[00:00:01] Michael Hasselberg, Ph.D., RN, PMHNP-BC: We have since built our own data science team in house, data engineering team in house. We have several AI development platforms with lots of different foundation models on them that we leverage to develop our tools. We develop an AI tool one a month and we deploy them at scale across our health system. And we have about 27 that we have totally built ourselves deployed at scale at Nebraska Medicine.

[00:00:31] Narrator: Welcome to AM Healthcare Industry Group's what's your Moonshot Podcast series where leaders seek to solve big problems and transform healthcare. Join us for conversations to hear how their vision and bold moonshots are becoming reality.

[00:00:48] Seth Ciabatti: Welcome to AM's what's your Moonshot Podcast series. I'm Seth Gabadi, Managing Director at Alvarez and Marsal Healthcare Industry Group. I'm joined by my colleague and co host Travis Sherman, Senior Director in our practice and today we are thrilled to be joined by Michael Hasselberg, Chief Transformation and Digital Officer at Nebraska Medicine.

Welcome. We are really looking for this discussion.

[00:01:10] Michael Hasselberg, Ph.D., RN, PMHNP-BC: Thanks for having me, both of you guys. This is going to be fun.

[00:01:14] Seth Ciabatti: So Michael, you know, in today's world any healthcare conversation, everything AI comes up. It's a certainly it's one of the first or second topics we have with our with clients and current clients and potential clients. And Travis and I both are always in these conversations. So it's always what's coming, what is here, who should I which AI company should I partner with. And so frankly you may be the most well versed podcast guest in AI that we've ever had. We'd love to hear a little bit about your experience and knowledge of AI. And then what are the cool things Nebraska Medicine is doing? Because I'd say that you know, as far as a health healthcare organizations, Nebraska Medicine may be would say a very high performing user of AI.

[00:01:55] Michael Hasselberg, Ph.D., RN, PMHNP-BC: Yeah, no, I don't think you can get away with the conversation without saying the term AI anymore these days in healthcare, probably in any industry at this point.

My thesis on AI really changed in early 2023.

Background about myself I was formerly the Chief Digital Health Officer at University of Rochester medicine had spent 23 years of my career at that health system and I'm new to Nebraska Medicine. I've been at Nebraska Medicine now for about eight months in the role of Chief Transformation and Digital Officer. But back at Rochester in early 2023 we were one of the first health systems in the country to get early access to specifically GPT4 in a secured private manner. And at that time I was co leading the innovation arm to the health system. I Had a data science team, a data engineering team. You know, we had years of experience prior of building our own computer vision models in house, building natural language processing models in house. And to be frank, outside of image, we had difficulty building machine learning models that really made sense of the language and the electronic health record. And we would spend six months to a year trying to develop a model in house and more times than not it failed. We got

access to GPT 3.5 and again this was end of 2022, early 2023. And to be frank, you know, that foundation model didn't outperform some of our NLP models that we developed ourselves.

Here comes GPT 4.0 and it was a tremendous leap in regards to how well the model performed. And we started putting Phi into that model and really testing the boundaries. We were blown away with what it could do and our ability to get a prototype spun out to solve our problems within our health system went from again six months to a year to now I'm able to spin out tools that were actually beneficial within weeks to months. And so at that point it was to me game changing. And I developed this thesis of why would I ever talk to an AI vendor again. And despite this proliferation of AI startup companies, I felt that there was this major paradigm shift that it's never been easier for a health system, specifically an academic health system, to develop their own AI tools in house.

The playing field had been leveled. I have now access to the same technology chassis, the same pre trained foundation models as industry has.

I have the data as a health system, I know what the problems are, I have the content experts and now I can fine tune these foundation models on my own data to again solve my own problems. And, and so we were trying to build that build first philosophy at Rochester and I just got happened to meet a gentleman named Dr. Michael Ash, who was the chief transformation officer at the time at Nebraska Medicine. He had heard me speak nationally about my thesis and he really identified with that. And so we started exchanging notes. And Nebraska at the time didn't have a data science team in house or data engineering team in house like what I had at Rochester. And so we again started talking about how Nebraska could build that in house.

Michael got promoted from, to the chief executive officer at Nebraska Medicine and he brought me out as a visiting professor. And I came out and my first time in Omaha, first time in Nebraska and I was blown away, blown away with that health system and blown away with Michael's vision of being a digitally driven AI augmented health system. So I took the leap and took Michael's former job as Chief Transformation Officer. And we have since built our own data science team in house, data engineering team in house. We have several AI development platforms with lots of different foundation models on them that we leverage to develop our tools. And we develop an AI tool one a month and we deploy them at scale across our health system. And we have about 27 that we have totally built ourselves deployed at scale at Nebraska Medicine.

