

TECHONOMY HEALTH

Data-Driven Healthcare

Speakers:

Mario Schlosser, Cofounder and CEO, Oscar

Andrew Thompson, President and CEO, Proteus Digital Health

Moderator:

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(Transcription by [RA Fisher Ink](#))

Hernandez: I have here Andrew Thompson, from Proteus Digital Health and Mario Schlosser from Oscar, and so I'll let them introduce themselves before we get into the questions.

Thompson: My name is Andrew Thompson. I'm the chief executive of Proteus Digital Health. You could tell from my accent that I grew up in Texas but I've spent the last 30 years in Silicon Valley starting and building technology based healthcare companies. I'll talk about Proteus where I'm the founder and CEO. Proteus makes digital medicines. These are drugs that, when you swallow them, talk to your cell phone. What we tell you is did you take it, and did it work? Those are the two most fundamental questions in all of chronic disease management, and in particular, ambulatory care with a drug.

Schlosser: I'm Mario Schlosser, the CEO and cofounder of Oscar. I also have a European accent. I love the fact that we have two Europeans telling the American audience how broken the US healthcare system is. Apologies.

I am a computer scientist originally. I run a company called Oscar. Now it's a health insurance company, at its core, a technology and health insurance company. What we do quite differently, I believe, than the other health insurer out there, is that we built the product we have on three different pillars. Number one is consumer engagements. We engage members in a very different, deeper kind of way.

One nice statistic illustrating that is the fact that in Oscar's case, about 25% of membership last year has used telemedicine to treat some illness that they have. Usually, if you look across US health insurers, about 2–3% or so have membership that have used telemedicine.

The second point is that we build all the technology of the operations in house. We have a full technology stack in house. We do everything from claims management to clinical outreach, to network construction, etcetera. We use data—hence the panel here as well—for fueling of these activities, we'll talk about that in a second. We're watching right now in the Oscar office in New York here, at Lafayette and Houston and on the wall you would have, for example, a real time

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manifestation of the current medical loss ratio and the components that go into it. It's one of the kind of advantages we have in really making sure data flows through our systems in a different kind of way.

And the third thing is we build different kinds of networks of physicians and hospitals. We try to connect in a more deeper fashion with the providers we have, doctors, and hospitals as an example. Doctors under the Oscar network can log into provider apps that give them all the data that we have, but members make it available for them, including conditions we suspect that the members might have, based on lab tests we've seen, tests we've seen them do, drugs that they are on, and things like that. We founded the company with an eye towards really being at the center, at the nexus of the various data flows, which tend to be fairly broken and un-unified in healthcare. The insurer is a natural nexus of all these data flows and we thought we could make them more powerful and more meaningful.

Hernandez: Why isn't healthcare already data-driven? And, what is it right now? And, how can we get to this data-driven vision?

Schlosser: There's one very simple answer and I think it's hidden in the incentives that are built into the system in the US healthcare system at the moment. It's a fact that almost this entire system tends to be a cost-plus system, if you will. Almost everyone in healthcare right now, if you really uncover the way it works, gets paid a constant percent margin on top of rising cost trends. And if you're in that industry, you're quite happy if, you know, the costs sort of go up over time. If you get paid fee-for-service as a provider, as a hospital, for example, you don't necessarily use data to keep people out of the hospital. You're better off financially if they come back into the hospital.

Hernandez: That's changing, right?

Schlosser: It's changing. In that change lies the power in the shift towards more data. In the end, I think, what we see from the insurance company perspective is that much of the data flows in the current healthcare system tended to be transactional. If you're an insurance company, you had to pay claims. That's what you did. You're a transaction engine. So, your data is only towards that. If you are a hospital, you don't necessarily need to have a clean so called roster file of doctors working for your hospital in where they practice what they practice. You need to get the claims paid. That is the emphasis on the type of data that you have. If you want to start using the data that's in the various systems in healthcare that tend to be very fragmented towards better patient care and management, you'd interpret it differently and incentivize the use of data very differently.

Hernandez: Andrew, how do you see [that] in terms of what you do.

