what is important? How, how do you enter the data in a efficient manner?

[01:16:11] Guest: Uh, how do you, uh, have time to talk to the, the patient instead of spending all your time, uh, stressed out and doing data? And

[01:16:22] Frank Byrne: so let me just say this one, the AI summary you see now, right? When you do a Google search. Now,

[01:16:32] Frank Byrne: not only do you get the references under if you're getting a summary Yeah. Of what all those things show, you know, so I mean that, that can sum as that 37 pages of gobbly book, most of them, much of which there I'm guessing, to justify billing, you know, to justify some sort of billing code. Number two, this thing with the messages.

[01:16:53] Frank Byrne: The charting. Uh, I get it. Uh, my opinion, it's not an epic problem. [01:17:00] It's a system problem. Like that group of 23 primary care docs with 1.3 million messages, 54% of them internal, the system is not set up right. You know, and, and, and the fact that certain doctor I know went from seeing 15, 10 to 15% of their inbox to a hundred percent that, I mean, that's, the system is failing there.

[01:17:26] Frank Byrne: That's not, it's not Epic's fault. It's not not Epic's problem. Epic's not gonna blame the customer, but it's customer problem. I mean, I get my own son-in-Law Okay. Is a family doc in the Pacific Northwest. And his third year of practice, he went to 0.8 FTE from full-time. Oh my goodness. And I thought, huh, that's interesting.

[01:17:48] Frank Byrne: But I spent some time out there. I see his routine. He comes home from the clinic. He, he, he stops at, he stops at the gym on the way home, as one must [01:18:00] comes home, picks up our granddaughter, puts her, puts her on his knee, and then dives into closing his chart. So he's paying the price, okay. For the inefficiencies of the system.

[01:18:11] Frank Byrne: He's only getting paid for point A. If somebody said, I brought this up in a meeting, he says, well, he is only working, you know, equivalent of full time. I said, yeah, but he's getting paid for point A. Why should he personally pay the price for the system failures that make him less efficient? That doesn't seem just to me,

[01:18:29] Guest: but, but isn't it part of Epic's design with the system and the doctors and the input from the clinicians to design a system that's more efficient?

[01:18:42] Guest: It is custom software. I mean, it, it is tailored in my understanding. To each entity. And so when you say the system, I'm thinking it's a breakdown between the healthcare clinician's ability to translate what they need and the epic [01:19:00] coders to deliver that product. They're the, they're the breakdown, the,

[01:19:03] Frank Byrne: the number.

[01:19:04] **Frank Byrne:** It goes back to something Josh said about best practices clinically, right? That was shocking. There was a study in, in JAMA or England Journal, I don't know, 20 years ago, whatever, that showed that for diabetics, even if they were all receiving care from an endocrinologist, only 35% of them were receiving recommended care.

[01:19:24] **Frank Byrne:** There are ways to do this with the systems. You know, some of the physicians I've seen, uh, uh, you know, or complaining about some of these things haven't spent the hour or two hours it would take to train to have the system configured to deliver what they want the way they want. Um, I had another family member who I wanna identify who's now.

[01:19:48] **Frank Byrne:** Working in the, uh, as an attorney, I guess I'm allowed to say, in the federal court system. And, um, uh, I asked, I asked this person, I [01:20:00] said, well, does it make you nervous when you have to go to court now? And he, you know, federal cases. And he said, listen, I used to do two all-nighters in a row to meet with a group of neurosurgeons that, that were, when I worked at Epic, that were convinced they didn't want to be on Epic.

[01:20:18] **Frank Byrne:** Going to court is a piece of cake compared to that. So, I mean, I mean, what do you think about that? I mean, I think the system's sticky.

[01:20:27] **Guest:** Joshua agree with Eileen. And actually one of the questions I was gonna ask both of you in, in my experience in observing all the systems that are interacting with Epic, and I used to go over and meet the head of population health at Epic Coffee or Jessica Fel and over and over and over.

[01:20:47] **Guest:** We talk about all the functionality that would make primary care lives better to do population health improvement they haven't adopted 15 years later. Most of the things I recommended, um, [01:21:00] and so my question is why don't clinicians have more influence how Epic and Cerner and other systems are designed?

[01:21:09] **Guest:** Because there are very few physicians like Josh that are really taking an active role to try to change. Uh, but I don't see, I don't see it.

[01:21:22] Josh Mandel: What do you think? What do you think, Josh? I think you're right that it's absent or rare. Um, I have a lot of complicated feelings about Epic, but I'll say that one thing they do well and almost uniquely is that anybody who is working there on the software, I.

[01:21:41] Josh Mandel: Spends a little time at a hospital sees what, what a deployment looks like and the chaos that happens. You know, when you're first trying to go live these systems, they understand like the customer's paying much better than engineers at most other software firms do. Like when I was at Google, we spent a [01:22:00] long time I, the Google Life Science company, we spent a lot of time trying to figure out arrangements by which our engineers could spend time shadowing clinicians and hospitals.