[00:06:46] Travis Sherman: Michael, that is such an impressive story and journey you've been on only in just really a few months with the organization.

I think when we talk to health systems, we often see them struggling with where do we start and then how do we bring the stakeholders together to journey map the future? I wonder, can you share a little bit with us about what has your approach been at a large organization like Nebraska Medicine, you have providers, faculty, you have a large partner at the University of Nebraska. How do you align folks to drive adoption? And has that required a culture change?

[00:07:21] Michael Hasselberg, Ph.D., RN, PMHNP-BC: It really has. So we believe that AI and technology is really the enabler and driver of our strategy. And so we actually took our data science team, our data analytic team, our data engineering team out of it and it sits in our strategy office. And we did that specifically because we wanted to make sure a the use cases that we lean in to on an AI lens, that they were the most highest priority use cases within our health system. And our strategy department leads that prioritization.

And then we also wanted to make sure that after we said, okay, this is the use case that we're going to tackle next, that we fully resourced it with clinical champions, with operational leaders, informatics leaders.

So once the tool that we developed in house was ready to be deployed, we were successful of again not going just little pilots of deploying this at scale and getting that buy in and then monitoring it over time to make sure we're getting the value that we hoped. One of the great, the great things of being an academic health system is partnership with the University of Nebraska. We get to take the best and smartest students graduating from our data science and computer science programs, specifically at our Lincoln campus and our campus up in Omaha. And we get to bring those students early on during internships to get exposure about where data science can make a difference of prediction, improving lives of patients within healthcare. And then when they graduate, we're hiring them and we're building our bench in house to do this. So again, I think academic health systems in particular are really well positioned to be leaders of developing tools in house themselves.

[00:09:28] Seth Ciabatti: That's great.

So just you've mentioned, you know, you've developed many tools in house and they're being used within Nebraska medicine. So are you prioritizing those investments so that where are you, where you know, are you starting, say is rev cycle or maybe acute care or ambulatory care? Is there any prioritization of that? Or how do you come about to choose where to develop the AI?

[00:09:51] Michael Hasselberg, Ph.D., RN, PMHNP-BC: That's a great question, Seth. And I'm going to preface this as we're leveraging generative AI and there is a really big black box still around generative AI in terms of how these models come up with its output. And until we better understand these foundation models and can explain what they're doing, we've taken a stance at Nebraska that we're not really focusing our efforts on clinical decision making.

Use cases, direct patient facing use cases. Now don't get me wrong, I am very convinced that this technology will transform clinical care and improve patient outcomes directly in this country sooner than later. But until we can do that safely and responsibly, I'm really hesitant to dive into that space. So where we focus our efforts are all on the back office stuff where we know there's a lot of waste in healthcare. We have clinicians doing administrative tasks well below their scope of practice and those are the areas that we're really leaning in and prioritizing. So you hit on some of those big key areas. Rev cycle traditionally has been a very manual, human driven process ripe for automation. And that is an area that we've had a lot of success of developing our own AI tools to automate that process, specifically success around prior authorizations and denial letters and really freeing up our humans to do again, higher, higher scope problems. The other areas that we've really leaned into is really on the capacity management side. Like probably most health systems in the country, our acute services we run at above 100% capacity. And so the ability to identify patients earlier that may be appropriate for discharge and automate the processes in that discharge journey. So we make it easier for our nurses to get those patients to our discharge lounge and out of the hospital.

We've had a lot of success there. Similar to transfers in Nebraska is a really rural state where the big quaternary medical center in the city of Omaha, so we get transfers around the country and, and identifying which when will we have bed capacity to take transfers in. And then when we take those transfers in, when the patients stabilize, can we get them back out to those community hospitals so they go back to their community. And so we built a lot of tools around optimizing

capacity management. And what we've actually found is we've been able to create 31 new hospital beds in our hospital, not physical beds, hospital beds, by automating those processes. And so a lot of success there. Other areas are really high cost service lines where we want to get those most vulnerable patients in. So think surgery. We're a world renowned surgical center. We've done a lot in terms of automating the scheduling process for surgery. So we're making sure we're getting the right patient in the door at the right time with the right surgeon and the right anesthesiology team wrapped around those patients. So those are some of the big areas that we've prioritized and leaned in and have seen significant returns, not only financial returns, but just better care quality and getting again, the right patients in with the right providers at the right time.

[00:13:44] Travis Sherman: Michael, that context is incredibly helpful and I appreciated the piece that you've metered introducing clinical decision support tools. Just given there are concerns about the safety of those implements, I wondered for the things that you have implemented, how do you balance the speed of bringing them forward? Because these are new systems and processes, they affect operations, which does affect patients.