Thompson: We do have a data-driven healthcare system. It's just that it's driven on very little data, right? So, if you look at how drugs are approved, it's on relatively small panels of patients and you do some statistics. So, it is data-driven, but it's small amounts of data. And then let's look at some of the points that were made about how we then use data inside the system. So,

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the first thing to say is we don't have a healthcare system. We have a sickcare system. Right? And it's important to note that it was built in the last century to do a very important job, which was to deal with acute disease and trauma. And it was built using the best technologies we had in the last century. So it's buildings where you plug into electricity, people with knowledge in their heads, and products that were designed to be safe in everybody, and work in somebody. So, you didn't need much data, right? Mass standardization, great achievement of the industrial era.

Today, we have very different challenges, 75% or 85% of what we need to deal with is chronic disease that's dealt with in community settings, not in hospitals. So, we need to supplement, and in many ways magnify the power of this magnificent sickcare system with a healthcare system, and we need to build it using the best technologies we have in our hands today. So, a building where you plug in is going to be magnified by the incredible power of the mobile device where you log on. And people, with knowledge in their heads, are going to be massively augmented and supplemented by software and servers with intelligence in the cloud. And products that were designed to be safe in everybody, and work in somebody, are going to become services that are tailored to you, your genes, your lifestyle, your behavior, delivered where you live, work, pray, and play, in ways that you can see, measure, and understand. That is digital health.

Now, let's talk about data. What most insurance companies do, and what most data aggregators do, is to take data out the sickcare system. It's all money flow and work flow. It has nothing to do with life flow and health flow, and that's what we're about. As a company, what we do is to capture information about what's going on in people's daily lives, in the settings where they live, using the drugs that support them, and prevent them from having strokes and heart attacks. That's life flow and health flow and that's the core of how we'll build a data-driven healthcare system, not sickcare system.

Hernandez: Can either one of you, or both of you speak to insights you've already been able to draw from the work that you do at your companies that improves outcomes, or lowers cost, or some sort of measurable—?

Thompson: Let's talk about something that's very, very important. The whole world is shifting from behavioral models that were about buildings, people, and products, into models that are about software, services, and mobile devices. You don't go to a bookstore to see a clerk to buy a book. You go to an iPad. You use software. You download content. You don't go to a bank to see a teller to get money, on and on it goes. This phenomenon is incredibly important.

Particularly for people who've been left behind in a complex modern world. What we see, not just in healthcare, but in many other sectors, is if you engage a consumer on their mobile, they will do better. If you look at the data that's coming out of studies on mobile banking, people who are in the cash economy who get access to a bank account on a mobile device, earn more money, save more money, get credit scores, and start to have a more middleclass life trajectory. That's phenomenal.

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By the way, this is not changing consumer behavior. This is changing producer behavior to meet consumers where they are, right? So, the bank has moved from building, people, product to software, service, mobile platform. They are forced in that transition to task simplify, task segment, and task relocate into the relevant life flow of their customer. That's exactly what we see in healthcare, so I'll give you some data. If you give us 100 patients with high blood pressure, high blood sugar, and high lipids—classic comorbid cardiovascular metabolic patient. If you give us 100 of those patients who've been on drug for at least six months with 0% response on all endpoints, and you put those patients onto digital drugs, meaning that when they swallow them they pop up on their mobile device and they can see how they're doing, 98% of those patients will be at their blood pressure goal within 90 days. That's an unseen outcome with a single drug. It's unbelievable. And by the way, what we're leveraging here is this behavior pattern that we know exists. Right? It's not that clever. We can see it all around us.

Schlosser: You're giving some very pragmatic simple answers. So, if you look at the kind of way the US healthcare system functions right now vis-à-vis other rich countries in the world, we actually go to the doctor less, we go to the hospital less than most other OECD countries, or the average of the other OECD. But our healthcare system is about twice as expensive. We pay 80% GDP for healthcare. You know, Germany pays 10%, Switzerland 11%. Where does the difference come from? Largely from unicost differences. Bypass surgeries are vastly more expensive on a per procedure basis than other rich countries. So, the biggest amount, the most pragmatic use of data we have implored for the last couple of years is for you to make sure you get to the right level of care, setting of care, in essence.