[01:22:10] Josh Mandel: Mm-Hmm.

[01:22:10] And

[01:22:11] Josh Mandel: seeing the electronic health records system close up, because this is important for developing ideas about how to improve it, getting those kinds of agreements on the books super hard. And so like that's a place that Epic has done really well in terms of getting visibility.

[01:22:24] Guest: Turn of hospital systems.

[01:22:25] Josh Mandel: Absolutely. But, but the, there is a, a deep structural problem here that is the jobs that the software is doing is only one part clinical, right. Like the clinicians are. At least historically, not really. The ones selecting software. I'm like, yes, the software needs to support clinical workflows and be sort of adequate at doing these jobs, but it needs to be able to manage billing risk, you know, enterprise resource management, constellation of functionality.

[01:22:55] Josh Mandel: Sure.

[01:22:56] Guest: But yeah, organizations like Forward Health, like you mentioned, and I've just [01:23:00] seen the results and your company to you help forward health clearly shows drastic inefficiencies with some basic processes. The number of clicks it takes to do are refill the number of clicks. It's just unbelievable. I mean, the report you're talking about with that 23 doctors is not, um, advertising the efficiency of primary care workflow that's accomplished to HR because it's repetitive across all of it.

[01:23:33] Guest: They all do it. Fairly poorly. Mm-Hmm. So I'm just wondering, is there a way of getting clinicians more involved? I mean,

[01:23:43] Josh Mandel: RA raising expectations is huge. Complaining about stuff tirelessly is huge. Uh, I mean, honestly we've put up with very broken and vision systems. Things that in your consumer life you would walk away from, [01:24:00] you would say, I'm not booking my travel with that system next time, because it was awful.

[01:24:05] Guest: Go to,

[01:24:05] Josh Mandel: well, so this is the problem. The switching costs are high.

[01:24:08] Guest: Well, yeah. And, and from the consumer point of view. Well, and there's a monopoly right now, right? Well, they're just, I'm thinking of access. Expensive. I mean, back to access. And the fact that because of all of these innovations, we seem to have fewer providers who are more unhappy.

[01:24:29] Guest: So the providers are unhappy. The consumers are miserable because they can't get seed. So some something. The big change here is, is all the electronics, that's the big change, the implementation.

[01:24:45] Frank Byrne: So I would disagree that the root cause of the provider unhappiness and burnout is the electronic health record and it's multifactorial and you know, [01:25:00] is linked to other societal issues.

[01:25:03] Frank Byrne: I mean, when we were in training, nobody care whether I had a life or not. Okay? Nobody cared.

[01:25:14] Right?

[01:25:14] Frank Byrne: In fact, if you express concern about not having a life, if you express, express concern about your own personal needs or wellness or health, it was looked at as a sign of. Okay. And so you're layering that culture on top of all this.

[01:25:34] Frank Byrne: And I would also say, and I'm not, I'm the last person to, you know, adopt and blame the victim mentality. But I think that as physicians over the years, I've seen that when we see something that's wrong or unjust that needs to be fixed, there's two paths. You retreat to the

doctor's lounge and complain about it, or you say you're gonna do something about it.[01:26:00]

[01:26:00] Frank Byrne: You know, I gave up, like I said, I, you know, I know Martyr, but I gave up a job that I love because I felt like I'd have a bigger impact. I mean, same reason probably Josh does what he did. I felt like I could have a bigger impact trying to fix the bloody system. How'd that go? I got scars in the T-shirt, but no great results.

[01:26:23] Frank Byrne: Uh. But doing that, I think the physicians did not engage in this process. Look, so we did, we had a, like my first week as hospital, CEO in another state, they were starting the implementation of a process that had been approved for nursing documentation on the computer in a system called care manager. You know, and, um, the c the chief nurse executive wanted it.

[01:26:50] Frank Byrne: He wanted that system. There weren't many nurses involved. We had all these tablets that they had picked out and they put in the room and the nurses were [01:27:00] supposed to take the tablet off the wall and do the charting right in where the patient spend time with the patient. To my knowledge, no tablet was ever lifted off the charger wall in that hospital.

[01:27:12] Frank Byrne: And then a cardiac surgery came into my office when no cardiac surgeon, you know, was known to be someone that was not. Um. It, it was more looking at the dark side of the cup. The cup is half empty, if you will, rather than half full. And so he'd say, he chart in his notes, I can't tell if my patient has a fever or not.

[01:27:36] Frank Byrne: Oh, because I can't find the temperature record. You know, there used to be a Flipboard that hung at the end of the bed and it wasn't there anymore and he couldn't find it. And guess what? He was right. It didn't exist because the nurses were working around the system for their old workflows, which weren't considered and keeping scraps of paper and then charting everything at the end of the shift.

[01:27:58] Frank Byrne: So he didn't know when he [01:28:00] was on round. But then when the, the colorectal surgeon, who later became the Chief Medical Information Officer, came in and slammed his fist on my desk and says, you better tell that chief Nurse Executive not to tell me that a system that fundamentally changes the way I interact with my patients is just a nursing documentation system.