So how do you balance the safety and the speed of bringing a new pilot forward within a large organization?

[00:14:16] Michael Hasselberg, Ph.D., RN, PMHNP-BC: I don't actually like to use the term pilot actually anymore because we're able to move very quickly beyond proof of concept to scale these days and where digital health in general, I think, has struggled in big healthcare systems as they end up in these pilots forever and never actually make it beyond the pilot stage.

So within our strategy office, we have a process engineering team. So the first thing we do when a use case gets submitted is we put our process engineers on that use case to really understand the problem that's trying to be solved and what that workflow is.

After it goes through that process engineering team, it then goes in partnership with our IT department to, to our enterprise architects who are looking at, do we already have a technology in house that will solve this problem?

Are there core platforms that we can just lean into, tackle this so we're not building something that one of our core platform partners already can do. If not, then we really understand what are our data science resource allocation currently, what projects are they currently working on, which applications that they've built in the past that they're maintaining? And really we understand our resource allocation and we actually come up with a calculation of we were to take this use Case on, we understand that speed to execution, how long is it going to take us to go from this ideation through the process engineering team to we've got a tool that's built ready to scale. So when we take on measuring which use case goes next, we have really three major buckets that we look at. The first bucket is strategic alignments and you get a priority score based off strategic alignment. We actually have a bucket focused on speed to execution and you get a priority score based on speed to execution. And then we have return on investments and it's not always a financial return but what would be the return on investment for this use case? And then you get an overall score. What then happens is this strategy team presents the multiple use cases in the queue that have already been scored. And it's our chiefs team and our chiefs are highest level of executives within our health system. We have six chiefs that report up to the chief executive officer. The chiefs actually vote on what is the next use case we're going to take on on our health system. And it's not always the one that got the highest score score, but we get full transparency

of okay, yep, this is what we should tackle next. And that allows us because at the highest level you're getting the buy in on what our roadmap is from a build standpoint that allows us, Travis, to move very quick from a speed to execution standpoint.

[00:17:22] Travis Sherman: I completely understand. Michael, you've mentioned a number of different teams that you have in house at Nebraska Medicine and Process Engineering, IT data scientists.

In your journey have you approached build buy decisions where you know you've chosen purposely for things that you're going to source externally and what are some of the more common things that you think it makes sense for a health system to get externally versus build.

[00:17:48] Michael Hasselberg, Ph.D., RN, PMHNP-BC: Where I'm focusing my buy decisions on at this point are really truly what are platforms can I build off of? We've got several development platforms really in the large language model space. I'm currently exploring build platforms in the computer vision side. My team doesn't have a lot of access to Vision foundation models and so that's an area that I'm really interested in. Again giving the tool set to my engineers and my data scientists to to build off of those tools. And regarding like buying an out of the box AI tool or solution that moat to get into at least my health system is quite large now.

It would be really difficult for me to justify buying an AI end to end solution and bring it into my system for a couple of reasons. A My core platform partners, which would be my electronic health record, for example, my biggest platform in my tech stack, they're moving a lot faster than they have in the past of incorporating AI functionality within their platforms. And I'm going to be more likely to lean into my core platforms functionality again if it's not on my roadmap. I don't want to bring in another third party vendor onto my tech stack. The SaaS subscription cost is, is not tenable for a health system when you have multiple SaaS subscription providers on your tech stack. And it increases my cyber risk the more that I bring on these third party vendors and then it also dilutes my internal resources that need to support those applications. So this has not always been my lens on how to approach build versus buy. I've always actually said when I was at Rochester we were ehr first buy, second buy, best of breed and build last because we're not a traditional build shop. Again, I think with the advent of foundation models and generative AI, there's been a complete paradigm shift and I lean more towards building than buying really. Interestingly again, there's so many AI vendors out there now. I mean it's just taken off and we're seeing big investments in venture capital into AI companies at really large evaluations. And you know, they're all out at all the conferences my faculty attends. And I have a good story of a really brilliant heart surgeon who was new to our organization that we brought in, who at a conference and he saw an AI solution and met with the vendor and the vendor said, which every vendor says, fully integrated into your electronic health record, you could take it right outside the box. It's only a couple of weeks to turn it on. And, and my heart searching came back like, I need this solution. And it was a solution that, you know, essentially helped identify patients with structural heart defects earlier so we could get the right level of care faster to those, those patients. He's like, I need this specific solution. And when I met with the heart surgeon, I first I said wait, let's take a step back. I want to understand the problem you're trying to solve first. First like. And he walked me through the problem and then walked me through why he felt that this third party would be the best solution to, to go with. And I said to him, I go, you know, like, I don't really want to bring another vendor onto my tech stack for this specific use case. I think we can build this ourselves in house. And he was actually pretty resistant to that. He's Like I've heard that before in the past. And this will get stuck in development with it for the next year. And I need this. I needed this yesterday. It took some convincing, but I was able to align him on a partnership and

we were able to actually build exactly what he was looking for in about a month's period of time. And he is beyond the moon happy with the solution. And you know why? Because it is personalized to his workflow, the outside vendor who is bringing it in.

