

## **Data Analytics in Healthcare**

### **Season 2 / Episode 3**

**Chris Miladinovich:** Hello and welcome to ProspHire's Soaring to New Health Podcast. This episode is Data Analytics in Healthcare. I'm Chris Miladinovich joined by my co-host, Dan Crogan. Today we're talking about how data analytics is reshaping the landscape of healthcare delivery, improving patient outcomes, and driving efficiency across the board.

**Dan Crogan:** Today our guest is Toby George, co founder of Data Ideology, a leading firm specializing in data analytics solutions for healthcare organizations. Toby, thanks so much for joining us today.

**Toby George:** Thank you guys for having me. This is really awesome. And like I was saying before, much more than I expected. This is a really great setup. Everybody's been awesome. And the whole ride down here, I thought it was just going to be like sitting at a table talking. And now here we are with cameras pointed at me, big lights. Really awesome though, and it's great to always see you guys.

**Chris Miladinovich:** Toby, why don't you tell us a little bit about Data Ideology, what you guys do, what problems you solve. Give us the big picture.

**Toby George:** So as you mentioned, Data Ideology is a data and analytics consulting organization. We really focus on helping companies on their data and analytics journey. So that's everything from strategy to execution. So, a lot of our customers are really not sure kind of what tomorrow looks like from a data perspective. They're hearing AI and machine learning and all these great things, but they're not really sure on where to start and how to get there. And so what we do is we help them develop a plan, and then we're typically helping them implement, so and that's anywhere from healthcare organizations, financial services. We do a lot of work in the mid-market as well. So companies between one and five billion dollars that really have that need to kind of get to the next level that are growing quickly and trying to leverage data as a strategic asset.

**Chris Miladinovich:** You guys have had a tremendous growth trajectory; a lot of great stuff. What are you doing in healthcare

**Toby George:** A health care perspective, some of our largest customers are large payer provider organizations and it's a lot of the same. I think that there's a lot in the news today about AI and all these advanced capabilities, but you're seeing, I think, such a slow recovery road to adoption because of that foundational data really isn't where it needs to be. And so, what we're really helping those customers do is figure out how to build that data foundation, how to get ready for the next thing. If you kind of rewind back five years or even longer, it was data science and machine learning and AI, and then really blank line. So what's next? There's going to be something that's next. And so the healthcare space. Helping those payers, helping those providers build that data foundation, provide a scalable foundation for them to be able to adopt those advanced technologies.

**Dan Crogan:** It would be interesting for our listeners to hear, why did you start the company? You and your friend Mike decided to start the company. You've had an

exponential career in consulting and within this industry. Why did you decide to start this company and what problems were you trying to solve?

**Toby George:** I think that generally knowing Chris for a very long time I think we both had entrepreneurial aspirations. We saw a need in the Pittsburgh marketplace for some consulting organizations that could help some of Pittsburgh's finest companies. And that's kind of where it started. Mike, at that time, was at Microsoft. He was at Oracle, then Microsoft working on their big data teams. I was in a sales role in Pittsburgh for another consulting organization. And I think as we expanded our networks and really saw a need for a boutique data focused consulting organization to get in and fill some of these needs. I think the big guys like to step in and they like to bring this kind of one size fits all megalithic kind of data program that just some of them aren't able to really - it's like a boil the ocean exercise. And so what we wanted to do was focus an organization really on delivering the value that that an organization needed right now to be able to drive them into the future.

**Dan Crogan:** It's really remarkable what you guys have been able to do. It'd be great to hear what's a typical engagement for you? What type of problems are you solving? What's your team look like? And then what's a long term or short-term engagement to solve problems for your clients look like?

**Toby George:** I would say that it ranges. You have some of our large-scale enterprise customers, like large payer organization in Pittsburgh, where there's just so much to get done. And there's a data transformation that they're on that they can't really go and leverage a staff augmentation where we're delivering small teams to help accelerate initiatives; where we've got a new mandate or we've got a new measure for CMS or whatever the case may be. We're deploying a small team to help build things, whether that's data marts, data warehouses we get into the analytics piece. We do a lot of deploying small teams. We do fractional capacity for customers that maybe don't have the need for a full-time analytics expert. Some of our mid-market customers where we're helping a regional healthcare company right now. They essentially are looking for a team to deliver a data platform. So we're in there doing discovery, doing requirements and then we're going to move into a build. So we're bringing the best data business analysts, data architects, data engineering and like I said, analytics across a variety of different platforms like Microsoft and Tableau.

**Chris Miladinovich:** So Toby, we both, our organization service the healthcare ecosystem and with mostly an emphasis on the payers. In speaking in that context, what kind of things are going on in the analytics space that are affecting patient and member outcomes?