[01:28:24] Frank Byrne: Mm. And he walked outta the office. So that's the type of engagement we need. I mean, we took, we shut that system down. We had to keep paying for it, by the way, for a while. Sure. But we said, no. Okay. This is worse. You know, we need the doctors and nurses, uh, to feel comfortable with this more than we need to have a state-of-the-Art Computerized Documentation System.

[01:28:46] Frank Byrne: I'm not saying that the EHR should be shut down, but, you know, we had highly placed people from Epic at our go live. And, and Dean pulled us through, Dean started before, uh, the outpatient record. [01:29:00] And it was great because they were pulling us through, as opposed to the doctors, a lot of places that were holding their breath and stamping their feet.

[01:29:07] Frank Byrne: But we had, we're going to the implementation and some new Epic implementation person came down to the command center, they called it. And one of the highly placed people from Epic was there. They, and he says. Okay. Okay. There's an issue with medication administration, but I figured it out. If we just get the nurses to reverse these two steps in the way they administration, they administer the medicines, it'll be fine.

[01:29:33] Frank Byrne: It'll work.

[01:29:34] Hmm.

[01:29:34] Frank Byrne: And the person from Epic looked and said, that's not how we do it. That's not how we do it. We're here to make them do, we're here to help them do their work the way they, the way they're supposed to do it, the way that they think they should do it. That's what's missing Eileen, right? Is people engage to say, how should the work be done?

[01:29:58] Guest: I, I'd be curious, [01:30:00] uh, how many doctors, nurses are on the Epic staff getting, but I know for a fact an ER doc friend of ours was pulled in to evaluate the ER module, whatever it's called. And he kept saying, well, it'd be better if it did this. It'd be better if it did that. And they told him no. This is how the demo goes.

[01:30:23] Guest: Just shut up and get the demo. And, and that is the truth. And he quit a year later.

[01:30:28] Frank Byrne: So they have user councils, right? They have user group in the fall. They have XGM for the people that are yeah, that, that meet every spring. They split it up into two meetings. There was a working meeting, sharing best practices.

[01:30:41] Frank Byrne: There are people who have figured these things out. There are people who have figured out the workflows and the message flows in a way that's humanly possible. That doesn't risk error. You know, it doesn't risk error. And let's face it, a lot of people died. One of the things that motivated, uh, ju [01:31:00] start Epic was a patient of her husband's who died because.

[01:31:05] Frank Byrne: He was p pediatrician, her medical record wasn't available. She was in an er, some in another town. Mm-Hmm. And that was the right medication for most people, but the wrong medication for her. Right. So getting the information there, sorting out all of this data to make it useful. I mean, this is where I think, I mean, AI has a downside too.

[01:31:28] Frank Byrne: People will be complaining about some of the stuff. But I mean, the AI stuff now that people use, it's like this lawyers, right, where was, was threatened with disbarment because he, he used AI to develop his brief and the cases were made up, they didn't exist. Some of the medical studies that are reported, some of the don't exist.

[01:31:46] Frank Byrne: Right. Mean,

[01:31:47] Guest: yeah. I, I think we're, we're at our, uh, uh, stopping moment, but thank you so much. You let,

[01:31:52] Frank Byrne: could you let Jess say something? Yeah. Yeah. I think so. Just what are your thoughts on,

[01:31:58] Josh Mandel: I think the AI systems, you [01:32:00] have to know what they're capable of and what they're not capable of. They're getting rapidly better.

[01:32:04] Josh Mandel: So like anybody who's not playing with these tools, developing expectations and, and watching when those expectations are met and exceeded, anybody who's not engaged in that process is gonna be very quickly left behind. But yeah, I mean, there's, there's gaps today. Gotta

[01:32:19] Guest: be careful with it. Both of those are true.

[01:32:21] Guest: Yeah. They'll, last thing I'll close with in my tiny, tiny level of experience in software compared to what you heard today, is there are very few people who are willing to take a, a knife to a business process to optimize it. That's the biggest thing, you know, and to make nurses better or, or you know, what, neurologist or whatever, because what'll happen is two people's lives will be worse, but then a hundred people's will be better.

[01:32:47] Guest: Right. Plus all their customers, their patients. And that's really hard and it's very few people are willing to do that. So I think, you know, software reflects, techno reflects humanity, all the good, bad and ugly as we started with. [01:33:00]

[01:33:00] Frank Byrne: And

[01:33:00] Guest: thank you

[01:33:00] Frank Byrne: you so much for, so lemme just say this. Sure. So for example, we, years ago, in a far, far away, in a different state, we implemented a scheduling module for the, for the staff, right?

[01:33:10] Frank Byrne: For specifically for physical therapy. But they take the same rules they had, which didn't make any sense from the manual system and put 'em in the computer system. So all they ended up with, they went from a bad system to an automated bad system. Right. It was a disaster.

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