What is it personalized to his workflow. So not only did we build the solution ourselves in house, it was more personalized to his workflow. I saved the money that would have cost me for buying another third party to bring in and I eliminated another potential application that would have been added onto my tech stack.

[00:22:28] Seth Ciabatti: Well, so speaking of all those AI vendors out there, would Nebraska Medicine is the plan to commercialize your AI tools?

[00:22:36] Michael Hasselberg, Ph.D., RN, PMHNP-BC: No, no, actually, and this is part of my own thesis even going back to Rochester. First off, you know, software in general is really, really hard to protect. And I am someone grew up as a researcher, clinician first, researcher second, technologist third. I have my own software patent. They look beautiful in a frame up on my wall. But enforcing those patents are almost impossible to do.

Take it now a step further with AI, like not really sure how you protect that ip. And I believe that the path forward for things that are developed internal to really transform healthcare, not only at Nebraska Medicine, but to really then get that out quick, quickly to the rest of the world to transform healthcare at an even bigger scale is open sourcing the code. And that is something that I believe in. We did that a lot at Rochester. That is the culture I'm bringing to Nebraska is, hey, if we got something that we think works for us really well and others could benefit from it, let's give it away. Let's open source that code. And you know what, in my experience doing that, the value that comes back to our institution is worth way more than any licensing fee or royalty I may have achieved off of my own ip. The reputational value, the relationships that it opens up with other health systems, with other industry partners are invaluable.

And so I believe the path forward for a lot of this AI stuff is open source.

[00:24:24] Seth Ciabatti: Interesting view.

So I do want the last question so it sounds like, well, not. It definitely is the case. AI has become a part of the culture within Nebraska Medicine. So how have the staff responded? You've got non physician staff and physician staff folks are worried about how AI is coming, how has the staff embraced it or not embraced it?

[00:24:48] Michael Hasselberg, Ph.D., RN, PMHNP-BC: Varies. I would argue that on the clinical side of the house, our clinicians are really, really excited about it. And one of the things that we're very proud of at Nebraska Medicine is when you think about the most transformative AI solution in healthcare today, it's ambient documentation. Ambient scribes, we were the first ambient scribe site in the country and back in 2019 and I'm in partnership with one of those big ambient scribe vendors that are out there.

So we really leaned into ambient documentation really, really early and it's made the lives of our clinic so much better and it's caused a lot of excitement on the clinical side for the possibility of AI and we have also, we truly believe that AI is not going to take away clinical jobs. It's not going to replace a nurse, it's not going to replace a physician. It's going to allow our nurses and physicians to do the things that they really want to do and they went to school for, which is

delivering clinical care with patients. Now on our staff side of the house, I think that there is anxiety that AI may take away jobs. And we are, we're doing a lot of hard work around AI literacy and AI education upskilling our staff. There is plenty of work to go around in health care even on our staff side of the house and we're not approaching it. This is, AI is going to take your job. Your job just may look different and the things that you're going to now be working on in partnership with AI is it's going to be at a different level and bring a different level of value back to the system. So we've again spent a lot of time around thinking of what does that upskilling process look like for our colleagues across our organization as we move into this more AI augmented future.

[00:26:48] Seth Ciabatti: Yeah, we agree. We've really at this point really only seen that AI is helping, helping with the day to day tasks of staff, whether they're physicians or, or non physicians.

Well Michael, this has been a pleasure to have this interview with you and have you on as a guest. We really, really appreciate it. We had a great conversation about AI. Like I said, this is probably the most educational conversation on this podcast regarding AI that we've had. So thank you again for attending.

[00:27:18] Michael Hasselberg, Ph.D., RN, PMHNP-BC: Thanks for having me. Seth and Travis, you'll have to have me back in two to three years from now. And I don't know what we'll be talking about at that time because going to be mind boggling what the technology will look like a few years from now.

[00:27:31] Seth Ciabatti: Yeah, absolutely. We'll take you up on that. Thank you.

[00:27:44] Narrator: Alvarez and Marsal leadership action results.

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