**Toby George:** I would say that there's a lot of things, particularly from an outcome perspective. We're looking at readmissions, so leveraging predictive analytics to look at individuals that have had a specific type of procedure that may lead to a higher probability of a slip and fall. So how do we bring all that data together? How do we create that interoperability that data from procedures that have happened or claim data or historical data about that person? How do we bring all that together to say, "Hey, this person is probably more likely for a slip and fall. We should have some sort of intervention with them before their discharge from the hospital." So predictive analytics is a really great one. Machine learning we're seeing, there are models that are training in radiology. We're able to

feed large data sets in to be able to read images and find things that maybe humans can't see. So kind of a very interesting capability that some of the large organizations in Pittsburgh are using. NLP is another one that's very interesting.

**Chris Miladinovich:** What's that stand for?

**Toby George:** Natural language processing. So NLP, we've seen some applications and reading through clinical notes and EHRs and being able to line that with other data sets to be able to increase member satisfaction, patient satisfaction, all those things. In AI too, I think that there's a few use cases that we're seeing today that are very interesting. I think that gets back to what I was saying earlier about having the data foundation. A lot of these companies still have to get that data foundation in place before they can really start leveraging some of these things at scale. But there are some really cool things happening specifically at the focus on patient outcome.

**Chris Miladinovich:** So you mentioned interoperability. Why do you believe it's a barrier?

**Toby George:** There's been a lot of growth. There's been a lot of change in tools. There's a lot of different data sets that exist in the business. And so when we look at being able to maybe take information from a claims platform or an EHR or something else, and maybe the data is not of the same structure. Some of it's structured data, some of it could be unstructured data. When we don't have that platform to fall back on, how do we start integrating all of that data to start driving it insights across the entire data ecosystem? And so that's a huge challenge. We put together a lot of collateral recently around data silos. Data silos is not a really fun thing to talk about. People don't get excited about it, but I'll tell you, it's probably the number one thing that every one of our customers is having. And that really is driving that lack of interoperability. They don't have that foundation. They acquire a new company or bring in a new system.

What do we do with the data? Just creates another silo. And then what you have is, from an operational perspective, some folks sitting around in the background that are doing these heroic efforts to bring all this data together. And they create an asset that really has very limited reusability, very limited scalability. And the next time they want to add something to it, it becomes a major project to really enhance it and grow that. So it becomes a problem. It's a risk for them over time.

**Dan Crogan:** You mentioned a lot about the new trends: AI, you went to machine learning, NLP. How do businesses stay ahead of things and how do you find the right platforms even for these different types of businesses?

**Toby George:** Back to my point about kind of not having a one size fits all. Typically, when we get engaged in a data strategy or helping kind of a line people process data and technology. We really want to understand their current state and also kind of keeping in mind what's coming. And you don't always know. And so planning for that future state is very difficult, right? Because who knows what the next AI thing is going to be. But you can see certain trends across the board, whether that's from a tools perspective or a people perspective. But foundationally, it's really about building an architecture that's flexible

and scalable for those things and aligning yourselves to the right technology. To support that as well, but all keeping in mind the use cases of today and tomorrow. So that's one of the things that we do is really balance all those things are kind of the four pillars of our data strategy. Consider all of those things and align something to what we think is going to work for that organization.

**Dan Crogan:** One thing that data ideology does really well is not only understands the technology, but tying it together with the business. So there's the data side of things, but how that impacts the business. What challenges have you faced with tying the two together or bridging the gap between the IT side of things and the business and the impact for the members?

**Toby George:** I would say that that's really one of the more difficult challenges that we that we do face is getting the business and IT aligned. I would say that the business is always very focused on that speed to value. I'm actually writing a white paper on this right now, but it's you can imagine just showing up with a cake.

Here's the cake. The business doesn't care how the cake is made. They just want the cake. They don't care if there's 40 people in the kitchen. It spends 200 hours making the cake. From an IT perspective, it's hard to bring them to the table and get them to understand that if we can best practice this and we can do this in a way that's going to enable you to provide that scalability and flexibility that you do need you're going to be able to do a lot more. One of the things that we found most successful is a financial business case around that. Helping prove ROI, demonstrate ROI, show them what the ROI could be because a lot of this stuff is, again, not the most fun stuff to talk about. Who cares if I knock the data silos down? What does that mean? Well, here's what that means. If we can automate this, you can redeploy these five people to something else doing more value-add activity. You can have this every day. The data quality, the data governance, all these different things are going to be there for you. And so I think when you get them to start understanding what it's going to take and the value and really demonstrating the value, that's where I think the business then starts to be willing to invest. Some of the larger engagements that we've had have started with very small 18-week kind of strategy and POCs.