For example, we pick up in real time if we get an eligibility check for an out of network physician, or emergency room, and then make sure the member knows which physician, which doctor to go to, to make sure the cost stays low, and the quality remains high. We monitor our televisor phone calls where our doctors still take calls about a rash, or something else, or something more serious. We monitor them for mentions of, you know, you should go to the ER, you should go to urgent care and see if we can start seeing, well this actually we can take into another setting of care. We see in real time, in New York, when somebody did go to the emergency room, and gets discharged from it, have a conversation with a member right away. I'll talk about what that means to have a conversation with a member in a second. Have a conversation there, and make sure a member knows what to do next. In about 15% of these cases, members were about to, again, walk into physicians, or out of network situations that would have cost them a bunch of money, and the rest of the system a bunch of money. That's what often times drives the cost up. The interesting thing about being a data-driven and tech-driven organization, nevertheless is this is healthcare, and the connection to other human beings on the other end is extremely important, and for that link to be human.

So one of the most important tools we have built inside the company is a concierge team of four people that respond to all of your interactions with us, and one of those four people is a nurse. So in other words, whatever conversation you have with us, whether it's clinical in nature, or customer service in nature, these four people that you would build trust towards will have that

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conversation with you. Then only if you are able to have, sort of like, an anchor point like that team, can you even make use of data we observe about the member, and the message we want to get across to the member. Going back to what you said earlier, as well, if you just pick up on billing data, if you just pick up on claims data, you're not only way too late, you also lack the richness of the information you need about the member and the member's situation in life to have a fruitful conversation with that person as to what to do next in their healthcare.

Hernandez: How are you guys dealing with this rapid, sometimes unsteady change in the healthcare system here on a regulatory basis? You guys were sort of born out of the ACA and now that may be undone soon. So how do you deal with those sorts of situations?

Schlosser: We were born out of a desire to build a product that individuals would tell their friends and family about. I mean, it's as simple as that. Okay? As I mentioned, I'm a computer scientist. My wife got pregnant in 2012. I didn't understand the damn bills I was getting from the insurance company or anybody else in the system and I said there's got to be a better way of making that user interaction work, in a sense. From then on, it kind of flew up from there. That was about six months before the Supreme Court reaffirmed the ACA in 2012. So, that's how little we knew about the regulatory change that was about to come. However, it was an important entry window for us into the market to now be able to have a market where individuals are buying. To me, many of these questions we can ask—about why isn't data more important? Why are the incentives off? Why is everything fee for service?—goes back to the role that the individual does not play in the healthcare system. If you look at healthcare cost inflation, I think a panel talked about this earlier, since 2000s, this year to 2000, about 250% or so healthcare cost inflation in this country, except for in any elective procedure, Lasik, breast surgery, rhinoplasty. These kind of procedures have come down in price. Because there, you as an end user have control. You want value for your money. You demand a better price, and a downwards coming in price.

So, how do we navigate now the current changes? I think in the end, over a 10–15 year period of time, all of US healthcare will shift more towards individual orientation. We will all go from a defined benefit system to a defined contribution system where individuals will have more control over what kind of healthcare they want to get. I think business models like Andrew's are going to be further enabled by that too because you're going to have different network designs, where providers are at risk, where they want diagnostic technology like Andrew's, and they want to deploy this in a different kind of care setting. That is the world we're building for in the short term. Yes, we have to watch exactly how we can sell plans and design plans in the best possible way, but I'm pretty confident that 20 million people will not lose their health insurance next year. Any market that has a functioning individual market is a market that we were founded for.

Hernandez: Andrew?

Thompson: Yes. I mean it's fair to say from sort of a legislative perspective, American healthcare is in a bit of a state of turmoil. It's not so easy, necessarily, to predict, specifically in

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the short to medium term where it's going to end up, but if you take a long view it's pretty straightforward. We have three very, very big issues. The first is an access issue. The most important way that we think about delivering health access, not just in this country but around the globe, is to leverage the network that's in everyone's pocket called a smartphone. It's really important to understand when we think about health access that billions of people are entering the middleclass all around the globe. All of these people want access to health services, and if we don't figure out ways to deliver those services in a much more efficient way then there will be no doctors serving poor and middleclass people in this country. They'll all be serving millionaires in India. The health access problem is not just a problem in this country. It's a very big global problem. Access leads to cost, and as Mario has pointed out extensively, we spend far too much on healthcare.