One of our largest healthcare payer customers, that's how it all started, was just a little proof of concept around centralizing member data. And then once we were able to do that, it was like, hold on a second, we can do this with provider, network, claim, etc., and really treat them as products. It's been amazing to see what they've been able to accomplish taking a very simple strategy and getting the business to buy in with that value in IT.

**Chris Miladinovich:** In that realm for our listeners, what are some of the symptoms of some of these intricacies of data? If you could give some examples of what people might see so they know "hey, I gotta look at this."

**Toby George:** I would say that one is data quality. If you're not feeling incredibly comfortable about the decisions that you're making particularly in healthcare chances are you've got a problem. In some cases we've seen some of our customers, you ask them a simple question about how many members do you have? And depending on who you ask

you get a different number. That just tells me that you've got some challenges underneath the covers that we've that we've got to investigate. And that can be a lot leading back to the data silos. That's a big driver that having these satellite analytics groups all over the business, which I'm sure the projects that we've talked to you guys with is dealing exactly with that.

I would say governance. Speaking the language of governance, data governance is something right now that we're seeing a lot more kind of interest. And I think being able to get people to speak that common language of data in their organization. I would say that other customers that have every tool under the sun; you see some of them have Tableau, Power BI, Domo, ClickView. And you just really kind of look at that and say, "Well, what are the It was one tool doing that the others can't do?" And typically when you pull the covers back, they also have Oracle, SQL Server and something else. And then that just typically leads to, okay, well, they probably have no architecture that's really supporting what they're trying to do. So there's real little things just that could tip you off that there's some bigger problems. Even taking a step back and looking at the organizational aspects of it is how are you organized? Do you have a data services or an organization that is specifically designed to support data initiatives in the organization? So you have a chief data officer. How are we treating data? We treating data as a product. There's things like that we really look for to help kind of understand the culture.

**Chris Miladinovich:** We're going to take a quick break and when we get back, we're going to talk about the future of data analytics and the role you see data analytics providing in the broader healthcare challenges. So we'll be right back.

## COMMERCIAL

**Dan Crogan:** Welcome back to Soaring to New Health with Toby George, the co founder of Data Ideology. Toby, could you walk us through what advice would you give to your clients and partners that are starting this journey?

**Toby George:** I think journey is really the key word. It is a journey for a lot of these organizations. The truest sense of journey; you got to start somewhere and end somewhere. And really, we think about that defining that vision and aligning to some very clear objectives is really the first step. What are we trying to do? And why are we doing this? What's driving us to want to do something? I think that kind of gets everybody aligned to where we want to go. Next is really understanding that current state and what's not working so that we can then really design something in that future state that will solve for some of these problems that also aligns to that vision that we're having. And I think defining a roadmap that really avoids this boil the ocean exercise. Boil the ocean when I talked earlier about that megalithic kind of data strategy or data program that just a lot of organizations just start running in a thousand directions and really don't get anything accomplished. I would say, start small and scale. Data quality and data governance have got to be something that are embedded into whatever that program is. So make sure that whatever you're doing, you're focusing on quality and governance because I would say that governance is something that's very difficult to bring in after the fact. It's got to be something that is very much grassroots and embedded into whatever it is that we're doing.

And I would also say, invest in the right partners and technologies. I can't tell you how many times we step into an organization. They're like, "we've got this tool that we spent millions of dollars on." And when you look at it, they're one of five customers in the United States. And they've got just tons and tons of technical debt that they've built. So look at those tools that are really best practiced and really recognizes these industry leaders. I think that really does matter.

I would say also cultivate talent. So there's a big talent gap today. Especially as these tools continue to evolve and new ways of doing things, new ways of thinking. You have these organizations that maybe have 20 years, like I said, of technical debt and not even the technical debt, but this kind of legacy ways of thinking about things and doing things. And so those folks, I think from an organizational change perspective, can be very hesitant to kind of embrace the change. So you got to really find a way to build some culture, cultivate that talent and bring them along for the journey. I would say measure success and iterate. Find what's working, find what's not working, and be agile about it. I think the way of kind of looking at things in an old kind of waterfall mentality of we're going to embark on this 12 month initiative, and at the end of it, we're 12 months over timeline and millions of dollars and we don't have anything to show for it. Break it down into small manageable chunks and measure the success and continue to iterate through it. And I think that all of those things will have a massive impact on the culture. And that's really what it's all about. It's an organizational change that a lot of these companies are trying to drive, and the culture is such a huge part of that.

**Chris Miladinovich:** Toby, I couldn't agree with that more. So, talking a little bit about the future, how do you envision the future of data analytics, especially as it pertains to healthcare and its evolution in the next couple years?

**Toby George:** Well, obviously, artificial intelligence is all over the news today. A lot of the CTO, CIO, CDO's that we talk to are very optimistic. I think that AI today in some very siloed use cases are having success. But I think that things like advanced diagnostics and predictive analytics, being AI and ML driven, there's going to be tremendous use cases for those things for like personalized treatment plans and diagnostic processes across the board. So I think you're seeing a lot of focus being put on that, a lot of money being spent on that. Actually one, that maybe I'll put above that, we all know what IOT the Internet of Things. So I think there's this called the IOMT, the Internet of Medical Things.

And I think most of us wear one. I actually woke up one day with a heart rate that just seemed very odd to me. And one of my friends is a cardiologist, and he said, "Hey, put your watch on and, and see if you're in atrial fibrillation." And I was. It was very interesting because I was able to take that PDF right from my watch to my phone to a text message to him, to then be diagnosed. I think the wearable aspect, especially from the watch to maybe heart monitors or being able to diagnose sleep apnea at home. But being able to kind of stream that data back and have remote diagnoses and remote monitoring on some of these things, I think, is going to be huge in the future. We're going to see a lot more of that. The NLP (Natural Language Processing) is another one that's just going to provide for enhanced data extraction. So the unstructured data, clinical notes, there's some really cool companies out there that are doing some stuff right now that kind of feed into the HEDIS

quality score aspect where we're able to close gaps by being able to read notes from EHRs, pull them in, run some NLP on it and get some really interesting things back.

I was just reading about blockchain, which is another one. Obviously, there's going to be some applications in blockchain. There was someone that I used to work with, she's at a company now and they're doing some really interesting stuff around contracts and healthcare around blockchain technology. So I think that's something that we're going to probably hear a little bit more of, especially now that crypto has gone mainstream. I would say maybe the last ones, I see analytics, data analytics playing a major role in genomics and precision medicine. My father-in-law was actually recommended into a trial for a drug for his cancer based on some indicators in his medical history that actually was really great for him. So I think that you're going to see a lot more of that. Being able to kind of get precision medicine based on things. There's a lot of really cool things I think that we're going to see in our lifetime that the data is going to drive in healthcare.

**Dan Crogan:** And Toby, you talk about the future too. You work a lot in the financial district, but also obviously the healthcare industry. It's highly regulatory. There's a lot of compliance. There's a lot of barriers. How do you and your firm attack those or work around them for these innovative things that may be slowed down because of restrictions or regulatory issues?

**Toby George:** There's a lot that's changing there too, day to day. And there are certain things that we can do, whether that's adhering to HIPAA or being on top of those regulations. I think that from an AI perspective, there's going to be a lot of practical use standards that are coming out. But I think on top of it today, privacy and security is a huge thing. And from creating anonymous data sets to doing role based access security to making sure that IT organizations have the right data breach privacy standards in place, I know that having foundational things in place from a privacy and security perspective will give an organization that ability to adapt pretty quick; that gets us to a place where we're solving the issues that we know about, but is also flexible enough to adapt to some of the things that we don't know.

**Dan Crogan:** As we head down home stretch, I want to talk about something very important and that is how we use our superpowers to help the state and the country's most vulnerable constituents. Let's talk a little bit about the social determinants of health and how we're applying data analytics to solve some of the barriers and problems with our country's most vulnerable.

**Toby George:** I think one of the things that we've been getting more and more involved with some of the teams within our healthcare payer customers, especially, is improving population health management and the predictive analytics for risk stratification as we kind of look at populations that are at higher risk for specific conditions. And we enable those healthcare providers, and payers and providers to target them with specific interventions. I think patterns of health data that we can see based on, claim data or whatever, then couple those with social determinants of health. They can proactively manage some of those chronic conditions, specifically in places where we're seeing a higher intensity of some of those things. That interoperability, being able to source the data from multiple places, bring it

together and make those near time decisions is really going to enable some of those things. The healthcare disparities by disaggregating that data by health, or by race, ethnicity, socioeconomic status, etc. starts to put a spotlight on some of those things and be able to develop programs and interventions that are specifically targeted disparity. We're very passionate about helping our customers be able to do that because that's real impact.

**Chris Miladinovich:** I couldn't agree with you more, Toby. What a great discussion. So, as we wrap this episode of Data Analytics and Healthcare, we're reminded of the transformative power of data analytics in revolutionizing healthcare. Toby, thanks to you from Data Ideology for helping us gain a deeper understanding of how data driven approaches are reshaping the way healthcare is delivered, improving patient outcomes, and driving efficiencies across the board. And thank you for tuning in and join us next time as we continue our journey to explore the cutting edge advancements shaping the future of health care.