In my view, although you can point to perhaps the rather high prices associated with invasive procedures in the United States, the whole is that rearranging and making sickcare cheaper isn't going to solve the problem. Eighty percent of what we spend is on chronic disease. There are 360 million people in China with hypertension. Nine percent of them are treated to goal. That's a heart attack and stroke time bomb underneath the country, and making it cheaper to treat those is serious. You've got to treat the underlying problem which is the high blood pressure. Access, cost, and then the last thing is sustainability. I think it's really important to understand that innovation, in just about every sector that we experience, whether it's cars, electronics, food, innovation means better and cheaper every year. Only in healthcare have we managed to define healthcare as a bit better, and a lot more expensive, and it's totally bogus. That has to end. The most important way that has to end is that the US government has to stop paying for it.

Hernandez: So, yes. We're in a room where everybody sort of buys into this notion of software makes things more efficient. Hopefully the cost comes down from there. What are some of the barriers that you see going forward and how do we tackle those in terms of bringing healthcare to a future that's more data-driven, more efficient, less costly, better for patients?

Thompson: I think it's very important to be very realistic about this. Silicon Valley is the most innovative place in the world because it has the highest density of high trust networks. In high trust networks, you can do very innovative things, and if you fail, you can dust yourself off and do it again. In healthcare, the real challenge is, you can get tons of innovation in these high trust networks, but in order to get into the commercial world, it has to meet low trust networks. These are networks that are designed to be low trust. It's not a mistake or an error. They are they're because they're designed to protect patients. The FDA is a low trust network. Payers are low trust networks. Physicians are low trust networks and it takes years to work through those. The most important thing that I think about, as a commercial stage company now, is how do we earn and build trust because that's the currency that will enable those networks to adopt our products. It's really important that that's viewed as part of how you succeed, and not a problem, or a barrier, or an annoyance. It's a fact of life.

Hernandez: Mario?

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Schlosser: I think the most important thing is that payment systems have to change, and the incentives have to change. Again, in a fee for service world, I'm not telling you anything new here. None of the stuff we're talking about, using data to keep people out of the hospital, is interesting to the system as it exists right now. We've had a case recently of a member who was in the hospital for months for a particular condition, and wouldn't get discharged by the hospital because that person wasn't going to be able to walk up three floors into the house where the person lived. I'm purposefully not saying the gender. All the talk was for somebody to install a lift in that house, and immediately the member was able to be discharged. We ended up spending a few thousand on building a lift in the house, which costed about as much as two further days in the inpatient rehab that the member was in before.

The system, as a whole, as a society, that lowered our cost of treating that member's disease, and frankly got that member's health life in a better place, but it cost the system, as it is designed right now, money, because the fee for service fees didn't flow anymore. So, unless we are able to build networks where providers, insurers, payers, and so on, where those lines get blurred, where data gets more easily interchanged, where everyone makes more money, frankly, when members get healthier and don't come back to the hospital, I think none of the stuff we're talking about, from a technology perspective, will ever really take hold.

To me, one other thing that has to happen in order for use to get to that system and that is to give the individual more choice. If you are forever beholden to whatever your employer gives you as a choice in your healthcare matters, if you work for an awesome tech company, have very low co-pays, can utilize whatever you want, drive the cost up for everybody else, and not ever put hospitals and doctors into any kind of competition for value, for really driving value for the money that you're spending, again, none of the stuff will change. You need to have people vote for their feet. I do think the individual market did that in quite a good way. You saw the network designs change. You saw that people actually became more comfortable, despite the noise around it with higher deductibles, because they realize that's how you manage all the rest of your life. The more maintenance care that you want to take care of yourself, you pay the out of pocket, but you're covered against catastrophic events. So, payment systems have got to change to what's more value based care. The technology would change alongside that. In order for that to get unlocked, we have to get towards more individualization.

Hernandez: And then just quickly, because we are running out of time, how do you guys tackle privacy, given the fact that every couple of weeks there is another hack and cyber-attack?

Thompson: So, we like to redefine that word. Actually, we think it's overused. The internet is made for sharing. It's not made to keep things private. It's made to help people share. The absolute key, when you're thinking about that issue, is to be very clear in your terms and conditions what you mean by sharing. So, there's four ways that we think about that. Consensual sharing, right? People love that. That's an email. It's a Snapchat. That's an Instagram. That's me sharing my data with my mom or my mom sharing her data with me because I want to get better and I want to put social networking around my medical care. Great. That's consensual sharing. I'm totally in favor of it. In fact, that's what we enable. There's

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something else which has given sharing on the internet a very bad name. It's called clandestine sharing. That's when you download Angry Birds and they scrape all the data off your phone because their business model is to steal your identity. Lots of internet companies do that, and clandestine sharing is something we are explicit we will never do. We're not going to take your data and do anything with it that enables us to make money. That has nothing to do with you getting well. That's the second type of sharing.

The third type of sharing is what I'm going to call coercive sharing. That might be if an insurance company came and said tell us about Mrs. Smith and did she take her pills. The answer is no. Unless that person has consented to that data being shared, you can't have it. So, we're very clear about coercive sharing. The last piece of this is criminal sharing, when people steal your identity. That's very easy to deal with, and if you want to get evidence around how to deal with that, just look at financial services where it's essentially very largely a non-issue. If you think about stealing credit card data, complete credit card information is worth almost nothing because you can't do anything with it. It's relatively straightforward to figure out how to prevent criminal sharing. The absolute key are these two in the middle, which are clandestine and coercive, and companies need to be absolutely explicit with their customers about what they will and won't do.

Schlosser: For us, it's extremely simple. The only reason we use the data is to make sure that you get better healthcare. It's been built into the company's DNA from the beginning because we are so heavily regulated as an insurance company. We are beholden to HIPAA, and some various other kind of laws exactly govern what we can do with the data. I'll tell you one interesting story that gets to the point where we have to build our products around how we want to make sure that you can best communicate with us. For example, this is actually a tip for the audience as well. If you ever were to get sick, then your wife, for example, would not be able to talk to your insurance company about your medical records unless you have specifically signed a HIPAA release form, which is what very few people do. And so, in our case we actually have that conversation now. It took us a couple of months and years to get there with a member from the very beginning to make sure is there someone in your life who you are willing to share this information with if something were to happen to you? And then, make sure that that member signs a HIPAA release form, it can be on line, everything else, but that's how seriously we take it. It's part of the DNA of the company and extremely important.

Hernandez: Questions?

Audience member 1: Hi, Aaron Miller, Branch. I thank you for the presentation. When you say the government should not pay for healthcare, what do you mean? Like Medicare and Medicaid? Or maybe I misunderstood the comment.

Thompson: Well, what I mean by that really is the big problem in the United States is the government's set prices. So, you can create systems in which the government is providing a safety net or creating resources that consumers can spend, but the real problem here is that we have a very political process by which medical services, medical products get priced by the

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government, and that's a huge problem. If you just go outside of healthcare for a second, you can do the math on this. Governments are willing to spend, by far, the most on any product or service. Corporations come second, and then consumers are by far the best of it. When you look at consumer-driven markets, you tend to get lower prices and higher quality. That's just a fact of life. And so, the key here is to get the US government out of the business of setting prices, particularly in the United States because they're so high.

Hernandez: Anybody else?

Audience Member 2: The problem with that is deeply political, for the sense. The pharmaceutical industry has set up with Medicaid, I believe, to not allow any negotiation in prices between Medicaid and the pharmaceutical industries. So a lot of it's being set by lobbyists and the political system.

Thompson: That's right. Exactly.

Audience Member 2: So how would you suggest we change that?

Thompson: There are many other ways in which you can figure out how to set prices in markets that involve legitimate pricing signals, for example, insurance companies, or providers, or other people being able to decide what they want to pay for a product or service, without that price being mandated or set by a government enterprise.

Hernandez: And then one final question back there.

Audience Member 3: Yes, I'm just curious. You're taking, in some cases, generic products and putting them in the digital situation. So how do you price those drugs when you're adding the Proteus component to it?

Thompson: So when we deliver a service, we don't actually price the drugs at all. What we price is based upon the service that we deliver. And so, in a digital medicine service, you're going to essentially buy access to a panel of medicines that treat the patient in the category that you're dealing with, you're going to get software that supports the patient on their mobile device, you're going to get software, or a dashboard, that supports the physician and the care team, and you're going to get analytics that go into the health system so you can see how to manage risk. You price that based upon the overall value of the service offering. We build health economic models with our customers where we demonstrate to them, for example, the improvement in health outcomes, the reduction in ED visits, and the reduction in hospital stays. That you can price, and that's what we do.